



*A World of Marine Equipment*

2025



# SHOCKWAVE

## MARINE SUSPENSION SEATING

RECREATIONAL PRODUCTS

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FEEL BETTER. TRAVEL FARTHER.

veratron   
MARINE

# VMH FLEX

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# HIGHLIGHTS



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The descriptions and guidelines shown in this catalog should be used as general reference only.  
For any further information please contact our Technical Service.*



# ULTRAFLEX GROUP

## 90 years

1935-2025



1935 - 2025

Ultraflex Group has 90 years of experience in manufacturing and distributing the highest quality and most innovative products. The Ultraflex Group affiliate Companies that design and produce widely known equipments in the marine, industrial, architectural and alternative energy fields.

### Management System

The Ultraflex and Uflex Management Systems are certified in conformity with the UNI EN ISO 9001:2015 and UNI EN ISO 14001:2015 rules and involve all the company resources and processes starting from the design, in order to:

- Define and comply with the customer requirements
- Set up the actions to maintain and improve the quality standards constantly
- Pursue a continuous process improvement to meet the market needs, through research, innovation and developing products and processes.
- Maintain and verify conformity with ABYC requirements.
- Pursuing environmental protection, including pollution and continuous improvement aimed at environmental performance

Constantly test the products to verify their conformity with the 2013/53 EU and ABYC (American Boat and Yacht Council) requirements.



Steering and control systems for pleasure boats



Manufacturing of steering wheels and distribution of technical marine accessories



Systems and accessories for alternative energy applications



### ULTRAFLEX CONTROL SYSTEMS

Window and skylight remote controls. Building automation



Mechanical remote controls in the industrial field



### UFLEX USA

Steering and control systems for pleasure boats





# UES<sup>®</sup>

ULTRAFLEX CONTROL SYSTEMS Srl



# AV SERIES ELECTRICAL HATCH LIFTERS

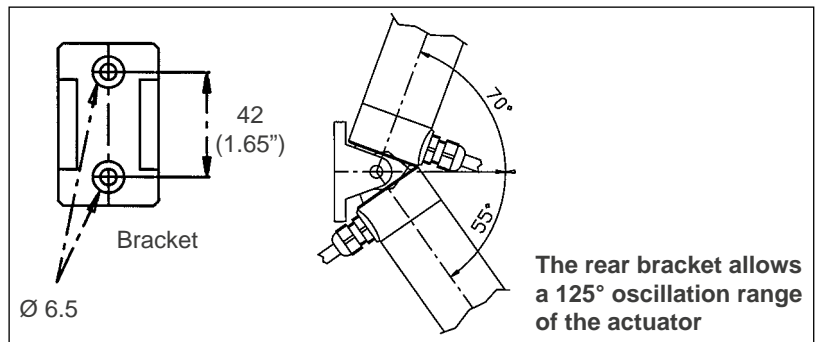
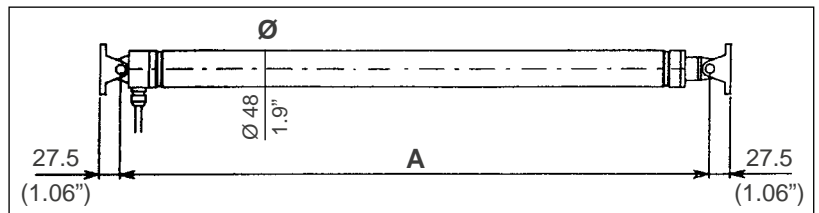


The AV hatch lifters are electromechanical products, especially designed for marine use on pleasure boats. They allow full or partial opening and closing of heavy engine hatches, peak tanks, hatch beams etc. By activating a switch, it is possible to lift the hatch to any desired position from closed to full open; an internal self-locking mechanism will maintain the position preventing any accidental hatch closing. In case of a power failure an emergency device allows for manual opening.

## TECHNICAL FEATURES

- According to the load required, the AV hatch lifter can be mounted individually, or in twin cylinder installation for heavier loads.
- **Maximum load for single installations: 1200N (120 kg - 265 lbs)**
- **Maximum load for dual installations: 2400N (240 kg - 529 lbs)**
- Maximum load is recommended not to be exceeded.
- Supplied with all mounting hardware.
- Stainless steel telescopic ram for manual operation in case of emergency.
- Circuit breaker to stop accidental overloading of the system and electronic stop at closed or full open position.
- IP 65 protection rated
- Speed: 25mm/sec no load applied, 17 mm/sec maximum load
- Current absorption in single installations: 10A at 12V, 5A at 24V
- Current absorption in dual installations: 20A at 12V, 10A at 24V
- AV 12VDC models are Ignition Protected. UL1500 - ISO8846 approved.

NOTE: Available, on request, the push/pull actuator version. This option is not compatible with the manual emergency opening device.



| MODEL   | PART No. | VOLTS  | STROKE       | LENGTH A<br>(FULL CLOSED ACTUATOR) | EXTERNAL DIA. |
|---------|----------|--------|--------------|------------------------------------|---------------|
| AV 3012 | 40671C   | 12V DC | 300 mm (12") | 677 mm (26.6")                     | 48 mm (1.9")  |
| AV 3024 | 40672E   | 24V DC | 300 mm (12") | 677 mm (26.6")                     | 48 mm (1.9")  |
| AV 4512 | 40582D   | 12V DC | 450 mm (18") | 827 mm (32.5")                     | 48 mm (1.9")  |
| AV 4524 | 40583F   | 24V DC | 450 mm (18") | 827 mm (32.5")                     | 48 mm (1.9")  |
| AV 6012 | 40584H   | 12V DC | 600 mm (24") | 977 mm (38.4")                     | 48 mm (1.9")  |
| AV 6024 | 40585K   | 24V DC | 600 mm (24") | 977 mm (38.4")                     | 48 mm (1.9")  |

## SYSTEM COMPONENTS

- RB12** - 40738Y Relay box 12V
  - RB24** - 40742C Relay box 24V
- It contains the relays needed for cycle reversion. One box works with 1 or 2 lifters
- SW20** - 69116J
- 1 x 3 way single pole momentary switch
- BR/AV-** 80382I Spare fixing bracket



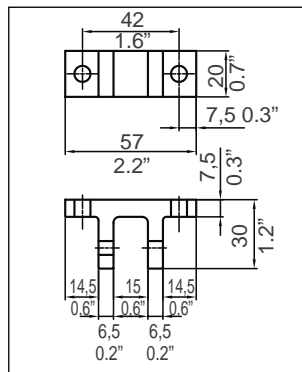
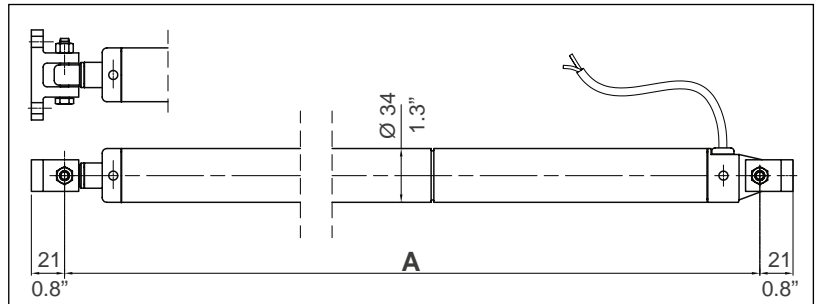
SW20



RB12

## TECHNICAL FEATURES

- **Single installation only**
- **Pull and push maximum load: 650N (65 kg - 144 lbs)**
- Pull and push maximum load is recommended not to be exceeded.
- Supplied with all mounting hardware.
- Aluminium ram.
- Circuit breaker to stop accidental overloading of the system and electronic stop at closed or full open position.
- IP 65 protection rated
- Speed:
  - 12V model:
    - 5 mm/sec no load applied
    - 4 mm/sec maximum load
  - 24V model:
    - 8 mm/sec no load applied
    - 6 mm/sec maximum load
- Current absorption: 2A at 12V, 1A at 24V



**Highest installation flexibility: 180° oscillation range**

| MODEL        | PART No. | VOLTS  | STROKE       | LENGTH A<br>(FULL CLOSED ACTUATOR) | EXTERNAL DIA. |
|--------------|----------|--------|--------------|------------------------------------|---------------|
| ULYSSES 1812 | 40924Q   | 12V DC | 180 mm (7")  | 520 mm (20.5")                     | 34 mm (1.3")  |
| ULYSSES 1824 | 40926S   | 24V DC | 180 mm (7")  | 520 mm (20.5")                     | 34 mm (1.3")  |
| ULYSSES 3012 | 40925R   | 12V DC | 300 mm (12") | 640 mm (25.2")                     | 34 mm (1.3")  |
| ULYSSES 3024 | 40927T   | 24V DC | 300 mm (12") | 640 mm (25.2")                     | 34 mm (1.3")  |

## SYSTEM COMPONENTS

**SW20** - 69116J

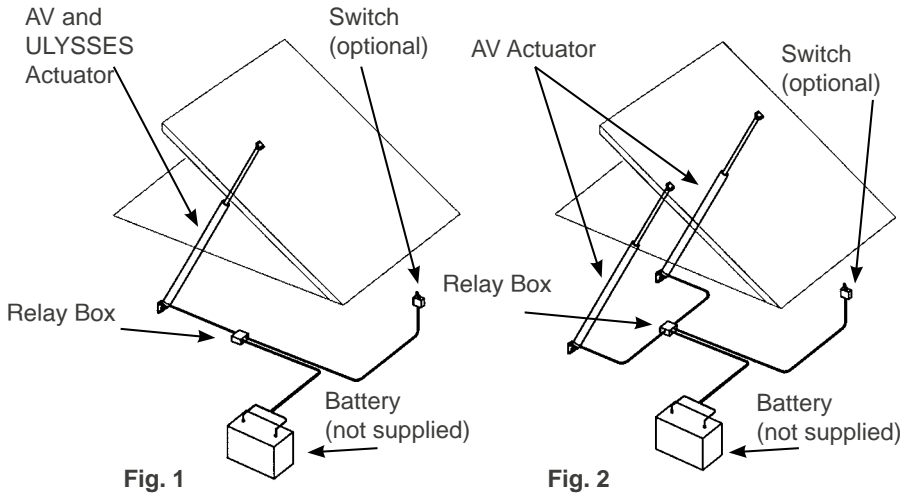
1 x 3 way single pole momentary switch

**BR/UL** - 35697P

Spare fixing bracket



SW20



## COMPONENTS DESCRIPTION

### AV Series Hatch Lifter

- n° 1 AV actuator for single installation (Fig.1)
- n° 2 AV actuators for dual installation (Fig.2)
- External diameter: 48 mm (1.9" )
- Maximum oscillation range: 125°

### ULYSSES Series actuators

- n° 1 Ulysses actuator (Fig.1)
- **no dual installatio**
- External diameter: 34 mm (1.3")
- Maximum oscillation range: 180°

### Power supply cable:

- AV and ULYSSES actuators are supplied with 5 ft (1,5 m) of electrical cable
- Warning: in case of longer cable length required, do not substitute the existing harness, but make a junction following the instructions supplied with the product.

## INSTALLATION

- The following equation will help you to calculate the maximum strength (Fmax) required from the hatch lifter to open your hatch, knowing the dimensions and weight of the hatch and the position of the mounting brackets.

$$F_{max} = \frac{P}{2} \times \frac{L}{b} \times \frac{X}{a} \times K^*$$

P= hatch weight in N  
L/b/X/a= mm

### Maximum load (Fmax):

- **AV Series actuators:**  
1200 N (120 kg - 265 lbs) single installation, pushing only 2400 N (240 kg - 530 lbs) dual installation pushing only

**Note:** when the load exceeds 2400 N (240 kg - 530 lbs), it is possible to install more then two AV actuators. Please, contact our Technical Service for the proper electrical configuration

- **ULYSSES actuators:**  
650 N (65 kg - 144 lbs) single installation only, both pull and push

**Relay Box:** 12-24V

**Two way push-button** with central off position (optional)

**Fuse** (not supplied)

**Battery** (not supplied)

\*Values of K with ratio included between approx. 0 and 0.5 (if ratio > 0.5 use K=1)

|     |     | b/d  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|     |     | 0.1  | 0.15 | 0.2  | 0.3  | 0.4  | 0.5  | 1.0  | 2.0  | 3.0  | 4.0  | 5.0  | 6.0  | 7.0  | 8.0  | 9.0  | 10.0 |
| c/a | 0.0 | 1.09 | 1.14 | 1.17 | 1.24 | 1.30 | 1.34 | 1.41 | 1.34 | 1.26 | 1.21 | 1.17 | 1.15 | 1.13 | 1.11 | 1.10 | 1.09 |
|     | 0.1 | 1.00 | 1.01 | 1.04 | 1.09 | 1.13 | 1.16 | 1.23 | 1.16 | 1.10 | 1.06 | 1.04 | 1.02 | 1.01 | 1.00 | 1.00 | 1.00 |
|     | 0.2 | 1.00 | 1.00 | 1.00 | 1.03 | 1.06 | 1.10 | 1.16 | 1.10 | 1.04 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
|     | 0.3 | 1.00 | 1.00 | 1.00 | 1.00 | 1.03 | 1.06 | 1.12 | 1.06 | 1.26 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
|     | 0.4 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.03 | 1.10 | 1.03 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
|     | 0.5 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 1.08 | 1.01 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

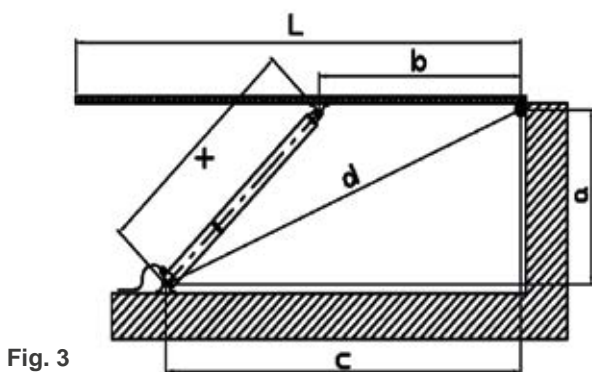


Fig. 3

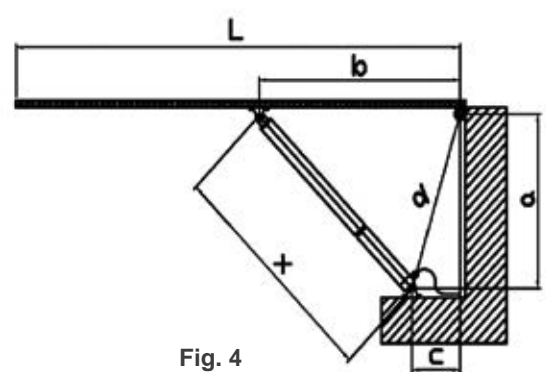
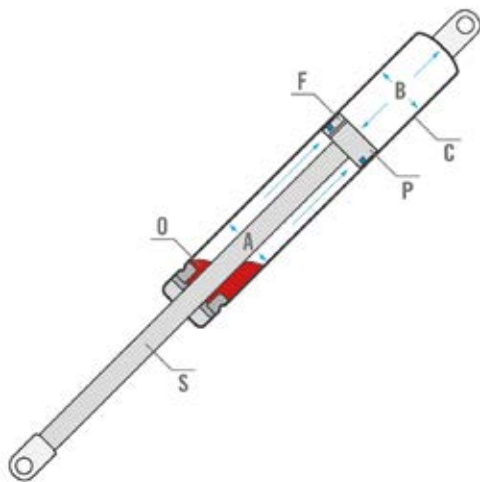


Fig. 4

# **UFLEX**





A=upper part  
 B=below the piston  
 C=cylinder

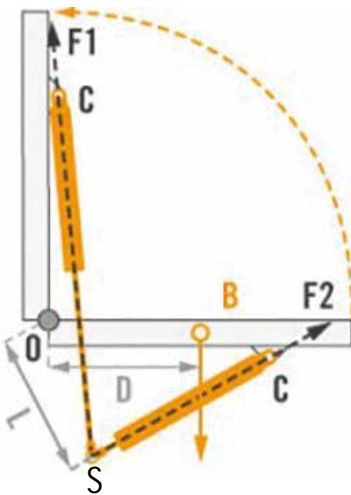
P=piston  
 S=piston rod  
 O=oil  
 F=channels

Gas springs are pneumatic force accumulators mainly used to lift, hold open and smoothly lower hatches, covers, lids and doors. A gas spring, not equipped with a lock device, functions as follows: the pressure of the compressed nitrogen gas contained in a tube provides the extension force of the spring as the result of the difference between the internal tube pressure and the atmospheric pressure. The gas flows from the highest to the lowest pressure compartment of the tube through a self-cleaning orifice in the piston rod causing the spring rod to telescope out of the pressure tube.

Each tube incorporates a small quantity of oil that provides lubrication of the seals and of the piston rod and, at the same time, a damping medium to control the opening speed of the cover or hatch.

## INSTALLATION

Formula to calculate the force of a gas spring



$$F1 = [(M \times D) : L] : NM$$

**F1**=Force of the spring which opposes the weight of the object to be moved; in this case, F1 expressed in kg and have to be transformed in Newton multiplying the value obtained by 9.81.

**M**=Weight in kg of the object to be lifted.

**D**=Distance in mm measured horizontally between the center of gravity B and the point of rotation O.

**L**=Length in mm of the gas spring working arm; most of the time it is equal to the stroke of the gas spring and in case cannot be greater.

**NM**=Number of gas springs to be used in the application (1, 2 or more).

## WARNINGS

- The rod surface should be protected against physical or chemical damages.
- Lateral loads should be carefully avoided.
- Attachment pivots should be well aligned.
- Springs should be mounted according to previous installation instructions ensuring correct orientation.
- Tensile forces exceeding the output force as indicated for each single spring should be avoided.
- Working temperature – 30° C and + 80°C.



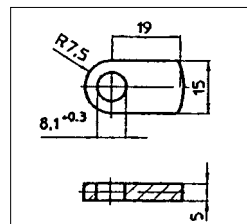
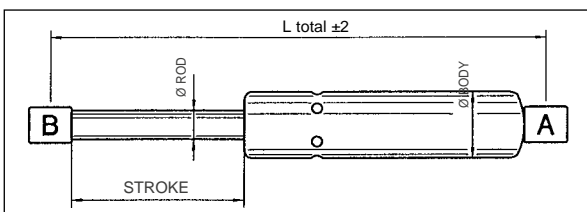


Nitro-protected steel rod and marine corrosion resistant black painted cylinder

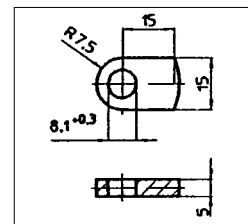
| MODEL          | TOTAL LENGTH<br>mm (") | STROKE<br>mm (") | OUTPUT FORCE<br>kg (lbs) | ROD DIA.<br>mm (") | END FITTING    |                | OEM PACKA-<br>GING<br>PART No. | AFTER-<br>MARKET<br>PACKAGING<br>PART No. |
|----------------|------------------------|------------------|--------------------------|--------------------|----------------|----------------|--------------------------------|---|
|                |                        |                  |                          |                    | SIDE A<br>TYPE | SIDE B<br>TYPE |                                |   |
| <b>U95-5</b>   | 257 (10.1)             | 95 (3.7)         | 5 (11.0)                 | 8 (0.3)            | 1              | 2              | 64312G                         | 64412L                                    |
| <b>U95-10</b>  | 257 (10.1)             | 95 (3.7)         | 10 (22.0)                | 8 (0.3)            | 1              | 2              | 64313J                         | 64413N                                    |
| <b>U95-20</b>  | 257 (10.1)             | 95 (3.7)         | 20 (44.0)                | 8 (0.3)            | 1              | 2              | 64314L                         | 64414R                                    |
| <b>U140-10</b> | 365 (14.4)             | 142 (5.6)        | 10 (22.0)                | 8 (0.3)            | 1              | 1              | 64315N                         | 64415T                                    |
| <b>U140-20</b> | 365 (14.4)             | 142 (5.6)        | 20 (44.0)                | 8 (0.3)            | 1              | 1              | 64316R                         | 64416V                                    |
| <b>U140-30</b> | 365 (14.4)             | 142 (5.6)        | 30 (66.1)                | 8 (0.3)            | 1              | 1              | 64317T                         | 64417X                                    |
| <b>U235-10</b> | 550 (21.6)             | 234 (9.2)        | 10 (22.0)                | 8 (0.3)            | 1              | 1              | 64318V                         | 64418Z                                    |
| <b>U235-20</b> | 550 (21.6)             | 234 (9.2)        | 20 (44.0)                | 8 (0.3)            | 1              | 1              | 64319X                         | 64419B                                    |
| <b>U235-30</b> | 550 (21.6)             | 234 (9.2)        | 30 (66.1)                | 8 (0.3)            | 1              | 1              | 64320F                         | 64420K                                    |
| <b>U235-40</b> | 550 (21.6)             | 234 (9.2)        | 40 (88.1)                | 8 (0.3)            | 1              | 1              | 64321H                         | 64421M                                    |
| <b>U260-20</b> | 600 (23.6)             | 262 (10.3)       | 20 (44.0)                | 8 (0.3)            | 2              | 3              | 64322K                         | 64422P                                    |
| <b>U260-30</b> | 600 (23.6)             | 262 (10.3)       | 30 (66.1)                | 8 (0.3)            | 2              | 3              | 64323M                         | 64423S                                    |
| <b>U260-40</b> | 600 (23.6)             | 262 (10.3)       | 40 (88.1)                | 8 (0.3)            | 2              | 3              | 64324P                         | 64424U                                    |
| <b>U300-30</b> | 683 (26.8)             | 300 (11.8)       | 30 (66.1)                | 10 (0.4)           | 2              | 2              | 65297V                         | 65300E                                    |
| <b>U300-40</b> | 683 (26.8)             | 300 (11.8)       | 40 (88.1)                | 10 (0.4)           | 2              | 2              | 65298X                         | 65301G                                    |
| <b>U300-50</b> | 683 (26.8)             | 300 (11.8)       | 50 (110.2)               | 10 (0.4)           | 2              | 2              | 65299Z                         | 65302J                                    |

**NOTE:** The total length is measured from center pivot line to end fitting at fully extended spring.

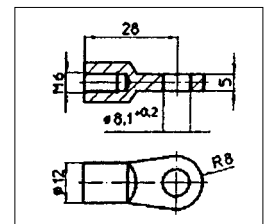
## DIMENSIONS AND END FITTINGS



**TYPE 1**  
Welded Eyelet



**TYPE 2**  
Welded Eyelet



**TYPE 3**  
Threaded Eyelet

## APPLICATIONS

Uflex provides gas springs in a variety of pressures to suit various installation needs, nevertheless it is the customer who decides which is the most convenient selection for a specific application. For more detailed information, please contact our Technical Service.

## PACKAGING

UFLEX gas springs are supplied in **OEM** or in **Aftermarket packaging**. Please specify when ordering.



# BLACK PAINTED GAS SPRINGS UB SERIES

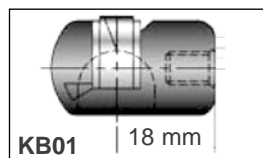
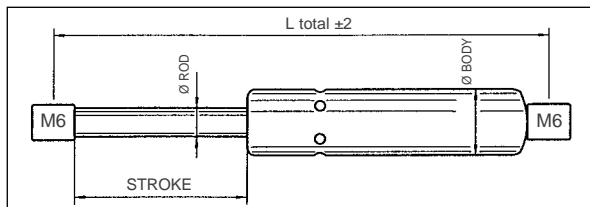


Nitro-protected steel rod and marine corrosion resistant black painted cylinder. Thermoplastic ball bearing end fittings to be threaded on.

| MODEL                              | TOTAL LENGTH             | STROKE                 | OUTPUT FORCE           | ROD DIA.           | OEM PACKAGING      | AFTERMARKET PACKAGING |
|------------------------------------|--------------------------|------------------------|------------------------|--------------------|--------------------|-----------------------|
|                                    | mm (")                   |                        |                        |                    | mm (")             | kg (lbs)              |
| <b>UB120-30</b>                    | 315 (12.4)               | 120 (4.7)              | 30 (66.1)              | 6 (0.2)            | 66425GA            | 66448VA               |
| <b>UB150-20</b><br><b>UB150-30</b> | 375 (14.7)<br>375 (14.7) | 150 (5.9)<br>150 (5.9) | 20 (44.0)<br>30 (66.1) | 6 (0.2)<br>6 (0.2) | 66427LA<br>66428NA | 66450FA<br>66451H     |
| <b>UB180-30</b>                    | 445 (17.5)               | 180 (7.0)              | 30 (66.1)              | 8 (0.3)            | 66431BA            | 66454PA               |

**NOTE:** The total length is measured from center pivot line to end fitting at fully extended spring.

## DIMENSIONS AND END FITTINGS



Kit **KB01** - 66510X: 2 ball bearing end fittings to be threaded on the gas spring

**NOTE:** End fittings to be ordered separately

## APPLICATIONS

Uflex provides gas springs in a variety of pressures to suit various installation needs, nevertheless it is the customer who decides which is the most convenient selection for a specific application. For more detailed information, please contact our Technical Service.

## PACKAGING

UFLEX gas springs are supplied in **OEM** or in **Aftermarket packaging**. Please specify when ordering.



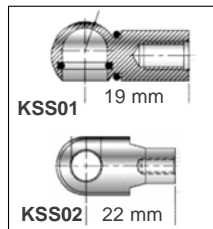
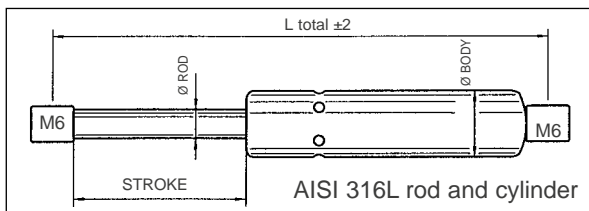




| MODEL     | TOTAL LENGTH | STROKE     | OUTPUT FORCE | ROD DIA. | OEM PACKAGING | AFTERMARKET PACKAGING |
|-----------|--------------|------------|--------------|----------|---------------|-----------------------|
|           | mm (")       | mm (")     | kg (lbs)     | mm (")   | Part No.      | Part No               |
| USS100-5  | 275 (10.8)   | 100 (3.9)  | 5 (11.0)     | 6 (0.2)  | 66465VA       | 66487FA               |
| USS100-10 | 275 (10.8)   | 100 (3.9)  | 10 (22.0)    | 6 (0.2)  | 66466XA       | 66488HA               |
| USS100-20 | 275 (10.8)   | 100 (3.9)  | 20 (44.0)    | 6 (0.2)  | 66467ZA       | 66489KA               |
| USS120-10 | 315 (12.4)   | 120 (4.7)  | 10 (22.0)    | 6 (0.2)  | 66468BA       | 66490UA               |
| USS120-20 | 315 (12.4)   | 120 (4.7)  | 20 (44.0)    | 6 (0.2)  | 66469DA       | 66491WA               |
| USS120-30 | 315 (12.4)   | 120 (4.7)  | 30 (66.1)    | 6 (0.2)  | 66470MA       | 66492YA               |
| USS150-10 | 375 (14.7)   | 150 (5.9)  | 10 (22.0)    | 6 (0.2)  | 66471PA       | 66493AA               |
| USS150-20 | 375 (14.7)   | 150 (5.9)  | 20 (44.0)    | 6 (0.2)  | 66472SA       | 66494CA               |
| USS150-30 | 375 (14.7)   | 150 (5.9)  | 30 (66.1)    | 6 (0.2)  | 66473UA       | 66495EA               |
| USS180-10 | 445 (17.5)   | 180 (7.0)  | 10 (22.0)    | 8 (0.3)  | 66474WA       | 66496GA               |
| USS180-20 | 445 (17.5)   | 180 (7.0)  | 20 (44.0)    | 8 (0.3)  | 66475YA       | 66497JA               |
| USS180-30 | 445 (17.5)   | 180 (7.0)  | 30 (66.1)    | 8 (0.3)  | 66476AA       | 66498LA               |
| USS220-5  | 525 (20.6)   | 220 (8.6)  | 5 (11.0)     | 8 (0.3)  | 22122PA       | 22589SA               |
| USS220-10 | 525 (20.6)   | 220 (8.6)  | 10 (22.0)    | 8 (0.3)  | 66477CA       | 66499NA               |
| USS220-20 | 525 (20.6)   | 220 (8.6)  | 20 (44.0)    | 8 (0.3)  | 66478EA       | 66500UA               |
| USS220-30 | 525 (20.6)   | 220 (8.6)  | 30 (66.1)    | 8 (0.3)  | 66479GA       | 66501WA               |
| USS220-40 | 525 (20.6)   | 220 (8.6)  | 40 (88.1)    | 8 (0.3)  | 66480RA       | 66502YA               |
| USS250-20 | 585 (23.0)   | 250 (9.8)  | 20 (44.0)    | 8 (0.3)  | 66481TA       | 66503AA               |
| USS250-30 | 585 (23.0)   | 250 (9.8)  | 30 (66.1)    | 8 (0.3)  | 66482VA       | 66504CA               |
| USS250-40 | 585 (23.0)   | 250 (9.8)  | 40 (88.1)    | 8 (0.3)  | 66483XA       | 66505EA               |
| USS300-20 | 700 (27.5)   | 300 (11.8) | 20 (44.0)    | 10 (0.4) | 68061EA       | 22529XA               |
| USS300-30 | 700 (27.5)   | 300 (11.8) | 30 (66.1)    | 10 (0.4) | 66484ZA       | 66506GA               |
| USS300-40 | 700 (27.5)   | 300 (11.8) | 40 (88.1)    | 10 (0.4) | 66485BA       | 66507JA               |
| USS300-50 | 700 (27.5)   | 300 (11.8) | 50 (110.2)   | 10 (0.4) | 66486DA       | 66508LA               |
| USS300-60 | 700 (27.5)   | 300 (11.8) | 60 (132.3)   | 10 (0.4) | 22517PA       | 22530TA               |

**NOTE:** The total length is measured from center pivot line to end fitting at fully extended spring. Further lengths, strokes and output forces available on request (50 pieces each size minimum order).

## DIMENSIONS AND END FITTINGS



Kit **KSS01** - 66514F: 2 stainless steel ball bearing end fittings to be threaded on the gas spring

Kit **KSS02** - 69530V: 2 stainless steel eyelet end fittings to be threaded on the gas spring

**NOTE:** end fittings to be ordered separately

## APPLICATIONS

Uflex provides gas springs in a variety of pressures to suit various installation needs, nevertheless it is the customer who decides which is the most convenient selection for a specific application. For more detailed information, please contact our Technical Service.

## PACKAGING

UFLEX gas springs are supplied in **OEM** or in **Aftermarket packaging**. Please specify when ordering.



# GAS SPRINGS MOUNTING BRACKETS

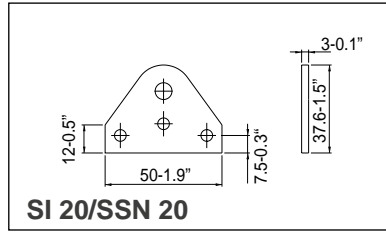


## POLISHED STAINLESS STEEL BRACKETS AND STUDS

### Flat bracket:

SI 20 - 64327W

SSN 20 - 65289W - With self-locking nuts



SI 20/SSN 20



SI 20

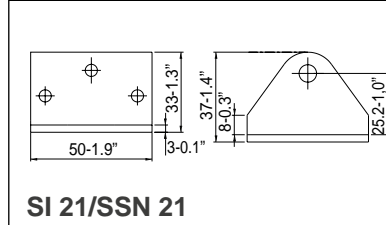


SSN 20

### Square bent bracket with forward attachment point

SI 21 - 64328Y

SSN 21 - 65290E - With self-locking nuts



SI 21/SSN 21



SI 21

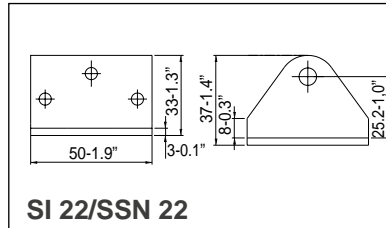


SSN 21

### Square bent bracket with reverse attachment point

SI 22 - 64329A

SSN 22 - 65291G - With self-locking nuts



SI 22/SSN 22



SI 22

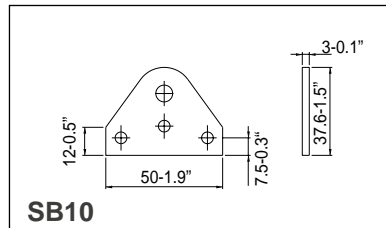


SSN 22

## POLISHED STAINLESS STEEL BRACKETS AND STUDS TO CARRY BALL BEARING END FITTINGS

### Flat bracket:

SB 10 - 66540G



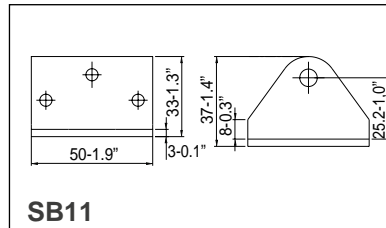
SB10



SB10

### Square bent bracket with forward attachment point

SB 11 - 66541J



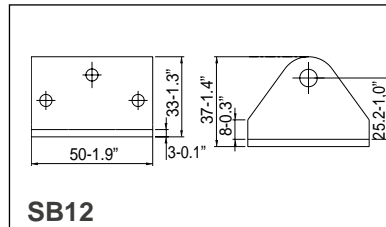
SB11



SB11

### Square bent bracket with reverse attachment point

SB 12 - 66542L

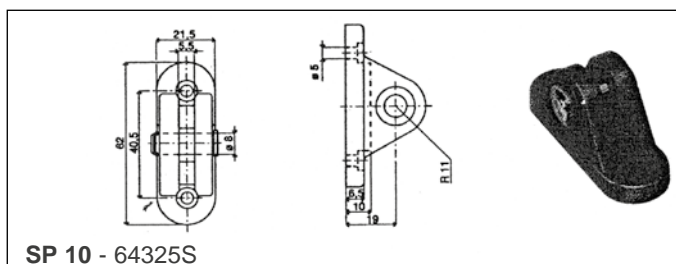


SB12

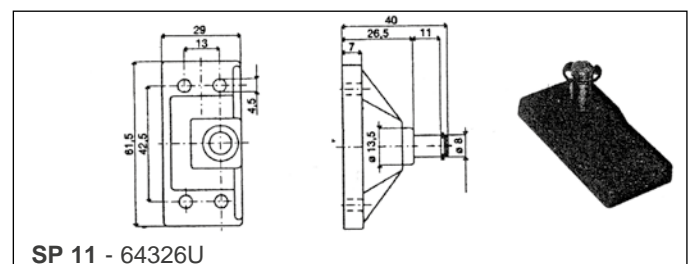


SB12

## BLACK THERMOPLASTIC BRACKETS WITH ZINC PLATED STEEL STUDS



SP 10 - 64325S



SP 11 - 64326U

# ***SHOCKWAVE***

***MARINE SUSPENSION SEATING***



The Shockwave S5 Sentinel suspension base comes with a 100mm travel Shockwave FOX Float H2O air-sprung shock. It is easily and quickly installed in virtually any boat and can be mounted on a riser box or a short, stocky pedestal with minimal effort. The maximum occupant weight for the S5 Sentinel suspension base is 113 to 136 kg depending on speed and sea conditions.

## FEATURES

- Surge protection: suspension travel is 100mm vertical and 38mm forward mitigating deceleration from wave impact
- Fully adjustable SHOCKWAVE FOX FLOAT H2O shock absorber for all payloads and sea conditions
- Superior lateral stability with new 4-link design
- Corrosion resistant: A360 marine grade aluminum, anodized finish, powder coating, nylon isolators between all non-similar metals.
- Stable 8 pivot design for higher loads and a smoother ride
- 316 stainless steel hardware
- High life cycle IGUS bushings

## BENEFITS

- Can be paired with almost any seat with a common bolt pattern
- Easy to install
- Adjustable compression and rebound rate
- Minimal parts count and simple construction
- Designed and manufactured in Canada



**TRAVEL**  
**100MM** 

S5 Sentinel Suspension Base | White | 25742N

A Shockwave high pressure pump is required to operate the Sentinel suspension base.



Shockwave Shock Pump | 25753U



S5 Sentinel Suspension Base | Black | 25741L





### COMMANDER SEAT — MID-BACK

Designed to pair perfectly with the S5 Sentinel suspension base, the Commander is a lightweight, robust boat seat that comes equipped with folding armrests, a storage pocket, machined aluminum seat frames, fiberglass seat backs, closed-cell foam cushions and marine grade vinyl.

Black: 25743R • White: 25745V • Heavy-duty: 25744T

### COMMANDER SEAT — HIGH-BACK

This seat is perfect for long days on the water when neck and head support is preferred. Custom upholstery colors can be ordered for both the mid-back and the high-back seat.

Black: 25746X

### S5 JOCKEY SUSPENSION SEAT

The S5 Jockey is one of our most compact solutions and is ideal for refits and RIBs. It offers solid performance in an affordable, lightweight and compact package. The S5 Jockey is outfitted with an integrated suspension and seat frame to minimize weight. Equipped with a 100 mm FOX Float H2O air sprung shock, it features on-the-fly adjustments for firmness and rebound rate.

- Designed for comfort and durability in outdoor and saltwater conditions
- Seat cushions are made with closed cell foam and heavy-duty black fabric, well suited to recreational RIB or commercial applications.
- Custom fabric can be special ordered
- Easy to install
- Optional front & rear grab rails available
- This seat needs to be mounted to a riser box to provide the height needed for a comfortable ride.

Custom aluminum riser box can be special ordered.

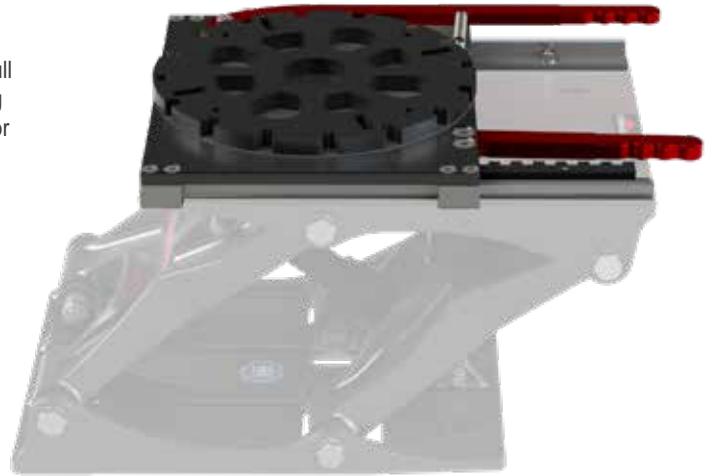


S5 Jockey Seat | 25747Z | Shown with optional front grab rail



**SLIDE 25750M**

Our purpose-built slide offers a full 127mm of fore-aft travel, allowing for comfortable seating options for a wide variety of occupants and users. Our slide pairs perfectly with the S5 Sentinel and the Commander seat and offers a slim 38mm profile.



**SWIVEL 25751P**

This robust 360-degree swivel is designed to pair with the S5 Sentinel and the Commander seat. A positive lock engages every 22.5° (16 positions).

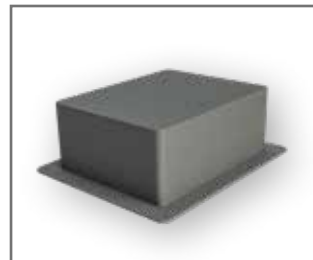
**SWIVEL SLIDE 25752S**

This swivel slide system has 127mm of fore-aft travel and features premium igus track and cars for smooth operation. The 360-degree swivel has a positive lock that engages every 22.5° (16 positions).



**SHOCK PUMP 25753U**

A Shockwave shock pump is required to operate the S5 Sentinel. The high-pressure shock pump features an integrated pressure gauge and bleed valve for simple adjustment with a maximum inflation pressure of 350 psi (24 Bar).



**RISER BOXES**

**15cm: 25761T**

**23cm: 25762V**

Shockwave offers riser boxes for customers needing additional height below their seat.



**BULKHEAD MOUNT ADJUSTABLE FOOTREST 25757C**

Our height adjustable folding footrest has 15cm of vertical travel and is foot operated for ease of use. It offers a stable platform 43cm wide and is designed to be bulkhead mounted on a console.



**127X305mm SEAT ADAPTER KIT 25755Y**

The Adapter Kit allows users with non-Shockwave brand seats that have a 127x305mm bolt pattern to fit to Shockwave Swivels and Slides. The Adapter Kit accommodates both upward and downward bolt patterns.



**CUP HOLDER WITH ALUMINUM BRACKET 25754W**

Shockwave offers an optional cup holder that can be attached to either side of the armrest of the Commander seat.



**S5 JOCKEY GRAB RAILS**

**FRONT: 25748B**

**REAR: 25749D**

Shockwave offers both a front and a rear grab rail for the S5 Jockey seat.

The Shockwave S2 and S3 seats provide marine suspension for military, commercial and recreational markets. With several different options, each seat allows for multiple configurations depending on what is required for your boat. Manufactured in Canada with high quality materials, these premium seats are designed with function in mind to meet your boating needs.

- Available in 152mm and 203mm travel
- Robust military-grade components
- Multiple configurations and options
- Custom fabric available



S2 Drop-Down Bulkhead Mount  
Available on request



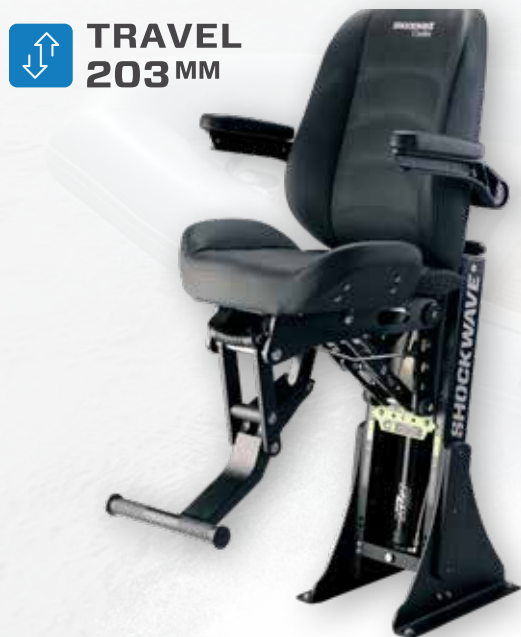
**S2**  
TRAVEL  
152 MM



S2 Flip Bolster Seat  
Available on request

**S3**

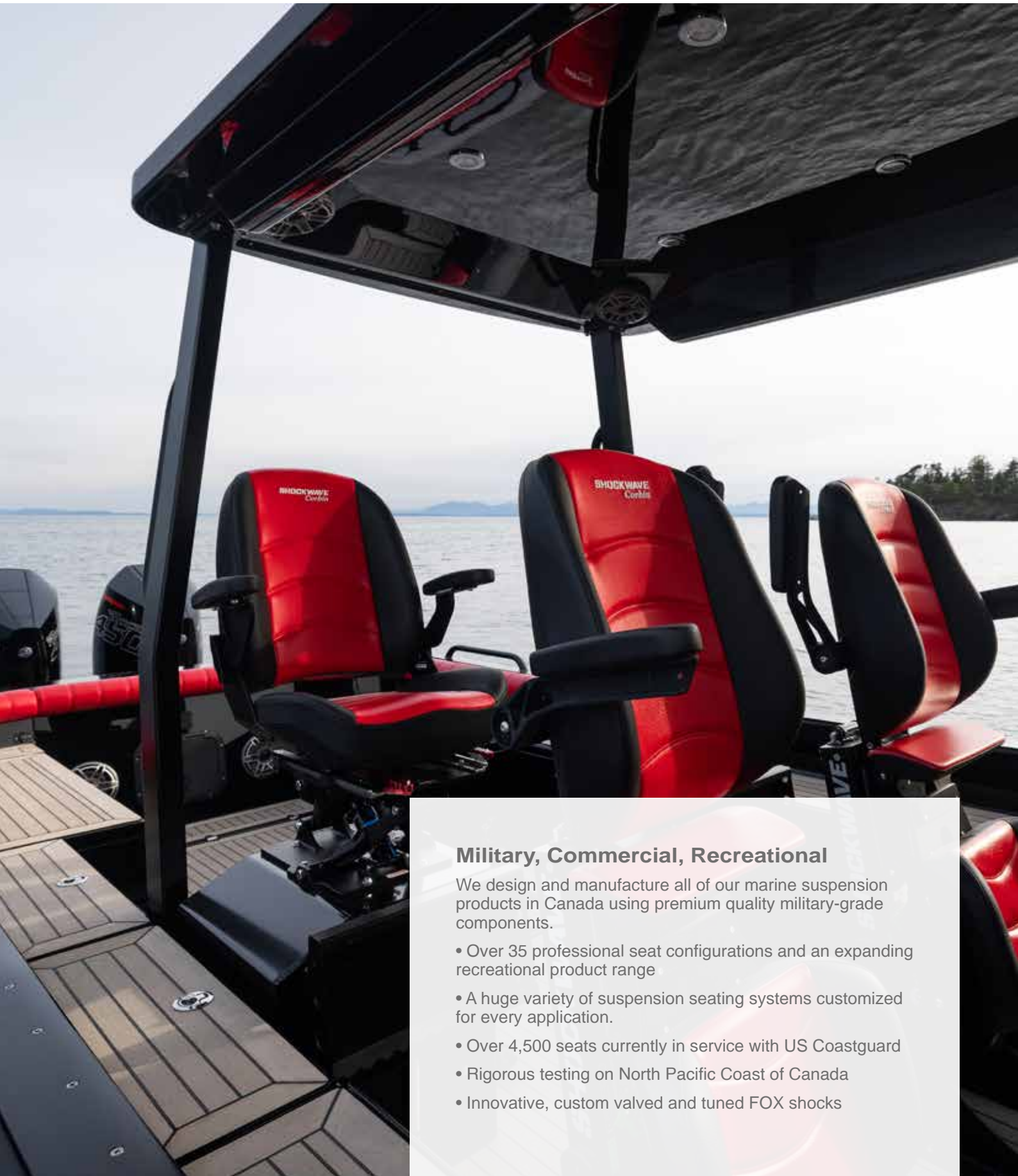
TRAVEL  
203 MM



S3 Drop-Down Bolster Seat  
(Shown with optional footrest in suspension)  
Mid-back: SW-S3-T1202-FF2  
High-back: SW-S3-T1302-FF2



Zodiac Hurricane, CZ12



### **Military, Commercial, Recreational**

We design and manufacture all of our marine suspension products in Canada using premium quality military-grade components.

- Over 35 professional seat configurations and an expanding recreational product range
- A huge variety of suspension seating systems customized for every application.
- Over 4,500 seats currently in service with US Coastguard
- Rigorous testing on North Pacific Coast of Canada
- Innovative, custom valved and tuned FOX shocks



# UFLEX



## TRIM TABS - INNOVATIVE FINGERTIP JOYSTICK CONTROL

Boats often become unbalanced to port or starboard due to wind, sea conditions, and weight transfer within the boat.

The innovative joystick by Uflex takes all the guesswork out of realigning the boat. A simple push of the joystick lever in the opposite direction of the "lean" of the boat is all you need to do.

Gone are the days of having to think about the current positions of the tabs and then push two rocker switches, hoping that you have the correct sequence, i.e. port up and starboard down or vice versa.

The Uflex joystick let's you drive like a pro!

- Makes adjusting the position of the boat more intuitive than traditional rocker switches
- Both trim actuators move simultaneously in opposite directions when pushing the joystick to port or to starboard

### REALIGNING LEAN TO PORT OR STARBOARD

Because the joystick simultaneously activates both tabs in opposite directions when adjusting for a lean to port or starboard, the realignment of the boat occurs very quickly, and with optimal tab positioning in terms of efficiency.



The unique profile of the Uflex planes offers greater efficiency and stern lift than traditional flat planes, often providing the opportunity to use a smaller size tab with the same performance of a larger flat plane.

- Keep the boat on plane with lower engine RPM

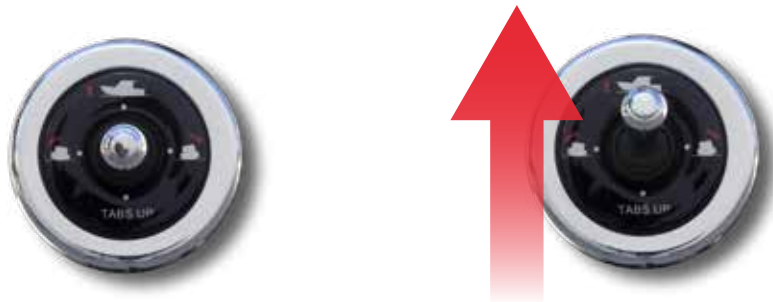
IP68-rated, triple sealed 12VDC electrical mechanical actuators provide:

- One-piece actuator housing reduces the possibility of water intrusion
- Exclusive rubber boot protects internal primary seals from sea growth and high-pressure water

- Planetary gear actuator gearbox provides high efficiency and low amp consumption
- Tempered stainless-steel trapezoidal screw gives peak resistance to impact and high-torque loads
- The actuator upper bracket is prepared to route electrical cable through the transom

### REALIGNING BOW LIFT

Pushing the joystick up or down moves the tabs in the same direction. This changes the attitude of the boat bow up or down.

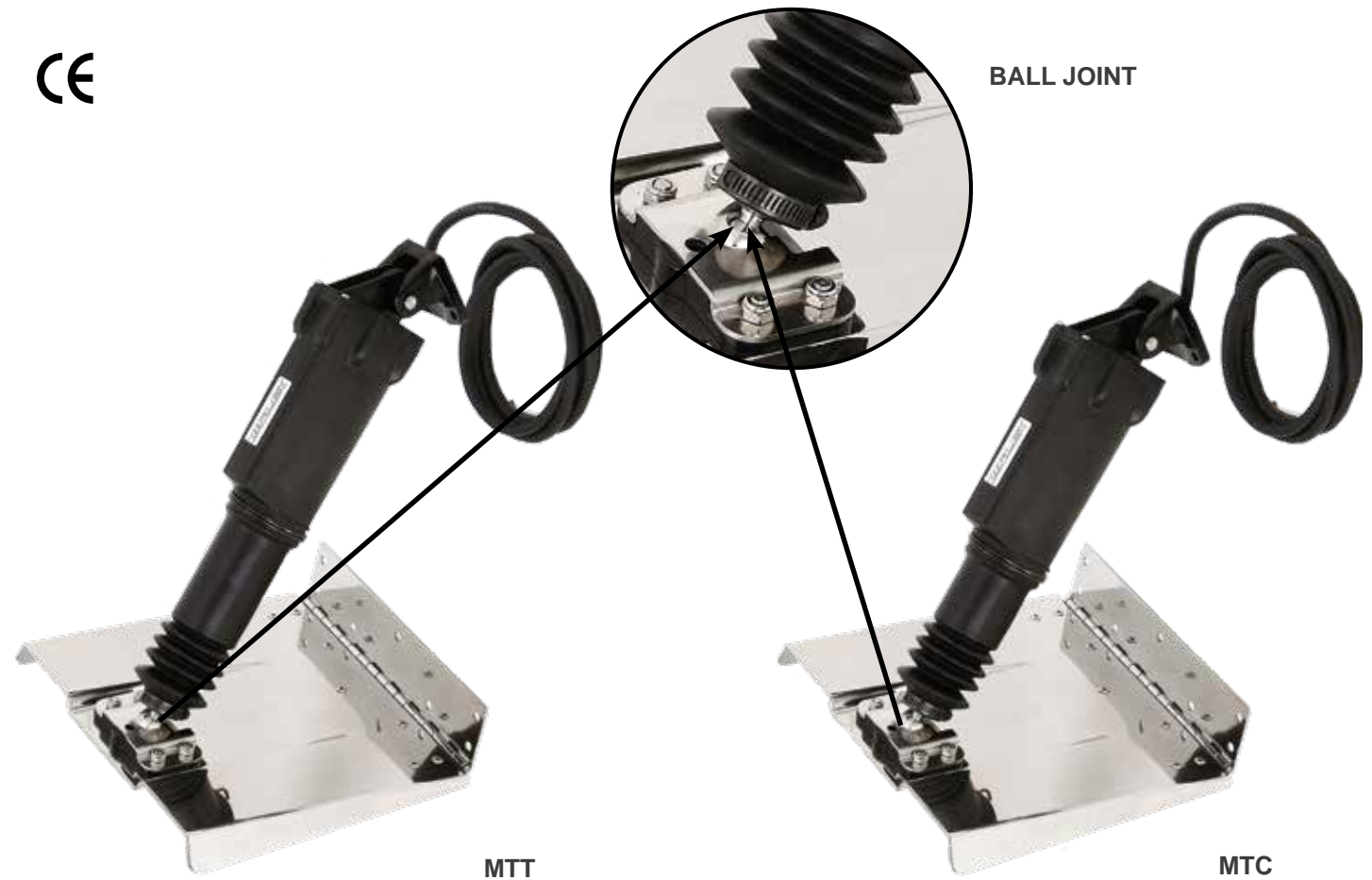


Improve fuel economy and passenger comfort with Uflex electromechanical trim tabs. Featuring electropolished stainless steel planes and low consumption, high speed, composite actuators, these tabs are built to last in the most demanding sea conditions. Uflex trim tabs have been specifically designed for easy installation using a quick connect bracket-actuator, requiring only one small hole per tab through the transom. The patented transom mounting bracket encapsulates the wiring to ensure protection against any wiring damage.

Uflex trim tab systems are available in 2 versions:

**MTT systems for standard installations**

**MTC systems for compact installations**

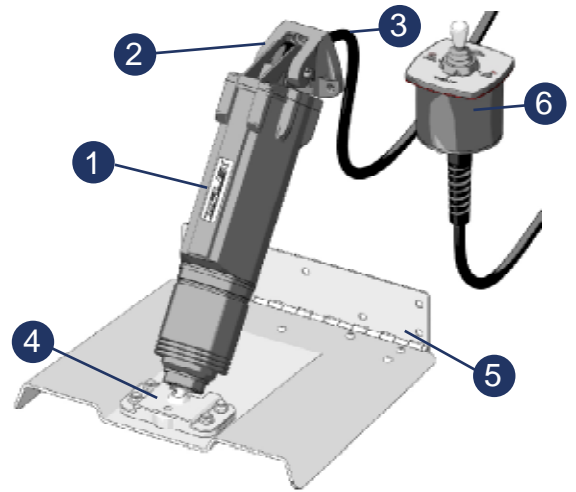


## MTT AND MTC SYSTEMS - FEATURES

- Tab bracket with **BALL JOINT**
- Operating system with hardened steel ballscrew, suitable to withstand high push loads.
- Prompt and easy control with the innovative use of a Joystick (patented)
- **AUTO-LINE UP**: automatic flap re-alignment function
- Completely sealed thermoplastic resin tab actuators: maximum protection guaranteed by dual seals and a rubber bellow (patented)
- Stainless steel rod and tabs
- The innovative profile of the tabs increases the efficiency of the system
- Non polished stainless steel tabs also available (standard tabs only).
- The stainless steel top surface of the tabs is mirror polished to give higher resistance to marine environment.
- Hole hinge design (patented) allows for precise retrofit replacement with Lenco® and Bennett® same size tabs
- Fully maintenance free
- Voltage: 12V DC
- Waterproof: IP68 protection
- CE Certification
- Meets with the EN 60945 standards

## TRIM TABS COMPONENTS

|   |                                   |
|---|-----------------------------------|
| 1 | Actuator                          |
| 2 | Connection bracket to the transom |
| 3 | Electrical cable (2 m - 6.6 ft)   |
| 4 | Connection bracket to the tab     |
| 5 | Tab + hinge                       |
| 6 | Joystick - Control system         |



## OPERATION

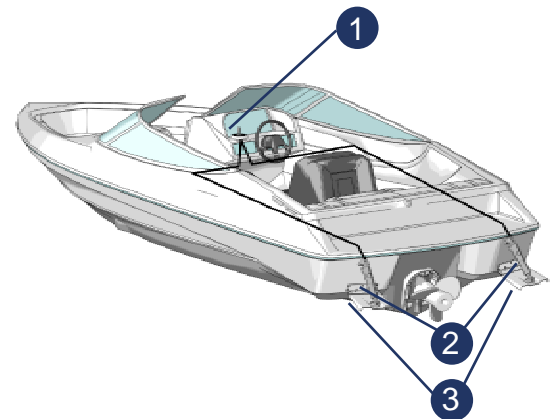
The **joystick** allows an easy use of the Trim Tab system. Thanks to this control system, the user can focus on the boat trim, regardless of the tab position.

The **electromechanical actuators (2)** that allow changing the **inclination angle of tab (3)** are controlled by means of the **joystick (1)** that is located on the dashboard or on the fly-bridge.

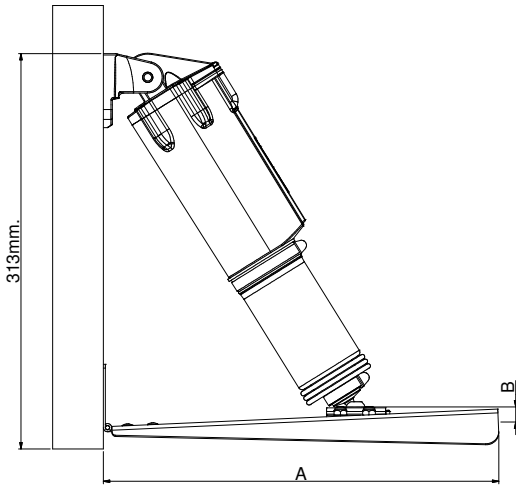
Joystick function description:

- By jogging the lever forward, the boat bow goes down;
- By jogging the lever backward, the boat bow goes up;
- By jogging the lever rightward, the boat tilts to starboard
- By jogging the lever leftward, the boat tilts to port

When running at idle or when the engine turns off, the electronic system enables the **AUTO LINE-UP** function automatically. It allows putting the tabs in rest position.

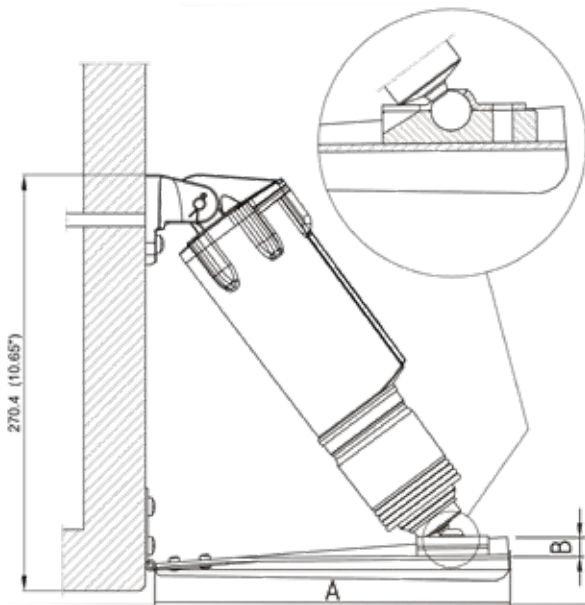


## MTT INSTALLATION



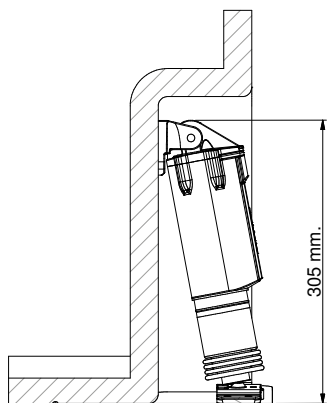
A: 228.6 mm - 9"  
 B: 19.5 mm - 0.77"

## MTC TILTED INSTALLATION



A: 228.6 mm - 9"  
 B: 19.5 mm - 0.77"

## MTC VERTICAL INSTALLATION



**NOTE:** dimensions could change in case of raked transom

## MTT SYSTEMS - APPLICATION

| BOAT LENGTH | BOAT LENGTH (m) | TAB SIZE P x l (") | TAB SIZE P x l (cm) | TRANSOM MINIMUM HEIGHT |
|-------------|-----------------|--------------------|---------------------|------------------------|
| 14' - 18'   | 4,5 - 5,5       | 9" x 9"            | 22,8 x 22,8         | 31.03 cm (12.22")      |
| 16' - 25'   | 5,0 - 8,0       | 12"x 9"            | 30,5 x 22,8         | 31.03 cm (12.22")      |
| 18' - 30'   | 5,5 - 9,0       | 12" x 12"          | 30,5 x 30,5         | 31.03 cm (12.22")      |
| 26' - 36'   | 8,0 - 11,0      | 12" x 18"          | 30,5 x 45,7         | 31.03 cm (12.22")      |

## MTC SYSTEMS - APPLICATION

| BOAT LENGTH | BOAT LENGTH (m) | TAB SIZE P x l (") | TAB SIZE P x l (cm) | TRANSOM MINIMUM HEIGHT |                       |
|-------------|-----------------|--------------------|---------------------|------------------------|-----------------------|
|             |                 |                    |                     | TILTED INSTALLATION    | VERTICAL INSTALLATION |
| 14' - 18'   | 4,5 - 5,5       | 9" x 9"            | 22,8 x 22,8         | 27.04 cm (10.65")      | 30.5 cm (12")         |
| 16' - 25'   | 5,0 - 8,0       | 12"x 9"            | 30,5 x 22,8         | 27.04 cm (10.65")      | 30.5 cm (12")         |
| 18' - 30'   | 5,5 - 9,0       | 12" x 12"          | 30,5 x 30,5         | 27.04 cm (10.65")      | 30.5 cm (12")         |
| 26' - 36'   | 8,0 - 11,0      | 12" x 18"          | 30,5 x 45,7         | 27.04 cm (10.65")      | 30.5 cm (12")         |

**NOTE:** P= Tab length, l= Transom side.

These recommendations should be used as a general reference only. Final selection should be made with the assistance of a qualified installation technician. For any further information please contact our Technical Service

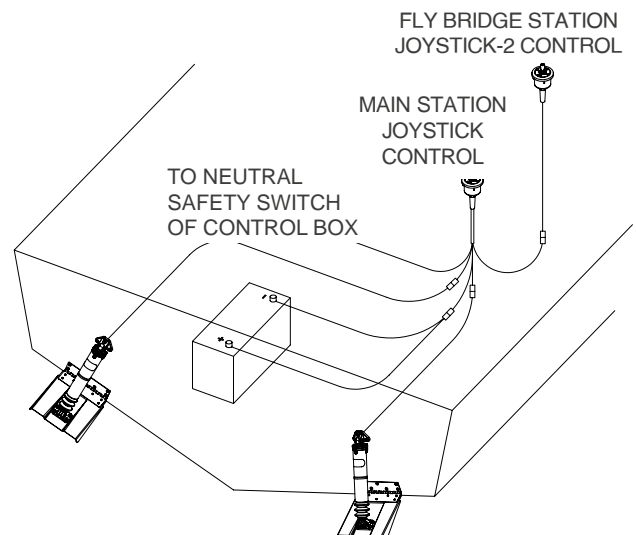
**WARNING:** The systems are not intended for use in racing applications

### STANDARD COMPONENTS (SINGLE ACTUATOR PER TAB)

- 1 pair of electromechanical actuator complete with connection brackets and 2 m (6.56') wiring harness.
- 1 joystick control unit with 0.50 m (1.64') wiring harness
- 1 pair of stainless steel tabs. Tabs are sold separately: specify selected size when ordering

### OPTIONAL COMPONENTS

- 1 extension wiring harness kit for the power cable and the actuator cables. Deutsch plugs included
- 1 second station joystick-2 control unit with 0.50 m (1.64') wiring harness
- 1 extension wiring harness (6 m and 9 m for second station). Deutsch plugs included.
- 1 extension wiring harness (2 m for auto-line up). Deutsch plugs included.
- 1 zinc alloy sacrificial anode kit to neutralize the galvanic currents on tabs ( 2 anode kits for every 1 pair tab installation)



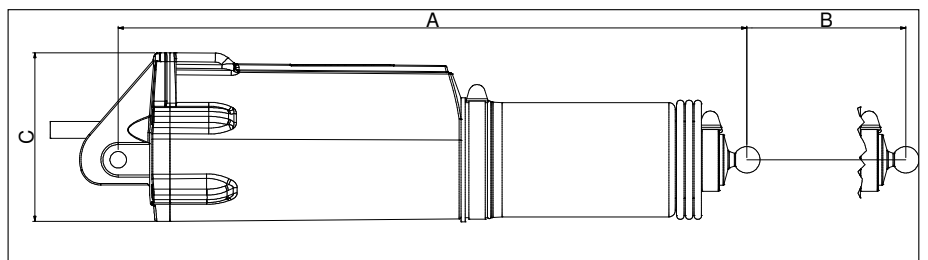


FEATURES

- 12 VDC Black actuator and brackets
- 1 m (3.28') wiring harness with Deutsch crimped pins included
- Stroke: 57 mm (2.25")

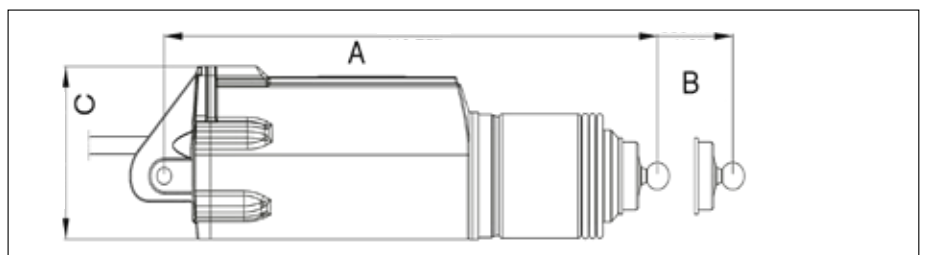
AT ACTUATOR FULL CLOSED/OPEN

- A = 309 mm (12.17")
- B = 366 mm (14.41")
- C = 83 mm (3.27")



AC ACTUATOR FULL CLOSED/OPEN

- A = 273 mm (10.75")
- B = 330 mm (13")
- C = 83 mm (3.27")







J/CH



JLP/CH



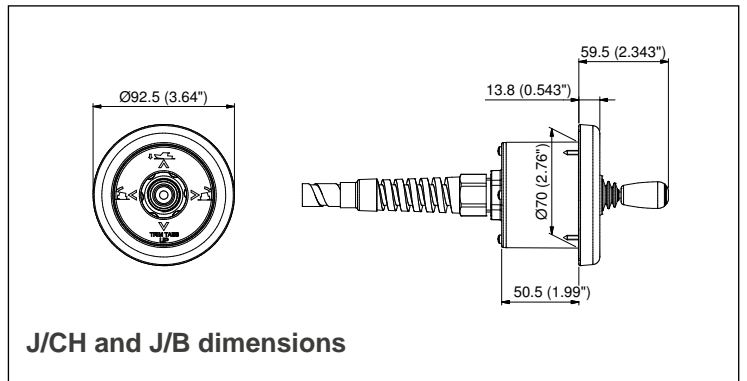
J/B-LED



JLP/B

J/B

Black finish (optional)



J/CH and J/B dimensions

## JOYSTICK CONTROL UNITS FOR SINGLE STATION:

J/CH - 41849Z chrome

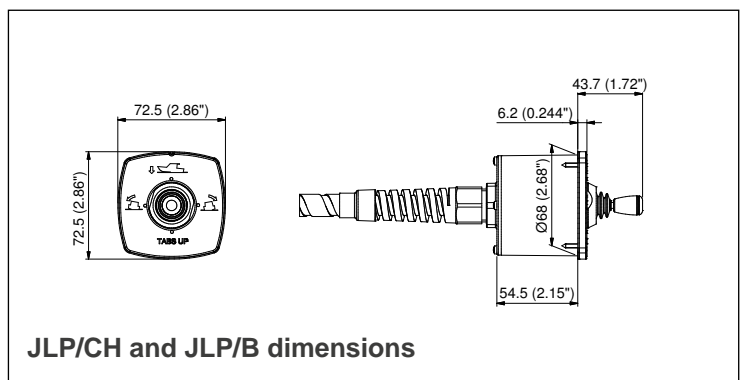
J/B - 42855Z black (optional)

JLP/CH - 43004B chrome, low profile

JLP/B - 43005D black, low profile (optional)

J/B-LED - 43416B joystick control with LED indicators

- Main station compact control unit with joystick (PATENTED), **auto-line-up** function included (automatic fla re-alignment)
- 0.50 m (1.64") wiring harness included
- 70 mm (2.76") hole size
- Retrofit installation is also available on systems with standard joystick controls



JLP/CH and JLP/B dimensions

## JOYSTICK CONTROL UNITS FOR DUAL STATION:

J/CH-2 - 42306 N chrome

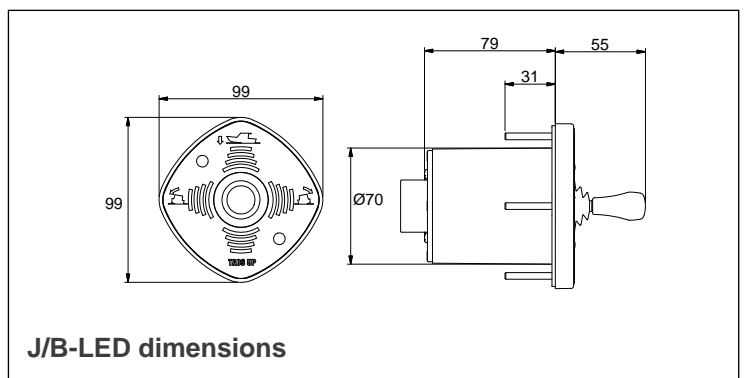
J/B-2 - 42856 B black (optional)

JLP/CH-2 - 43080 U chrome, low profile

JLP/B-2 - 43081 W black, low profile (optional)

- 70 mm (2.76") hole size
- 6 m and 9 m (19.7' and 29.6') extension wiring harness available with deutsch plugs included (optional)

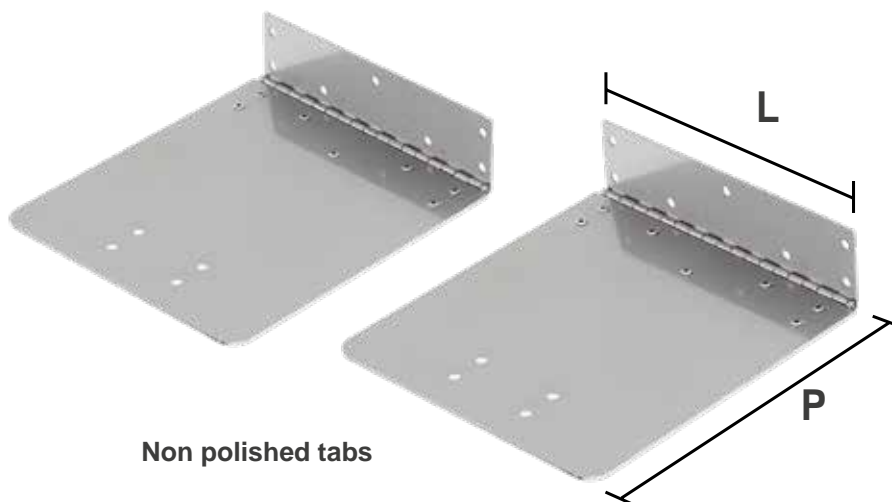
J/B-LED - 43416B joystick control with LED indicators



J/B-LED dimensions

NOTE: it is not possible to install a joystick control unit with LED and without LED in the same system

## STANDARD NON POLISHED TABS

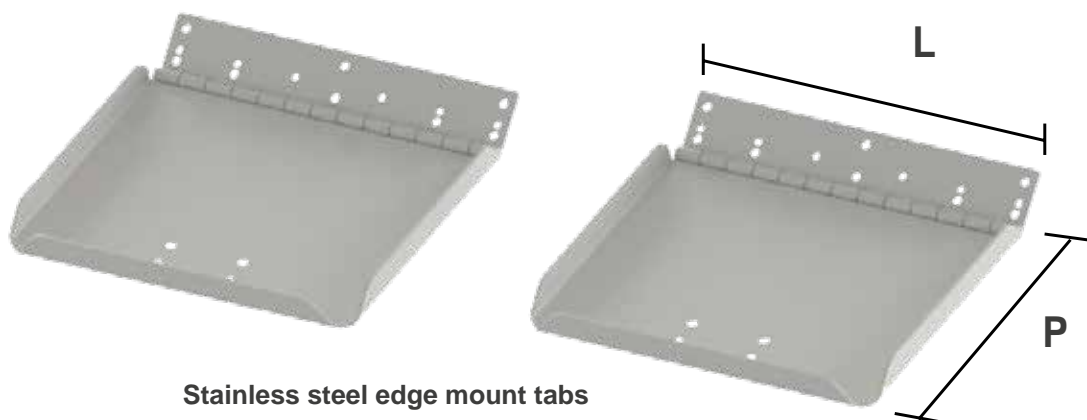


**Non polished tabs**

No need for new holes in case of Lenco® or Bennett® same size replacements.  
They are not designed for use in racing applications.

| MODEL  | PART No. | DESCRIPTION (P x L)                                 | WEIGHT PER PAIR   |
|--------|----------|---|-------------------|
| NP99   | 42650E   | Stainless steel tab pair 228,6 x 228,6 mm (9"x9")   | 3,3 kg (7.3 lbs)  |
| NP129  | 42653L   | Stainless steel tab pair 304,8 x 228,6 mm (12"x9")  | 4,0 kg (8.8 lbs)  |
| NP1212 | 42651G   | Stainless steel tab pair 304,8 x 304,8 mm (12"x12") | 5,0 kg (11.0 lbs) |
| NP1218 | 42652J   | Stainless steel tab pair 304,8 x 457,2 mm (12"x18") | 7,4 kg (16.3 lbs) |

## STAINLESS STEEL EDGE MOUNT TABS



**Stainless steel edge mount tabs**

Stainless steel non polished trim tabs blades.  
No need for new holes in case of Lenco® or Bennett® same size replacements.  
The installation requires less transom height than standard and high performance blades.  
They are not designed for use in racing applications.

| MODEL   | PART No. | DESCRIPTION (P x L)                                 | WEIGHT PER PAIR    |
|---------|----------|---|--------------------|
| NPE912  | 43630D   | Stainless steel tab pair 228,6 x 304,8 mm (9"x12")  | 5,8 kg (12.8 lbs)  |
| NPE129  | 43631F   | Stainless steel tab pair 304,8 x 228,6 mm (12"x9")  | 5,6 kg (12.3 lbs)  |
| NPE1212 | 43632H   | Stainless steel tab pair 304,8 x 304,8 mm (12"x12") | 7,2 kg (15.9 lbs)  |
| NPE1218 | 43633K   | Stainless steel tab pair 304,8 x 457,2 mm (12"x18") | 10,8 kg (23.8 lbs) |



**Mirror polished stainless steel tabs**

Stainless steel, mirror electro-polished trim tab blades.  
 No need for new holes in case of Lenco® or Bennett® same size replacements.  
 They are not designed for use in racing applications.

| MODEL | PART No. | DESCRIPTION (P x L)                                 | WEIGHT PER PAIR   |
|-------|----------|---|-------------------|
| P99   | 41844N   | Stainless steel tab pair 228,6 x 228,6 mm (9"x9")   | 2,8 kg (6.2 lbs)  |
| P129  | 41845R   | Stainless steel tab pair 304,8 x 228,6 mm (12"x9")  | 3,6 kg (7.9 lbs)  |
| P1212 | 41846T   | Stainless steel tab pair 304,8 x 304,8 mm (12"x12") | 4,6 kg (10.1 lbs) |
| P1218 | 41847V   | Stainless steel tab pair 304,8 x 457,2 mm (12"x18") | 6,7 kg (14.8 lbs) |

## OPTIONAL COMPONENTS

**KE20** - 42378R - Extension Wiring Harness. Kit includes one 16.4' (5,0 m) length wiring harness extension for the power cable and two 19.7' (6,0 m) length wiring harness extensions for the actuator cables. Deutsch plugs included.

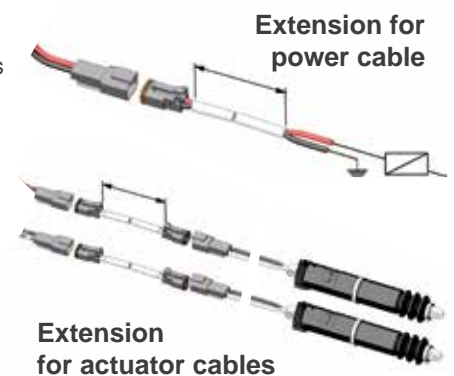
**KE30** - 42379T - Extension Wiring Harness. Kit includes one 16.4' (5,0 m) length wiring harness extension for the power cable and two 29.5' (9,0 m) length wiring harness extensions for the actuator cables. Deutsch plugs included.

**KEJ2-20** - 41853P - 19.7' (6,0 m) extension wiring harness for a second station. Deutsch connectors included.

**KEJ2-30** - 42375J - 29.5' (9,0 m) extension wiring harness for a second station. Deutsch connectors included.

**KEK-7** - 42376L - 6.6' (2,0 m) auto-line up extension wiring harness key frame. Deutsch connectors included.

**KENS-7** - 42377N - 6.6' (2,0 m) auto-line up extension wiring harness neutral safety. Deutsch connectors included. Not suitable for systems with joystick control with led indicators (J/B-LED).



### RETROFIT BRACKET

BRS-T bracket will adapt AT12-AS12 actuator to pre-existing mounting holes on transom, in case of AS12 or of Lenco® replacement (until 2007).

**BRS-T** - 43220H - black bracket



**BRS-T**

### ANODE KIT

Zinc alloy anode kit neutralizes the galvanic currents endangering the trim tabs. 2 anode kits are necessary for every 1 pair tab installation.

**KA70** - 42441V - Ø 2.8" (70 mm) sacrificial anode kit for tab up to 12" x 12" size

**KA90** - 42442X - Ø 3.5" (90 mm) sacrificial anode kit for tab 12" x 18" size



**KA70**

**KA90**

# PACKAGED UFLEX TRIM TAB SET

The prepackaged UFLEX set includes 1 pair of actuators complete with brackets and 1 joystick. The tabs are not included and sold separately: selected model has to be specified when ordering.

Not intended for use in racing applications.

CE Certification  
Waterproof: IP68  
EN60945 Certification



| MODEL        | PART No. | VOLT   | DESCRIPTION  |
|--------------|----------|--------|--|
| MTT 12-CH    | 43250T   | 12V DC | 2 AT12 actuators, 12V DC + 1 chrome joystick             |
| MTT 12-CH-LP | 43251V   | 12V DC | 2 AT12 actuators, 12V DC + 1 chrome low profile joystick |
| MTC 12-CH    | 43043M   | 12V DC | 2 AC12 actuators, 12V DC + 1 chrome joystick             |
| MTC 12-CH-LP | 43044P   | 12V DC | 2 AC12 actuators, 12V DC + 1 chrome low profile joystick |

## SPARE PARTS

| MODEL | PART No. | DESCRIPTION  |
|-------|----------|--|
| BRS-C | 43039X   | Bracket kit - Connection between AT or AC actuators and boat |
| BRT-C | 43040F   | Bracket kit - Connection between AT or AC actuators and tab  |
| EP 5  | 42440T   | Wiring harness extension for power cable 5,0 m (16.4')       |
| EP 6  | 42302E   | Wiring harness extension for actuator cable 6,0 m (19.7')    |
| EP 9  | 42439J   | Wiring harness extension for actuator cable 9,0 m (29.5')    |

## CROSS MATCH SPARE PARTS VS ACTUATORS

| ACTUATOR PART No. | BELLOWS KIT PART No. | BRACKET KIT PART No. (TAB SIDE) | BRACKET KIT PART No. (TRANSOM SIDE) |
|-------------------|----------------------|---------------------------------|-------------------------------------|
| 41839W            | 43094F               | 42296N                          | 42298T                              |
| 42937B            | 43094F               | 42296N                          | 42298T                              |
| 43001V            | 43724N               | 43040F                          | 43039X / 43220H (Retrofit)*         |
| 43160S            | 43725R               | 43040F                          | 43039X / 43220H (Retrofit)*         |
| 43276M            | 43724N               | 43040F                          | 43220H                              |
| 43280C            | 43094F               | 42296N                          | 42298T                              |
| 43302K            | 43725R               | 43040F                          | 43220H                              |
| 43432Z            | 43724N               | 43040F                          | 43039X                              |
| 43507E            | 43725R               | 43040F                          | 43220H                              |
| 42608F            | 43094F               | 42296N                          | 42298T                              |
| 43272D            | 43724N               | 43040F                          | 43220H                              |

\* Part No. 43220H - see retrofit bracket explanation

# AQUATIC AV<sup>®</sup>



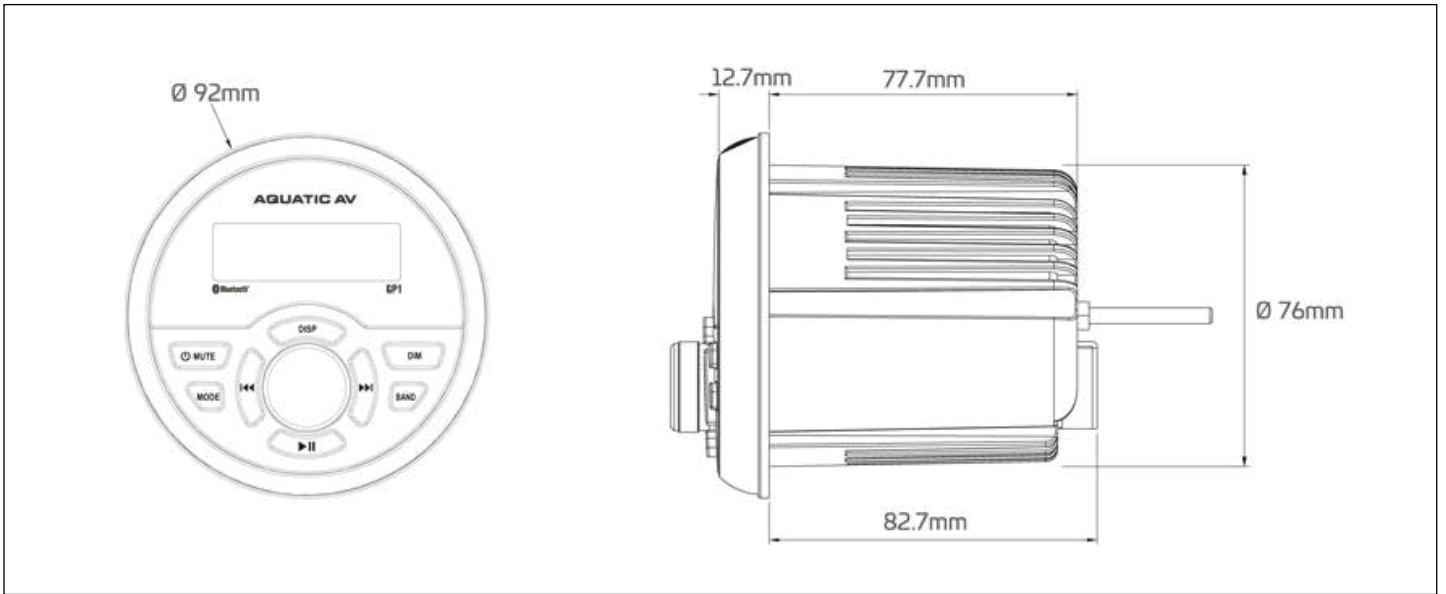
# GP1 - WATERPROOF GAUGE SIZE STEREO

- **Bluetooth Audio:** Easily stream your favorite tunes from your smartphone with Bluetooth Audio support. View track info including a song's name, artist, and album information right on the display.
- **288W Amplifier:** Keep your system going with a 288W amplifier that powers up to 8 speakers or a combination of speakers and subwoofers.
- **Multi-Environment Protection:** Install anywhere with waterproof (rated IP65), UV, and salt/fog resistant protection enabling reliable performance in the toughest environmental conditions.
- **DSP EQ:** Allows common EQ settings to be applied to enhance music content, such as Pop, Classical and Rock or manually adjust bass and treble for a tailored sonic experience.
- **Variable Brightness:** Adjust the display brightness from 100% for normal operation to 30% brightness to reduce screen glare during night time operation.
- **Standard Gauge Size:** Our smallest stereo yet, designed to sit alongside standard dash gauges, but still packing a serious Aquatic AV feature set.
- **USB:** Play USB thumb drives with supported audio media and charge USB devices such as smartphones with USB charging.
- **AM/FM Radio:** Listen to your favorite AM and FM radio stations. Save your favorite stations with 18 FM and 12 AM presets available. Compatible with both US and European frequencies.
- **AUX:** Connect devices via stereo RCA cable with input gain of 2V for high performance with all devices.



GP1 - 23889K

| MODEL               | GP1   |
|---------------------|---|
| Supported media     | Bluetooth audio, USB, MP3, AM/FM, AUX                       |
| Device control      | via rear USB cable (2.1A)                                   |
| Display             | Monochrome TFT with blue backlight                          |
| Inputs              | Bluetooth, 1x USB, 1x stereo pair RCA                       |
| Outputs             | 1x stereo pair RCA Pre-out (2V)                             |
| AM/FM tuner         | 18x FM pre-set & 12x AM pre-set memory. US/Euro frequencies |
| Power (max)         | 4x 45W (4 Ohms), 4x 72W (2 Ohms)                            |
| Amplifier type      | Class A/B (2 Ohm stable)                                    |
| Output voltage      | 10.5V - 14.4V DC  |
| Current draw        | 7A (max) / <3mA (standby)                                   |
| Waterproof          | Yes - IP65  |
| UV protection       | 500hrs stable, ASTM D4329 compliant                         |
| Salt/fog protection | 500hrs stable, ASTM B117 compliant                          |
| Certifications      | CE, RoHS, WEE, FCC  |
| Additional features | Clock display, Stainless Steel mounting hardware            |



**KIT GP1**

GP1 stereo is also available in kit with a pair of AQ-SPK6.5-4EW speakers (see section):

**KIT STEREO GP100W** - 25369T (white speakers)  
**KIT STEREO GP100B** - 25368R (black speakers)

**GP100W**



**GP100B**



**GP1 WATERPROOF STEREO:**

- ✓ Bluetooth
- ✓ USB
- ✓ AM/FM Radio
- ✓ DSP EQ
- ✓ 288W Power
- ✓ Waterproof
- ✓ Includes AM/FM Antenna

**ECONOMY 6.5" SPEAKERS:**

- ✓ Full Range Coaxial Speakers
- ✓ Waterproof
- ✓ UV Protection
- ✓ Salt/Fog Protection



White Grill  
EC121





Black Grill  
EC122



**WWW.AQUATICAV.COM**

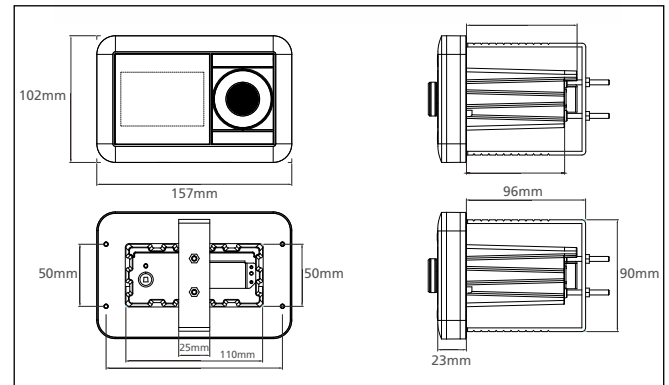
## CP6 STEREO

**AQUATIC AV**  
products with a watertight reputation

- Supported media: Bluetooth, USB, DAB+, MP3, AM, FM, Aux
- Display: Monochrome TFT with blue backlight
- Inputs: Bluetooth, 1x USB, 1x stereo pair RCA
- Outputs: 1x stereo pair RCA Pre-out (2V)
- Power (max): 4x 45W (4 ohms), 4x 72W (2 ohms)
- Amplifier type: Class A/B (2 ohms stable)
- Output voltage: 10.5V - 14-4V
- Current draw: 10A (max) / <3A (standby)
- Waterproof: Yes - IP65
- UV protection: 500 hrs stable
- Salt/fog protection: 500 hrs stable
- Dimensions HxWxD mm ("): 102x157x119 (4x6.2x4.7)
- Additional features: Clock display, 2x external triggers (12V DC, 3A), DSP EQ, bass/treble, balance/fader, loudness, stainless steel mounting hardware

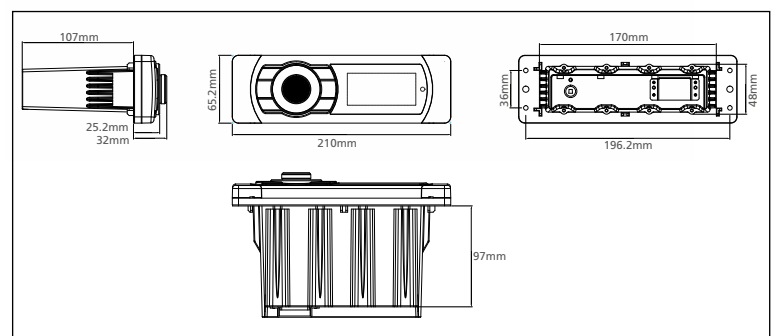


CP6 - 22572Y



## MP6 STEREO

- Supported media: Bluetooth, USB, DAB+, MP3, AM, FM, Aux
- Display: Monochrome TFT with blue backlight
- Inputs: Bluetooth, 1x USB, 1x stereo pair RCA
- Outputs: 1x stereo pair RCA Pre-out (2V)
- Power (max): 4x 45W (4 ohms), 4x 72W (2 ohms)
- Amplifier type: Class A/B (2 ohms stable)
- Output voltage: 10.5V - 14-4V
- Current draw: 10A (max) / <3A (standby)
- Waterproof: Yes - IP65
- UV protection: 500 hrs stable
- Salt/fog protection: 500 hrs stable
- Dimensions HxWxD mm ("): 65.2x210x139 (2.6x8.3x5.1)
- Additional features: Clock display, 2x external triggers (12V DC, 3A), DSP EQ, bass/treble, balance/fader, loudness, stainless steel mounting hardware



MP6 - 22573A



The **BC6 MINI** is a high quality waterproof marine stereo designed to be installed hidden away out-of-sight.

- Support Bluetooth audio, MP3, AUX
- IP65 Rated, for use in any environment (dry, wet, muddy, damp etc)
- Built-in 288W amplifier allows for quick and easy installation

**BC6 MINI** - 23422H



**BC6 MINI**

| MODEL                   | BC6 MINI  |
|-------------------------|---|
| Supported media         | Bluetooth Audio, MP3, Aux   |
| Device control          | via device or remote control  |
| Halo Aerial Technology  | Yes   |
| Inputs                  | Bluetooth, 1 x stereo pair RCA  |
| Outputs                 | 1 x stereo pair RCA (2 V)   |
| Power (max)             | 4 x 45 W (4 Ohms) / 4 x 72 W (2 Ohms)                                 |
| Amplifier type          | IC (2 Ohm stable)   |
| Operation voltage       | 9.6 V - 14,4 V DC   |
| Current draw            | 6 mA (standby), 7 A (max)   |
| Waterproof              | Yes - IP65  |
| UV protection           | 500 hrs stable  |
| Salt/Fog protection     | 500 hrs stable  |
| Dimensions HxWxD mm (") | 32x168x119,5 (2.34x7.97x5.41)   |
| Additional features     | Pre-balanced electronic crossover / Stainless steel mounting hardware |

## SWA6 COMBINED BLUETOOTH STEREO SUBWOOFER

The SWA6 Combined Bluetooth Stereo Subwoofer is a high quality, robust and durable marine stereo and subwoofer with built-in Bluetooth connectivity and a 288W amplifier with electronic crossover for connection of up to four full-range speakers.

- Combined Stereo Subwoofer
- Connect up to four marine speakers
- 8" Cone
- Tuned Subwoofer Port
- 288W max
- 4 Ohm & 2 Ohm stable

**SWA6** - 22551P



**SWA6**

# AQ-MP-5UBT-S STEREO

**AQUATIC AV®**  
products with a watertight reputation

Play music wirelessly via a Bluetooth enabled smartphone or MP3 device or via USB connection. Wired connections can also be made with stereo 3.5 mm Jack or RCA inputs.

- SiriusXM satellite radio ready
- Supports Bluetooth, USB, iPod, iPhone, MP3 and AM/FM radio
- Clock display mode
- Dummy faceplate / Dust cover included
- Surface mount USB socket included
- Internal device compartment
- Fits most smartphones and media devices
- USB device charging
- FM/AM radio with 30 presets (US & Euro)
- Waterproof IP55
- Rotary knob control
- Removable faceplate
- Built-in 288W amplifier
- Connect up to 8 x speakers



**AQ-MP-5UBT-S**

**AQ-MP-5UBT-S - 21564U**

| MODEL                 | AQ-MP-5UBT-S   |
|-----------------------|--|
| Supported media       | SiriusXM, Bluetooth (IAP), USB, iPhone, iPod, MP3, FM/AM radio, AUX  |
| Detachable faceplate  | Yes  |
| Color                 | Black  |
| Inputs                | 1 x USB, 1 x 3.5 mm jack, 1 x stereo pair RCA aux, Bluetooth   |
| Outputs               | 2 x stereo pair RCA (4V), 1 x RCA Sub-out<br>1 x rear USB (charging only)  |
| FM/AM tuner           | 18 x FM & 12 x AM pre-set memory<br>switchable US/Euro frequencies   |
| Amplifier type        | Class A/B (2 Ohm stable)   |
| Power (max)           | 4 x 45W (4 Ohm) / 4 x 72W (2 Ohm)  |
| Frequency response    | 20Hz - 20kHz   |
| Operation voltage     | 9.6V - 14.4V DC  |
| Current draw          | 6mA (standby), 7A (max)  |
| Waterproof            | IP55   |
| Conformal PCB coating | Yes  |
| Fascia material       | ABS  |
| Chassis material      | ZAM coated   |
| Certifications        | CE, RoHS, WEE, FCC   |
| UV protection         | 500hrs stable  |
| Salt/Fog protection   | 500hrs stable  |
| Additional features   | Clock display mode, removable faceplate,<br>2 x external triggers (12V DC, 350mA),<br>DSP EQ, bass/fader loudness stainless steel mountin hardware |

## WR6 WIRED WATERPROOF MARINE REMOTE CONTROL

The **WR6** waterproof marine remote control is a high quality, robust and durable waterproof remote control, designed and built to withstand the harsh conditions associated with use in marine and boat applications.

- Fixed, Wired Remote Control
- Waterproof/Dustproof (IP65)
- 2-Way communication
- Requires extension cable (sold separately and in different lengths) for use with Aquatic AV 6-series marine stereos

**WR6** - 23100J



**WR6**

## RF610 HANDHELD MARINE REMOTE CONTROL KIT

The **RF610** handheld marine remote control kit is for use with all Aquatic AV '6-series' marine stereos.

- Includes: Handheld Remote Control, receiver and cable
- Charges via USB
- Waterproof/Dustproof (IP66)
- 2-Way RF (Radio Frequency) communication
- 40ft range

**RF610** - 24891B



**RF610**

## ACCESSORIES



Wiring harness for waterproof marine stereos and marine stereo systems.

**AQ-UNH-2** - 69335X



High quality, robust and durable AM/FM Antenna for waterproof marine stereos, boat stereos and marine stereo systems. For use with Aquatic AV marine stereos

**AQ-ANT-1** - 69610T

# ELITE SERIES MARINE SPEAKERS AND SUBWOOFERS

**AQUATIC AV®**  
products with a watertight reputation

The **ELITE series** featuring a traditional grill-style, customizable lighting via our RGB Controller (RG100 – sold separately) and the free Aquatic AV app. Built for durability, these multi-environment speakers and subwoofers are fully waterproof as well as UV/salt/fog resistant to ensure they last as long as possible.

- ELITE 6.5" SPEAKER, BLACK - 23423K
- ELITE 6.5" SPEAKER, WHITE - 23424M
- ELITE 10" SUBWOOFER, BLACK - 24893F
- ELITE 10" SUBWOOFER, WHITE - 24895K
- RGB CONTROLLER - 23754K - LED Controller RG 100 (supplied separately)



**RG100 CONTROLLER**



**ELITE 6.5" BLACK**



**ELITE 6.5" WHITE**



**ELITE 10" BLACK**



**ELITE 10" WHITE**

| MODEL                         | ELITE 6.5" SPEAKERS               | ELITE 10" SUBWOOFERS   |
|-------------------------------|-----------------------------------|--|
| Type                          | Full range, co-axial speaker      | Subwoofer  |
| Cone size mm (")              | 165 (6.5)                         | 254 (10)   |
| Outside diameter mm (")       | 175 (6.9)                         | 282.1 (11.1)   |
| Mounting hole diameter mm (") | 130 (5.1)                         | 250 (9.8)  |
| Mounting depth mm (")         | 66 (2.6)                          | 112.5 (4.4)  |
| Impedance                     | 4 ohm                             | 4 ohm  |
| Frequency response            | 55 Hz - 20 kHz                    | 51Hz – 500Hz   |
| Power (total)                 | 240W (2x 120W)                    | 600W (2x 300W)   |
| Power (RMS)                   | 120W (2x 60W)                     | 300W (2x 150W)   |
| Waterproof                    | Yes                               | Yes – IP65   |
| Grill and basket material     | UV plastic, 550 hrs stable        | UV plastic, 550 hrs stable                                   |
| Cone material                 | Polypropylene                     | Polypropylene  |
| Tweeter material              | Neodymium                         | Neodymium  |
| Rubber surround material      | Non-corrosive rubber              | Non-corrosive rubber   |
| Magnet material               | Ferrite                           | Ferrite  |
| Magnet protection             | Plastic water guard               | Plastic Water Guard  |
| Certifications                | RoHS, ASTM B 117, ASTM D4329      | RoHS, ASTM B117, ASTM D4329                                  |
| Additional features           | Stainless steel mounting hardware | RGB LED cone illumination, stainless steel mounting hardware |

The **PRO Classic series** featuring a traditional grill-style, customizable lighting via our RGB Controller (RG100 – sold separately) and the free Aquatic AV app. Built for durability, these multi-environment speakers and subwoofers are fully waterproof as well as UV/salt/fog resistant to ensure they last as long as possible.

- PRO CLASSIC 6.5" SPEAKER, BLACK** - 21996A
- PRO CLASSIC 6.5" SPEAKER, WHITE** - 21995Y
- PRO CLASSIC 10" SUBWOOFER, BLACK** - 21998E
- PRO CLASSIC 10" SUBWOOFER, WHITE** - 21997C
- RGB CONTROLLER** - 23754K - LED Controller RG 100 (supplied separately)



**RG100 CONTROLLER**



**PRO CLASSIC 6.5" BLACK**



**PRO CLASSIC 6.5" WHITE**



**PRO CLASSIC 10" BLACK**



**PRO CLASSIC 10" WHITE**

| MODEL                         | PRO CLASSIC 6.5" SPEAKER                          | PRO CLASSIC 10" SUBWOOFERS                        |
|-------------------------------|---|---|
| Type                          | 6.5" RGB Speaker                                  | Infinite Baffle Subwoofer                         |
| Color                         | Black or white                                    | Black or white                                    |
| Waterproof                    | IP65  | IP65  |
| Cone size mm (")              | 165 (6.5)   | 254 (10)  |
| Outside diameter mm (")       | 175 (6.9)   | 281.4 (11)  |
| Mounting hole diameter mm (") | 130 (5.1)   | 230.5 (90.7)                                      |
| Mounting depth mm (")         | 66 (2.6)  | 131.9 (5.2)                                       |
| Impedance                     | 4 Ohm   | 4 Ohm   |
| Frequency response            | 60Hz - 20kHz                                      | 35 Hz - 1,000 Hz                                  |
| Power (total)                 | 120W (2 x 60W)                                    | 400W  |
| Power (RMS)                   | 60W (2 x 30W)                                     | 300W  |
| Grill and basket material     | Plastic ABS                                       | Plastic ABS                                       |
| Cone material                 | Polypropylene                                     | Polypropylene                                     |
| Rubber surround               | Yes   | Yes   |
| Magnet material               | Ferrite   | Ferrite   |
| Magnet protection             | Enclosed in basket                                | Enclosed in basket                                |
| Certifications                | RoHS, ASTM B 117, ASTM D4329                      | RoHS, ASTM B 117, ASTM D4329                      |
| Additional features           | Compatible with RGB controller and Aquatic AV App | Compatible with RGB controller and Aquatic AV App |

# PRO SPORT SERIES MARINE SPEAKERS AND SUBWOOFERS

**AQUATIC AV**<sup>®</sup>  
products with a watertight reputation

The **PRO Sport series** featuring sport and modern grills, customizable lighting via our RGB Controller (RG100 – sold separately) and the free Aquatic AV app. Built for durability, these multi-environment speakers and subwoofers are fully waterproof as well as UV/salt/fog resistant to ensure they last as long as possible.

**PRO SPORT 6.5" SPEAKER, BLACK** - 21992S  
**PRO SPORT 10" SUBWOOFER, BLACK** - 24898S  
**RGB CONTROLLER** - 23754K - LED Controller RG 100 (supplied separately)



**PRO SPORT 6.5" BLACK**



**PRO SPORT 10" BLACK**



**RG100 CONTROLLER**

| MODEL                         | PRO SPORT 6.5" SPEAKER                            | PRO SPORT 10" SUBWOOFER                           |
|-------------------------------|---|---|
| Type                          | Full-range, coaxial speaker                       | RGB Subwoofer                                     |
| Color                         | Black   | Black   |
| Waterproof                    | IP65  | IP65  |
| Cone size mm (")              | 165 (6.5)   | 254 (10)  |
| Outside diameter mm (")       | 174 (6.8)   | 281.4 (11)  |
| Mounting hole diameter mm (") | 130 (5.1)   | 230.5 (9.07)                                      |
| Mounting depth mm (")         | 58 (2.3)  | 131.9 (5.2)                                       |
| Impedance                     | 4 Ohm   | 4 Ohm   |
| Frequency response            | 60Hz - 20kHz                                      | 35 Hz - 1,000 Hz                                  |
| Power (max)                   | 120W (2 x 60W)                                    | 400W  |
| Power (RMS)                   | 60W (2 x 30W)                                     | 300W  |
| Grill and basket material     | Plastic ABS                                       | Plastic ABS                                       |
| Cone material                 | Polypropylene                                     | Polypropylene                                     |
| Rubber surround               | Yes   | Yes   |
| Magnet material               | Ferrite   | Ferrite   |
| Magnet protection             | Enclosed in basket                                | Enclosed in basket                                |
| Certifications                | RoHS, ASTM B 117, ASTM D4329                      | RoHS, ASTM B 117, ASTM D4329                      |
| Additional features           | Compatible with RGB controller and Aquatic AV App | Compatible with RGB controller and Aquatic AV App |

The **Economy 6.5** waterproof marine speakers are high quality, robust and durable marine speakers.

These 6.5" cone marine speakers are capable delivering great audio quality at all levels and with all music types, even in high background noise installations.

They feature a fully waterproof design, UV and salt/fog protection and are supplied with Stainless Steel mounting hardware.

**AQ-SPK6.5-4EW** - 21537R

**AQ-SPK6.5-4EB** - 22182J



**AQ-SPK6.5-4EW**



**AQ-SPK6.5-4EB**

| MODEL                         | AQ-SPK6.5-4E                                       |
|-------------------------------|--|
| Type                          | Full range, co-axial speaker                       |
| Total power                   | 160W (2x80W)                                       |
| Color                         | Matt white or black                                |
| Waterproof                    | Yes  |
| Cone size mm (")              | 165 (6.5)  |
| Outside diameter mm (")       | 163 (6.4)  |
| Mounting hole diameter mm (") | 129 (5.08)   |
| Mounting depth mm (")         | 52 (2.05)  |
| Impedance                     | 4 ohm  |
| Frequency response            | 83 Hz - 20 kHz                                     |
| Grill and basket material     | UV plastic, 500 hrs stable                         |
| Cone material                 | Polypropylene                                      |
| Rubber surround               | Yes  |
| Certifications                | RoHS, ASTM B 117, ASTM D4329                       |
| Additional features           | Removable grill, stainless steel mounting hardware |

# RG100 CONTROLLER

## FEATURES

- 5A Total Power Output: All outputs have 5 Amps and a voltage of 12V.
- Works with the Aquatic AV Mobile App: Choose from over a thousand different colors and display modes.
- Waterproof: Our controller is built to last through the toughest conditions.
- Connect Up To 32 Speakers: Start with four speakers and connect up to 32 speakers using the Aquatic AV Y Splitters with one controller. Brightness may vary as you add more speakers.
- Easy to Install: Two tabs on the top and bottom of the device for easy installing and mounting in a variety of environments.
- **UNIVERSAL**: can not only be used with Aquatic AV's speakers with LED's, can also control any other third party RGB LED lights onboard.



**RG100 CONTROLLER**

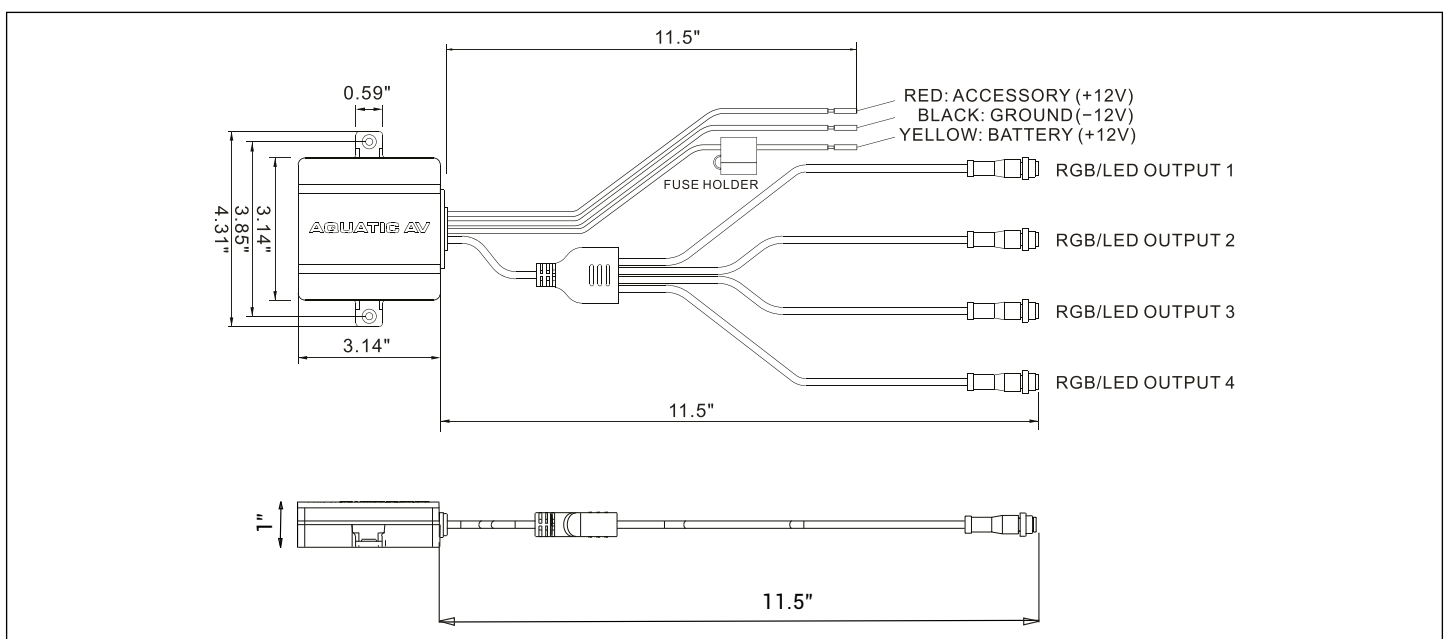
RGB CONTROLLER - 23754K - LED Controller RG100

## Aquatic AV APP Features include:

- Thousands of Colors: select the exact color you want with multiple ways to change colors across the rainbow spectrum.
- Save Your Favorite Colors: save up to five of your favorite colors for quicker access when you want them.
- Multi-color Modes: featuring 15+ integrated modes for a variety of moods.



|                                |  |
|--------------------------------|--|
| <b>MODEL</b>                   | <b>RG100</b>   |
| <b>Type</b>                    | Waterproof RGB Controller  |
| <b>Dimensions LxWxH mm (")</b> | 79,8x109,5x25,4 (3.14x4.31x1)  |
| <b>Voltage</b>                 | 12V  |
| <b>Total output (current)</b>  | 5A   |
| <b>Total output (power)</b>    | 60W  |
| <b>Certifications</b>          | Waterproof   |
| <b>Additional features</b>     | Works with the Aquatic AV App; for compatibility with other 12VDC RGB devices, get the CB104 universal adaptor |





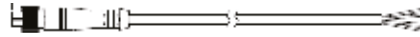
## CONNECTING EXTENSION CABLES & ADAPTORS TO THE RGB100



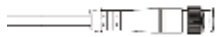
**RGB100**  
**LED output**



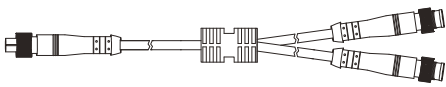
**LC112 - 25112C**  
3,6 m RGB extension cable  
**LC107 - 25113E**  
7,2 m RGB extension cable



**LC111 - 25114G**  
DIN to 4-wire adaptor



**RGB100**  
**LED output**



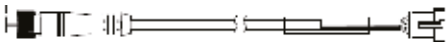
**LC113 - 25115J** RGB Y-splitter



**LC112 - 25112C**  
3,6 m RGB extension cable  
**LC107 - 25113E**  
7,2 m RGB extension cable



**RGB100**  
**LED output**



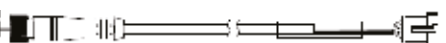
**LC110 - 23962T**  
DIN to JST adaptor



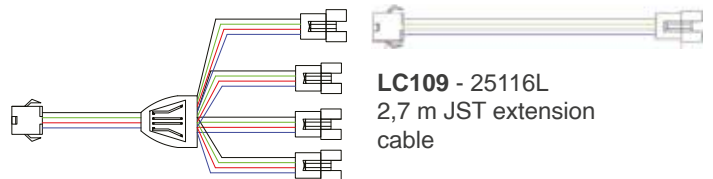
**LC109 - 25116L**  
2,7 m JST extension cable



**RGB100**  
**LED output**



**LC110 - 23962T**  
DIN to JST adaptor



**LC109 - 25116L**  
2,7 m JST extension  
cable

**LC104 - 25118R**  
JST 4-way splitter

# AD500.4 AMPLIFIER

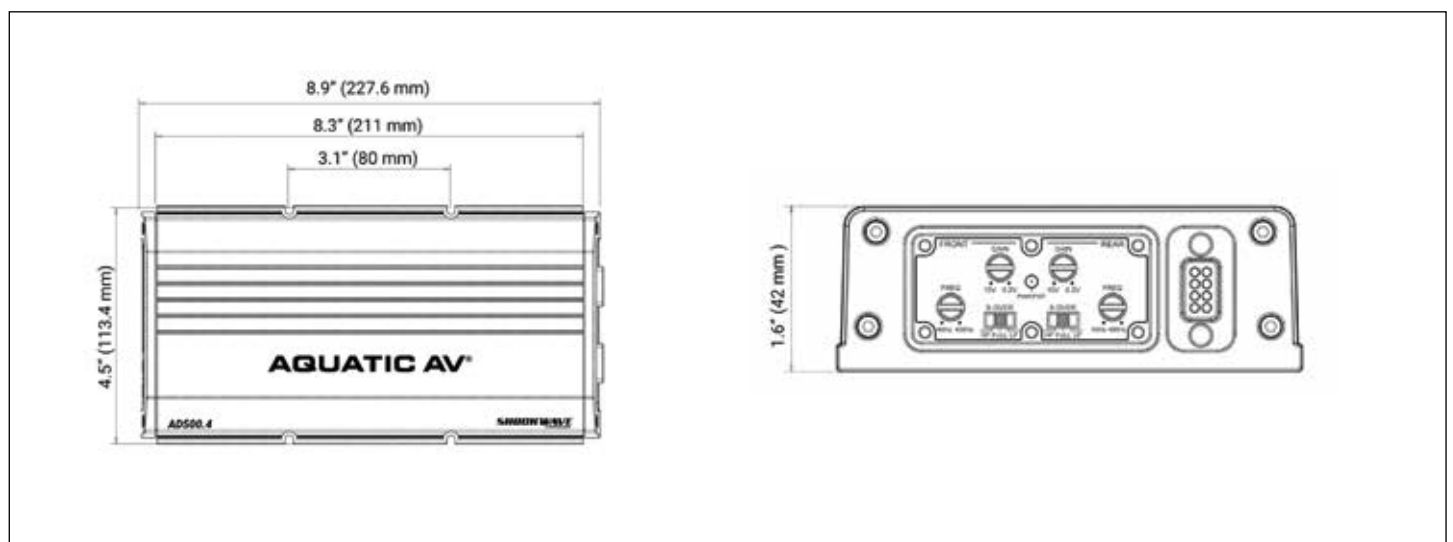
The AD500.4 Amplifier, with its compact design, is capable of transitioning between 500mV to 10V, the AD500.4 and it is compatible with all systems. With 600 watts of pure power, this amplifier can operate in 3 different modes, four-channel, three-channel, and two-channel. Fully waterproof (IP67) and designed with UV/salt/fog resistance to ensure reliable performance anywhere you go. The AD500.4 is 2 ohm stable, but can be used with 4 ohm speakers as well, and is a perfect choice for marine application. For the best sound in sound quality and style, pair with any of Aquatic AV's waterproof speakers.



**AD500.4**

**AD500.4 - 24899U**

|   |   |
|---|---|
| <b>MODEL</b>                                  | <b>AD500.4</b>                                      |
| <b>Type</b>                                   | 4/3/2 channel amplifier                             |
| <b>Color</b>                                  | Blue  |
| <b>Waterproof</b>                             | Yes – IP67  |
| <b>Input channels</b>                         | 4xRCA, 4 speaker level input                        |
| <b>Output channels</b>                        | 4/3/2   |
| <b>Power output (max)</b>                     | 600W (4 x 150W) @ 2 ohms / 400W (4 x 100W) @ 4 ohms |
| <b>Frequency response</b>                     | 20 Hz – 20,000 Hz                                   |
| <b>Input sensitivity</b>                      | 0.2 – 10V   |
| <b>High and low pass electronic crossover</b> | 40 Hz – 400 Hz                                      |
| <b>Dimensions WxDxH mm (")</b>                | 226,1x114,3x40,6 (8.9x4.5x1.6)                      |
| <b>Certification</b>                          | RoHS, ASTM B117, ASTM D4329                         |
| <b>Additional features</b>                    | Shockwave technology                                |



# RITCHIE® NAVIGATION



Since 1861, Ritchie® has been making only one thing – compasses. When properly sized, installed and compensated a marine compass is the most important instrument on any boat.

It will provide accurate, trouble-free heading references under the most adverse conditions without relying on electricity, radio signals or satellite communications.





Quality components aid accuracy, smooth response, stability and trouble-free operation.



## SELECTING AND INSTALLING YOUR COMPASS

When you choose your compass, you should always consider four things: mounting style, size, readability of the card and the design of your boat.

### MOUNTING STYLE

|  |   |   |
|--|---|---|
| <p style="text-align: center;"><b>DASH MOUNT</b></p>  <p>Ideal for powerboats with limited dash space</p>    | <p style="text-align: center;"><b>BULKHEAD MOUNT</b></p>  <p>Often used on sailboats to reduce interference with lines and to save space</p> | <p style="text-align: center;"><b>BRACKET MOUNT</b></p>  <p>Can be mounted on the deck or dash; allows compass to remain at proper viewing angle</p> |
| <p style="text-align: center;"><b>FLUSH/SURFACE MOUNT</b></p>  <p>Ideal for today's compact helm designs</p> | <p style="text-align: center;"><b>BINNACLE MOUNT</b></p>  <p>Features an outer case, often with a light-shielding hood</p>                   |   |

### DIAL DESIGN

Dial dimensions refer to apparent dial diameter.

|  |   |   |
|--|---|---|
| <p style="text-align: center;"><b>FLAT-CARD DIAL</b></p>  <p>Allows you to look down on the compass to see the course heading</p> | <p style="text-align: center;"><b>DIRECT-READ DIAL</b></p>  <p>Allows you to see the compass heading and lubber line from directly in front; good for when boat design requires your compass to be positioned at eye level</p> | <p style="text-align: center;"><b>COMBI-DIAL</b></p>  <p>A combination of the direct-read and flat-card designs; incorporates dials that can be read from both above and directly in front of the compass and maximizes readability from any angle</p> |
|--|---|---|

### POSITIONING

In an ideal situation, a compass should be mounted directly in front of the helm, as well as directly above the centerline of the hull. If this is not possible, the compass should be mounted parallel to the centerline. And on powerboats with upper steering stations, you should have a compass installed at both locations.



**WHEELMARK**

The Wheelmark approval is for Lifeboat and Rescue boat compasses. These compasses are also suitable for sailboats, power boats and motor sailing vessels.

The -WM suffix signifies type approval and compliance with the Navigation requirements of Marine Equipment Directive (MED) 95/98/EC and the last modification by Directive 2011/75/EU.

**VOYAGER SERIES S-87-WM AND S-87W-WM**

- **Dial size/design:** 76 mm (3") / CombiDial
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Warranty:** 5 years
- **Weight:** 539g (1 lb. 3 oz.)



S-87-WM - 67322B



S-87W-WM - 69147W

**VOYAGER SERIES F-83-WM AND F-83W-WM**

- **Dial size/design:** 76 mm (3") / CombiDial
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Mounting hole:** 107 mm (4 3/16")
- **Warranty:** 5 years
- **Weight:** 567g (1 lb. 4 oz.)



F-83-WM - 69728T



F-83W-WM - 69730D

**VOYAGER SERIES B-81-WM**

- **Dial size/design:** 76 mm (3") / CombiDial
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Warranty:** 5 years
- **Weight:** 680g (1 lb. 8 oz.)



B-81-WM - 67364U

**NAVIGATOR SERIES FN-201-WM AND FN-201W-WM**

- **Dial size/design:** 114 mm (4 1/2") / Flat-Card
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Mounting hole:** 130 mm (5 1/8")
- **Warranty:** 5 years
- **Weight:** 1.19kg (2 lb. 10 oz.)
- **Protective cover:** Model No. N-203-C



FN-201-WM - 69731F



FN-201W-WM - 69732H

**NAVIGATOR SERIES DNW-200-WM, DNP-200-WM AND DNB-200-WM**

- **Dial size/design:** 114 mm (4 1/2") / Flat-Card
- **Night lighting:** 12V green
- **Compensators:** built-in
- **Warranty:** 5 years
- **Weight:** 1.65kg (3 lb. 10 oz.)
- **Protective cover:** Model No. N-203-C



DNW-200-WM - 69585X



DNB-200-WM - 69586Z



DNP-200-WM - 69587B

new



X-10-M



X-23BU



X-11Y SportAbout™



X-10-M



X-10W-M



X-10B-M



X-11-HW - 23379K  
SportAbout™ Holder white



X-23BB



X-23BU

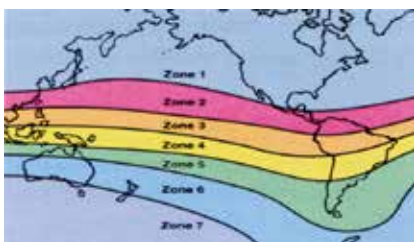
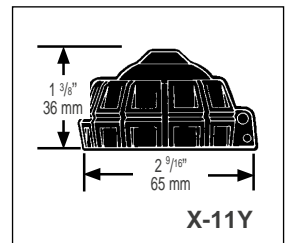
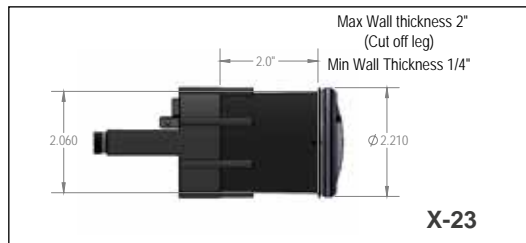
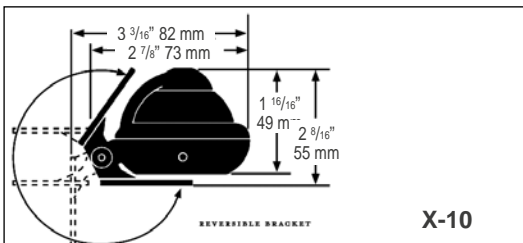


X-23WW

**X10 REVERSIBLE BRACKET MOUNT**

The fully adjustable and reversible Bracket allows a mounting range of over 300° from overhead, through angled and vertical mounts to horizontal surfaces.

| RITCHIE® MODEL | UFLEX® PART No. | DIAL APP. Ø | MOUNT    | BOAT TYPE  | DIAL READING | NIGHT LIGHTING     | COMPENSATORS | WEIGHT       |
|----------------|-----------------|-------------|----------|------------|--------------|--------------------|--------------|--------------|
| X-10-M         | 67099B          | 2"          | bracket  | powerboats | front        | 12V green          | built-in     | 142 g - 5 oz |
| X-10W-M        | 67331C          | 2"          | bracket  | powerboats | front        | 12V green          | built-in     | 142 g - 5 oz |
| X-10B-M        | 67332E          | 2"          | bracket  | powerboats | front        | 12V green          | built-in     | 142 g - 5 oz |
| X-11Y          | 23378H          | 2"          | -        | power/sail | front        | 3 cyalume included | -            | 142 g - 5 oz |
| X-23BB         | 25687H          | 2"          | bulkhead | powerboats | front        | 12V green          | -            | 142 g - 5 oz |
| X-23BU         | 25688K          | 2"          | bulkhead | powerboats | front        | 12V green          | -            | 142 g - 5 oz |
| X-23WW         | 25689M          | 2"          | bulkhead | powerboats | front        | 12V green          | -            | 142 g - 5 oz |



**CARD BALANCING**

The dials in magnetic compasses should be balanced to compensate for dip caused by Earth's magnetic field. All Ritchie® Compasses come standard for Zone 1 (essentially all of the Northern Hemisphere). When requesting a compass for Zone 2-7, please indicate the zone most central to your boating area. Once balanced for a specific Zone, the compass will maintain accuracy for one Zone north or south.



RA-91



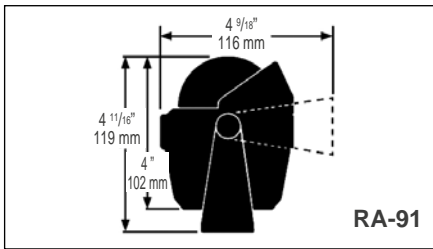
RA-93



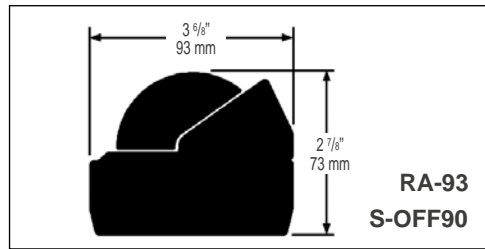
S-OFF90

| RITCHIE® MODEL | UFLEX® PART No. | DIAL APP. Ø | MOUNT   | BOAT TYPE  | DIAL READING | NIGHT LIGHTING | COMPENSATORS | WEIGHT        |
|----------------|-----------------|-------------|---------|------------|--------------|----------------|--------------|---------------|
| RA-91          | 67352L          | 2 3/4"      | bracket | powerboats | front        | 12V green      | built-in     | 454 g - 1 lbs |
| RA-93          | 67353N          | 2 3/4"      | surface | powerboats | front        | 12V green      | built-in     | 454 g - 1 lbs |
| S-OFF90        | 67354R          | 2 3/4"      | surface | powerboats | front        | 12V green      | built-in     | 454 g - 1 lbs |

S-OFF90: 90° off for viewing from starboard



RA-91



RA-93  
S-OFF90

**KAYAK COMPASSES AND ACCESSORIES**

DIAL APP. DIAMETER: 3" (76 MM)

| RITCHIE® MODEL | UFLEX® PART No. | DIAL APP. Ø | DIAL READING | WEIGHT        |
|----------------|-----------------|-------------|--------------|---------------|
| XP-99          | 68295G          | 2 3/4"      | combi dial   | 454 g - 1 lbs |
| XP-99W         | 68296J          | 2 3/4"      | combi dial   | 454 g - 1 lbs |



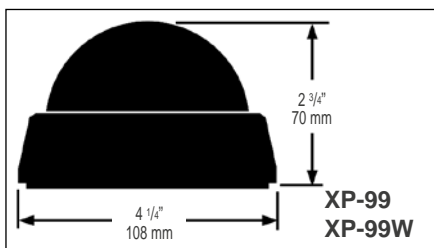
XP-99



XP-99W

**K-TD.2** - 68297L (Compass not included). Designed for mounting the Ritchie Kayaker. No drill, no holes in the deck, flexible pad and foam ring.

**X-TD**- 23380U - Tie Down (SportAbout™ compass not included).



XP-99  
XP-99W



K-TD.2



X-TD

# EXPLORER® SERIES

DIAL APP. DIAMETER: 2 3/4" (70 MM)

**RITCHIE**  
NAVIGATION



F-50



F-50W



B-51



B-51W



B-51G



S-53



S-53W



S-53G



V-57.2



V-57W.2



V-537



V-537B



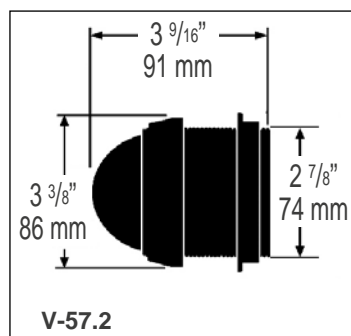
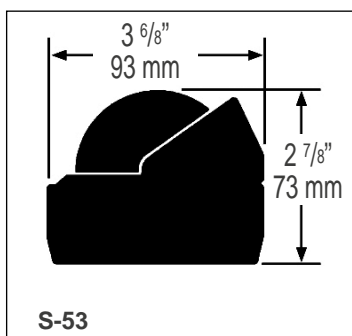
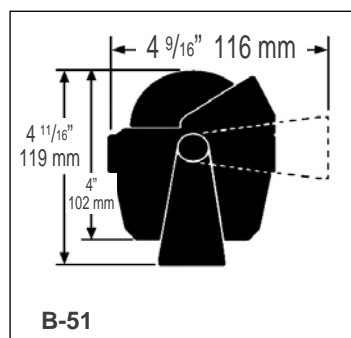
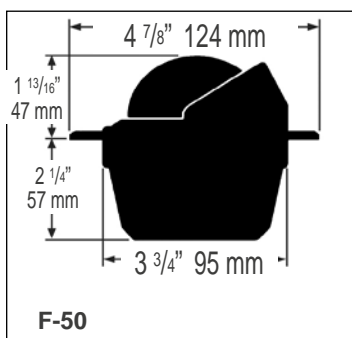
V-537W



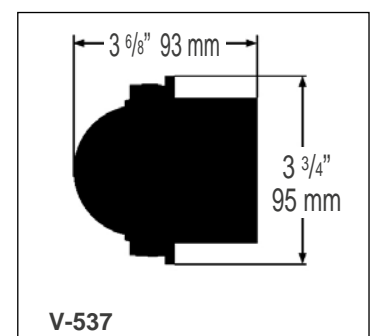
| RITCHIE®<br>MODEL | UFLEX®<br>PART No. | DIAL<br>APP. Ø | MOUNT    | BOAT TYPE  | DIAL<br>READING | NIGHT<br>LIGHTING | COMPENSATORS | WEIGHT        |
|-------------------|--------------------|----------------|----------|------------|-----------------|-------------------|--------------|---------------|
| F-50              | 67102L             | 2 3/4"         | flush    | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| F-50W             | 67317J             | 2 3/4"         | flush    | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| B-51              | 67103N             | 2 3/4"         | bracket  | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| B-51W             | 67356V             | 2 3/4"         | bracket  | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| B-51G             | 67318L             | 2 3/4"         | bracket  | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| S-53              | 67104R             | 2 3/4"         | surface  | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| S-53W             | 67320X             | 2 3/4"         | surface  | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| S-53G             | 67319N             | 2 3/4"         | surface  | powerboats | front           | 12V green         | built-in     | 454 g - 1 lbs |
| V-57.2            | 67358Z             | 2 3/4"         | dash     | powerboats | front           | 12V               | built-in     | 454 g - 1 lbs |
| V-57W.2           | 67359B             | 2 3/4"         | dash     | powerboats | front           | 12V               | built-in     | 454 g - 1 lbs |
| V-537             | 67360K             | 2 3/4"         | bulkhead | sail       | front           | 12V               | built-in     | 454 g - 1 lbs |
| V-537B            | 67361M             | 2 3/4"         | bulkhead | sail       | front           | 12V               | built-in     | 454 g - 1 lbs |
| V-537W            | 67362P             | 2 3/4"         | bulkhead | sail       | front           | 12V               | built-in     | 454 g - 1 lbs |

**Optional protective cover E-50-C 67355T:** for F-50 and S-53 magnetic compasses

**Note:** V-57.2 and V-537 compasses are adjustable to 30°, heel angle to 25°.



Mounting hole 3" (76 mm)



Mounting hole 3" (76 mm)

# VOYAGER® SERIES

DIAL APP. DIAMETER: 3" (76 MM)



F-82W



F-83



B-81



S-87W



F-82



F-83 WM



B-80



S-87 WM



F-83W WM

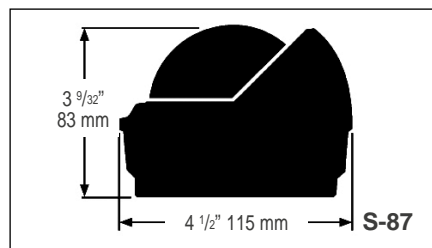
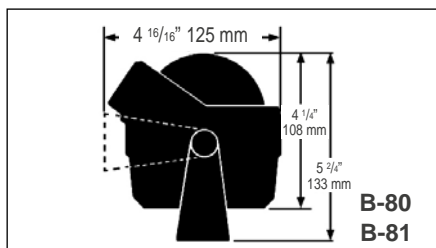
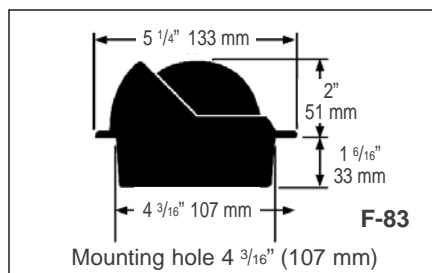
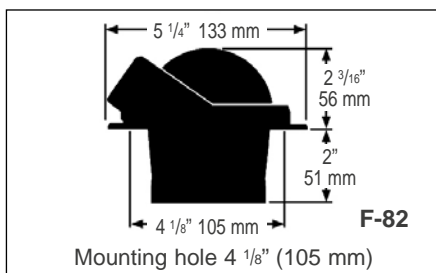


B-81 WM



S-87W WM

| RITCHIE® MODEL | UFLEX® PART No. | DIAL APP. Ø | MOUNT   | BOAT TYPE  | DIAL READING | NIGHT LIGHTING | COMPENSATORS | WEIGHT          |
|----------------|-----------------|-------------|---------|------------|--------------|----------------|--------------|-----------------|
| F-82           | 67105T          | 3"          | flush   | powerboats | flat-card    | 12V green      | built-in     | 680 g - 1.8 lbs |
| F-82W          | 67367A          | 3"          | flush   | powerboats | flat-card    | 12V green      | built-in     | 680 g - 1.8 lbs |
| F-83 WM        | 69728T          | 3"          | flush   | powerboats | combi-dial   | 12V green      | built-in     | 567 g - 1.4 lbs |
| F-83W WM       | 69730D          | 3"          | flush   | powerboats | combi-dial   | 12V green      | built-in     | 567 g - 1.4 lbs |
| B-80           | 67363S          | 3"          | bracket | powerboats | flat-card    | 12V green      | built-in     | 680 g - 1.8 lbs |
| B-81 WM        | 67364U          | 3"          | bracket | powerboats | combi-dial   | 12V green      | built-in     | 680 g - 1.8 lbs |
| S-87 WM        | 67322B          | 3"          | surface | powerboats | combi-dial   | 12V green      | built-in     | 539 g - 1.3 lbs |
| S-87W WM       | 69147W          | 3"          | surface | powerboats | combi-dial   | 12V green      | built-in     | 539 g - 1.3 lbs |



Voyager compasses with wheel mark symbol (Wheelmark certified)



HF-742



HB-741



HF-743



HB-740



H-741-C



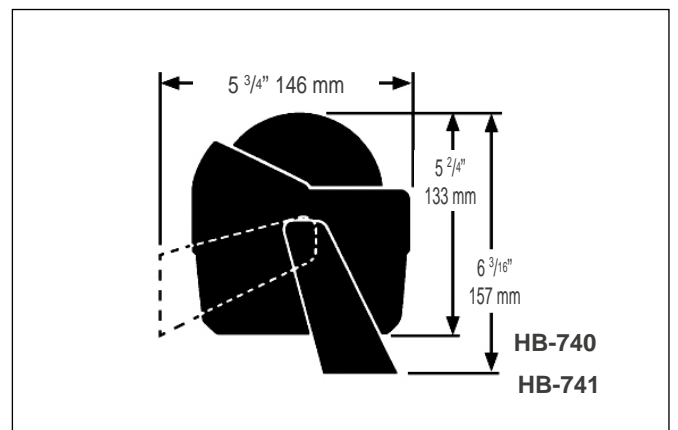
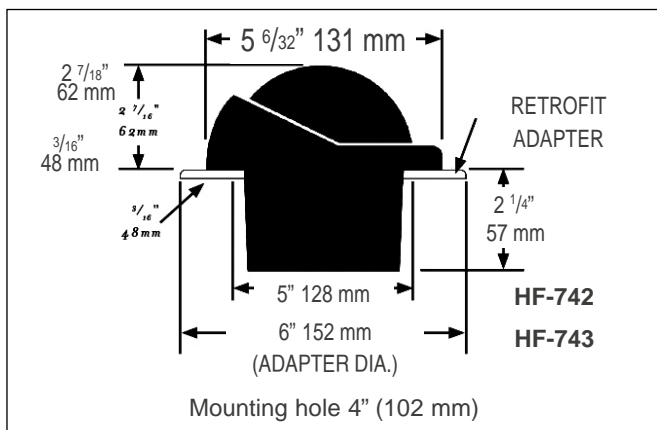
HF-742W



HF-743W

| RITCHIE® MODEL | UFLEX® PART No. | DIAL APP. Ø | MOUNT   | BOAT TYPE  | DIAL READING | NIGHT LIGHTING | COMPENSATORS | WEIGHT        |
|----------------|-----------------|-------------|---------|------------|--------------|----------------|--------------|---------------|
| HF-742         | 67373V          | 3 3/4"      | flush   | power/sail | flat-card    | 12V green      | built-in     | 907 g - 2 lbs |
| HF-742W        | 67323D          | 3 3/4"      | flush   | power/sail | flat-card    | 12V green      | built-in     | 907 g - 2 lbs |
| HF-743         | 67107X          | 3 3/4"      | flush   | power/sail | combi-dial   | 12V green      | built-in     | 907 g - 2 lbs |
| HF-743W        | 67375Z          | 3 3/4"      | flush   | power/sail | combi-dial   | 12V green      | built-in     | 907 g - 2 lbs |
| HB-740         | 67370N          | 3 3/4"      | bracket | power/sail | flat-card    | 12V green      | built-in     | 907 g - 2 lbs |
| HB-741         | 67371R          | 3 3/4"      | bracket | power/sail | combi-dial   | 12V green      | built-in     | 907 g - 2 lbs |

Optional protective cover H-741-C 67376B: for HF-742, HF-743, HB-740 and HB-741 compasses



# VENTURE® AND SUPERSPORT™ SERIES

DIAL APP. DIAMETER: 3 3/4" (94 mm)

**RITCHEIE**  
NAVIGATION



VENTURE SR-2



SUPERSPORT SS-1002



SUPERSPORT SS-PR2



INC-45



**SR-CM2**  
Compensator for  
SR-2 compass  
(optional)



SS-1002W

Mount at any angle up  
to 45°



SS-PR-2

| RITCHEIE®<br>MODEL | UFLEX®<br>PART No. | DIAL<br>APP. Ø | MOUNT    | BOAT TYPE              | DIAL<br>READING               | NIGHT<br>LIGHTING | COMPENSATORS | WEIGHT        |
|--------------------|--------------------|----------------|----------|------------------------|-------------------------------|-------------------|--------------|---------------|
| SR-2               | 67109B             | 3 3/4"         | bulkhead | sail                   | combi-dial                    | 12-24V blue       | optional     | 910 g - 2 lbs |
| SS-1002            | 67377D             | 3 3/4"         | flush    | high perform.<br>power | powerdamp +<br>flat-card dial | 12V green         | built-in     | 907 g - 2 lbs |
| SS-1002W           | 67378F             | 3 3/4"         | flush    | high perform.<br>power | powerdamp +<br>flat-card dial | 12V green         | built-in     | 907 g - 2 lbs |
| SS-PR2             | 67380S             | 3 3/4"         | bulkhead | powerboats             | combi-dial                    | 12V green         | built-in     | 910 g - 2 lbs |

Venture® compass is provided with protective cover (front and back cover) and with inclinometer **INC-45** 67381U.

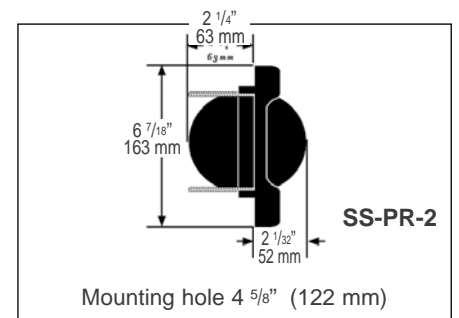
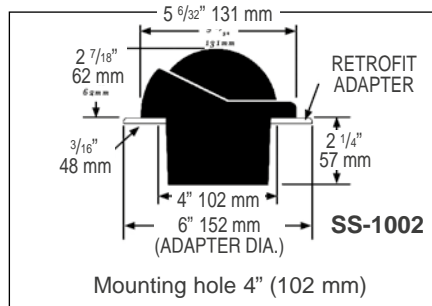
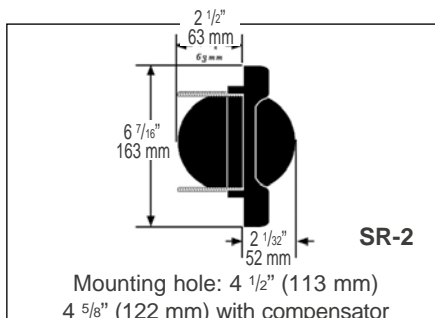
**SR-CM2** 67382W compensator is optional.

Supersport™ SS-PR2 compass is provided with protective cover.

Optional protective **front cover BK-19-C** - 68878H: for Venture SR-2 compasses

Optional protective **back cover BK-0020** - 68879K: for Venture and SS-PR2 compasses

Optional protective cover **H-741-C** - 67376B: for SS-1002 compasses



BK-19-C



H-741-C



BK-0020



BN-202



FNW-201



FN-201 WM



DNP-200



DNB-200 WM



BN-C



FNW-201 WM



FN-203



DNP-200 WM



DNW-200 WM



SS-2000



SS-2000W



FNW-203



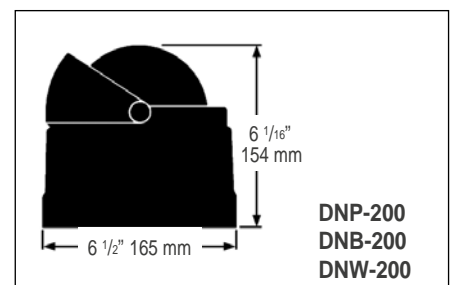
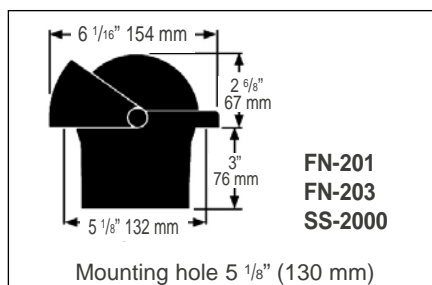
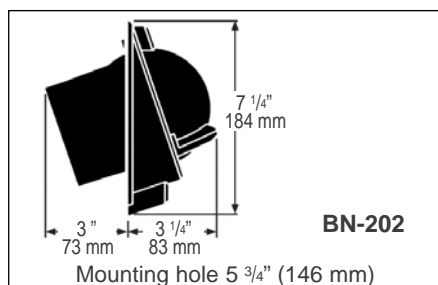
WS-P

Weather shield  
**WS-P** (optional) – 67403B  
for DN-200 compasses

| RITCHEIE® MODEL     | UFLEX® PART No. | DIAL APP. Ø | MOUNT          | BOAT TYPE          | DIAL READING               | NIGHT LIGHTING | COMPENSATORS | WEIGHT            |
|---------------------|-----------------|-------------|----------------|--------------------|----------------------------|----------------|--------------|-------------------|
| BN-202              | 67324F          | 4 1/2"      | bulkhead mount | power/sail         | combi-dial                 | 12V            | built-in     | 1050 g - 2.05 lbs |
| FN-201 WM           | 69731F          | 4 1/2"      | flush          | power/sail         | flat-card                  | 12V green      | built-in     | 1190 g - 2.1 lbs  |
| FNW-201 WM          | 69732H          | 4 1/2"      | flush          | power/sail         | flat-card                  | 12V green      | built-in     | 1190 g - 2.1 lbs  |
| FN-203              | 67326K          | 4 1/2"      | flush          | power/sail         | combi-dial                 | 12V green      | built-in     | 1190 g - 2.1 lbs  |
| FNW-203             | 67387G          | 4 1/2"      | flush          | power/sail         | combi-dial                 | 12V green      | built-in     | 1190 g - 2.1 lbs  |
| SS-2000 SUPERSPORT  | 67379H          | 4 1/2"      | flush          | high perform power | powerdamp + flat-card dial | 12V green      | built-in     | 1190 g - 2.1 lbs  |
| SS-2000W SUPERSPORT | 67327M          | 4 1/2"      | flush          | high perform power | powerdamp + flat-card dial | 12V green      | built-in     | 1190 g - 2.1 lbs  |
| DNB-200 WM          | 69586Z          | 4 1/2"      | binnacle       | power/sail         | flat-card                  | 12V green      | built-in     | 1650 g - 3.1 lbs  |
| DNW-200 WM          | 69585X          | 4 1/2"      | binnacle       | power/sail         | flat-card                  | 12V green      | built-in     | 1650 g - 3.1 lbs  |
| DNP-200 WM          | 69587B          | 4 1/2"      | binnacle       | power/sail         | flat-card                  | 12V green      | built-in     | 1650 g - 3.1 lbs  |

Optional protective cover **BN-C** 67394D: for BN-202 compass

Optional protective cover **N-203-C** 67395F: for FN-201, FN-203, SS-2000 and DN-200 compasses



Navigator compasses with wheel mark symbol (Wheelmark certified)

# GLOBEMASTER® AND SUPERSPORT™ SERIES

DIAL APP. DIAMETER: 5" (127 MM)

**RITCHEE**  
NAVIGATION



SP-5C



D-515-EP



FB-500



SP-5B



D-515-X



SS-5000



SS-5000W

| RITCHEE® MODEL      | UFLEX® PART No. | DIAL APP. Ø | MOUNT    | BOAT TYPE           | DIAL READING               | NIGHT LIGHTING | COMPENSATORS | WEIGHT          |
|---------------------|-----------------|-------------|----------|---------------------|----------------------------|----------------|--------------|-----------------|
| SP-5B               | 67329S          | 5"          | binnacle | power/sail          | flat-card                  | 12V/24V green  | built-in     | 2720 g - 6 lbs  |
| SP-5C               | 67328P          | 5"          | binnacle | power/sail          | flat-card                  | 12V/24V green  | built-in     | 2720 g - 6 lbs  |
| D-515-EP            | 67396H          | 5"          | binnacle | power/sail          | flat-card                  | 12V/24V green  | built-in     | 4540 g - 10 lbs |
| D-515-X             | 67397K          | 5"          | binnacle | power/sail          | flat-card                  | 12V/24V green  | built-in     | 4540 g - 10 lbs |
| FB-500              | 67398M          | 5"          | flush    | power/sail          | flat-card                  | 12V/24V green  | built-in     | 2610 g - 5 lbs  |
| SS-5000 SUPERSPORT  | 67399P          | 5"          | flush    | high perform. power | powerdamp + flat-card dial | 12V/24V green  | built-in     | 2610 g - 5 lbs  |
| SS-5000W SUPERSPORT | 67400V          | 5"          | flush    | high perform. power | powerdamp + flat-card dial | 12V/24V green  | built-in     | 2610 g - 5 lbs  |

Voltage available on request: 32V

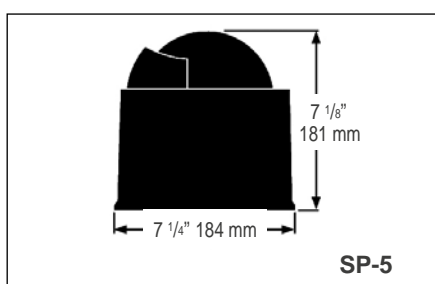
Optional protective cover **GM-5-C** 67401X:  
for SP-5 and D-515-EP compasses

Optional protective cover **LL-C** 67402Z:  
for FB-500 and SS-5000

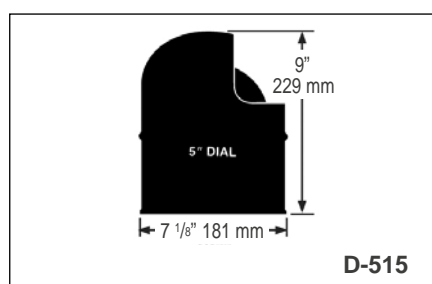
Weather shield **WS-P (optional)** 67403B:  
for SP-5 and D-515-EP

All Globemaster® compasses are individually custom assembled to order.

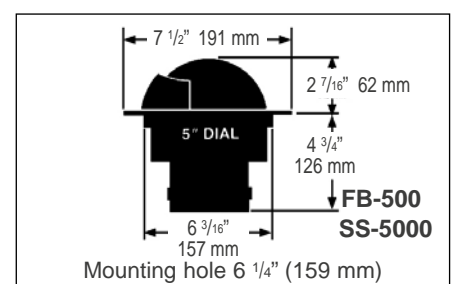
When ordering a Globemaster® compass it is important to specify your choice of power or sailboat model; 2°, 2° w/points, or 5° dial; 12, 24, or 32-volt night lighting and your choice of Polished Stainless (P), Black (B) or Polished Brass (X) finish on all models.



SP-5



D-515



Mounting hole 6 1/4" (159 mm)

Super Yacht Series is a unique blend of heritage polished bronze bezel, dial bushing and modern Ritchie compass technology.

Your compass can be personalized with engraving on the bezel.

Each compass is marked with a sequential coined serial number recorded at the factory.

**Voltages** available:

- 12V (standard)
- 24/32 V available upon request

**Dial:** choice of 2 degree with points or 5 degree

**Bezel:** polished bronze or chromed bronze (to be specified when ordering the compass).

Full internal gimbals.

**Light style:** Low profile (LL) or Power Lighting (PL)



SY-600LL - 67498S



SY-600PL - 67499U



SY-500LL - 67494H



SY-500LLC - 67496M



## STEEL AND COMMERCIAL BOAT COMPASSES HELMSMAN E NAVIGATOR SERIES

**RITCHIE®**  
NAVIGATION

Ritchie® steel boat compasses are completely equipped with the necessary compensating equipment (BIC and quadrant spheres) to provide proper operation on steel hulled boats.

### HB-845

- **Dial size/design:** 95 mm (3 3/4") / Flat-Card Dial
- **Night lighting:** 12V green
- **Overall dimensions:** 305 x 157 mm (12" x 6 1/6")
- **Base:** 111 mm (4 3/8")
- **Warranty:** 5 years
- **Protective cover:** Model No. H-741-C
- **45° Lubber lines**
- **Optional night lighting** available in 24 and 32V



HB-845 - 69588D

### B-200P

- **Dial size/design:** 114 mm (4 1/2") / Flat-Card Dial 5 degree markings
- **Night lighting:** 12V green
- **Overall dimensions:** 438 x 157 mm (17 1/4" x 6 1/6")
- **Base:** 184 mm (7 1/4")
- **Warranty:** 5 years
- **Protective cover:** Model No. N-203-C
- Full internal gimbal
- **45° Lubber lines**
- **Optional night lighting** available in 24 and 32V



B-200P - 69589F

### RITCHIE® POINT OF PURCHASE DISPLAY

For our distributors and dealers a **FREE** of charge Display is available ordering 12 compasses, two for each type, selected among the following models:

B-51, B-51W, B-81, S-53, S-53W, F-83, F-83W, SS-1002, SS-1002W

Ritchie® Display: 67577M





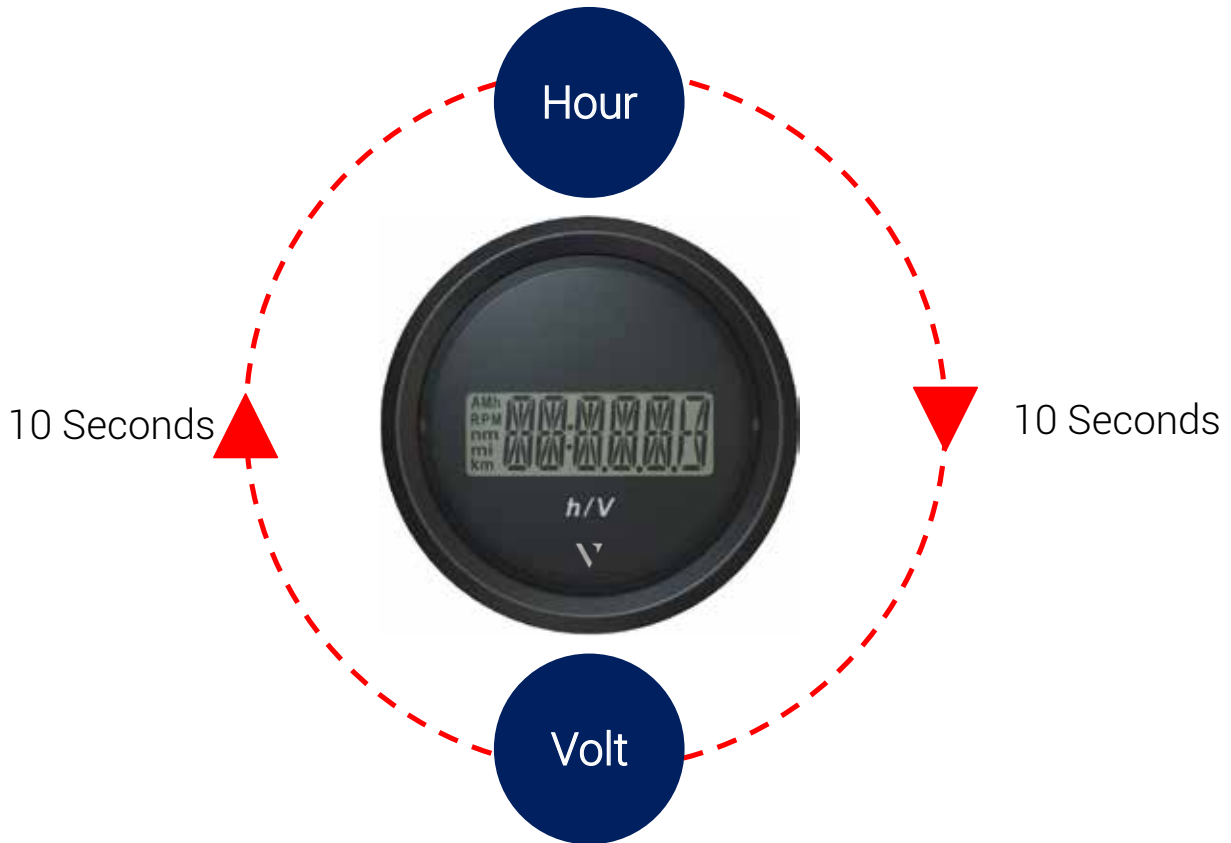
# veratron

MARINE



## 2 IN 1 - VOLTMETER AND HOUR COUNTER

The ViewLine 2 in 1 - 52 mm provides you with battery status and engine hours.

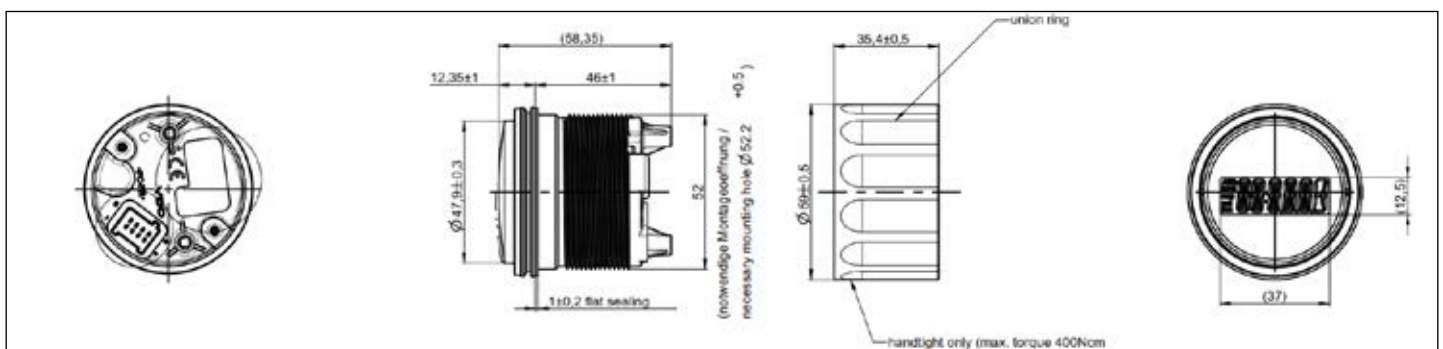


| Veratron Article No. | Part No. | Colour | Descriptions      |
|----------------------|----------|--------|-------------------|
| <b>Ø 52 mm</b>       |          |        |                   |
| B00005302            | 23073J   | Black  | Black round bezel |
| B00006302            | 23074L   | White  | White round bezel |

### TECHNICAL FEATURES

- Operating voltage: 9-48 VDC
- Power consumption: <50 mA
- Reverse polarity protection: Yes
- Load dump protection: Yes
- Operating temperature: -40°C +80°C
- Storage temperature: -40°C +80°C
- Protection class: IP67 front and IP52 back

### DIMENSIONS



Gauge to indicate engine revolution, engine hours, voltage and clock.

The Viewline rev counter with or without operating hours counter (OHC) can be connected to conventional marine engines (no data bus).

- Indication error < 2.5 % over the entire display range
- Current consumption < 175 mA, with warning light (LED)
- Volatage: 8 - 32 V
- Output for acoustic alert (option)
- Various sensor inputs
- LC display size 37 mm x 11 mm
- Individually programmable display e. g., for clock, trip, odometer, etc. via externally switchable button or PC software (ViewLine programming tool)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 85 mm installation diameter
- 50 mm installation depth
- Input: W, Ind, Hall, Generator

**PACKAGE CONTENTS**

Tachometer gauge, adapter cable 8 pole, adapter cable 14 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



| Veratron Article No. (black) | Part No. | Range rpm |
|------------------------------|----------|-----------|
| <b>Ø 85 mm</b>               |          |           |
| A2C59512390                  | 60212CA  | 3000      |
| A2C59512391                  | 60214EA  | 4000      |
| A2C59512392                  | 60216GA  | 5000      |
| A2C59512393                  | 60218KA  | 6000      |
| A2C59512394                  | 60220CA  | 7000      |
| A2C59512395                  | 60222EA  | 8000      |

| Veratron Article No. (white) | Part No. | Range rpm |
|------------------------------|----------|-----------|
| <b>Ø 85 mm</b>               |          |           |
| A2C59512396                  | 60213DA  | 3000      |
| A2C59512397                  | 60215FA  | 4000      |
| A2C59512398                  | 60217HA  | 5000      |
| A2C59512399                  | 60219LA  | 6000      |
| A2C59512400                  | 60221DA  | 7000      |

On pleasure boats with twin engine installations, the ViewLine synchronizer is an indispensable aid to ensuring correct synchronized running of both units.

- 8 and 14 pole Tyco / Hirschmann bush housing
- Accuracy +/- 2.5 %
- Current consumption 150 mA
- 2nd frequency input
- Connection for external alerts (option)
- Number of pulses programmable via dip switch or PC software (ViewLine programming tool)
- Anti-fog double lens
- Front side protection rating IP67
- 85 mm installation diameter
- 50 mm installation depth



## PACKAGE CONTENTS

Synchronizer gauge, adapter cable 8 pole, adapter cable 14 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range rpm   | Voltage  | Input     |
|----------------------|----------|--------|-------------|----------|-----------|
| <b>Ø 85 mm</b>       |          |        |             |          |           |
| A2C59512402          | 60224GA  | Black  | -500 / +500 | 8 - 32 V | W, 1, Ind |
| A2C59512403          | 60225HA  | White  | -500 / +500 | 8 - 32 V | W, 1, Ind |

# GPS SPEED

This multifunctional gauge with segment display is intended for use in the marine market in open boats.

Based on the ViewLine housing concept, the cluster provides an ideal IP protection class, a modern appearance and high quality standards. It provides many parameters in NMEA 2000® and there are several customization opportunities to meet specific customer demands.

- Embedded GPS antenna
- Robust and flexible design for versatile applications
- CAN capability (NMEA 2000®)
- Pointer for analog indication of Speed over Ground (SOG)
- Programmable speed alarm
- Fixed segment LC display
- Flush mount possibility
- Front side protection rating IP67
- Compass for Course over Ground (COG)
- Clock
- 110 mm installation diameter
- 126 mm outer diameter
- 50 mm installation depth

## PACKAGE CONTENTS

GPS speed gauge, GPS speed cable, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions



| Veratron Article No. | Part No. | Range (knots/kmh/mph) | Voltage    | Operating temperature |
|----------------------|----------|-----------------------|------------|-----------------------|
| <b>Ø 110 mm</b>      |          |                       |            |                       |
| A2C59501987          | 60226IA  | 0 - 12                | 8.5 - 16 V | -20° / +85°C          |
| A2C59501782          | 60227JA  | 0 - 35                | 8.5 - 16 V | -20° / +85°C          |
| A2C59501781          | 60228MA  | 0 - 70                | 8.5 - 16 V | -20° / +85°C          |

The ViewLine temperature gauge displays any sudden rise in oil temperature, thus helping to prevent serious damage to the engine and the associated expense.

- 8 pole Tyco / Hirschmann MQS plug
- +/- 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in °F

## PACKAGE CONTENTS

Oil temperature gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range       | Voltage  | Input                 |
|----------------------|----------|--------|-------------|----------|-----------------------|
| <b>Ø 52 mm</b>       |          |        |             |          |                       |
| A2C59514160          | 60231FA  | Black  | 50° - 150°C | 8 - 32 V | 322.8 - 18.6 $\Omega$ |
| A2C59514231          | 60232GA  | White  | 50° - 150°C | 8 - 32 V | 322.8 - 18.6 $\Omega$ |

# COOLANT TEMPERATURE

The ViewLine temperature gauge displays any sudden rise in coolant temperature, thus helping to prevent serious damage to the engine and the associated expense.

- 8 pole Tyco / Hirschmann MQS plug
- +/- 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in °F

## PACKAGE CONTENTS

Coolant temperature gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range       | Voltage  | Input                 |
|----------------------|----------|--------|-------------|----------|-----------------------|
| <b>Ø 52 mm</b>       |          |        |             |          |                       |
| A2C59514170          | 60235JA  | Black  | 40° - 120°C | 8 - 32 V | 287.4 - 22.7 $\Omega$ |
| A2C59514237          | 60236KA  | White  | 40° - 120°C | 8 - 32 V | 287.4 - 22.7 $\Omega$ |

## PYROMETER

The Viewline pyrometer indicates the exhaust temperature at the end of the exhaust pipe (up to 900 °C/1650 °F). The relationship of this value to the maximum permitted exhaust temperature shows how efficient combustion is at that particular load. A rise in temperature is therefore an important early warning signal.

- 8 pole Tyco / Hirschmann MQS plug
- < 2.5 % accuracy over the entire display range
- Current consumption < 100 mA, with integrated warning light (LED)
- 240° display angle
- Programmable warning point (via optional PC software)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in °F

### PACKAGE CONTENTS

Pyrometer gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range        | Voltage  | Input |
|----------------------|----------|--------|--------------|----------|-------|
| <b>Ø 52 mm</b>       |          |        |              |          |       |
| A2C59512332          | 60239PA  | Black  | 100° - 900°C | 8 - 32 V | 37 mV |
| A2C59512333          | 60240GA  | White  | 100° - 900°C | 8 - 32 V | 37 mV |

## CLOCK

The clearly readable dial on the Viewline quartz clock adds a stylish touch to every pleasure boat and yacht cockpit.

- 8 pole Tyco / Hirschmann MQS plug
- Current consumption < 10 mA
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth

Available as 12 or 24 volt



### PACKAGE CONTENTS

Clock gauge, adapter cable 8 pole, round bezel, pushbutton for time setting configuration, spinlock nut, Rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Voltage   |
|----------------------|----------|--------|-----------|
| <b>Ø 52 mm</b>       |          |        |           |
| A2C59513445          | 60311EA  | Black  | 8 - 16 V  |
| A2C59513443          | 60312FA  | White  | 8 - 16 V  |
| A2C59513446          | 60313GA  | Black  | 18 - 32 V |
| A2C59513444          | 60314HA  | White  | 18 - 32 V |

The Viewline ammeter provides an overview of the entire electrical system. The level of current being drawn and the supply current are clearly displayed and the shunt – a measurement resistor – can be inserted into the measurement point in a matter of seconds. The fine connecting cable that runs from the shunt to the gauge is easy to lay without taking up much space.

- 8 pole Tyco / Hirschmann MQS plug
- < 2.5 % accuracy over the entire display range
- Current consumption < 100 mA, with integrated warning light (LED)
- 240° display angle
- Programmable warning point (PC software)
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



**PACKAGE CONTENTS**

Ammeter gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range         | Voltage  | Input |
|----------------------|----------|--------|---------------|----------|-------|
| <b>Ø 52 mm</b>       |          |        |               |          |       |
| A2C59512328          | 60289GA  | Black  | -60 / +60 A   | 8 - 32 V | 60 mV |
| A2C59512330          | 60290XA  | White  | -60 / +60 A   | 8 - 32 V | 60 mV |
| A2C59512329          | 60291YA  | Black  | -150 / +150 A | 8 - 32 V | 60 mV |
| A2C59512331          | 60292ZA  | White  | -150 / +150 A | 8 - 32 V | 60 mV |

**ENGINE OIL PRESSURE 5 BAR**

The Viewline pressure gauge detects fluctuations in engine oil pressure.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in PSI

**PACKAGE CONTENTS**

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range     | Voltage  | Input      |
|----------------------|----------|--------|-----------|----------|------------|
| <b>Ø 52 mm</b>       |          |        |           |          |            |
| A2C59514123          | 60249RA  | Black  | 0 - 5 bar | 8 - 32 V | 10 - 184 Ω |
| A2C59514211          | 60250IA  | White  | 0 - 5 bar | 8 - 32 V | 10 - 184 Ω |

## ENGINE OIL PRESSURE 10 BAR

The Viewline pressure gauge detects fluctuations in engine oil pressure.

- Connettori a 8 poli Tyco/Hirschmann tipo MQS plug
- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in PSI

### PACKAGE CONTENTS

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range      | Voltage  | Input             |
|----------------------|----------|--------|------------|----------|-------------------|
| <b>Ø 52 mm</b>       |          |        |            |          |                   |
| A2C59514111          | 60253LA  | Black  | 0 - 10 bar | 8 - 32 V | 10 - 184 $\Omega$ |
| A2C59514199          | 60254MA  | White  | 0 - 10 bar | 8 - 32 V | 10 - 184 $\Omega$ |

## 25 BAR TRANSMISSION OIL PRESSURE

The Viewline pressure gauge detects fluctuations in gearbox oil pressure.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard  $\Omega$  values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in PSI

### PACKAGE CONTENTS

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range      | Voltage  | Input             |
|----------------------|----------|--------|------------|----------|-------------------|
| <b>Ø 52 mm</b>       |          |        |            |          |                   |
| A2C59514136          | 60255NA  | Black  | 0 - 25 bar | 8 - 32 V | 10 - 184 $\Omega$ |
| A2C59514206          | 60256OA  | White  | 0 - 25 bar | 8 - 32 V | 10 - 184 $\Omega$ |



The Viewline pressure gauge detects fluctuations in gearbox oil pressure.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in PSI

## PACKAGE CONTENTS

Oil pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range      | Voltage  | Input      |
|----------------------|----------|--------|------------|----------|------------|
| <b>Ø 52 mm</b>       |          |        |            |          |            |
| A2C59514141          | 60257PA  | Black  | 0 - 30 bar | 8 - 32 V | 10 - 184 Ω |
| A2C59514208          | 60258SA  | White  | 0 - 30 bar | 8 - 32 V | 10 - 184 Ω |

# TURBO PRESSURE 2 BAR

The Viewline pressure gauge detects changes in the turbocharger boost.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



The outer scale is available also in PSI

## PACKAGE CONTENTS

Turbo pressure gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR DB code, safety instructions

| Veratron Article No. | Part No. | Colour | Range     | Voltage  | Input      |
|----------------------|----------|--------|-----------|----------|------------|
| <b>Ø 52 mm</b>       |          |        |           |          |            |
| A2C59514149          | 60261LA  | Black  | 0 - 2 bar | 8 - 32 V | 10 - 184 Ω |
| A2C59514225          | 60262MA  | White  | 0 - 2 bar | 8 - 32 V | 10 - 184 Ω |

## RUDDER POSITION

The Viewline rudder angle instrument for wheel-controlled yachts displays the current rudder position at all times. An important cockpit instrument for accident-free maneuvers in narrow waterways.

- 8 pole Tyco / Hirschmann bush housing
- Current consumption < 150 mA
- Anti-fog double lens
- Front side protection rating IP67
- 52 or 85 mm installation diameter
- 50 mm installation depth

**Note:**

52 mm range: 40° Port to 40° Starboard

85 mm range: 45°Port to 45° Starboard



### PACKAGE CONTENTS

Rudder angle instrument, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range       | Voltage  | Input     |
|----------------------|----------|--------|-------------|----------|-----------|
| <b>Ø 52 mm</b>       |          |        |             |          |           |
| A2C59514154          | 60263NA  | Black  | -40° / +40° | 8 - 32 V | 3 - 180 Ω |
| A2C59514230          | 60264OA  | White  | -40° / +40° | 8 - 32 V | 3 - 180 Ω |
| <b>Ø 85 mm</b>       |          |        |             |          |           |
| A2C59512410          | 60265PA  | Black  | -45° / +45° | 8 - 32 V | 3 - 180 Ω |
| A2C59512411          | 60266QA  | White  | -45° / +45° | 8 - 32 V | 3 - 180 Ω |

## FUEL TANK LEVEL 0-90 Ω

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for lever type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range         | Voltage  | Input    |
|----------------------|----------|--------|---------------|----------|----------|
| <b>Ø 52 mm</b>       |          |        |               |          |          |
| A2C59514085          | 60271NA  | Black  | Vuoto - Pieno | 8 - 32 V | 0 - 90 Ω |
| A2C59514186          | 60272OA  | White  | Empty - Full  | 8 - 32 V | 0 - 90 Ω |

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for lever type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



**PACKAGE CONTENTS**

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range   | Voltage  | Input     |
|----------------------|----------|--------|---------|----------|-----------|
| <b>Ø 52 mm</b>       |          |        |         |          |           |
| A2C59514082          | 60273PA  | Black  | 0 - 1/1 | 8 - 32 V | 3 - 180 Ω |
| A2C59514184          | 60274QA  | White  | 0 - 1/1 | 8 - 32 V | 3 - 180 Ω |

**FUEL TANK LEVEL 240-33.5 Ω**

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for lever type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



**PACKAGE CONTENTS**

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range        | Voltage  | Input        |
|----------------------|----------|--------|--------------|----------|--------------|
| <b>Ø 52 mm</b>       |          |        |              |          |              |
| A2C59514094          | 60277TA  | Black  | Empty - Full | 8 - 32 V | 240 - 33.5 Ω |
| A2C59514190          | 60278WA  | White  | Empty - Full | 8 - 32 V | 240 - 33.5 Ω |

## FUEL TANK LEVEL 90-4 Ω

The Viewline fuel gauge provides information about the fuel level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values for dip type sensors
- 90° display angle
- Optional makepoint switch can be connected
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Fuel level gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range        | Voltage  | Input    |
|----------------------|----------|--------|--------------|----------|----------|
| <b>Ø 52 mm</b>       |          |        |              |          |          |
| A2C59514079          | 60279XA  | Black  | 0 - 1/1      | 8 - 32 V | 90 - 4 Ω |
| A2C59514182          | 60280VA  | White  | 0 - 1/1      | 8 - 32 V | 90 - 4 Ω |
| A2C59514088          | 60281WA  | Black  | Empty - Full | 8 - 32 V | 90 - 4 Ω |
| A2C59514188          | 60282XA  | White  | Empty - Full | 8 - 32 V | 90 - 4 Ω |

## TRIM ANGLE INDICATOR (OUTBOARD POSITION)

The Viewline trim gauge provides information about the position of the engine in relation to the boat's stern.

In this way the skipper always knows whether the drive is in the raised or lowered position. He can also optimise the boat's trim.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- Input signal: standard Ω values
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Trim gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range     | Voltage  | Input      |
|----------------------|----------|--------|-----------|----------|------------|
| <b>Ø 52 mm</b>       |          |        |           |          |            |
| A2C59514180          | 60283YA  | Black  | UP - Down | 8 - 32 V | 167 - 10 Ω |
| A2C59514244          | 60284ZA  | White  | UP - Down | 8 - 32 V | 167 - 10 Ω |

The Viewline voltmeter displays the status of generator and battery and their loads on a voltage scale. Values exceeding the normal charging voltages can therefore be monitored exactly. Even potential deep discharges can be detected.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated warning light (LED)
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



Available with 12 or 24 V

**PACKAGE CONTENTS**

Voltmeter gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Voltage   |
|----------------------|----------|--------|-----------|
| <b>Ø 52 mm</b>       |          |        |           |
| A2C59512545          | 60285AA  | Black  | 8 - 16 V  |
| A2C59512546          | 60286BA  | White  | 8 - 16 V  |
| A2C59512458          | 60287CA  | Black  | 18 - 32 V |
| A2C59512459          | 60288FA  | White  | 18 - 32 V |

**FRESH WATER LEVEL (CAPACITIVE)**

The Viewline freshwater tank gauge indicates the level of freshwater. Capacity sensors can be fitted for a maximum depth of up to 1,5 m.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 150 mA, with integrated LED warning light (red)
- Input signal: 4 – 20 mA current consumption (Veratron fresh water sensor)
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



**PACKAGE CONTENTS**

Fresh water gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range   | Voltage  | Input     |
|----------------------|----------|--------|---------|----------|-----------|
| <b>Ø 52 mm</b>       |          |        |         |          |           |
| A2C59514676          | 60297EA  | Black  | 0 - 1/1 | 8 - 32 V | 4 - 20 mA |
| A2C59514677          | 60298HA  | White  | 0 - 1/1 | 8 - 32 V | 4 - 20 mA |

## FRESH WATER LEVEL (RESISTIVE)

The Viewline freshwater gauge provides information about the water level in the tank and can be used with all types of tank sensors.

- 8 pole Tyco / Hirschmann MQS plug
- + / - 3.6° angle degree accuracy over the entire display range
- Current consumption < 140 mA
- Input signal: standard  $\Omega$  values
- 90° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth
- Voltage: 12/24 V



### PACKAGE CONTENTS

Fresh water gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range        | Voltage  | Input            |
|----------------------|----------|--------|--------------|----------|------------------|
| <b>Ø 52 mm</b>       |          |        |              |          |                  |
| A2C59514097          | 60301CA  | Black  | 0 - 1/1      | 8 - 32 V | 3 - 180 $\Omega$ |
| A2C59514192          | 60302DA  | White  | 0 - 1/1      | 8 - 32 V | 3 - 180 $\Omega$ |
| A2C59514099          | 60303EA  | Black  | Empty - Full | 8 - 32 V | 3 - 180 $\Omega$ |
| A2C59514193          | 60304FA  | White  | Empty - Full | 8 - 32 V | 3 - 180 $\Omega$ |

## WASTE WATER TANK LEVEL

The Viewline blackwater tank gauge indicates the level of wastewater. Capacity sensors can be fitted for a maximum depth of up to 1,5 m.

- 8 pole Tyco / Hirschmann MQS plug
- < 2.5 % accuracy over the entire display range
- Current consumption < 100 mA, with integrated warning light (LED)
- Input signal: 4 - 20 mA current consumption (Veratron waste water sensor)
- 240° display angle
- Reverse polarity protection
- Anti-fog double lens
- Front side protection rating IP67
- 52 mm installation diameter
- 50 mm installation depth



### PACKAGE CONTENTS

Waste water gauge, adapter cable 8 pole, round bezel, pushbuttons for mode and configuration, spinlock nut, rubber seal, QR code, safety instructions

| Veratron Article No. | Part No. | Colour | Range   | Voltage  | Input     |
|----------------------|----------|--------|---------|----------|-----------|
| <b>Ø 52 mm</b>       |          |        |         |          |           |
| A2C59512342          | 60305GA  | Black  | 0 - 1/1 | 8 - 32 V | 4 - 20 mA |
| A2C59512343          | 60306HA  | White  | 0 - 1/1 | 8 - 32 V | 4 - 20 mA |

**RUDDER ANGLE SENSOR FOR SINGLE STATION:**

| Veratron Article No. | Part No. | Voltage | Resistance |
|----------------------|----------|---------|------------|
| A2C1102950001        | 20741J   | 12/24 V | 10 - 180 Ω |

**RUDDER ANGLE SENSOR FOR DUAL STATION (FLY BRIDGE):**

| Veratron Article No. | Part No. | Voltage | Resistance |
|----------------------|----------|---------|------------|
| A2C1102960001        | 20742L   | 12/24 V | 5 - 90 Ω   |



**FRESH WATER CAPACITIVE SENSORS**

- Fresh water level sensor
- Sensor type: adjustable dip
- Voltage: 12/24 V
- Gasket kit: N05-001-370 - 22184N

| Veratron Article No. | Part No. | Signal range mA | Length       |
|----------------------|----------|-----------------|--------------|
| N02-240-402          | 60317KA  | 4-20 mA         | 80-600 mm    |
| N02-240-404          | 60318NA  | 4-20 mA         | 600-1200 mm  |
| N02-240-406          | 60319OA  | 4-20 mA         | 1200-1500 mm |



**WASTE WATER CAPACITIVE SENSORS**

- Waste water level sensor (capacitive)
- Sensor type: adjustable dip
- Voltage: 12/24 V
- Gasket kit: N05-016-930 - 21522B

| Veratron Article No. | Part No. | Signal range mA | Length      |
|----------------------|----------|-----------------|-------------|
| N02-240-902          | 60321GA  | 4-20 mA         | 80-600 mm   |
| N02-240-904          | 60322HA  | 4-20 mA         | 600-1200 mm |



## AMMETER SHUNT

- Individual packaging
- Voltage 12/24 V

| Veratron Article No. | Part No. | Range amp     | Input |
|----------------------|----------|---------------|-------|
| A2C59514043          | 60324JA  | -60 / +60 A   | 60 mV |
| A2C59514047          | 60325KA  | -150 / +150 A | 60 mV |



## PYROMETER SENSOR

### THERMOCOUPLE ELEMENT - COMPATIBLE ONLY WITH VERATRON:

| Veratron Article No. | Part No. | Range                         | Terminals                           |
|----------------------|----------|-------------------------------|-------------------------------------|
| N03-320-264          | 60473YA  | 100° - 900°C<br>250° - 1650°F | Red = Negative<br>Yellow = Positive |



## FUEL LEVEL SENSORS 3-180 Ω / 240-33.5 Ω

| Veratron Article No. | Part No. | Signal range empty/full | Length       | Item specifics  |
|----------------------|----------|-------------------------|--------------|---|
| 226-801-015-001G     | 60478FA  | 3-180 Ω                 | 150 - 600 mm | Fuel level sensor<br>Sensor type:<br>Adjustable lever 3-180 Ω |
| 226-801-015-001C     | 20084Y   | 3-180 Ω                 | 150 - 600 mm | Bulk adjustable lever<br>arm sensor (10 pcs)                  |



- Gasket kit: N05-801-432 - 61013UA

| Veratron Article No. | Part No. | Signal range empty/full | Length       | Item specifics   |
|----------------------|----------|-------------------------|--------------|--|
| A2C1364580001        | 21124N   | 240 - 33.5 Ω            | 150 - 600 mm | Fuel lever sensor<br>Sensor type: adjustable<br>lever                |
| A2C1364580002        | 25473M   | 240 - 33.5 Ω            | 150 - 600 mm | Fuel lever sensor<br>Sensor type: adjustable<br>lever<br>bulk 10 pcs |



- Gasket kit: N05-801-432 - 61013UA



The Veratron Deep-Pipe Level Sensor is ideal for usage in fuel tanks. Its 38 mm diameter vertical tube contains a float inside, which measures a level of the liquid. Small holes at the top and bottom of the tube act as a baffle to fuel sloshing around in the fuel tank, so the float position remains stable at any sea state.

Sensors are made in various lengths starting at 150 mm increasing to 1400 mm. Please ensure that the length chosen is at least 4 mm from the base of the fuel tank once fitted.

- TE Superseal Connector IP67
- Compensation chamber
- Flange: SAE 5 holes
- Wiring harness with length of 200 mm
- 3 signal ranges: 90–4 Ω, 0–180 Ω, 240–33 Ω
- Length: 150 mm–1400 mm (10mm step)
- Mounting diameter: 54 mm
- IP67 protection rating

**AFT. PACKAGE CONTENTS**

Deep-Pipe Level Sensor, Safety Instructions, Installation Instructions, Installation Kit A2C17593300 - 23071E

**ACCESSORIES**

6 m Wiring Harness A2C1756300001 - 23072G

**FLANGE ADAPTER KIT**

To be installed with the new sensors to replace the old 80 mm sensors: B00001201 - 22984Y



Deep-pipe liquid level sensor

For codes identification, once the length and the desired signal are known, please refer to your Uflex dealer.

# veratron V

MARINE



Small but powerful, the VMH Flex is the perfect compromise to display a large amount of boat data in a compact device. No matter if you are wearing gloves or if it is raining on your deck, the innovative laser touch- button allows you to scroll up to 5 different screens. Every screen can be freely customized with your most important information, and the setup – including alarms – is easily done with your smartphone just with a »tap«.

Capable of reading from both sensors and CAN the VMH Flex is further empowered by the LIN connectivity to get all the information from your battery thanks to the Intelligent Battery Sensor.

## FEATURES

- Up to 5 scrollable screens in single or dual layout
- Innovative laser touch-button reliable in every practical condition
- CAN bus connectivity (NMEA 2000® or J1939)
- 2x analog inputs for direct sensor connections
- Embedded analog to NMEA 2000® converter
- LIN port for Intelligent Battery Sensor
- Dimensions: 60 mm (outer) 52 mm (mounting hole)
- Display: 1.44" sun-readable color TFT display
- Nominal voltage: 12 / 24 V
- Operating voltage: 9 - 32 V
- Protection class: IP X7 (when mounted with connector)
- Operating temperature: -20°C to +70°C

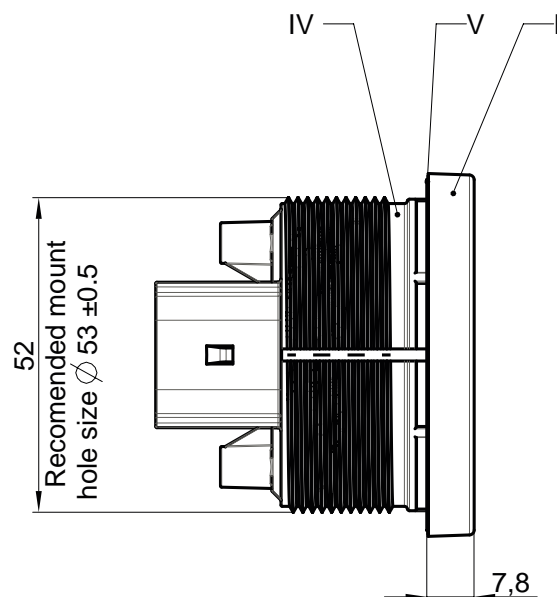
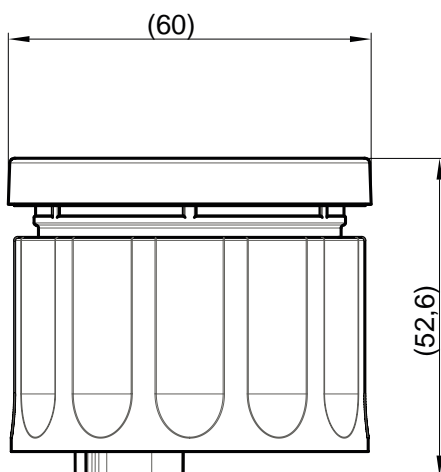


new



VMH FLEX

|            | Veratron part n. | Uflex part n. |
|------------|------------------|---------------|
| NMEA 2000® | B00186401        | 25824R        |
| SAE J1939  | B00127801        | 25825T        |



# VMH70 DISPLAY



The best-in-class VMH 70 display is designed to manage large amounts of complex data, and thanks to its real-time operating system it ensures full control on vital engine information immediately after power up.

Easily configured to display information from up to four engines when connected to NMEA2000 or two engines via J1939 or analog inputs simultaneously, it has large possible setting.

This allows users to group similar items such as single or dual engines, battery performance, fuel, water, waste, tank level, rudder and trim, onboard systems, navigation and weather, if desired.

The device has an integrated light sensor that adjusts for easy reading without eye strain, no matter how bright or dark the conditions, and two camera inputs allow to control the engine compartment during navigation and keep an eye on the main deck while maneuvering.

The embedded NMEA 2000 gateway brings all the sensor readings and alarms to your external multifunctional display, saving the cost of an additional converter.

## FEATURES

- Veratron VMH premium instruments series
- 7" sun-readable IPS TFT touchscreen display
- Slim panel installation profile
- Mineral glass front lens
- Reliably operating in high-temperature environments
- IPX7 protection rating (exposed device)
- NMEA 2000 certified
- Fully configurable analog inputs for direct sensor connections with NMEA 2000 gateway
- Customizable startup screen
- Dual SAE J1939 CAN ports
- Easily customizable GUI screens



Lateral touch buttons are RGB illuminated and allow for a quick brightness adjustment

## CUSTOMIZE YOUR SCREENS WITH MORE THAN 40 AVAILABLE DATA



The VMH series look and feel gives an elegant and stylish touch to your dashboard



VMH70

Intelligent Battery Sensor (IBS) screen to keep your energy supplies under control

## ACCESSORIES AND SPARE PARTS

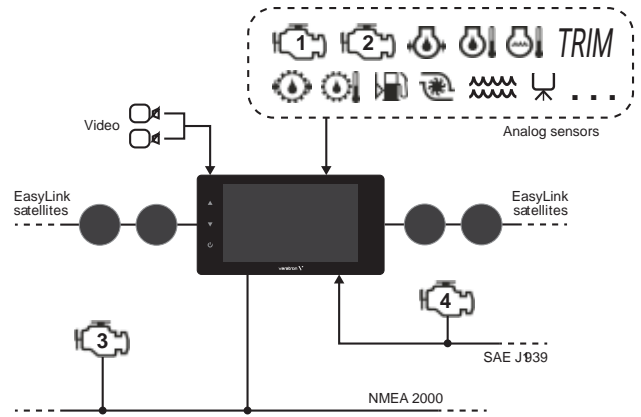
| Model                          | Veratron Article No.  | Part No. |
|--------------------------------|-----------------------|----------|
| Sun cover*                     | B00134401             | 24900Z   |
| Panel mounting kit*            | B00067201             | 24906M   |
| Engine 1 power and data cable* | A2C1507870001         | 24907P   |
| Engine 2 data cable*           | A2C1992110001         | 24908S   |
| EasyLink extension cable*      | A2C59500139           | 21538T   |
| Video cable 0,3 m              | A2C1845710001         | 21944E   |
| NMEA 2000 drop cables          | A2C9624370001 - 0.5 m | 21148D   |
|                                | A2C9624380001 - 2m    | 21149F   |
|                                | A2C9624400001 - 6m    | 21150P   |
| VMH 14 satellite instrument    | B00109901             | 21965N   |

\* included in the box



## INPUTS

- 6x resistive sensor inputs
- 2x frequency inputs for RPM readings
- 3x 0-5V sensor inputs
- 2x 4-20mA sensor inputs
- 2x SAE J1939 CAN ports
- 2x EasyLink channels
- 2x Composite video inputs



## TECHNICAL DATA

|                            |  |
|----------------------------|--|
| <b>Nominal voltage</b>     | 12/24 V  |
| <b>Operating voltage</b>   | 9 - 32 V   |
| <b>Current consumption</b> | Max. 1.2 A @ 12 V with full backlight intensity<br>≤ 200 mA in standby mode  |
| <b>Display</b>             | 7" IPS TFT display with multitouch screen<br>Full 24 bit / 16 mio. colors<br>800x480 px resolution<br>800 cd/m2 intensity            |
| <b>Dimensions</b>          | WxH: 220 x 128 mm<br>Profile height: 6 mm (with sealing)   |
| <b>Mounting</b>            | Front panel mount via mounting kit   |
| <b>Nominal position</b>    | NL 0° to NL 90° acc. to DIN 16257  |
| <b>Protection class</b>    | IPX7 acc. to IEC 60945 (exposed equipment)<br>with plugged-in connectors or blind plugs  |
| <b>Housing</b>             | Aluminum case, mineral glass front lens  |
| <b>Connectors</b>          | 2x Molex MX-150, 12 pins<br>1x DeviceNet M12, 5 pins (NMEA 2000)<br>2x TE SuperSeal 1.5, 3 pins (EasyLink)<br>1x M12, 4 pins (Video) |
| <b>Flammability</b>        | V0 acc. to UL-94   |
| <b>Compliance</b>          | CE, UKCA, Reach, RoHS  |

## VESSEL DATA

|                     |                   |
|---------------------|-------------------|
| Engine data         | Transmission      |
| GPS information     | Wind data         |
| Battery status      | Tank levels       |
| Vessel roll & pitch | Weather           |
| Media box radio     | Trip and distance |



Every place of the boat is under your control thanks to the dual video input

| Model  | Veratron Article No. | Part No. |
|--------|----------------------|----------|
| VMH 70 | B00129201            | 24897P   |

## VMH 14 EASYLINK SATELLITES

- VMH look-and-feel
- Digital display with visual bargraph
- Easylink interface
- Up to 16 satellites
- Configurable with your smartphone via Airlink
- Trim, voltmeter, fuel level, water temperature, transmission oil temperature and pressure, engine oil temperature and pressure
- 12/24 V
- Dimensions: Ø 60 mm external, Ø 52 mm mounting hole



| Model  | Veratron Article No. | Part No. |
|--------|----------------------|----------|
| VMH 14 | B00109901            | 21965N   |



VMH 14

## FEATURES

- Stylish black-glass design with brushed stainless-steel ring
- New generation sun-readable color hybrid display
- Intelligent Battery Sensor (IBS) port
- Analog to NMEA 2000® gateway
- Integrated high-performance GNSS receiver
- NMEA 2000® certified

Designed with stylish mineral glass front lens framed by a brushed stainless-steel ring, it can display a wealth of critical boat system data in a compact package that's perfect for cockpits on smaller vessels with limited space.

The VMH 35 has an embedded GNSS receiver to support and show navigation information, while it is able to monitor analogue input directly, such as fuel, trim, and tachometer. A special input is dedicated to the Veratron IBS (Intelligent Battery Sensor). It can provide critical 12 V battery monitoring information. All these data are distributed to NMEA 2000® thanks to its embedded certified gateway.



Setup local alarms and send them to other devices via NMEA 2000®



The finest quality in every detail



Water-sealed connector and NMEA 2000® DeviceNet plug

## GPS DATA

|                                |                       |
|--------------------------------|-----------------------|
| Navigation system              | GPS, GLONASS, Galileo |
| Update rate                    | 10 Hz                 |
| Channels                       | 72                    |
| Tracking sensitivity           | -165 dBm              |
| Time to first fix (hot start)  | 1 s                   |
| Time to first fix (cold start) | 30 s                  |
| Position accuracy              | 2,5 m                 |
| Velocity accuracy              | 0,05 m/s              |
| Heading accuracy               | 0,3°                  |

## TECHNICAL DATA

|                       |   |
|-----------------------|---|
| Operating voltage     | 12 V  |
| Voltage range         | 9 - 16 V  |
| Protection class      | IP X7   |
| Flammability          | UL94 compliant                                  |
| Power consumption     | ≤ 170 mA (normal mode)<br>≤ 120 mA (sleep mode) |
| Dimensions            | Ø 100 (Ø 85 mm mounting)                        |
| Active area           | Ø 83 mm<br>(optically bonded display)           |
| Central display       | 1.44", 128 x 128 Pixel                          |
| Lens                  | Mineral glass                                   |
| Buttons               | 2 silicon buttons                               |
| Ring                  | Brushed stainless steel                         |
| Operating temperature | -20 °C to 60 °C                                 |
| Storage temperature   | -30 °C to 80 °C                                 |
| Plugs                 | Molex MX-150, 12 pins<br>DeviceNet M12, 5 pins  |
| Analog inputs         | 2 x resistive<br>1 x frequency                  |



## TFT DISPLAY DATA

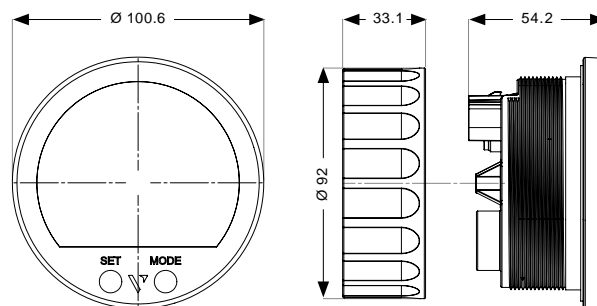
|                           |                         |
|---------------------------|-------------------------|
| Freshwater level          | Fuel consumption        |
| Wastewater level          | Fuel level              |
| Rudder angle              | Coolant temperature     |
| Trim                      | Coolant pressure        |
| GPS position              | Engine oil temperature  |
| COG Course Over Ground    | Engine oil pressure     |
| Engine speed (RPM)        | Boost pressure          |
| Seawater temperature      | Ammeter                 |
| Depth                     | Battery voltage         |
| Clock                     | Battery state of charge |
| Hour counter (total+trip) | Battery state of health |
| Trip distance             | Battery autonomy        |
| Total fuel used           | Battery temperature     |



VMH35

## ADDITIONAL DISPLAY DATA

- Boat speed (SOG or STW)
- Gear position
- 6 x alarm teltales



| Model                | Veratron Article No. | Part No. |
|----------------------|----------------------|----------|
| VMH 35 resistive GPS | B00085501            | 23606UA  |
| VMH 35 0-5 V GPS     | B00143501            | 25287RA  |
| VMH 35 0-5 V         | B00143601            | 25321MA  |

## ACCESSORIES

6 m wire harness for outboard engines B001066 - 25074X

## VMH 14 EASYLINK SATELLITES

- VMH look-and-feel
- Digital display with visual bargraph
- Easylink interface
- Up to 16 satellites
- Configurable with your smartphone via Airlink
- Trim, voltmeter, fuel level, water temperature, transmission oil temperature and pressure, engine oil temperature and pressure
- 12/24 V
- Dimensions: Ø 60 mm external, Ø 52 mm mounting hole



| Model  | Veratron Article No. | Part No. |
|--------|----------------------|----------|
| VMH 14 | B00109901            | 21965N   |



VMH 14

# VMH35-D

## Display for marine diesel inboard engines



### GENERAL FEATURES

- Display IBN hybrid colour: TFT 1,44" and fix segment (Active area Ø 83mm) optically bonded
- Mineral glass front lens
- Silicon keyboard with 2 pushbuttons
- Brushed stainless-steel bezel
- Power supply 9 -36 Volt (12/24 nominal)
- Operating temperature: -30°C to +80°C
- Storage temperature: -40°C to +85°C
- Environmental class protection: IPX7 front and back
- Dual CAN (J1939 and NMEA 2000)
- EasyLink output for VMH 14 satellites
- Customizable start-up logo on display

### DISPLAY LAYOUT

- Dedicated 10 telltales for diesel application
- RPM dial can support 3000 and 4000 scales
- High-Performance GNSS Receiver, GPS, GLONASS and Galileo Constellations supported
- IBS Battery sensor input
- NMEA 2000 Gateway embedded
- NMEA 2000 Certified

### PRODUCT VARIANTS

• **VMH 35-D** (B00171101 - 25402M)  
 Display for marine diesel inboard engines.  
 GPS embedded, NMEA 2000 interface with gateway, specific screens and alarms for marine application (e.g., Depth, COG, SOG, etc...)

**VMH 35-D w/o GPS** (B00171201 - 25401K))  
 Display for marine diesel inboard engines.  
 No GPS embedded (second station or second engine), NMEA 2000 interface with gateway, specific screens and alarms for marine application (e.g., Depth, COG, SOG, etc...)



### EMBEDDED GPS DATA

|                                   |                        |
|-----------------------------------|------------------------|
| Navigation system                 | GPS, GLONASS, Galileo  |
| Receiver                          | High-performance GNSS  |
| Precision augmentation            | SBAS                   |
| Update rate                       | 10 Hz                  |
| Channels                          | 72                     |
| Tracking sensitivity              | -165 dBm               |
| Time to first fix (hot start)     | 1 s                    |
| External jamming and interference | Reliable and resilient |
| Position accuracy                 | 2,5 m                  |
| Velocity accuracy                 | 0,05 m/s               |
| Heading accuracy                  | 0,3°                   |

### TECHNICAL DATA

|                       |   |
|-----------------------|---|
| Operating voltage     | 12 /24 V  |
| Voltage range         | 9 - 32 V  |
| Protection class      | IP X7   |
| Flammability          | UL94 compliant                                  |
| Power consumption     | ≤ 150 mA (normal mode)<br>≤ 120 mA (sleep mode) |
| Dimensions            | Ø 100 (Ø 85 mm mounting)                        |
| Active area           | Ø 83 mm<br>(optically bonded display)           |
| Central display       | 1.44", 128 x 128 Pixel                          |
| Lens                  | Mineral glass                                   |
| Buttons               | 2 silicon buttons                               |
| Ring                  | Brushed stainless steel                         |
| Operating temperature | -20 °C to 60 °C                                 |
| Storage temperature   | -30 °C to 80 °C                                 |
| Plugs                 | Molex MX-150, 12 pins<br>DeviceNet M12, 5 pins  |
| Analogic Inputs       | 2 x resistive 2 x frequency                     |
| Digital Inputs        | 1 x SAE J 1939<br>1 x NMEA 2000                 |





## DISPLAYED DATA

### TFT DISPLAY

- Course Over Ground (COG)
- Seawater temperature / Depth
- Total fuel used / Fuel rate
- Fuel Level 1 / 2
- Coolant Temp
- Coolant Press
- Boost press / Air Intake temp
- Engine Oil Temp
- Ammeter\* / Voltmeter
- Battery State Of Charge (SOC)\*
- Battery State of Health (SOH)\*
- Battery Autonomy\*
- Battery Temperature\*
- Trim position
- Hour counter: total / trip
- Clock (UTC)
- Service interval
- Exhaust temperature
- Transmission oil temperature/pressure

\* Via LinkUp IBS only

### DIAL

- Tachometer

### SEGMENT DISPLAY

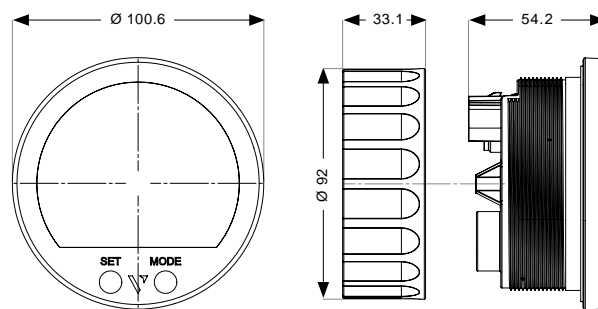
- Speed (Boat Speed, SOG)

### BRITISH FLAG DIGIT

- Gear position



VMH35-D



DIMENSIONS

## VMH35-D USE CASE



## GENERAL FEATURES

- 52 mm instrument with 1.44" TFT display
- 2 instruments in 1 with dual screen
- Wireless configurable with your smartphone
- Powerless configuration
- Custom alarms setup
- Color bar graphs for visual data display
- 9 different styling rings available

The VL Flex device can easily be configured to be the instrument you need - thanks to its sun-readable 1.44" TFT display embedded into a standard 52 mm instrument housing. The supported analog inputs allow you to directly read from your engine sensors, and the NMEA 2000® or J1939 interface expands this possibility by allowing the device to read from the digital network. The simple but effective graphic design can be set up in a single or dual layout, presenting the data in a clear and intuitive form, while the colored bar graph and the alarm display allow you to visually understand your data.



**INTUITIVE SETUP**  
IN JUST 3 STEPS



## CONFIGURATOR SMARTPHONE APP

- To configure the VL Flex, some parameters must be calibrated, like the gauge type, the sensor and its calibration or the warning threshold. This is possible through the VL Flex Configurator smartphone App.
- A simple and detailed explanation of the configuration process is also available as in-app instructions.
- Thanks to the passive embedded NFC receiver, the VL Flex 52 can be configured without power supply.

## TECHNICAL DATA

|                              |  |
|------------------------------|--|
| <b>Display</b>               | 1.44" sun-readable color TFT display                       |
| <b>Resolution</b>            | 125x125 pixels   |
| <b>Nominal voltage</b>       | 12V / 24V  |
| <b>Operating voltage</b>     | 8 - 32 V with overvoltage and reverse polarity protection  |
| <b>Current consumption</b>   | Typ. 50 mA with max. backlight intensity                   |
| <b>Analogue ports</b>        | Resistive (0 – 400 Ω), Frequency (W, Ind, Hall, Generator) |
| <b>Digital ports</b>         | NMEA 2000® or J1939, LIN bus                               |
| <b>Wireless interface</b>    | Airwave (NFC-based)  |
| <b>Protection class</b>      | IP67 front side acc. IEC60529                              |
| <b>Lens</b>                  | PMMA with anti-glare and anti-fog                          |
| <b>Housing</b>               | Ø 52 mm – Polycarbonate (PC), flame retardant acc. UL94-V0 |
| <b>Operating temperature</b> | -20 °C to +70 °C   |
| <b>Storage temperature</b>   | -30 °C to +80 °C   |
| <b>Connector</b>             | Tyco / Hirschmann MQS connector 8 pin                      |



## DISPLAY LAYOUT



Single layout



Dual layout



## NMEA 2000®

The supported analog inputs allow you to directly read from your engine sensors. In addition NMEA 2000® and LIN 2.0 interface expands this possibility by allowing the device to read from the digital network.

- NMEA 2000 interface
- Resistive and frequency inputs
- IBS port for Battery monitoring

## J1939

The supported analog inputs allow you to directly read from the sensors. In addition, the J1939 and the LIN 2.0 interfaces make it possible for the VL Flex to read from the digital networks as well.

- SAE J1939 CAN interface
- Resistive and frequency inputs
- BS port for Battery monitoring

## IBM

The Intelligent Battery Monitoring System informs you about the current energy status, allowing you to plan your energy supply making it the key element of the vehicle's energy management.

- Flex display kit for Battery monitoring
- 1x Resistive input for Fuel or
- Fresh Water level
- Dedicated harness with pushbutton for screen scrolling

## SUPPORTED DATA

|                           |                          |
|---------------------------|--------------------------|
| Fuel level                | Speedometer              |
| Fresh water level         | Ammeter                  |
| Waste water level         | Voltmeter                |
| Trim level                | Battery SOC              |
| Rudder angle              | Battery SOH              |
| Coolant temperature       | Battery temperature      |
| Boost pressure            | Battery autonomy         |
| Engine oil temperature    | Engine hours             |
| Engine oil pressure       | Speed Over Ground (SOG)  |
| Transmission oil pressure | Course Over Ground (COG) |
| Depth                     | Clock                    |
| Tachometer                |                          |



DOWNLOAD THE CONFIGURATION APP



| Model      | Veratron Article No. | Part No. | Voltage | Colour |
|------------|----------------------|----------|---------|--------|
| NMEA 2000® | B00043501            | 23605S   | 12V/24V | Black  |
| NMEA 2000® | B00111301            | 21395X   | 12V/24V | White  |
| J1939      | B00086001            | 21616L   | 12V/24V | Black  |
| J1939      | B00110901            | 21613E   | 12V/24V | White  |

## ACCESSORIES

IBS adapter cable kit 12 V B00090601 - 25531Z  
IBS adapter cable kit 24 V B00090701 - 25532B

## VL FLEX IBM KIT

- **Includes:** VL Flex 52 instrument, Intelligent Battery Sensor (IBS) (incl. battery pole adapter), 6-meter long wiring harness
- **Delivered Data:** Voltage, current, battery temperature, state of charge, battery health, autonomy
- **Benefits:** Ready for connecting to Veratron dip-pipe liquid level sensors, continuous monitoring of battery status, support of battery maintenance, easy configuration with the mobile app



| Veratron Article No. | Part No. | Voltage |
|----------------------|----------|---------|
| B00084701            | 21924Y   | 12V     |
| B00084801            | 21925A   | 24V     |



## GENERAL FEATURES

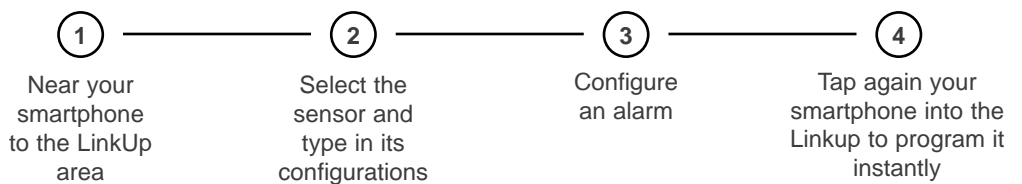
- Save the money of an oversized NMEA 2000® converter
- Reduces the wiring, the gateway is installed where needed
- Contactless configuration with your smartphone, no expensive HW required!
- Powered by NMEA 2000® - no additional power supply
- Approved for engine compartment installation according to ISO 8846:1990

The LinkUp gateways provide an easy method to convert vessel and engine information to NMEA 2000 ®. Available in 8 different variants: resistive, voltage, LIN and J1939, those can be easily configured through either the embedded NFC-based Airlink interface or NMEA 2000 ® by means of our Configuration Tool.

The ISO 8846:1990 compliance completes the devices by allowing their installation into engine compartments.



**WIRELESS CONFIGURATION**  
IN JUST 4 STEPS



## SIMPLE AND EFFECTIVE

- Fast: no prior pairing is required
- Powerless: thanks to the passive RF tag you can configure the device without power!
- Secure: the configuration requires proximity to the device
- Safe: the passive receiver does not continuously emit RF frequencies in the engine room
- Cost-effective: no need for additional expensive HW

**DESIGN**



**NMEA 2000®  
SIDE WIRING**

DeviceNet M12 connector 5 pins  
  
12V power supply from the network!

**LINKUP HOUSING**

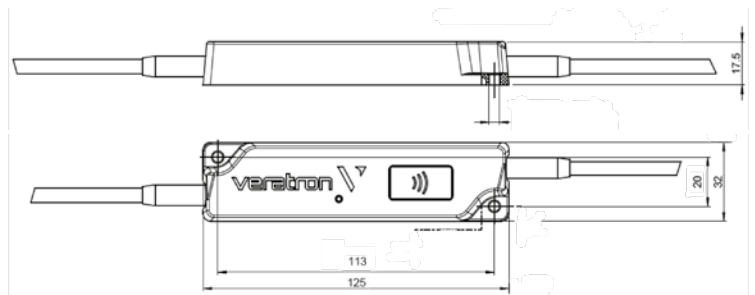
Contains the device electronic  
  
Notification LED  
  
Wireless interface

**SENSOR-SIDE WIRING**

Different depending on the sensor to interface

**TECHNICAL DATA**

|                              |  |
|------------------------------|--|
| <b>Operating voltage</b>     | 6 - 16,5V                                      |
| <b>Protection class</b>      | IP X9/K  |
| <b>Power consumption</b>     | ≤ 15 mA (normal mode)<br>≤ 120 μA (sleep mode) |
| <b>Output signal</b>         | NMEA 2000®                                     |
| <b>Operating temperature</b> | -40°C to 115°C                                 |
| <b>Flammability</b>          | UL94 compliant                                 |
| <b>Compliance</b>            | CE, Reach, RoHS                                |
| <b>Housing Material</b>      | PC-FR  |



**VERATRON DIAGNOSTIC TOOL**

The Veratron Diagnostic Tool makes it possible to connect your computer via USB to the CAN bus and communicate with the Veratron products.  
To use this adapter the computer application “Veratron Configuration Tool” is required, which is free to use and can be downloaded from the downloads section of Veratron web site.  
This tool enables further possibilities like adding a custom splash logos on displays and it gives more configuration possibilities. It also allows you to do software updates on Veratron products and can be useful while troubleshooting your NMEA 2000 or SAE J1939 network.  
This product is intended for use only by authorized UFLEX/Veratron representative technicians

**GENERAL FEATURES**

- NMEA2000 to USB Interface
- Enables the use of the Veratron Configuration Tool
- Enables doing software updates
- Further configuration possibilities on Veratron devices
- Enables upload of custom splash logos



| Veratron Article No. | Part No. |
|----------------------|----------|
| A2C3931270001        | 22177S   |

**Supported data:** Fuel level, Fresh water level, Waste water level, Trim, Oil temperature, Coolant temperature, Engine oil pressure, Transmission oil pressure, Boost pressure, Rudder Angle, Transmission oil temperature

**Nominal voltage:** 12 V

**IP class:** IP X9/K

**Connectivity:** NMEA 2000®

## GENERAL FEATURES

- Wireless configurable via smartphone app
- Customizable sensor curves
- Approved for engine compartments acc. to ISO8846:1990
- Provides 5V-Source for passive sensors
- Alarms setup and transmission on NMEA 2000®
- Plug-and-Play installation with deep pipe level sensors
- NMEA 2000® certified



Linkup Gateway 0-5V

|                                    |                                     |
|------------------------------------|-------------------------------------|
| <b>Model</b>                       | <b>LINKUP GATEWAY 0-5V</b>          |
| <b>Part No.</b>                    | B00059201                           |
| <b>Part No.</b>                    | 25255B                              |
| <b>Operating voltage</b>           | 12V (from NMEA 2000®)               |
| <b>Input signal range</b>          | 0-5V                                |
| <b>Protection class</b>            | IP X9/K                             |
| <b>Power consumption</b>           | ≤ 100mA                             |
| <b>Output current on 5V-source</b> | 15mA                                |
| <b>Output signal</b>               | NMEA 2000®                          |
| <b>Dimensions mm (")</b>           | 125x32 (4.9x1.3) + cables           |
| <b>Operating temperature</b>       | from -30°C to +80°C                 |
| <b>Flammability</b>                | UL94                                |
| <b>Housing material</b>            | PC-FR                               |
| <b>Compliance</b>                  | CE, UKCA, Reach, RoHS, ISO8846:1990 |

## SUPPORTRED ALARMS

- Coolant temperature
- Boost pressure
- Oil temperature
- Oil pressure
- Gear oil pressure
- Gear oil temperature
- Low coolant level

The Intelligent Battery Monitoring System informs you about the current energy status, allowing you to plan your energy supply making it the key element of the vessel's energy management. In order to carefully preserve the energy of the boat battery, it is necessary to know its State of Charge, the ageing status (State of Health) and any changes to the battery, as weak batteries are the main cause of trouble in the boat.

## BENEFITS

- 12 V and 24 V Intelligent Battery Sensors (IBS)
- Determines the current status of your battery to support energy management planning
- Helps to preserve battery life by reporting its State of Health
- Delivers real-time measurements preventing over charging and over heating which can shorten battery life

| Model   | 12V       | 12V II    | 24V       |
|---|-----------|-----------|-----------|
| Veratron Article No.                              | B00042501 | B00042502 | B00070401 |
| Part No.  | 23411C    | 24843P    | 23854P    |
| Operating voltage                                 | 6-16,5 V  | 6-18 V    | 7,5-32 V  |
| Permanent load current                            | ±155 A    | ±200 A    | ±200 A    |
| Max. current                                      | ±1500 A   | ±1500 A   | ±2000 A   |
| Threaded GND bolt (Battery pole adapted included) | M8        | M6        | M8        |
| Max. battery capacity                             | 249 Ah    | 500 Ah    | 255 Ah    |



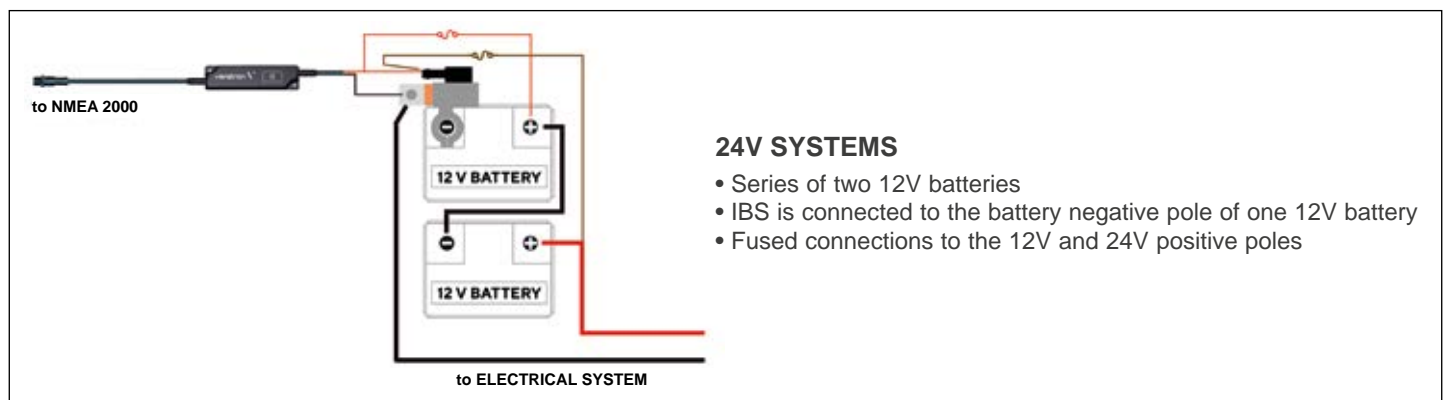
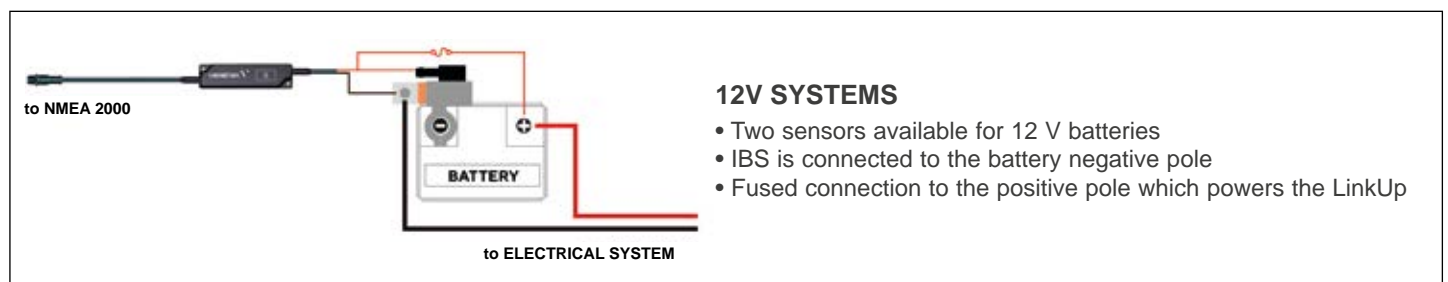
## DESIGN AND FUNCTION

The IBS is attached directly to the negative pole of the battery via its pole terminal.

Alongside the terminal, the mechanical portion of the battery sensor consists of the shunt and grounding bolt.

## DELIVERED DATA

- Battery voltage - Battery current - Battery temperature**
- State of Charge (SOC):** current charge status of the battery, defined in percentage
- State of Health (SOH):** ageing status of the battery, loss of capacity over time
- Autonomy:** estimated battery duration based on the instantaneous current consumption of the system



This Sensor measures simultaneously the engine oils temperature and pressure while providing the data to the LinkUp, which translates it to the NMEA 2000® standard.



Oil temperature and pressure

| Veratron Article No. | Part No. |
|----------------------|----------|
| B00070501            | 21917B   |

## BENEFITS

- Interface to the new electronic 2-in-1 sensor
- Oil Temperature and Pressure in a single sensor
- Rugged and reliable design derived from the automotive field
- ASIC-controlled sensor
- PWM output to transmit both pressure and temperature



## TECHNICAL DATA

|   |
|---|
| M12 mounting thread   |
| IP 69/K protection class  |
| 5V power feed provided by the LinkUp  |
| Temperature accuracy $\pm 1^{\circ}\text{K}$ in the $135^{\circ}\text{C} - 160^{\circ}\text{C}$ range |
| Pressure accuracy $\pm 0.2$ bar (range 0.5 –3 bar), $\pm 0.1$ bar below and $\pm 0.3$ bar above       |
| Temperature range: $-40^{\circ}\text{C} + 160^{\circ}\text{C}$  |
| Pressure range: 0.5 to 10.5 bar   |
| 1 m cable length  |

## J1939 GATEWAY

The LinkUp J1939 will bridge all your CAN engine data, transmitted on the CAN-J1939-Bus, to the NMEA2000® standard, making all the engine and diagnostic information available for any NMEA 2000-capable display.



J1939 Gateway

## BENEFITS

- J1939 TO NMEA 2000® gateway to bring engine data to your boat network
- Delivers engine diagnostic to your MFD or to your smartphone in conjunction with a Veratron GO device
- Galvanic isolation between J1939 and NMEA 2000® networks
- Optional Y-shaped adapter cables to interface specific engines

| Veratron Article No. | Part No. |
|----------------------|----------|
| B00042401            | 23560W   |

## SUPPORTED DATA

|                        |                              |
|------------------------|------------------------------|
| Engine speed           | Transmission oil pressure    |
| Engine hours           | Transmission oil temperature |
| Engine load            | Exhaust temperature          |
| Engine oil temperature | Fuel level                   |
| Engine oil pressure    | Fuel pressure                |
| Coolant temperature    | Fuel rate                    |
| Coolant pressure       | Inst fuel economy            |
| Boost pressure         | Alternator current           |
| Engine rated speed     | Alternator potential         |
| VIN / SW ID            | Battery potential            |
| Percent torque         | Transmission gear            |

## SUPPORTED ALARMS

|                          |                           |
|--------------------------|---------------------------|
| Low fuel pressure        | Low battery voltage       |
| Water in fuel            | Engine overspeed          |
| Low engine oil level     | High gear oil temperature |
| Low engine pressure      | Low gear oil pressure     |
| High boost pressure      | Low oil level             |
| High coolant temperature | High oil temperature      |
| Low coolant level        | Lamps' status             |

## ADAPTER CABLES

|                            |                    |
|----------------------------|--------------------|
| Volvo Penta EVC compatible | B00102701 - 24913J |
| Yanmar 4JH series          | B00102801 - 24914L |

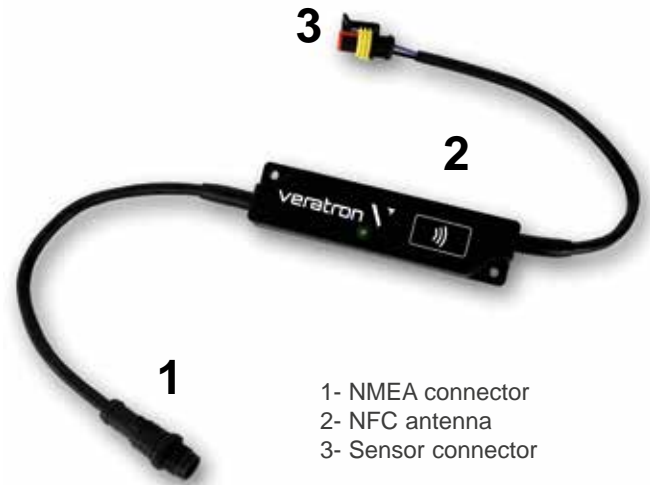


The Resistive LinkUp gateway is designed to interface and convert resistive sensors measurements – such as Level, Temperature, or Pressure sensors – to the NMEA 2000® digital era. Optimized for a 0 – 400 ohm range, it can be configured with predefined sensor curves as well as with a customized characteristic to ensure compatibility with most of the sensors in the field.

## BENEFITS

- Customizable sensor curves
- Approved for engine compartments
- Alarms setup and transmission on NMEA 2000®
- Plug-and-play installation with veratron Dip-pipe level sensors

| Veratron Article No. | Part No. |
|----------------------|----------|
| B00042201            | 23410A   |



- 1- NMEA connector
- 2- NFC antenna
- 3- Sensor connector

Resistive

## SUPPORTED CONFIGURATION

|                   |                      |
|-------------------|----------------------|
| Fuel level        | Coolant temperature  |
| Fresh water level | Boost pressure       |
| Waste water level | Oil pressure         |
| Trim position     | Oil temperature      |
| Trim tabs         | Gear oil pressure    |
| Rudder angle      | Gear oil temperature |

## SETUP

### SENSOR SIDE CABLE

25 cm cable pigtail  
Water sealed AMP SuperSeal connector 2 pins

### PLUG-AND-PLAY CONNECTION TO VERATRONS DIP-PIPE LEVEL SENSORS

### CONFIGURABLE PARAMETERS

Sensor type  
Sensor characteristic  
Sensor instance  
Alarm threshold

## PYROMETER

Specific LinkUp variant designed to interface the Veratron Pyrometer thermocouple (N03-320-264) PART No. 60473YA

- High precision probe for exhaust gas temperature (EGT) measurement
- Electrically compensated wires
- Extremely high temperature resistance
- Early warning of situations that are potentially dangerous for the engine!
- Helps preventing severe damages to the engine
- Can also be used as a guide for optimizing fuel economy

| Veratron Article No. | Part No. |
|----------------------|----------|
| B00042301            | 23559M   |

## KIT INCLUDES

- 1- Link-UP pyrometer
- 2- 6m extension cable with high temperature resistance included
- 3- Pyrometer thermocouple



Pyrometer

# VERATRON GO - GPS & BLUETOOTH NMEA 2000® CERTIFIED SENSOR



Veratron GO is a series of products featuring three versions: Veratron GO (GPS), Veratron GO Data (Bluetooth Low Energy) and Veratron GO Plus (GPS and Bluetooth).

GNSS receiver is the smallest available on the market. Thanks to its reduced installation footprint – the Veratron GO device can be mounted almost everywhere in your boat without being noticed.

## FEATURES

- High-performance GNSS receiver
- 10 Hz update rate 72 channels
- Very high tracking sensitivity
- Bluetooth Low Energy gateway
- All your vessel data on your smart device
- Powered by NMEA 2000® network
- NMEA 2000® certified
- Global BLE certified

## TECHNICAL DATA

|                             |   |
|-----------------------------|---|
| <b>Nominal voltage</b>      | 12V (from NMEA)                                     |
| <b>Color and material</b>   | White, ASA plastic                                  |
| <b>Minimal cut-out size</b> | Ø 16 mm   |
| <b>Protection class</b>     | IPX9/K according to IEC60529<br>“Exposed Device”    |
| <b>Flammability</b>         | Flame retardant according to UL94 VO                |
| <b>Mounting</b>             | High-resistive bi-adhesive tape or optional bracket |
| <b>Connector</b>            | DeviceNet M12 5 pin                                 |

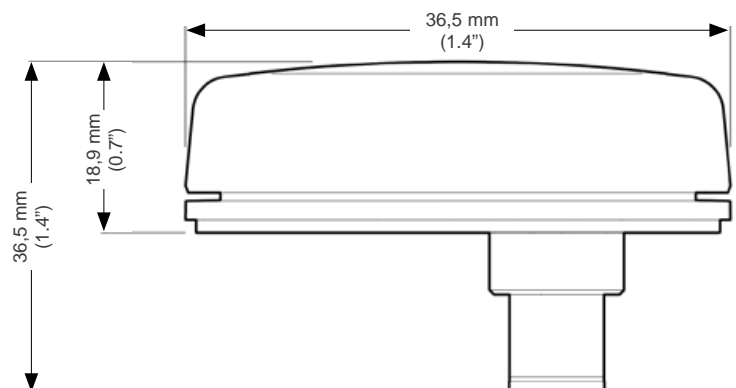


## BLUETOOTH SUPPORTED DATA

|                        |                       |
|------------------------|-----------------------|
| Engine RPM             | GPS position          |
| Trim                   | Depth                 |
| Boost pressure         | Yaw                   |
| Coolant temperature    | Pitch                 |
| Fuel rate              | Roll                  |
| Fuel press             | AWA                   |
| Engine oil temperature | AWS                   |
| Engine oil pressure    | TWA                   |
| Engine hours           | TWS                   |
| Engine load            | TWD                   |
| Coolant pressure       | True heading          |
| Engine alarms          | Mag heading           |
| Gear oil temperature   | Sea water temperature |
| Gear oil pressure      | Air temperature       |
| Gear position          | Barometer             |
| Gear alarms            | Water speed           |
| Fuel level             | Battery voltage       |
| Fresh water            | Battery current       |
| Waste water            | Battery temperature   |
| Exhaust temperature    | Battery SOC           |
| Rudder angle           | Battery SOH           |
| COG                    | Autonomy              |
| SOG                    | Battery Ah            |

## DESIGN AND DIMENSIONS

- Smallest NMEA 2000® GNSS antenna on the market
- Small installation footprint
- Minimal cut out size: only 16 mm hole required
- White ASA plastic housing
- Maximum UV resistance
- Higher resistance to environmental stress
- Bottom filled with two-components resin
- Air-sealed device for weather resistance
- DeviceNet M12 connector
- Powered by NMEA 2000® network
- No dedicated power supply required



## GO GPS

Veratron GO is the smallest NMEA 2000® certified GNSS receiver on the market which supports GPS / GLONASS / GALILEO constellations. Compact and easy to install, it does not require any additional protection against harsh weather conditions.

## GO Data

Veratron GO Data is an NMEA 2000® to Bluetooth Low Energy (BLE) gateway. Together with the Veratron smartphone and tablet apps you can monitor your engine, read your sailing performance data, keep an eye on your batteries status and receive alarm notifications.

## Go Plus

Veratron GO Plus+ is a combined GPS receiver and NMEA 2000® to Bluetooth Low Energy (BLE) gateway and combines all the features of the Veratron GO and the Veratron GO Data devices in a single unit.

## Accessories

Mounting kit with bracket + screws - 21617N



| Veratron Article No. | Part No. | Voltage | Description       |
|----------------------|----------|---------|-------------------|
| B00034901            | 23112S   | 12 V    | Veratron GO       |
| B00041601            | 23566J   | 12 V    | Veratron GO DATA  |
| B00041701            | 23565G   | 12 V    | Veratron GO PLUS+ |

## NavDash App

The easiest way to display your vessel data on your mobile device. The most complete app for vessel monitoring, it allows to easily setup your system and instantly have a direct view on your engine, read your sailing performance data, keep an eye on your batteries status and receive alarm notifications.



## TFT DISPLAY

AcquaLink® multifunction TFT displays are available in 4.3" and 7" sizes. The full 24 bit / 16 mio colors optically bonded displays feature transmissive layer technology for unprecedented and unsurpassed readability even in direct sunlight. The TFT display a wide array of data received from the AcquaLink® NavBox or NMEA 2000®. Users can customize up to 40 different data pages with single, double, treble or quad grid layouts.

TFT displays can be daisy chained with other AcquaLink® gauges, displays or NavControls using the unique VDO Bus or directly connected to the NMEA 2000® backbone (optional adapter cable required) for simple installation on any yacht.

7" TFTs are equipped with capacitive multi touch screens to slide between pages whereas 4.3" displays require the use of a NavControl unit for data input and operation.

- 1x plug with 2 Video input
- 2x VDO Bus connectors
- Operating temperature range -20°C / +70°C
- Protection level front and rear IPX9 with connectors



4.3" TFT display



7" TFT display

### PACKAGE CONTENTS

TFT Display, bezel, silicone cover, mounting screws, drilling template, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Resolution        |
|----------------------|----------|---------|--------|-------------------|
| <b>4.3"</b>          |          |         |        |                   |
| A2C59501996          | 20205H   | 12-24 V | Black  | 480 x 272 (WQVGA) |
| <b>7"</b>            |          |         |        |                   |
| A2C59501997          | 20206K   | 12-24 V | Black  | 800 x 480 (WQVGA) |

## NAVCONTROL

The AcquaLink® NavControl can assume control of any AcquaLink® TFT display connected to the Veratron Bus or NMEA 2000® network. Even multiple units can be connected to the same Bus without conflicts.

- Compatible with AcquaLink and OceanLink
- 2x Veratron Bus connectors
- Operating temperature range -20°C / +70°C
- Protection level front and rear IPX6
- Reverse polarity protection
- Telltales light indication

### PACKAGE CONTENTS

NavControl, bezel, silicone cover, mounting screws, drilling template, installation instructions, safety instructions



NavControl

| Veratron Article No. | Part No. | Voltage | Colour |
|----------------------|----------|---------|--------|
| A2C59501982          | 20202 B  | 12-24 V | Black  |

The Veratron Wind Gauges display wind speed and angle information received from the Veratron AcquaLink® NavBox or the NMEA 2000® data bus.

- 2x Veratron Bus connectors
- <150 mA
- Reverse polarity protection
- Anti-fog coated mineral glass lens
- Front & rear side protection IPX6
- Operating temperature range -20°C / +70°C



110 mm apparent wind angle 360°



110 mm apparent wind speed 50 knots

## PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock,, drilling template, installation instructions, safety instructions

| Veratron Article No.                 | Part No. | Voltage | Colour | Range      |
|--------------------------------------|----------|---------|--------|------------|
| <b>Apparent wind angle</b>           |          |         |        |            |
| A2C59501900                          | 20129U   | 12-24 V | Black  | 360°       |
| <b>Apparent wind angle magnified</b> |          |         |        |            |
| A2C59501901                          | 20130C   | 12-24 V | Black  | 360°       |
| <b>Apparent wind speed</b>           |          |         |        |            |
| A2C59501902                          | 20131E   | 12-24 V | Black  | 0-50 knots |

# 110 mm TACHOMETER

The Veratron Tachometer displays RPM information received from the Veratron AcquaLink® NavBox or the NMEA 2000® data bus and distributes additional engine information to optional 52mm AcquaLink® EasyLink Gauges.

- 2x Veratron Bus connectors
- <150 mA
- Anti-fog coated mineral glass lens
- Front and rear protection rating IPX6
- Operating temperature range -20°C / +70°C
- Reverse polarity protection



110 mm tachometer 3000 rpm



110 mm tachometer 7000 rpm

## PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, drilling template, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Range    |
|----------------------|----------|---------|--------|----------|
| A2C59501913          | 20142K   | 12-24 V | Black  | 3000 rpm |
| A2C59501914          | 20143M   | 12-24 V | Black  | 5000 rpm |
| A2C59501915          | 20144P   | 12-24 V | Black  | 7000 rpm |

## 110 mm NAVIGATION GAUGES

The Veratron Navigation Gauges display depth, Speed over Ground, Speed through Water, Compass information received from the Veratron AcquaLink® NavBox or the NMEA 2000® data bus.

- 2x Veratron Bus connectors
- <150 mA
- Reverse polarity protection
- Anti-fog coated mineral glass lens
- Front and rear protection rating IPX6,
- Operating temperature range -20°C / +70°C



110 mm SOG 35 mph / 55 kmh

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, drilling template, installation instructions, safety instructions

| Veratron Article No.              | Part No. | Voltage | Colour | Range            |
|-----------------------------------|----------|---------|--------|------------------|
| <b>Depth</b>                      |          |         |        |                  |
| A2C59501903                       | 20132G   | 12-24 V | Black  | 200 m / 660 ft   |
| <b>Speed Over Ground (SOG)</b>    |          |         |        |                  |
| A2C59501908                       | 20137T   | 12-24 V | Black  | 12 knots         |
| A2C59501910                       | 20139X   | 12-24 V | Black  | 35 mph / 55 kmh  |
| A2C59501909                       | 20138V   | 12-24 V | Black  | 70 mph / 115 kmh |
| <b>Speed through water (LOG®)</b> |          |         |        |                  |
| A2C59501905                       | 20134L   | 12-24 V | Black  | 12 knots         |

## 52 mm TEMPERATURE GAUGES

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6
- Operating temperature range -20°C / +70°C

The outer scale is available also in °F



52 mm coolant temperature  
120 °C / 250 °F



52 mm pyrometer  
900 °C / 1650 °F

### PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions

| Veratron Article No.          | Part No. | Voltage | Colour | Range          |
|-------------------------------|----------|---------|--------|----------------|
| <b>Coolant temperature</b>    |          |         |        |                |
| A2C59501931                   | 20151L   | 12-24 V | Black  | 120°C / 250°F  |
| <b>Engine oil temperature</b> |          |         |        |                |
| A2C59501926                   | 20146U   | 12-24 V | Black  | 150°C / 300°F  |
| <b>Pyrometer</b>              |          |         |        |                |
| A2C59501933                   | 20153R   | 12-24 V | Black  | 900°C / 1650°F |

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6
- Operating temperature range -20°C / +70°C

The outer scale is available also in PSI

### PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions



52 mm boost pressure  
30 psi / 2 bar



52 mm transmission  
oil pressure 30 bar /  
440 psi

| Veratron Article No.             | Part No. | Voltage | Colour | Range            |
|----------------------------------|----------|---------|--------|------------------|
| <b>Boost pressure</b>            |          |         |        |                  |
| A2C59501944                      | 20164W   | 12-24 V | Black  | 2 bar / 30 psi   |
| <b>Engine oil pressure</b>       |          |         |        |                  |
| A2C59501935                      | 20155V   | 12-24 V | Black  | 10 bar / 150 psi |
| <b>Transmission oil pressure</b> |          |         |        |                  |
| A2C59501937                      | 20157Z   | 12-24 V | Black  | 30 bar / 440 psi |

## 52 mm LIQUID LEVEL

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6
- Operating temperature range -20°C / +70°C

### PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions



52 mm fuel level  
Empty – Full



52 mm waste water level  
Empty – Full

| Veratron Article No. | Part No. | Voltage | Colour | Range        |
|----------------------|----------|---------|--------|--------------|
| <b>Fuel level</b>    |          |         |        |              |
| A2C59501930          | 20150J   | 12-24 V | Black  | Empty - Full |
| <b>Fresh water</b>   |          |         |        |              |
| A2C59501929          | 20149A   | 12-24 V | Black  | Empty - Full |
| <b>Waste water</b>   |          |         |        |              |
| A2C59501928          | 20148Y   | 12-24 V | Black  | Empty - Full |

## 52 mm BATTERY STATUS

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6
- Operating temperature range -20°C / +70°C

### PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions



52 mm ammeter 60 A

| Veratron Article No. | Part No. | Voltage | Colour | Range         |
|----------------------|----------|---------|--------|---------------|
| <b>Current</b>       |          |         |        |               |
| A2C59501942          | 20162S   | 12-24 V | Black  | -60 / +60 A   |
| A2C59501943          | 20163U   | 12-24 V | Black  | -150 / +150 A |
| <b>Voltage</b>       |          |         |        |               |
| A2C59501940          | 20160M   | 12-24 V | Black  | 8 - 16 V      |
| A2C59501941          | 20161P   | 12-24 V | Black  | 16 - 32 V     |

## 52 mm VESSEL STATUS

- AMP Superseal EasyLink connector
- <100 mA
- Reverse polarity protection
- Anti-fog mineral glass lens
- Front and rear protection rating IPX6
- Operating temperature range -20°C / +70°C

### PACKAGE CONTENTS

Gauge, rubber seal, spinlock, drilling template, installation instructions, safety instructions



52 mm rudder angle

| Veratron Article No. | Part No. | Voltage | Colour | Range     |
|----------------------|----------|---------|--------|-----------|
| <b>Rudder angle</b>  |          |         |        |           |
| A2C59501939          | 20159D   | 12-24 V | Black  | 90°       |
| <b>Engine trim</b>   |          |         |        |           |
| A2C59501925          | 20145S   | 12-24 V | Black  | Up / Down |



The AcquaLink® NavBox is the core of the AcquaLink® Veratron Bus system. It acts as a CPU and signal interface. The NavBox provides a wide range of digital and analog input possibilities. It supports J1939, NMEA 2000® and analogue signals. It also features two Veratron Sumlog® paddle wheel sensor and one analogue Veratron Windsensor connections, so legacy Veratron products can be used and brought to the digital age.

With a dedicated analogue input port it can support the following analogue signal from Veratron sensor or from 3rd parties company

- Engine oil pressure
- Engine oil temperature
- Engine coolant temperature
- Transmission oil pressure
- Fresh water/waste water and fuel level
- Ammeter status
- Rudder angle
- Engine frequency
- Battery current
- Pyrometer



NavBox

It also features a NMEA 0183 input and output port as well as a buzzer output. All received data are converted and sent to the NMEA 2000® network and to the Veratron Bus. This gateway function allows displaying engine, liquid level, pressure, temperature other vital information on any compatible display on the NMEA 2000® network or on designed Veratron AcquaLink® gauges or TFT displays.

## SPECIFICATIONS

The configuration of the NavBox can be done by using an AcquaLink® TFT and NavControl or by using the intuitive Veratron App.

- NMEA 2000® certified
- LED signal status indication
- Aluminum base plate
- Front & rear side protection rating IPX4
- 3x Veratron bus lines
- 1x J1939 CAN bus
- 1x NMEA 2000® bus
- 1 x Veratron analogue wind sensor input
- 2x Veratron Sumlog® inputs
- AMP Super Seal power input
- 26 pin AUX input (analog signal, NMEA 0183)
- Operating temperature range -20°C / +70°C

| Veratron Article No. | Part No. | DESCRIPTION    |
|----------------------|----------|----------------|
| A2C59501979          | 20199S   | NavBox 12-24 V |

The EngineBox expands the possibilities of the NavBox for multi-engine applications or can be used as stand-alone when navigation information is not required. The EngineBox has a NMEA2000® and a J1939 CAN port. The EngineBox can also be used on older, completely analog engines, thanks to the analog input ports provided and designed for: RPM data, 0-400 Ω sensors and 4-20 mA sensors. EngineBox is available in 2 versions: Single Engine and Dual Engine. The dual engine version is designed with double frequency and resistive inputs.

The EngineBox has to be set up using an intuitive PC configuration tool making it easy for programming the inputs (delivered free of charge).

## SPECIFICATIONS

- Analog to NMEA 2000® gateway
- J1939 to NMEA 2000® gateway
- 1x J1939 (2x J1939 Dual Engine)
- 1x M12 5 pins NMEA 2000®
- 1x Input 0–4 kHz for RPM (2x with Dual Engine)
- 4x Inputs 0–400 Ω (8x Inputs with Dual Engine)
- 2x Inputs 4–20 mA
- 1x Input 0–5 V (2x Inputs with Dual Engine)
- Status LED
- Compact design



EngineBox

| Veratron Article No. | Part No. | DESCRIPTION                     |
|----------------------|----------|---------------------------------|
| A2C1824820001        | 23557H   | EngineBox Single Engine 12-24 V |
| A2C1767000001        | 22221S   | EngineBox Dual Engine 12-24 V   |

The OceanLink™ 4.3" and 7" multifunction TFT Displays feature a full 24 bit / 16 m colors optically bonded display with IPS technology for perfect readability even in direct sunlight. The TFT Displays show and distribute a wide array of data received from NMEA 2000® and J1939 CAN Bus systems and analog sensors directly connected to the display. Users can customize different data pages with single, double, triple or quadruple grid layouts.

The display can be linked via NMEA 2000® with other OceanLink gauges, displays or NavControls using the unique Veratron Bus or directly connected to the NMEA 2000® backbone (optional adapter cable required).



## 4.3" TFT DISPLAY

- Optical bonded mineral glass lens
- Front & rear side protection rating IPX7
- 1x NMEA 2000® connector
- 1x J1939
- 2x 4 – 20 mA inputs
- 4x Analog inputs
- 1x Frequency input
- 1x EasyLink data output
- 1x Programmable alarm output 500 mA
- Operating temperature range -20°C/+70°C



4.3" TFT Display

## 7" TFT DISPLAY

- Touch screen function
- Optical bonded mineral glass lens
- Front & rear side protection rating IPX7
- 1x NMEA 2000® connector
- 2x J1939
- 6x Analog inputs
- 2x Frequency inputs
- 2x 4 – 20 mA inputs
- 3x Digital inputs or 0 – 5 V
- 2x Alarm outputs
- 2x Video inputs
- 2x EasyLink data outputs
- 2x Programmable alarm outputs 500 mA
- Operating temperature range -20°C/+70°C



7" TFT Display

## PACKAGE CONTENTS

TFT Display, bezel, silicone cover, mounting screws, connection cable, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Resolution        |
|----------------------|----------|---------|--------|-------------------|
| <b>4.3"</b>          |          |         |        |                   |
| A2C1352150001        | 21123L   | 12-24 V | Black  | 480 x 272 (WQVGA) |
| <b>7"</b>            |          |         |        |                   |
| A2C1865330001        | 22545V   | 12-24 V | Black  | 800 x 480 (WQVGA) |

## 85 mm TACHOMETER

The OceanLink Tachometer automatically presents all the key data ranging from oil pressure and fuel consumption to operating hours – on a generously proportioned inverted dot matrix digital display. Besides a CAN interface with NMEA 2000® certified and SAE J1939 data protocol it features two inputs for analogue sensors. The innovative EasyLink data connection make the installation easy and cost effective. Satellite instruments for further dynamic measurement values receive updates from the central instrument every 20 ms. OceanLink is available in various designs and a number of bezel colour options. The instruments can also be conveniently integrated into customer-specific panel solutions. The Veratron Tachometer displays all important engine related data and distribute to up to sixteen 52 mm satellite gauge

- 1x NMEA 2000® input
- 1x J1939 and analogue input
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Protection rating IPX7
- Operating temperature range -20°C / +70°C



85 mm tachometer 5000 rpm 85 mm tachometer 5000 rpm

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, connection cable, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Range    |
|----------------------|----------|---------|--------|----------|
| <b>Ø 85 mm</b>       |          |         |        |          |
| A2C1065660001        | 21022E   | 12-24 V | Black  | 3000 rpm |
| A2C1065670001        | 21023G   | 12-24 V | White  | 3000 rpm |
| A2C1065720001        | 21024J   | 12-24 V | Black  | 5000 rpm |
| A2C1065800001        | 21025L   | 12-24 V | White  | 5000 rpm |
| A2C1065810001        | 21026N   | 12-24 V | Black  | 7000 rpm |
| A2C1065820001        | 21027R   | 12-24 V | White  | 7000 rpm |

## 85 mm GPS SPEEDOMETER

The OceanLink GPS speedometer features an embedded GPS antenna, an inverted dot matrix LCD and NMEA 2000® connectivity. The LCD displays information like, heading, depth, SW temperature, STW, SOG, date & time, battery status, air temperature, engine oil pressure, fuel level, RPM, coolant temperature, transmission gear temperature, fresh water level, waste water level, trim, engine hours, rudder, booster pressure, COG. Up to 20 satellite gauges of 52 mm each, can be connected thanks to the integrated EasyLink connectivity.

- 1xJ1939 analog input
- 1x NMEA 2000® input
- Reverse polarity protection
- Front & rear side protection rating IPX7
- Operating temperature range -20°C / +70°C
- Anti-fog double layer plastic lens



85 mm GPS speedometer 0 - 35 knots / kmh / mph 85 mm GPS speedometer 0 - 14 knots / kmh / mph

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, connection cable, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Range                    |
|----------------------|----------|---------|--------|--------------------------|
| <b>Ø 85 mm</b>       |          |         |        |                          |
| A2C1351970001        | 21114K   | 12-24 V | Black  | 0 - 14 knots / kmh / mph |
| A2C1352010001        | 21117S   | 12-24 V | White  | 0 - 14 knots / kmh / mph |
| A2C1351980001        | 21115M   | 12-24 V | Black  | 0 - 35 knots / kmh / mph |
| A2C1352080001        | 21118U   | 12-24 V | White  | 0 - 35 knots / kmh / mph |
| A2C1351990001        | 21116P   | 12-24 V | Black  | 0 - 70 knots / kmh / mph |
| A2C1352090001        | 21120E   | 12-24 V | White  | 0 - 70 knots / kmh / mph |

OceanLink 52 mm temperature gauges are connected directly to any OceanLink Master Unit using the patented Easy Link serial bus connection.

- AMP Superseal EasyLink
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front & rear protection rating IPX7
- Operating temperature range -20°C / +70°C

The outer scale is available also in °F



**52 mm  
Coolant Temperature  
120°C / 250°F**

## PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions

| Veratron Article No.          | Part No. | Voltage | Colour | Range outer/inner |
|-------------------------------|----------|---------|--------|-------------------|
| <b>Coolant temperature</b>    |          |         |        |                   |
| A2C1065950001                 | 21040G   | 12-24 V | Black  | 120°C / 250°F     |
| A2C1065970001                 | 21041J   | 12-24 V | White  | 120°C / 250°F     |
| <b>Engine oil temperature</b> |          |         |        |                   |
| A2C1065850001                 | 21030D   | 12-24 V | Black  | 150°C / 300°F     |
| A2C1065860001                 | 21031F   | 12-24 V | White  | 150°C / 300°F     |
| <b>Pyrometer</b>              |          |         |        |                   |
| A2C1349690001                 | 21110B   | 12-24 V | Black  | 900°C / 1650°F    |
| A2C1349710001                 | 21112F   | 12-24 V | White  | 900°C / 1650°F    |

# 52 mm PRESSURE GAUGES

OceanLink 52 mm pressure gauges are connected directly to any OceanLink Master Unit using the patented Easy Link serial bus connection.

- AMP Superseal EasyLink
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front & rear protection rating IPX7
- Operating temperature range -20°C / +70°C

The outer scale is available also in psi



**52 mm transmission oil  
pressure 30 bar / 440 psi**



**52 mm engine oil pressure  
Low / High**

## PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions

| Veratron Article No.             | Part No. | Voltage | Colour | Range outer/inner |
|----------------------------------|----------|---------|--------|-------------------|
| <b>Boost pressure</b>            |          |         |        |                   |
| A2C1066140001                    | 21058C   | 12-24 V | Black  | 2 bar / 30 psi    |
| A2C1066150001                    | 21059E   | 12-24 V | White  | 2 bar / 30 psi    |
| <b>Engine oil pressure</b>       |          |         |        |                   |
| A2C1066000001                    | 21044R   | 12-24 V | Black  | 10 bar / 150 psi  |
| A2C1066010001                    | 21045T   | 12-24 V | White  | 10 bar / 150 psi  |
| <b>Transmission oil pressure</b> |          |         |        |                   |
| A2C1066040001                    | 21048Z   | 12-24 V | Black  | 30 bar / 440 psi  |
| A2C1066050001                    | 21049B   | 12-24 V | White  | 30 bar / 440 psi  |

## 52 mm LIQUID LEVEL

OceanLink 52 mm liquid level gauges are connected directly to any OceanLink Master Unit using the patented Easy Link serial bus connection.

- AMP Superseal EasyLink
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front & rear protection rating IPX7
- Operating temperature range -20°C / +70°C



52 mm fuel level  
Empty – Full



52 mm fresh water level  
Empty – Full

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Range        |
|----------------------|----------|---------|--------|--------------|
| <b>Fuel level</b>    |          |         |        |              |
| A2C1065930001        | 21038W   | 12-24 V | Black  | Empty - Full |
| A2C1065940001        | 21039Y   | 12-24 V | White  | Empty - Full |
| <b>Fresh water</b>   |          |         |        |              |
| A2C1065910001        | 21036S   | 12-24 V | Black  | Empty - Full |
| A2C1065920001        | 21037U   | 12-24 V | White  | Empty - Full |
| <b>Waste water</b>   |          |         |        |              |
| A2C1065890001        | 21034M   | 12-24 V | Black  | Empty - Full |
| A2C1065900001        | 21035P   | 12-24 V | White  | Empty - Full |

## 52 mm BATTERY STATUS

OceanLink 52 mm battery status gauges are connected directly to any OceanLink Master Unit using the patented Easy Link serial bus connection.

- AMP Superseal EasyLink connector
- <100 mA
- 270° pointer deflection angle
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front and rear protection rating IPX7
- Operating temperature range -20°C / +70°C



52 mm voltmeter  
16 - 32 V

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Range         |
|----------------------|----------|---------|--------|---------------|
| <b>Current</b>       |          |         |        |               |
| A2C1349640001        | 21106L   | 12-24 V | Black  | -60 / +60 A   |
| A2C1349660001        | 21108R   | 12-24 V | White  | -60 / +60 A   |
| A2C1349650001        | 21107N   | 12-24 V | Black  | -150 / +150 A |
| A2C1349680001        | 21109T   | 12-24 V | White  | -150 / +150 A |
| <b>Voltage</b>       |          |         |        |               |
| A2C1066100001        | 21054U   | 12-24 V | Black  | 8 - 16 V      |
| A2C1066110001        | 21055W   | 12-24 V | White  | 8 - 16 V      |
| A2C1066120001        | 21056Y   | 12-24 V | Black  | 16 - 32 V     |
| A2C1066130001        | 21057A   | 12-24 V | White  | 16 - 32 V     |

OceanLink 52 mm vessel status gauges are connected directly to any OceanLink Master Unit using the patented Easy Link serial bus connection.

- AMP Superseal EasyLink connector
- <100 mA
- Reverse polarity protection
- Anti-fog double layer plastic lens
- Front and rear protection rating IPX7
- Operating temperature range -20°C / +70°C



52 mm rudder angle



52 mm trim

### PACKAGE CONTENTS

Gauge, bezel, rubber seal, spinlock, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage | Colour | Range       |
|----------------------|----------|---------|--------|-------------|
| <b>Rudder angle</b>  |          |         |        |             |
| A2C1066080001        | 21052P   | 12-24 V | Black  | -45° / +45° |
| A2C1066090001        | 21053S   | 12-24 V | White  | -45° / +45° |
| <b>Engine trim</b>   |          |         |        |             |
| A2C1065830001        | 21028T   | 12-24 V | Black  | Up / Down   |
| A2C1065840001        | 21029V   | 12-24 V | White  | Up / Down   |

## MASTER GAUGES 85 MM GPS SPEED, WIND ANGLE, MAG WIND ANGLE, WIND SPEED, COMPASS, DEPTH



- Analogue indicator readable in extreme weather conditions
- Infrared electronic switch
- NMEA2000 compatible, AquaLink compatible
- Spinlock installation method or flush mount
- Anti fog dual lens
- White and chrome bezel available as optional
- Protection grade IPX7 exposed front and IPX5 extended back
- Movement: stepper motor
- Dial scale through it illumination cold white
- Pointer with red illumination
- Nominal voltage: 12/24 V
- Operation Temperature -20°C to +70°C



- CE certified
- NMEA2000 compatible
- EN60945-2002
- IEC 60945 Classification Exposed
- RoHS2 2002/95/CE
- Electrical Disturbance ISO7637-1/2

| Veratron Article No. | Part No. | DESCRIPTION                                  |
|----------------------|----------|--|
| A2C1351980001        | 21115M   | OL 85 mm GPS Speedo 0-35 Black               |
| A2C1957360001        | 22546X   | OL 85 mm Depth 200 m / 600 ft Black          |
| A2C1957380001        | 22547Z   | OL 85 mm Compass Black                       |
| A2C1957390001        | 22548B   | OL 85 mm Magnified Apparent Wind Angle Black |
| A2C1957420001        | 22549D   | OL 85 mm Wind speed Black                    |
| A2C1957400001        | 22550M   | OL 85 mm Wind angle Black                    |

## FEATURES

- Input signal Veratron BUS / NMEA 2000®
- New Mast Display functionality has been implemented in all 7" AcquaLink® TFTs
- Landscape and Portrait orientation
- New Mast Pages to enhance readability
- New software update required
- Automatic detection of AcquaLink® NavBox to self configure as Mast Display
- Nominal voltage: 12 V

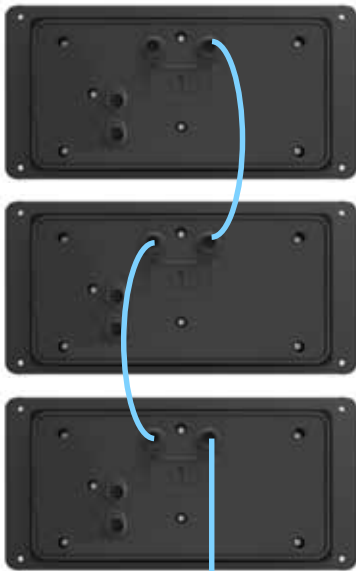
Same technical specifications as AcquaLink® 7" displays:

- High readability
- NMEA 2000® compatible
- IP67 exposed
- Touch screen with swipe function
- Operation Temperature range design for -30°C to +80°C



**Triple Mast Display 7"** - 23004N - 3x display, carbon bracket

**Single Mast Display 7"** - 23558K - 1x display, aluminum bracket



To NMEA 2000® network



## INSTALLATION CONCEPT

- Minimum-sized and clean installation thanks to daisy-chain wiring concept between displays
- No "tees" are required to be hidden or taped behind the displays
- Access to NMEA 2000® network via Veratronbus to NMEA 2000® adapter cable



## USER OPERATION-1

16 data available to be displayed:

- AWA
- AWS
- TWA
- TWS
- Boat speed (BSpd)
- COG
- SOG
- Heading
- Depth
- Rudder position
- Heel angle
- Battery voltage
- Velocity Made Good (VMG)
- Distance To Waypoint (DTW)
- Bearing To Waypoint (BTW)
- Easy touch-based interaction to setup the pages



## USER OPERATION-2

- NavControl integration to operate the displays from remote without touch interaction
- OceanLink® 4.3 TFT can be used remotely (e.g. at helm station) to set offsets and dampings for the data
- Basic settings available on Mast display as well to quickly change backlight intensity or unity references

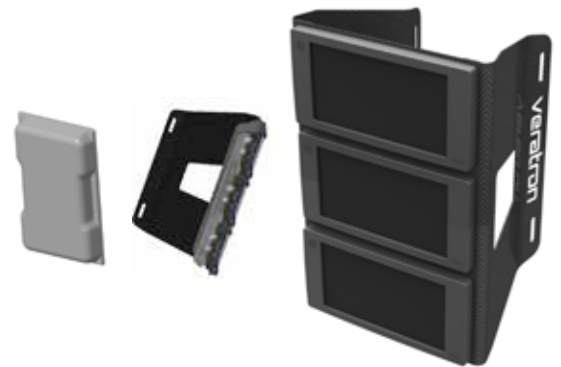


## PORTRAIT ORIENTATION

- Portrait orientation also available for smaller and cost-effective installations
- Same amount of data available as per Landscape mode
- Swipe function also available for each data as well as NavControl integration

## CARBON BRACKET - B00033101 - 23004N

- Elegant and efficient solution for mast installation
- Holds three 7" displays
- Rear cover available with minimum installation space thanks to the AcquaLink daisy-chain between displays



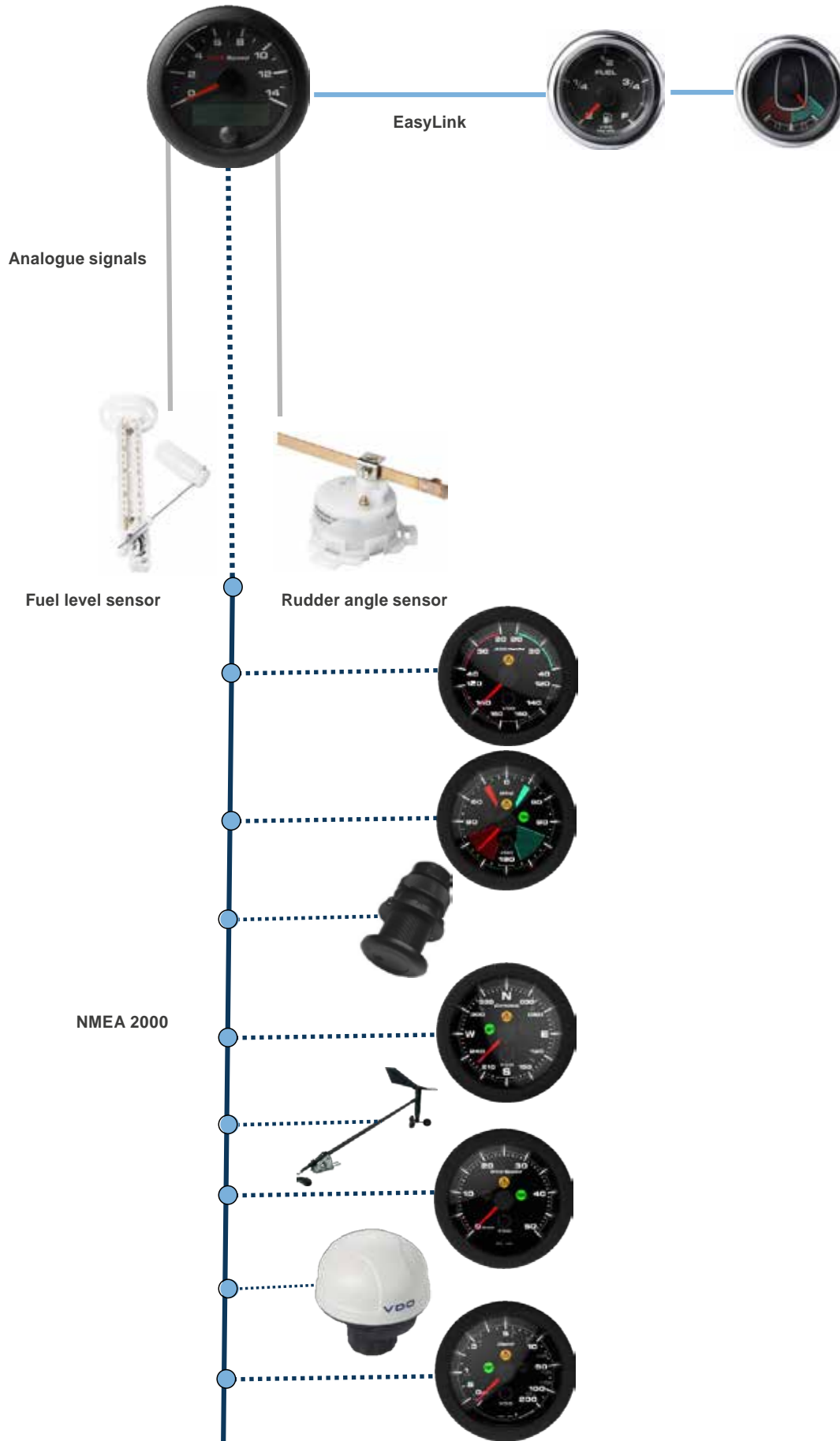
## ALUMINUM BRACKET - B00044701 - 23558K

Single aluminum Bracket, 1x 7" AcquaLink™ Display with Black Bezel and Silicone Cover, NMEA 2000® Adapter Cable, Terminator, Cables

## WIND PAGE

- Available for both standard AcquaLink® and Mast display mode
- 6 data fields at the corner fully configurable via integrated menu
- Rudder and Compass indication fixed on the top and the bottom side of indicator
- Amber and Blue colours available as well as Day and Night modes





The kit includes everything you need for the installation and provides all the information for a safe sailing.



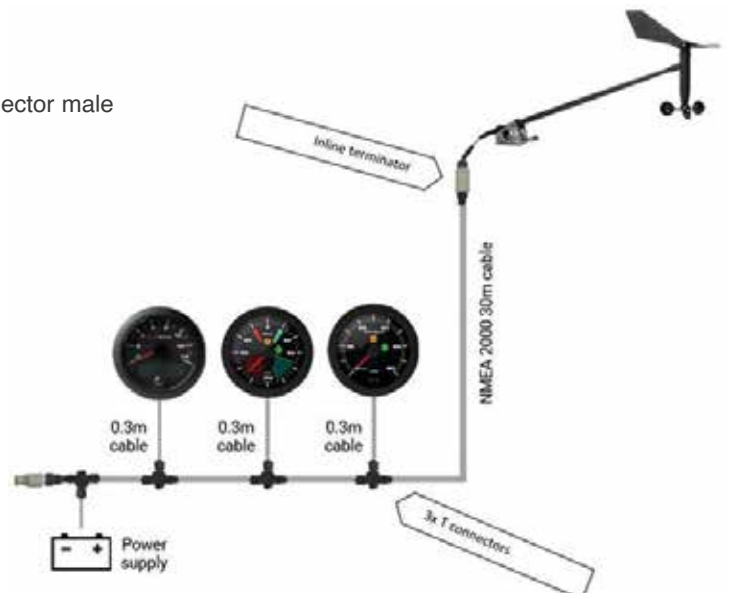
Thanks to the NMEA 2000® protocol common to all the components of the kit is possible to switch in real time the reading of direction and wind speed between real and apparent thanks to the pressure of an infrared button positioned on the instrument itself.

Thanks to the NMEA2000® and Veratron Easylink protocols it is possible to integrate the system with other instruments of the Oceanlink® series in order to have the complete monitoring of the engine, the level of the tanks and share them on the navigation instruments.

Veratron Marine Sailing KIT by Veratron AG works on low consumption, it complies with REACH, RoHS and it is produced with environmentally friendly materials

**KIT COMPONENTS:**

- NMEA2000® short arm wind sensor
- OceanLink® 85mm GPS Speedo 14Knots
- OceanLink® 85mm Classic wind angle
- OceanLink® 85mm Classic wind speed
- 30m NMEA2000® cable, 0.3m NMEA2000® cable
- NMEA2000® inline terminator + terminator female + infield connector male
- NMEA2000® Power cable
- User manual & safety instructions



| Veratron Article No. | Part No. |
|----------------------|----------|
| A2C3935310001        | 22919L   |

## UPGRADE YOUR BOAT TO THE DIGITAL WORLD

The Smart Kit is composed with an OceanLink™ 4.3" or 7" TFT Display, the new GPS module Veratron GO and all the necessary cables for installation and connection. All your data are displayed on the TFT Display.



| Veratron Article No. | Part No. | VARIANTS       |
|----------------------|----------|----------------|
| A2C1352150004        | 23608Y   | Smart Kit 4.3" |
| A2C1865330002        | 23609A   | Smart Kit 7"   |



The Veratron MediaBox features a waterproof, compact and black box design that can be mounted literally everywhere on the boat. Listen to Radio and weather forecasts with it's built in AM/FM Tuner or connect a MP3 player or smartphone via USB or Bluetooth to enjoy your favorite music. The MediaBox is NMEA 2000® certified and can be used with any compatible NMEA 2000® head unit or with the Veratron AcquaLink® or OceanLink TFT Displays. Additionally Veratron offers a free Remote App so the MediaBox can be used as a stand alone radio.

- AM/FM radio tuner with RDS - Backup memory
- Bluetooth audio player with 50 m range
- USB memory device MP3 player on smartphone
- Three band equalizer with volume control
- Power amplifier 4x 28W (D class)
- NMEA 2000® certified
- IPX5 protection rating
- Operating temperature range -20°C / +70°C
- Free Veratron Media Box App



MediaBox

**PACKAGE CONTENTS**

MediaBox, cable harness, mounting screws, installation instructions, safety instructions



| Veratron Article No. | Part No. | Voltage |
|----------------------|----------|---------|
| A2C59501980          | 20200X   | 9-16 V  |

## NMEA 2000® NAV SENSOR

The multifunctional AcquaLink® Nav Sensor is the gem of all sensors. The inertial sensor complements the inbuilt satellite receiver module to provide accurate readings of the speed of travel as well as the pitch & roll (up and down) and YAW (sideways) motion of the boat. Compass readings can be displayed electronically thanks to the embedded compass, which also facilitate course corrections in electronic autopilots.

The barometer and air temperature sensors are early indicators of forthcoming weather conditions.

### SPECIFICATIONS

- Standard MicroC connector for NMEA 2000®
- NMEA 2000® certified
- IP65 protection rating
- GPS module: position, time, boats vector, signal quality, satellites
- Compass: +/-40° tilt angle, <2° accuracy, alarm (rapid field strength change, tilt angle averrun, undervoltage conduction)
- Barometer: air pressure, air temperature inside the sensor
- Air temperature: -20°C / +65°C
- Inertial sensor: resolution 1°/s
- YAW-range 100°/s, linearity +/-3°/s
- Acceleration range 50 m/s<sup>2</sup>, linearity +/-1 m/s<sup>2</sup>
- Calculated heeling, pitch & roll-range +/-50°
- Operating temperature range -20°C / +70°C



Nav Sensor



### PACKAGE CONTENTS

Nav Sensor, 2x brackets, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage |
|----------------------|----------|---------|
| A2C59501981          | 20201Z   | 12-24 V |

## NMEA 2000® WIND SENSOR

The wind vane turns in the direction of the wind and steers the wind direction gauge. The wind cups records the relative wind speed which in turn is transmitted on the NMEA 2000® network.



NMEA 2000® Wind Sensor



| Veratron Article No. | Part No. | Voltage |
|----------------------|----------|---------|
| A2C59501984          | 20203D   | 12 V    |

The new NMEA 2000® liquid level sensor, with adjustable dip, provides fresh or waste water level data which can be displayed on every NMEA 2000® enabled display

With new updated Veratron software is now possible to:

- Extend the sensor capability up to 16 tanks per type
- Set your tank capacity to display readings in Liters or Gallons for a clearer understanding of your fluid levels
- Ensure precise measurements by calibrating your sensor to fit the unique shape of your tank



| Veratron Article No. | Part No. | Voltage | Length       |
|----------------------|----------|---------|--------------|
| B00041201            | 23408PA  | 12 V    | 200-600 mm   |
| B00041401            | 23409S   | 12 V    | 600-1200 mm  |
| B00041501            | 25475S   | 12 V    | 1200-1500 mm |



## NMEA 2000® TRIDUCER SENSOR



Through-hull 100 W plastic Airmar triducer provides depth, speed and sea-water temperature data. The sensor is NMEA 2000® certified and operates up to a depth of 330 feet (100 m) and frequency of 235 kHz.



| Veratron Article No. | Part No. | Voltage |
|----------------------|----------|---------|
| IDST810-40-01        | 25099P   | 12 V    |

## SUMLOG® TRANSDUCER KIT

The Sumlog® Transducer is required to measure boat speed through water. The Sumlog® includes two paddle wheels which can be exchanged to match the speed range of the boat, thereby supporting speeds from 0 to 18 or up to 50 knots respective of the installed paddle wheels. The NavBox supports up to two Sumlogs® which can be directly connected to the dedicated Sumlog® ports using a 4 pin M12 connector extension cable.



Sumlog® transducer kit

### PACKAGE CONTENTS

18 knots Sumlog® transducer, additional 50 knots paddle wheels, valve, plug, 2x rubber seal, installation instructions, safety instructions

| Veratron Article No. | Part No. | Voltage |
|----------------------|----------|---------|
| A2C59501986          | 20204F   | 12-24 V |

## ANALOG WIND SENSOR



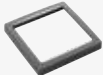






The legacy wind vane turns in the direction of the wind and steers the wind direction gauge. The wind cups records the relative wind speed which in turn is displayed on the wind speed gauge. Also compatible with Veratron “Standard”, “Logic” series.



Analogue wind sensor

| Veratron Article No. | Part No. | Voltage |
|----------------------|----------|---------|
| A2C59501983          | 600119Y  | 12-24 V |









| Image   | Veratron Article No. | Part No. | Item specifics                                       |
|---|----------------------|----------|--|
|    | A2C59501965          | 20185E   | Bezel 52 mm single, black                            |
|    | A2C59501966          | 20186G   | Bezel 52 mm double, black                            |
|    | A2C59501967          | 20187J   | Bezel TFT 4.3", black                                |
|   | A2C3983920001        | 21141N   | Bezel TFT 4.3", white                                |
|    | A2C59501968          | 20188L   | Bezel TFT 7", black                                  |
|   | A2C3995200001        | 21643P   | Bezel TFT 7", white                                  |
|    | A2C1156050001        | 21068F   | Bezel NavControl, black                              |
|   | A2C3997600001        | 21144V   | Bezel NavControl, white                              |
|    | A2C5205947101        | 20112A   | Spinlock nut, 52 mm                                  |
|    | A2A59501971          | 20191Z   | Silicone instrument cover 52 mm double               |
|  | A2C59501972          | 20192B   | Silicone cover for 4.3" TFT Display and 110 mm gauge |
|   | A2C59501973          | 20193D   | Silicone cover for 7" TFT Display                    |
|  | A2C59501974          | 20194F   | Silicone cover for NavControl                        |

## OCEANLINK GAUGES ACCESSORIES

| Image   | Veratron Article No. | Part No. | Item specifics            |
|---|----------------------|----------|---------------------------|
|  | A2C5205947101        | 20112A   | Spinlock nut, 52 mm       |
|   | A2C13760900          | 21125R   | Spinlock nut, 85 mm       |
|  | A2C1141440001        | 21065Z   | Round Bezel 52 mm, black  |
|   | A2C5336487001        | 21543K   | Round Bezel 52 mm, chrome |
|   | A2C1352110001        | 21121G   | Round Bezel 52 mm, white  |
|   | A2C1111380001        | 21064X   | Round Bezel 85 mm, black  |
|   | A2C1141580001        | 21066B   | Round Bezel 85 mm, chrome |
|   | A2C1352140001        | 21122J   | Round Bezel 85 mm, white  |
|   | A2C1152980001        | 21067D   | Bezel TFT 4.3", white     |
|   | A2C1083230001        | 21063V   | Bezel TFT 4.3", black     |

# CAN BUS ACCESSORIES - ACQUALINK® & OCEANLINK

| Image   | Veratron Article No. | Part No. | Item specifics  |
|---|----------------------|----------|---|
|    | A2C96244900          | 21153W   | Veratron Bus to NMEA 2000® Adapter 0.3 m                        |
|    | A2C96244600          | 21152U   | Veratron Bus Cable 0.3 m  |
|   | A2C38805700          | 21128X   | Veratron Bus Cable 2 m  |
|   | A2C96245000          | 21154Y   | Veratron Bus Cable 5 m  |
|   | A2C96245100          | 21155A   | Veratron Bus Cable 10 m   |
|    | A2C38805500          | 21127V   | Veratron Bus Gender Changer                                     |
|    | A2C99793900          | 21159J   | Veratron Bus Termination Resistor                               |
|    | A2C39312900          | 21135U   | NMEA 2000® Power Cable  |
|   | A2C39312700          | 21134S   | NMEA 2000® T Splitter   |
|   | B00054101            | 25158D   | NMEA 2000® 4 ways Splitter                                      |
|  | A2C96243700          | 21148D   | NMEA 2000® Cable 0.5 m  |
|   | A2C96243800          | 21149F   | NMEA 2000® Cable 2 m  |
|   | A2C96244000          | 21150P   | NMEA 2000® Cable 6 m  |
|   | A2C96244200          | 21151S   | NMEA 2000® Cable 10 m   |
|   | A2C59501950          | 20170R   | NMEA 2000® Cable 30 m   |
|  | A2C39310600          | 21131K   | NMEA 2000® Terminator Female                                    |
|  | A2C39311000          | 21132M   | NMEA 2000® Terminator Male                                      |
|  | A2C39312500          | 21133P   | NMEA 2000® Inline Terminator                                    |
|  | A2C39308500          | 21129Z   | NMEA 2000® Infield Installation Connector Female                |
|  | A2C39310500          | 21130H   | NMEA 2000® Infield Installation Connector Male                  |
|  | A2C38804900          | 21126T   | Infield Installation Connector Veratron Bus / Wind Sensor Cable |
|  | A2C99794200          | 21160T   | J1939 Termination Resistor, Inline J1939                        |

# U F L E X





ULTRA BLACK



ULTRA WHITE

**FEATURES:**

- Red or yellow perimeter-lighted black (ULTRA BLACK) or white dial (ULTRA WHITE) with bold graphics.
- Default working voltage 12/24V (except voltmeters)
- Black plastic bezel
- Double layer reinforced anti-fogging glass
- Metric and american scales.
- Plug and play installation with multi-plug socket connection design
- IP67 protection rating for the entire gauge

Uflex® instruments are single tested and CE marked according to the European Standards.

| INSTRUMENT                | HOLE SIZE<br>mm (") | DIAL RANGE      | DESCRIPTION   | ULTRA BLACK<br>PART No. | ULTRA WHITE<br>PART No. |
|---------------------------|---------------------|-----------------|---|-------------------------|-------------------------|
| Tachometer/hourmeter      | 85 (3.35)           | 4000 RPM        | Tachometer 4000 1/10 speed ratio*   | 60510JK                 | 60534UK                 |
|                           | 85 (3.35)           | 4000 RPM        | Tachometer 4000 0,5/250 speed ratio**   | 22464VK                 | 22449ZK                 |
|                           | 85 (3.35)           | 6000 RPM        | Tachometer 6000 1/10 speed ratio*   | 60738GK                 | 60691KK                 |
|                           | 85 (3.35)           | 6000 RPM        | Tachometer 6000 0,5/250 speed ratio**   | 22465XK                 | 22442JK                 |
|                           | 85 (3.35)           | 8000 RPM        | Tachometer 8000 1/10 speed ratio*   | 22466ZK                 | 22437SK                 |
|                           | 85 (3.35)           | 8000 RPM        | Tachometer 8000 0,5/250 speed ratio**   | 22467BK                 | 22438TK                 |
| Speedometer               | 85 (3.35)           | 35 Knots        | Pitot tube provides<br>pressure signals<br>(not included)                       | 22468DK                 | 22439WK                 |
|                           | 85 (3.35)           | 55 Knots        |   | 22470PK                 | 22441GK                 |
|                           | 85 (3.35)           | 65 Knots        |   | 22469FK                 | 22443LK                 |
|                           | 85 (3.35)           | 60 Knots GPS    | GPS signal (antenna included)   | 22471SK                 | 22445RK                 |
| Fuel level gauge          | 52 (2.05)           | E - 1/2 - F     | 0-190 ohm   | 60518TK                 | 60542UK                 |
| Water level gauge         | 52 (2.05)           | E - 1/2 - F     | 0-190 ohm   | 60520LK                 | 60544WK                 |
| Holding tank level gauge  | 52 (2.05)           | E - 1/2 - F     | 240-33 ohm  | 22463TK                 | 22430BK                 |
| Oil pressure gauge        | 52 (2.05)           | 0 - 5 bar       | Pressure sensors provide<br>signals (not included)                              | 60521MK                 | 60545XK                 |
|                           | 52 (2.05)           | 0 - 10 bar      |   | 60522NK                 | 60546YK                 |
| Exhaust temperature gauge | 52 (2.05)           | 0 - 800°C       | Exhaust temperature sensor<br>provides signal (not included)                    | 22475AK                 | 22447VK                 |
| Clock                     | 52 (2.05)           | –               | Analog  | 60531RK                 | 60539BK                 |
| Ammeter                   | 52 (2.05)           | ± 80 A          | Matched with 100 A<br>current shunt unit (included)                             | 22472WK                 | 22431DK                 |
| Water temperature gauge   | 52 (2.05)           | 40 - 120 °C     | Temperature sensor<br>provides signals (not included)                           | 60526RK                 | 60550UK                 |
| Hourmeter                 | 52 (2.05)           | 0 - 99999 hours | –   | 60530QK                 | 60554YK                 |
| Trim gauge                | 52 (2.05)           | 160-10 ohm      | Requires sending unit on outboard or<br>sterndrive<br>(check resistance values) | 22474YK                 | 22432FK                 |
|                           | 52 (2.05)           | 0-190 ohm       |   | 22475MK                 | 22433HK                 |
| Rudder angle indicator    | 85 (3.35)           | Port-Starboard  | Indicates relative position of rudder   | 60699UK                 | 60700QK                 |
| Voltmeter                 | 52 (2.05)           | 8-16 Volt       | For all 12 Volt electrical system<br>For all 24 Volt electrical system          | 60529WK                 | 60553XK                 |
|                           | 52 (2.05)           | 18-32 Volt      |   | 60741ZK                 | 60742AK                 |

**\* SPEED RATIO SETTING 1/10**

**Common setup on boat engines**

| OUTBOARD |             |          |          | INBOARD & GAS ENGINE |       |             |          |          |
|----------|-------------|----------|----------|----------------------|-------|-------------|----------|----------|
| POLES    | SPEED RATIO |          |          | CYLINDER             | CYCLE | SPEED RATIO |          |          |
|          | 4000 RPM    | 6000 RPM | 8000 RPM |                      |       | 4000 RPM    | 6000 RPM | 8000 RPM |
| 4        | 1.3         | 2.0      | 2.6      | 4                    | 4     | 1.3         | 2.0      | 2.6      |
| 6        | 2.0         | 3.0      | 4.0      | 6                    | 4     | 2.0         | 3.0      | 4.0      |
| 8        | 2.7         | 4.0      | 5.3      | 8                    | 4     | 2.7         | 4.0      | 5.3      |
| 10       | 3.3         | 5.0      | 6.6      | 10                   | 4     | 3.3         | 5.0      | 6.6      |
| 12       | 4.0         | 6.0      | 8.0      |                      |       |             |          |          |



**\*\* SPEED RATIO SETTING 0,5/250 TO 25.0 EXAMPLE**





ULTRA BLACK SS



ULTRA WHITE SS

**FEATURES:**

- Red or yellow perimeter-lighted black (ULTRABLACK SS) or white dial (ULTRAWHITE SS) with bold graphics.
- Default working voltage 12/24V (except voltmeters)
- 316 stainless steel bezel with convex glass
- Double layer reinforced anti-fogging glass
- Metric and american scales.
- Plug and play installation with multi-plug socket connection design
- IP67 protection rating for the entire gauge

Uflex® instruments are single tested and CE marked according to the European Standards.

| INSTRUMENT                | HOLE SIZE mm (")                    | DIAL RANGE                       | DESCRIPTION  | U-BLACK SS PART No.           | U-WHITE SS PART No.           |         |
|---------------------------|-------------------------------------|----------------------------------|--|-------------------------------|-------------------------------|---------|
| Tachometer/hourmeter      | 85 (3.35)                           | 4000 RPM                         | Tachometer 4000 1/10 speed ratio*  | 22481VK                       | 62005LK                       |         |
|                           | 85 (3.35)                           | 4000 RPM                         | Tachometer 4000 0,5/250 speed ratio**                                      | 22482XK                       | 22450HK                       |         |
|                           | 85 (3.35)                           | 6000 RPM                         | Tachometer 6000 1/10 speed ratio*  | 22483ZK                       | 62004JK                       |         |
|                           | 85 (3.35)                           | 6000 RPM                         | Tachometer 6000 0,5/250 speed ratio**                                      | 22484BK                       | 22451KK                       |         |
|                           | 85 (3.35)                           | 8000 RPM                         | Tachometer 8000 1/10 speed ratio*  | 22485DK                       | 22452MK                       |         |
|                           | 85 (3.35)                           | 8000 RPM                         | Tachometer 8000 0,5/250 speed ratio**                                      | 22486FK                       | 22453PK                       |         |
| Speedometer               | 85 (3.35)<br>85 (3.35)<br>85 (3.35) | 35 Knots<br>55 Knots<br>65 Knots | Pitot tube provides pressure signals (not included)                        | 22487HK<br>22489MK<br>22488KK | 22454SK<br>22456WK<br>22455UK |         |
|                           | 85 (3.35)                           | 60 Knots GPS                     | GPS signal (antenna included)  | 22490WK                       | 22457YK                       |         |
|                           | Fuel level gauge                    | 52 (2.05)                        | E - 1/2 - F  | 0-190 ohm                     | 22476BK                       | 62014MK |
|                           | Water level gauge                   | 52 (2.05)                        | E - 1/2 - F  | 0-190 ohm                     | 22477EK                       | 62018WK |
| Holding tank level gauge  | 52 (2.05)                           | E - 1/2 - F                      | 240-33 ohm   | 22478GK                       | 22462RK                       |         |
| Oil pressure gauge        | 52 (2.05)<br>52 (2.05)              | 0 - 5 bar<br>0 - 10 bar          | Pressure sensors provide signals (not included)                            | 22479JK<br>22480TK            | 62016SK<br>62017UK            |         |
| Exhaust temperature gauge | 52 (2.05)                           | 0 - 800°C                        | Exhaust temperature sensor provides signal (not included)                  | 22491YK                       | 22458AK                       |         |
| Clock                     | 52 (2.05)                           | –                                | Analog   | 22492AK                       | 62013KK                       |         |
| Ammeter                   | 52 (2.05)                           | ± 80 A                           | Matched with 100 A current shunt unit (included)                           | 22493CK                       | 22459CK                       |         |
| Water temperature gauge   | 52 (2.05)                           | 40 - 120 °C                      | Temperature sensor provides signals (not included)                         | 22494EK                       | 62024RK                       |         |
| Hourmeter                 | 52 (2.05)                           | 0 - 99999 hours                  | –  | 22495GK                       | 62015PK                       |         |
| Trim gauge                | 52 (2.05)<br>52 (2.05)              | 160-10 ohm<br>0-190 ohm          | Requires sending unit on outboard or stern drive (check resistance values) | 22496JK<br>22497LK            | 22460LK<br>22461NK            |         |
| Rudder angle indicator    | 85 (3.35)                           | Port-Starboard                   | Indicates relative position of rudder                                      | 22498NK                       | 62027XK                       |         |
| Voltmeter                 | 52 (2.05)<br>52 (2.05)              | 8-16 Volt<br>18-32 Volt          | For all 12 Volt electrical system<br>For all 24 Volt electrical system     | 22499RK<br>22500WK            | 62022LK<br>62023NK            |         |

**\* SPEED RATIO SETTING 1/10**

**Common setup on boat engines**

| OUTBOARD |             |          |          | INBOARD & GAS ENGINE |       |             |          |          |
|----------|-------------|----------|----------|----------------------|-------|-------------|----------|----------|
| POLES    | SPEED RATIO |          |          | CYLINDER             | CYCLE | SPEED RATIO |          |          |
|          | 4000 RPM    | 6000 RPM | 8000 RPM |                      |       | 4000 RPM    | 6000 RPM | 8000 RPM |
| 4        | 1.3         | 2.0      | 2.6      | 4                    | 4     | 1.3         | 2.0      | 2.6      |
| 6        | 2.0         | 3.0      | 4.0      | 6                    | 4     | 2.0         | 3.0      | 4.0      |
| 8        | 2.7         | 4.0      | 5.3      | 8                    | 4     | 2.7         | 4.0      | 5.3      |
| 10       | 3.3         | 5.0      | 6.6      | 10                   | 4     | 3.3         | 5.0      | 6.6      |
| 12       | 4.0         | 6.0      | 8.0      |                      |       |             |          |          |



**\*\* SPEED RATIO SETTING 0,5/250 TO 25.0 EXAMPLE**





DRESS WHITE

**FEATURES:**

- Red or yellow perimeter-lighted white dial with bold black graphics.
- Default working voltage 12/24V (except voltmeters)
- White plastic bezel
- Double layer reinforced anti-fogging glass
- Metric and american scales
- Plug and play installation with multi-plug socket connection design
- IP67 protection rating for the entire gauge

Uflex® instruments are single tested and CE marked according to the European Standards.

**REPLACEMENT PLASTIC BEZEL Ø 52 MM - 85 MM**

Black bezel 52 mm - 22535SK  
 White bezel 52 mm - 22514HK  
 Silver bezel 52 mm - 22536UK

Black bezel 85 mm - 68028GK  
 White bezel 85 mm - 68029JK  
 Silver bezel 85 mm - 68030OK



Replacement bezels Ø 52 mm



Replacement bezels Ø 85 mm

**RESISTANCE RESISTOR**

This product can perfectly connect two equipments whose signals didn't match.

**If E-F end short circuit:**

Input 240-33 ohm - Output 0-190 ohm

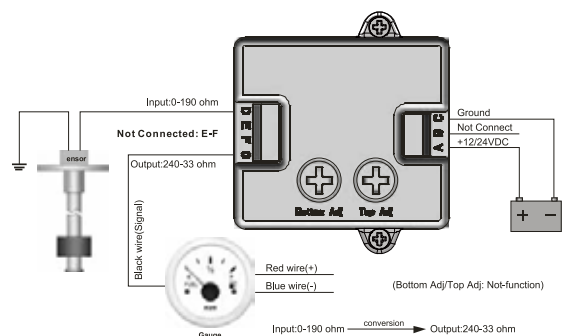
**If E-F end off:**

Input 0-190 ohm - Output 240-33 ohm



RESISTANCE RESISTOR - 22537WK

Please note the connection of E-F





| INSTRUMENT                | HOLE SIZE mm ("") | DIAL RANGE      | DESCRIPTION   | DRESS WHITE PART No. |
|---------------------------|-------------------|-----------------|---|----------------------|
| Tachometer/hourmeter      | 85 (3.35)         | 4000 RPM        | Tachometer 4000 1/10 speed ratio*   | 62658KK              |
|                           | 85 (3.35)         | 4000 RPM        | Tachometer 4000 0,5/250 speed ratio**                                     | 22502AK              |
|                           | 85 (3.35)         | 6000 RPM        | Tachometer 6000 1/10 speed ratio*   | 62656FK              |
|                           | 85 (3.35)         | 6000 RPM        | Tachometer 6000 0,5/250 speed ratio**                                     | 22503CK              |
|                           | 85 (3.35)         | 8000 RPM        | Tachometer 8000 1/10 speed ratio*   | 22504EK              |
|                           | 85 (3.35)         | 8000 RPM        | Tachometer 8000 0,5/250 speed ratio**                                     | 22505GK              |
| Speedometer               | 85 (3.35)         | 35 Knots        | Pitot tube provides pressure signals (not included)                       | 22506JK              |
|                           | 85 (3.35)         | 55 Knots        |   | 22508NK              |
|                           | 85 (3.35)         | 65 Knots        |   | 22507LK              |
|                           | 85 (3.35)         | 60 Knots GPS    | GPS signal (antenna included)   | 22509RK              |
| Fuel level gauge          | 52 (2.05)         | E - 1/2 - F     | 0-190 ohm   | 62664EK              |
| Water level gauge         | 52 (2.05)         | E - 1/2 - F     | 0-190 ohm   | 62665GK              |
| Holding tank level gauge  | 52 (2.05)         | E - 1/2 - F     | 240-33 ohm  | 22501YK              |
| Oil pressure gauge        | 52 (2.05)         | 0 - 5 bar       | Pressure sensors provide signals (not included)                           | 62666JK              |
|                           | 52 (2.05)         | 0 - 10 bar      |   | 62667LK              |
| Exhaust temperature gauge | 52 (2.05)         | 0 - 800°C       | Exhaust temperature sensor provides signal (not included)                 | 22510ZK              |
| Clock                     | 52 (2.05)         | -               | Analog  | 62676MK              |
| Ammeter                   | 52 (2.05)         | ± 80 A          | Matched with 100 A current shunt unit (included)                          | 22511BK              |
| Water temperature gauge   | 52 (2.05)         | 40 - 120 °C     | Temperature sensor provides signals (not included)                        | 62669RK              |
| Hourmeter                 | 52 (2.05)         | 0 - 99999 hours | -   | 62672DK              |
| Trim gauge                | 52 (2.05)         | 160-10 ohm      | Requires sending unit on outboard or sterndrive (check resistance values) | 22512DK              |
|                           | 52 (2.05)         | 0-190 ohm       |   | 22513FK              |
| Rudder angle indicator    | 85 (3.35)         | Port-Starboard  | Indicates relative position of rudder                                     | 62678SK              |
| Voltmeter                 | 52 (2.05)         | 8-16 Volt       | For all 12 Volt electrical system<br>For all 24 Volt electrical system    | 62670ZK              |
|                           | 52 (2.05)         | 18-32 Volt      |   | 62671BK              |

**\* SPEED RATIO SETTING 1/10**

Common setup on boat engines

| OUTBOARD |             |          |          | INBOARD & GAS ENGINE |       |             |          |          |
|----------|-------------|----------|----------|----------------------|-------|-------------|----------|----------|
| POLES    | SPEED RATIO |          |          | CYLINDER             | CYCLE | SPEED RATIO |          |          |
|          | 4000 RPM    | 6000 RPM | 8000 RPM |                      |       | 4000 RPM    | 6000 RPM | 8000 RPM |
| 4        | 1.3         | 2.0      | 2.6      | 4                    | 4     | 1.3         | 2.0      | 2.6      |
| 6        | 2.0         | 3.0      | 4.0      | 6                    | 4     | 2.0         | 3.0      | 4.0      |
| 8        | 2.7         | 4.0      | 5.3      | 8                    | 4     | 2.7         | 4.0      | 5.3      |
| 10       | 3.3         | 5.0      | 6.6      | 10                   | 4     | 3.3         | 5.0      | 6.6      |
| 12       | 4.0         | 6.0      | 8.0      |                      |       |             |          |          |



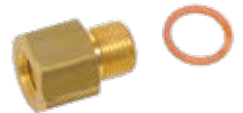
**\*\* SPEED RATIO SETTING 0,5/250 TO 25.0 EXAMPLE**



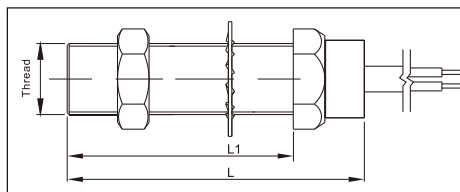
# SENDERS AND ACCESSORIES



| TYPE                       | SCALE                            | DESCRIPTION  | PART No.   |
|----------------------------|----------------------------------|--|--|
| Diesel tachometer sender   | -                                | Attaches to diesel sender mechanical take-off.<br>Includes coupling and 4 drive keys   | 60613S   |
| Oil pressure sender        | 5 bar<br>10 bar                  | Single station, 1/8" NPTF<br>Single station, 1/8" NPTF   | 60525QK<br>60360NK                                       |
| Water temperature sender   | 40 - 120 °C                      | Single station, 1/8" NPTF  | 60528VK  |
| Bushing kit                | Temperature and pressure senders | 1/8" NPTF - M10x1<br>1/8" NPTF - M12x1<br>1/8" NPTF - M16x1.5<br>1/8" NPTF to 1/4" - 3/8"<br>1/8" NPTF to 1/2" - 5/8"<br>1/8" NPTF to 1/8" BSP/F | 60618Z<br>60619A<br>60620R<br>60615U<br>60616V<br>60617W |
| Exhaust temperature sender | 0 - 800 °C                       | Stainless steel 316 sender, thread: PT 3/8",<br>supplied with 5 m sleeving cable   | 22533MK  |
| Fuel level sender          | 20 - 60 cm<br>(7.9" - 23.6")     | Single station 10 -180 Ω   | 66180C   |
| Pitot kits                 | -                                | Pitot tube complete with transom mount<br>mounting hardware<br>As above complete with 20' of tubing  | 60515OK<br>60516 PK                                      |
| Rudder angle sender        | -                                | Sender for single rudder angle indicator   | 68451UK  |



**NOTE:** SINGLE SENDER: to connect to 1 gauge



| MOD.    | DESCRIPTION                 | L mm | L1 mm | THREAD  | OUTPUT SIGNAL | FREQUENCY RANGE | CONNECTION  | PART No. |
|---------|-----------------------------|------|-------|---------|---------------|-----------------|-------------|----------|
| KE10010 | Magnetolectric tacho sender | 100  | 80    | M16x1.5 | Sine wave     | 100-15000 Hz    | Two wires   | 22531HK  |
| KE10004 | Holzer tacho sender         | 80   | 70    | M16x1.5 | Square wave   | 0-20000 Hz      | Three wires | 22532KK  |

## FUEL LEVEL KIT

### 66234Z

Fuel level Ultra Black Series gauge complete with sender 20 - 60 cm (7.9" - 23.6")

### 66235B

Fuel level Ultra White Series gauge complete with sender 20 - 60 cm (7.9" - 23.6")



## US3H - HOLDING TANK SENDERS

- Stainless steel
- Resistance rating: 240 Ohm (empty) – 33 Ohm (full)
- Threaded mounting flange

| LENGTH         | MODEL  | PART No. |
|----------------|--------|----------|
| 100 mm (3.9")  | US3H-1 | 20602U   |
| 205 mm (8.0")  | US3H-2 | 20603W   |
| 305 mm (12.0)  | US3H-3 | 20604Y   |
| 410 mm (16.1") | US3H-4 | 20605A   |
| 510 mm (20.1)  | US3H-5 | 21717T   |



HFL

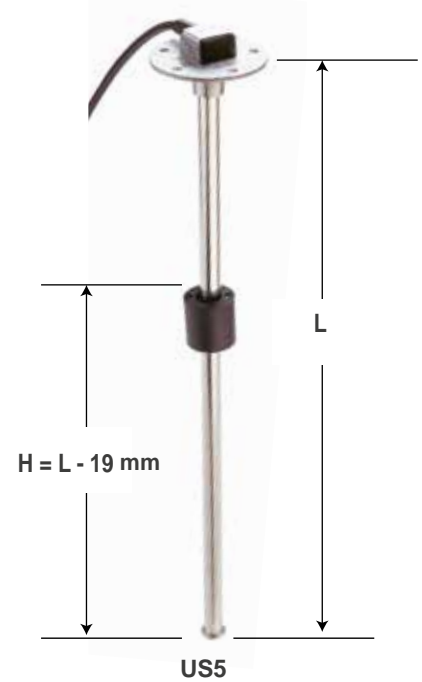
US3H

HFL - 64719P - 1 1/4" Spare or adapting flange - NPT threads

# US5 and US3 - FUEL/WATER SENDERS



- Stainless steel senders
- SAE 5-hole mounting flange or threaded mounting flange
- Resistance rating: 0 Ohm (empty) - 180 Ohm (full)/ 240 Ohm(empty) - 33 Ohm (full)
- S5 and S3 senders interface all Uflex fuel and water level indicators
- IP65



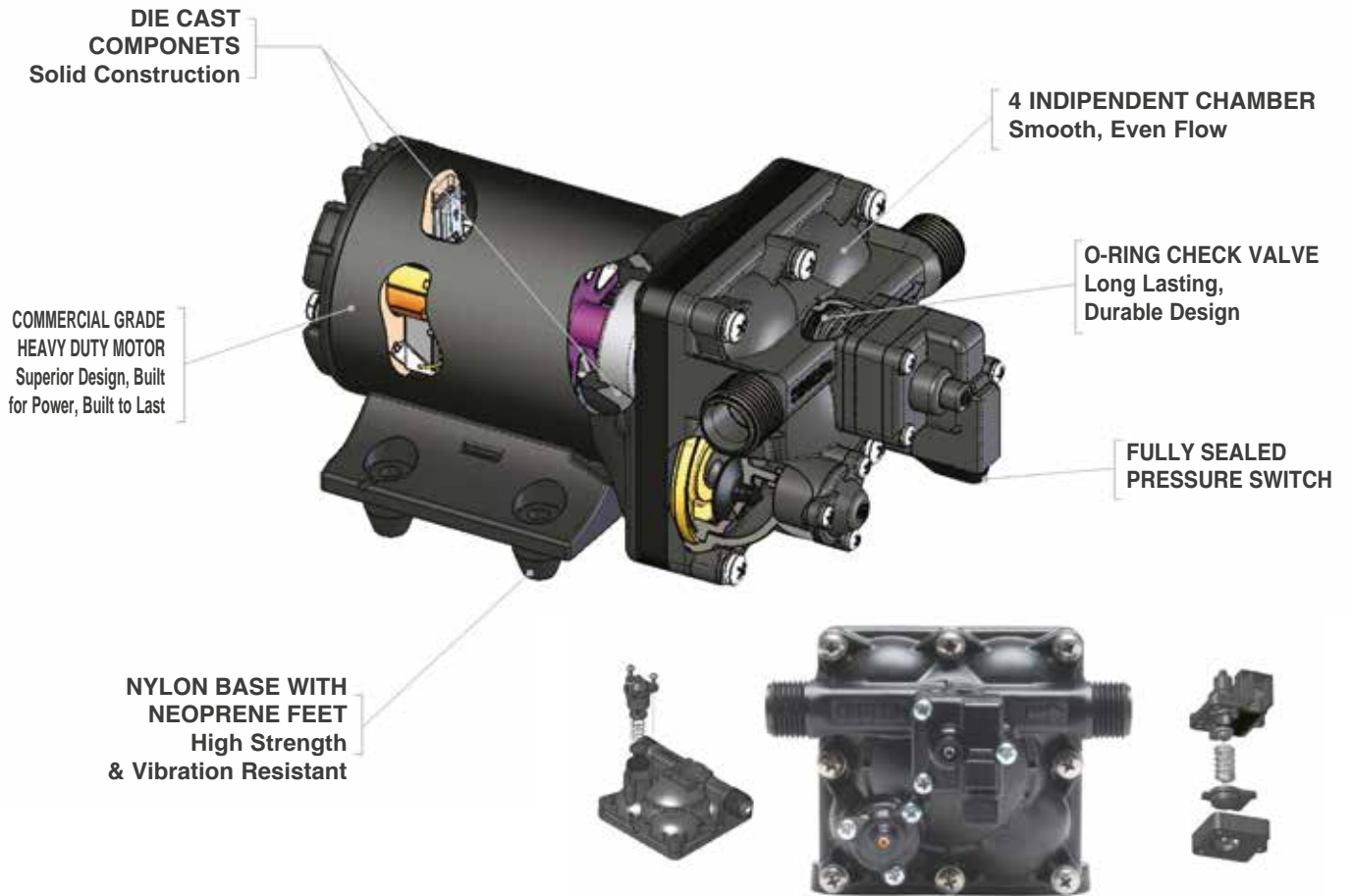
| L= SENSOR LENGTH | US5 EUROPEAN RESISTANCE 5 HOLE FLANGE |          | US5 AMERICAN RESISTANCE 5 HOLE FLANGE |          | US3 EUROPEAN RESISTANCE THREAD FLANGE |          |
|------------------|---------------------------------------|----------|---------------------------------------|----------|---------------------------------------|----------|
|                  | MODEL                                 | PART No. | MODEL                                 | PART No. | MODEL                                 | PART No. |
| 100 mm (5.9")    | US5-E100                              | 23522M   | -                                     | -        | -                                     | -        |
| 150 mm (5.9")    | US5-E150                              | 20606C   | -                                     | -        | -                                     | -        |
| 175 mm (6.9")    | US5-E175                              | 20607E   | US5-A175                              | 20625G   | -                                     | -        |
| 200 mm (7.9")    | US5-E200                              | 20608G   | US5-A200                              | 20626J   | -                                     | -        |
| 225 mm (8.9")    | US5-E225                              | 20609J   | -                                     | -        | -                                     | -        |
| 250 mm (9.8")    | US5-E250                              | 20610T   | US5-A250                              | 20627L   | US3-E250                              | 21745Y   |
| 275 mm (10.8")   | US5-E275                              | 20611V   | US5-A275                              | 20628N   | -                                     | -        |
| 300 mm (11.8")   | US5-E300                              | 20612X   | US5-A300                              | 20629R   | US3-E300                              | 20634H   |
| 350 mm (13.8")   | US5-E350                              | 20613Z   | US5-A350                              | 20630Z   | US3-E350                              | 20635K   |
| 400 mm (15.7")   | US5-E400                              | 20614B   | US5-A400                              | 20632D   | US3-E400                              | 20636M   |
| 450 mm (17.7")   | US5-E450                              | 20615D   | US5-A450                              | 21634N   | US3-E450                              | 20637P   |
| 500 mm (19.7")   | US5-E500                              | 20616F   | US5-A500                              | 20633F   | US3-E500                              | 20638S   |
| 550 mm (21.7")   | US5-E550                              | 20617H   | -                                     | -        | US3-E550                              | 20639U   |
| 600 mm (23.6")   | US5-E600                              | 20618K   | -                                     | -        | US3-E600                              | 20640C   |
| 650 mm (25.6")   | US5-E650                              | 20619M   | -                                     | -        | -                                     | -        |
| 700 mm (27.6")   | US5-E700                              | 20620W   | -                                     | -        | -                                     | -        |
| 750 mm (29.5")   | US5-E750                              | 20621Y   | US5-A750                              | 65181Z   | -                                     | -        |
| 800 mm (31.5")   | US5-E800                              | 20622A   | -                                     | -        | US3-E800                              | 65631E   |
| 850 mm (33.5")   | US5-E850                              | 20623C   | -                                     | -        | -                                     | -        |
| 900 mm (35.4")   | US5-E900                              | 20624E   | -                                     | -        | -                                     | -        |
| 1400 mm (55.1")  | -                                     | -        | -                                     | -        | US3-E1400                             | 20370Z   |
| 1500 mm (59.1")  | US5-E1500                             | 62501Z   | -                                     | -        | -                                     | -        |
| 2000 mm (78.7")  | -                                     | -        | -                                     | -        | US3-E2000                             | 20371B   |

FL-2 - 68417U - Adapter flange for SAE3 threaded head senders to 5 holes SAE5 flange

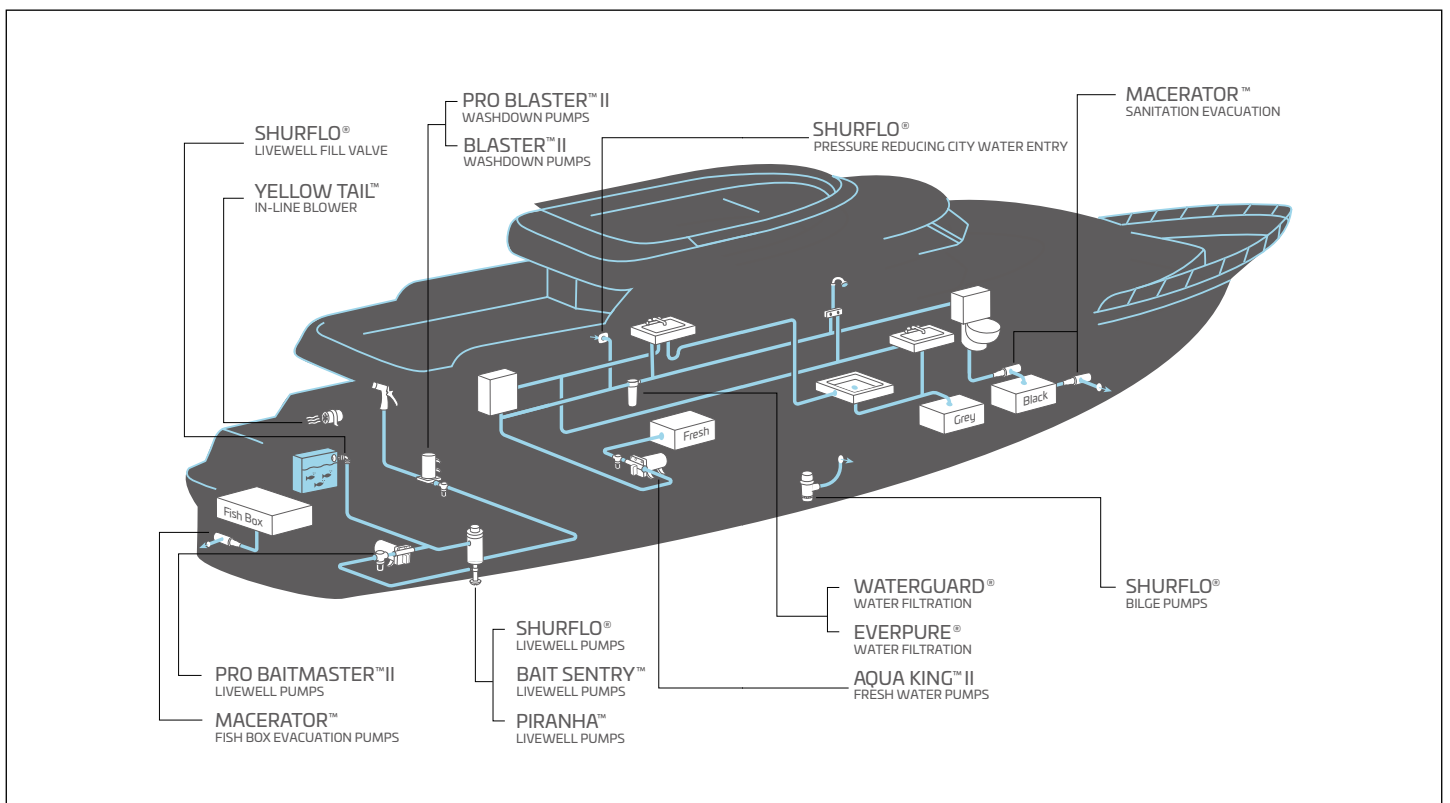


# PENTAIR SHURFLO®





## SHURFLO MARINE PLUMBING SYSTEM





SLV



Aqua King™ II Junior 2.0

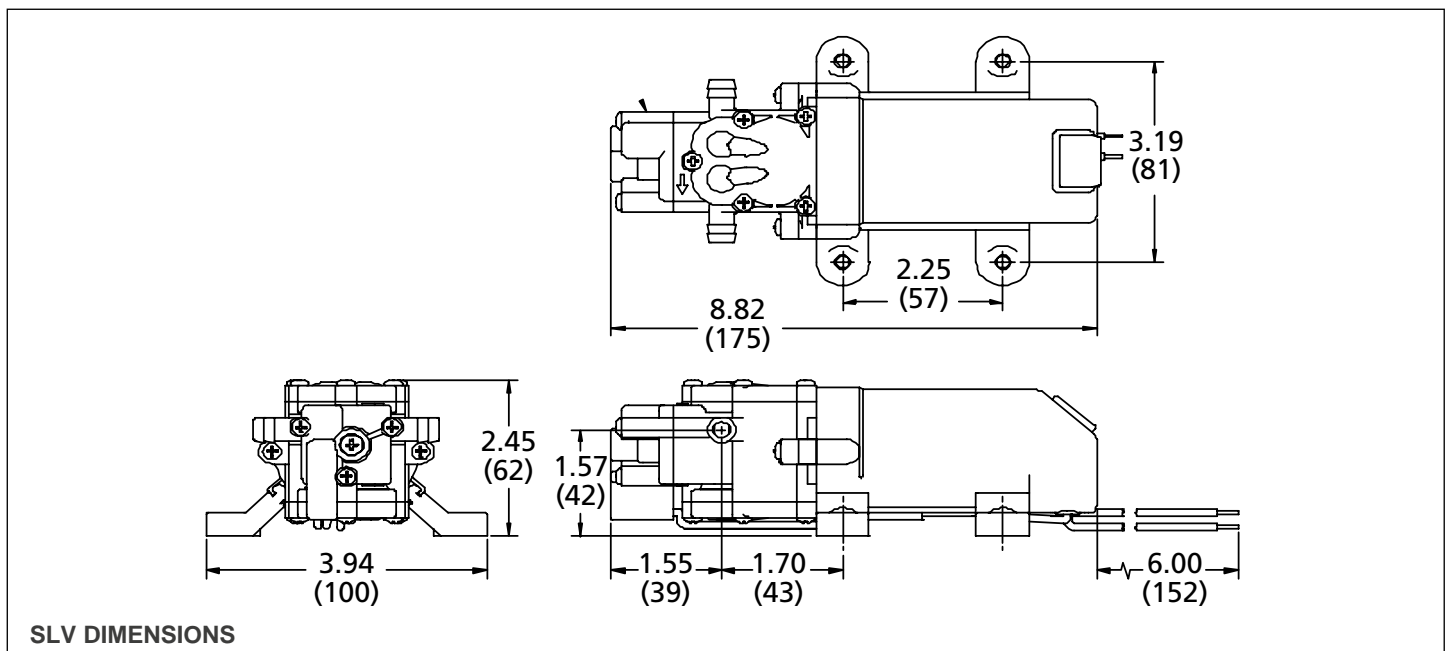


Aqua King™ II Standard 3.0

The Next Generation SHURflo® pumps guarantee quiet operation and smooth performance while providing the ultimate in durability and reliability. These automatic water pumps are self priming with a three-chamber design to lift water up to 8ft (2,4 m).

- Run dry capability
- Built-in check valve prevents backflow into the tank
- Sealed switch
- Corrosion resistant seamless e-coated motor
- Thermally Protected. Ignition Protected
- CE marked

| MODEL                      | PART No. | VOLT   | FLOW RATE             | DIMENSIONS mm (")         | SHUT-OFF PRESSURE | AMP MAX |
|----------------------------|----------|--------|-----------------------|---------------------------|-------------------|---------|
| SLV                        | 68851L   | 12V DC | 1.0 GPM - 3,8 l/min   | 170x100x60 (6.7x3.9x2.5)  | 30 PSI - 2,0 Bar  | 2,5     |
| Aqua King™ II Junior       | 69590P   | 12V DC | 2.0 GPM - 7,6 l/min   | 208x124x105 (8.2x4.9x4.1) | 30 PSI - 2,0 Bar  | 3,5     |
| Aqua King™ II Standard 12V | 69591S   | 12V DC | 3.0 GPM - 11,35 l/min | 208x124x105 (8.2x4.9x4.1) | 45 PSI - 3,1 Bar  | 6,5     |
| Aqua King™ II Standard 24V | 69592U   | 24V DC | 3.0 GPM - 11,35 l/min | 208x124x105 (8.2x4.9x4.1) | 45 PSI - 3,1 Bar  | 3,8     |



## AQUA KING™ II SERIES PREMIUM 4.0

The Aqua King™ II Premium Series 4.0 fresh water pump design was created with unique over-molded single-piece diaphragm and internal by-pass, assuring long life and top performance in all plumbing systems. These pumps are constructed for high flow demand, smooth flow and no rapid cycling.

The Series 4.0 fresh water automatic demand pumps are quiet, thermally protected and can run dry without damage.

- Sealed switch
- Sealed motor
- Corrosion resistant electro coated motor
- 4 independent chambers
- Built-in check valve
- Co-molded diaphragm
- Adjustable switch and by-bass
- Self-priming up to 6 ft (1,8 m)
- Dry run capability
- Thermally protected
- CE marked – Ignition protected



Aqua King™ II Premium 4.0



| MODEL                         | PART No. | VOLT | DIMENSIONS mm (")       | FLOW RATE            | AMP MAX | SHUT-OFF PRESSURE |
|-------------------------------|----------|------|-------------------------|----------------------|---------|-------------------|
| Aqua King™ II Premium 4.0 12V | 68806F   | 12V  | 254x127x120 (10x5x4.75) | 4.0 GPM – 15,1 l/min | 10      | 55 PSI – 3,8 Bar  |
| Aqua King™ II Premium 4.0 24V | 68850J   | 24V  | 254x127x120 (10x5x4.75) | 4.0 GPM – 15,1 l/min | 5       | 55 PSI – 3,8 Bar  |

## AQUA KING™ II SERIES SUPREME 5.0

The Aqua King™ II Supreme Series 5.0 fresh water pump design was created with unique over-molded single-piece diaphragm and internal by-pass, assuring long life and top performance in all plumbing systems. These pumps are constructed for high flow demand, smooth flow and no rapid cycling.

The Series 5.0 fresh water automatic demand pumps are quiet, thermally protected and can run dry without damage.

- Sealed switch
- Sealed motor
- Corrosion resistant electro coated motor
- 4 independent chambers
- Built-in check valve
- Co-molded diaphragm
- Adjustable switch and by-bass
- Self-priming up to 6 ft (1,8 m)
- Dry run capability
- Thermally protected
- CE marked – Ignition protected



Aqua King™ II Supreme 5.0



| MODEL                         | PART No. | VOLT | DIMENSIONS mm (")       | FLOW RATE            | AMP MAX | SHUT-OFF PRESSURE |
|-------------------------------|----------|------|-------------------------|----------------------|---------|-------------------|
| Aqua King™ II Supreme 5.0 12V | 68804B   | 12V  | 254x127x120 (10x5x4.75) | 5.0 GPM - 18,9 l/min | 13      | 55 PSI - 3,8 Bar  |
| Aqua King™ II Supreme 5.0 24V | 68805D   | 24V  | 254x127x120 (10x5x4.75) | 5.0 GPM - 18,9 l/min | 7       | 55 PSI - 3,8 Bar  |



THE washdown kit includes everything you need for tough washdown applications all in one box. The kit includes the Next Generation ProBlaster™ Pump, Fittings, Blaster™ Nozzle, Raw Water Strainer and a 7,6 m (25') coiled hose.

- CE marked



Washdown kit™ II Deluxe 4.0

| MODEL         | PART No. | VOLT   | DIMENSIONS mm (")         | FLOW RATE            | AMP MAX | HUT-OFF PRESSURE |
|---------------|----------|--------|---------------------------|----------------------|---------|------------------|
| Washdown Kit™ | 69194F   | 12V DC | 210x136x127 (8.3x5.3x5.0) | 4.0 GPM - 15,1 l/min | 10      | 45 PSI - 3,1 Bar |

## MACERATOR PUMPS

Designed specifically for sanitation waste and fish box evacuations, SHURflo's Macerator pump features a premium impeller design.

- Run dry capability
- Self Priming
- SHURflo's unique dual blade and housing construction ensures problem free pumping
- Thermally Protected. Ignition Protected
- CE marked
- Impeller for Macerator pump: 63432M



Macerator

| MODEL         | PART No. | VOLT   | DIMENSIONS mm (")         | FLOW RATE         | AMP MAX | PORT SIZE                                     |
|---------------|----------|--------|---------------------------|-------------------|---------|---|
| Macerator 12V | 62767R   | 12V DC | 274x97x114 (10.8x3.8x4.5) | 13 GPM - 50 l/min | 14      | inlet: 1.5" barb / 1,5 NPT<br>outlet: 1" barb |
| Macerator 24V | 62768T   | 24V DC | 274x97x114 (10.8x3.8x4.5) | 13 GPM - 50 l/min | 8       | inlet: 1.5" barb / 1,5 NPT<br>outlet: 1" barb |

## HORIZONTAL MACERATOR PUMP WITH BLACK WATER TANK KIT

Kit is sold with pump already mounted and ready for installation. Compatible with all manual and electric wc.

- Electric soaker 12 V or 24 V
- 3 kind of tank available: 40 l, 60 l and 70 l
- 1" 1/2 + 3/4" loading female threads
- 3/4" vent female threads
- 1" 1/2 manual emergency drain female threads
- Housing for fastening hooks
- Shut off valve for soaker drainage in case of maintenance
- 5-hole flange for level sensor (sensor to order separately)
- Protection for sensor level
- Complying with ISO 8099



| MODEL     | PART No. 12V | PART No. 24V | CAPACITY | DIMENSIONS mm (") WxHxD              | DRY WEIGHT kg (lbs) |
|-----------|--------------|--------------|----------|--------------------------------------|---------------------|
| KITMCT-40 | 20915S       | N.A.         | 40 l     | 500 x 300 x 390 (19.7 x 11.8 x 15.3) | 4,5 (9.9)           |
| KITMCT-60 | 20916U       | 20919A       | 60 l     | 645 x 300 x 390 (25.4 x 11.8 x 15.3) | 5,5 (12.1)          |
| KITMCT-70 | 20914P       | 20917W       | 70 l     | 800 x 300 x 390 (31.5 x 11.8 x 15.3) | 6,5 (14.3)          |

Perfect for tough washdown applications, such as fish box, scaling and anchor chain cleaning, these rugged self-priming pumps deliver high lift, can run dry without damage, and won't overheat with extended use.

- Run dry capability
- Sealed switch
- Corrosion resistant seamless e-coated motor
- Thermally Protected. Ignition Protected
- CE marked



**Blaster II 12 V™**  
**Blaster II 24 V™**

| MODEL                  | PART No. | VOLT   | DIMENSIONS mm (")         | FLOW RATE            | AMP MAX | SHUT-OFF PRESSURE |
|------------------------|----------|--------|---------------------------|----------------------|---------|-------------------|
| <b>Blaster II™ 12V</b> | 69437F   | 12V DC | 229x124x104 (9.0x4.9x4.1) | 3.5 GPM - 13,2 l/min | 7,5     | 45 PSI - 3,1 Bar  |
| <b>Blaster II™ 24V</b> | 69436D   | 24V DC | 229x124x104 (9.0x4.9x4.1) | 3.5 GPM - 13,2 l/min | 3,5     | 45 PSI - 3,1 Bar  |

## DELUXE AND ULTIMATE PROBLASTER™ II WASHDOWN PUMPS

Deluxe and Ultimate ProBlaster™ II deliver over 5 GPM (20 l/min) and pressure up to 45 PSI (3,1 Bar), giving you the ultimate in washdown capabilities. This high volume pump will clean your deck quickly and easily. The corrosion resistant coated seamless motor shell with sealed switch provides excellent protection against the harsh marine environment. The Extreme™ Pro Blaster™ is designed for the toughest washdown applications.

- Compact 4 chamber design
- Superior five-chamber design that incorporates large inlet and outlet passages to maximize water flow and efficiency
- Current limiting and over/under voltage protection
- Run dry capability
- Self Priming
- Sealed switch
- Corrosion resistant seamless e-coated motor with o-ring sealed end bells
- Quick-Connect fittings included
- Thermally Protected. Ignition Protected
- CE marked



**Problaster™ II Deluxe 4.0**  
**Problaster™ II Ultimate 5.0**

| MODEL                                | PART No. | VOLT   | DIMENSIONS mm (")                      | FLOW RATE            | AMP MAX | SHUT-OFF PRESSURE |
|--------------------------------------|----------|--------|--|----------------------|---------|-------------------|
| <b>Problaster™ II – Deluxe 4.0</b>   | 68803Z   | 12V DC | 254.48x124.97x121.16 (10.02x4.92x4.77) | 4.0 GPM – 15.1 l/min | 8.8     | 45 PSI – 3.1 Bar  |
| <b>Problaster™ II – Deluxe 4.0</b>   | 69202B   | 24V DC | 254.48x124.97x121.16 (10.02x4.92x4.77) | 4.0 GPM – 15.1 l/min | 5       | 45 PSI – 3.1 Bar  |
| <b>Problaster™ II – Ultimate 5.0</b> | 68802X   | 12V DC | 254.48x124.97x121.16 (10.02x4.92x4.77) | 5.0 GPM – 18.9 l/min | 11.5    | 45 PSI – 3.1 Bar  |
| <b>Problaster™ II – Ultimate 5.0</b> | 68801V   | 24V DC | 254.48x124.97x121.16 (10.02x4.92x4.77) | 5.0 GPM – 18.9 l/min | 6       | 45 PSI – 3.1 Bar  |

## PRE-PRESSURIZED ACCUMULATOR TANK

Reduces cycling pulsation and pressure spikes, increases the life of your pump and even saves battery power. SHURflo® accumulator tank is NSF certified.

- Easy handles pressure requirements from 1,4 Bar (20 PSI) to 8,8 Bar (125 PSI)
- 1/2" male threaded Ports - Uses standard SHURflo® fittings
- Can be mounted in-line
- Nylon housing/Butyl Bladder
- CE marked



Nylon Tank

| MODEL      | PART No. | DIMENSIONS mm ("")          | TOTAL VOLUME       | MAXIMUM PSI - BAR | PRECHARGED       |
|------------|----------|-----------------------------|--------------------|-------------------|------------------|
| Nylon Tank | 65861Y   | 232x121x97<br>(9.1x4.8x3.8) | 24 oz - 0,7 litres | 125 PSI - 8,8 Bar | 20 PSI - 1,4 Bar |

## OIL CHANGE, WINTERIZING AND LIQUID TRANSFER SYSTEM

- 13 litres (3,5 gal) storage container – 2,4 m (8') cable with battery clips and hose kit included
- Reversible switch
- Motor : 12V DC permanent magnet, continuous duty
- Self Priming up to 1,82 m (6')
- Thermal overload protection
- CE marked



20975 L

| MODEL             | PART No. | DIMENSIONS mm ("")  | FLOW RATE           | AMP MAX | PORT SIZE  |
|-------------------|----------|---------------------|---------------------|---------|------------|
| Oil Change System | 20975L   | 406x318 (16.0x12.5) | 1.5 GPM - 5,6 l/min | 4,5     | 3/8" F NPT |

## PRESSURE REGULATED CITY WATER ENTRIES

An exclusive diaphragm design prevents high-pressure damage often caused by city water systems. Leak-tight, stress and crack-resistant, these high-performance water entries limit water pressure safely to 50 or 65 PSI (3.5 or 4.5 Bar) while meeting or surpassing all check valve code requirements

- 63378J** - Wall mount Pressure regulator - Chrome
- 64717K** - Wall mount Pressure regulator - White
- 65306T** - Hose Adapter fitting 1/2" NPT (F) x 3/4" GSH (M)
- 20731F** - In-Line Pressure regulator



63378J



65306T



20731F



64717K

# STRAINERS AND ACCESSORIES

| MODEL                        | PART No. | DESCRIPTION  | FITTINGS                |
|------------------------------|----------|--|-------------------------|
| In-Line Strainer             | 63185X   | Protects pumps from harmful debris. High capacity, rugged nylon housing, slide out easy to clean screen.                                       | 1/2" (13 mm) female     |
| Swivel nut strainer          | 66526N   | Protects pumps from harmful debris. High capacity, rugged nylon housing, slide out easy to clean screen.                                       | 1/2" (13 mm) barb inlet |
| In-line check valve          | 61125F   | Allows flow in one direction only to safeguard against backsurge up to 6,8 Bar (1000 PSI)  | 1/2" (13 mm) barb inlet |
| High Pressure Blaster Nozzle | 61120A   | High impact plastic for long life. Use with SHURflo® pumps or garden hose. Adjust to fine mist or full stream. Lock clip for continuous spray. | 3/4" (19 mm) female     |



63185X



66526N



61125F



61120A

**NOTE:** The images are purely for information. They may not represent the real product features such as dimensions, colours or accessories.

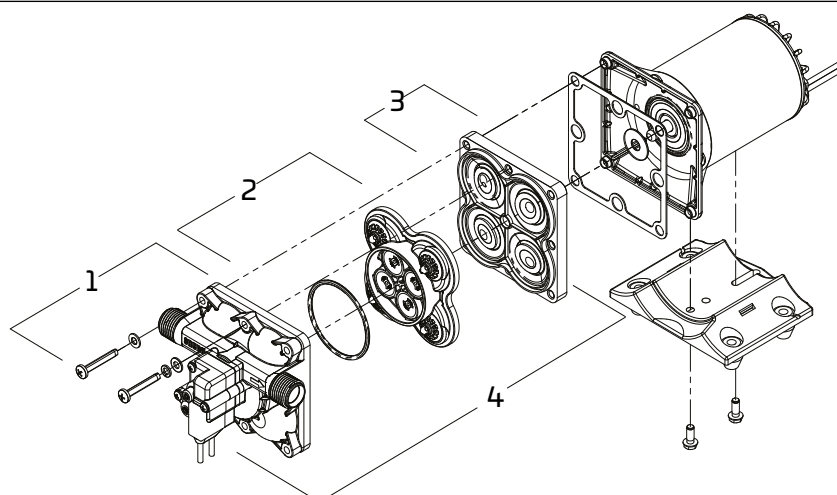
## FITTINGS

| MODEL  | PART No. |
|--|----------|
| Straight fitting 1/2" NPT (f) x 3/8" barb swivel | 61129L   |
| Elbow fitting 1/2" NPT (f) x 3/8" barb swivel    | 61130C   |
| Straight fitting 1/2" NPT (f) x 1/2" barb swivel | 61127H   |
| Elbow fitting 1/2" NPT (f) x 1/2" barb swivel    | 61128K   |
| Straight fitting 1/2" NPT (f) x 3/4" barb swivel | 64220B   |
| Elbow fitting 1/2" NPT (f) x 3/4" barb swivel    | 64340M   |
| Straight adaptor 1/2" NPT (m) x 1/2"             | 61132E   |



61128K

## SPARE PARTS



- 1 Headpump and switch kit
- 2 Valve kit
- 3 Diaphragm kit
- 4 Complete headpump

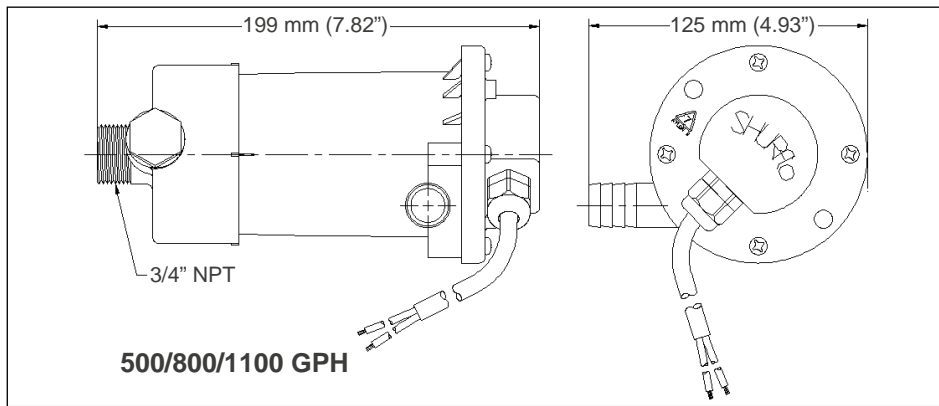
For any further information please contact our Assistance Service.

The sportsfishing livewell application requires an extremely rugged pump to withstand the harsh marine environment. Shurflo®'s Bait Sentry™ is designed for easy installation and trouble-free operation. Magnetic drive technology eliminates unnecessary failures. Anti-airlock feature allows pump to clear trapped air in rough water or when boat is anchored. Dual ports allow for easy washdown pump connections.

- Voltage: 12 VDC
- Magnetic drive
- Continuous duty
- No seals to leak, can run dry continuously
- Anti-airlock feature will clear trapped air even in rough water
- Second inlet port for washdown pump, requires one thru-hull fitting for two pumps
- UL & CE listed



**500/800 GPH**



**500/800/1100 GPH**



**1100 GPH**

| MODEL                    | PART No. | PORT SIZE                         | FLOW RATE           | AMP MAX | TANK SIZE      |
|--------------------------|----------|-----------------------------------|---------------------|---------|----------------|
| <b>Bait Sentry™ 500</b>  | 23377F   | 3/4" inlet NPT 3/4" outlet barb   | 1893 LPH (500 GPH)  | 1.75    | 113 l (30 gal) |
| <b>Bait Sentry™ 800</b>  | 68828S   | 3/4" inlet NPT 3/4" outlet barb   | 3028 LPH (800 GPH)  | 3.5     | 151 l (40 gal) |
| <b>Bait Sentry™ 1100</b> | 67731V   | 3/4" inlet NPT 1-1/8" outlet barb | 4164 LPH (1100 GPH) | 3.75    | 227 l (60 gal) |

## LIVEWELL FILL VALVE

The Shurflo® Livewell Fill Valve creates an energized environment that “keeps your bait alive.” The full port fittings (3/4” or 1-1/8”) assure the amount of flow required is achieved and maintained. The adjustable flow valve allows you to adjust the water flow to your desired amount.

- Adjustable Flow Valve
- Low Profile Design
- Nylon Construction
- CE Listed



| MODEL          | PART No. | DESCRIPTION                                 |
|----------------|----------|---|
| <b>330-021</b> | 23540P   | 3/4" and 1-1/8" Full Port Fittings Included |

## BILGE PUMPS 380/500/700/1000 GPH



Quality bilge pumps you can trust. SHURflo® bilge pumps are built for the harsh marine environment to withstand the toughest conditions. Water cooled motors for extended life.

- Continuous duty
- Submersible with 3' tinned wire assembly
- Tough nylon housing
- Quick-snap swivel baseplate
- Ignition protected. ISO 8849
- All the pumps can be integrated with a drive switch



Shurflo® 380 GPH with switch

Shurflo® 380/500/700/1000 GPH

| MODEL             | PART No. | VOLT   | DIMENSIONS mm (") | Ø BASE mm (") | FLOW RATE           | AMP MAX | OUTLET       |
|-------------------|----------|--------|-------------------|---------------|---------------------|---------|--------------|
| <b>Bilge 380</b>  | 66527R   | 12V DC | 114x95 (4.5x3.75) | 60 (2 3/8)    | 380 GPH - 24 l/min  | 1,7     | 3/4" - 19 mm |
| <b>Bilge 500</b>  | 66528T   | 12V DC | 114x95 (4.5x3.75) | 60 (2 3/8)    | 500 GPH - 32 l/min  | 1,8     | 3/4" - 19 mm |
| <b>Bilge 700</b>  | 66529V   | 12V DC | 114x95 (4.5x3.75) | 60 (2 3/8)    | 700 GPH - 42 l/min  | 3,2     | 3/4" - 19 mm |
| <b>Bilge 1000</b> | 66530D   | 12V DC | 114x95 (4.5x3.75) | 60 (2 3/8)    | 1000 GPH - 63 l/min | 3,2     | 3/4" - 19 mm |

## BILGE PUMPS 1500/2000 GPH

Heavy duty and built to last. SHURflo®'s 1500 and 2000 GPH nylon bilge pumps offer a unique motor cooling system (patent pending) to ensure efficient performance and long life. Installation is a snap with our patented swivel base.

- Continuous duty
- Submersible with 6' (1,8 m) tinned wire assembly
- Anti-air lock
- Run dry without damage
- Quick-snap swivel baseplate
- Commercial duty
- Ignition protected. ISO 8849



Shurflo® 1500/2000 GPH



| MODEL                | PART No. | VOLT   | DIMENSIONS mm (") | FLOW RATE             | AMP MAX | OUTLET           |
|----------------------|----------|--------|-------------------|-----------------------|---------|------------------|
| <b>Bilge 1500/12</b> | 66531F   | 12V DC | 183x152 (7.2x6)   | 1500 GPH - 94,6 l/min | 8       | 1 1/8" - 28,5 mm |
| <b>Bilge 1500/24</b> | 66532H   | 24V DC | 183x152 (7.2x6)   | 1500 GPH - 94,6 l/min | 4       | 1 1/8" - 28,5 mm |
| <b>Bilge 2000/12</b> | 66533K   | 12V DC | 183x152 (7.2x6)   | 2000 GPH - 126 l/min  | 10      | 1 1/8" - 28,5 mm |
| <b>Bilge 2000/24</b> | 66534M   | 24V DC | 183x152 (7.2x6)   | 2000 GPH - 126 l/min  | 5       | 1 1/8" - 28,5 mm |

The SHURflo® float switches provide the ultimate in reliability for your boat.

Complete line includes a solid state control, standard float switch and protected cage switch.

Manufactured in corrosion resistant and explosion proof material. They can be used for any kind of pump and also for water bilge and other alarm systems.



| MODEL | PART No. | DESCRIPTIONS          | VOLT      | DIMENSIONS mm (")          |
|-------|----------|-----------------------|-----------|----------------------------|
| SWS   | 66535P   | Standard float switch | 12/24V DC | 116x53x40<br>(4.6x2.1x1.6) |
| SWSC  | 66536S   | Protected cage switch | 12/24V DC | 116x53x40<br>(4.6x2.1x1.6) |

## IN-LINE BILGE BLOWERS

Shurflo® in-line blowers provide ventilation for engine compartments, galleys, bilge and heads. Mounting feet allow vertical or horizontal installation in confined spaces.

- Wider base-plate and oval screw hole for ease of installation
- Splash-proof motor with rubber boot
- Heavy duty shaft seal
- High volume air flow - low current draw
- Longer barb for ease of duct connection
- CE, ISO 9097 and Ignition Protected



IN-LINE BILGE BLOWERS

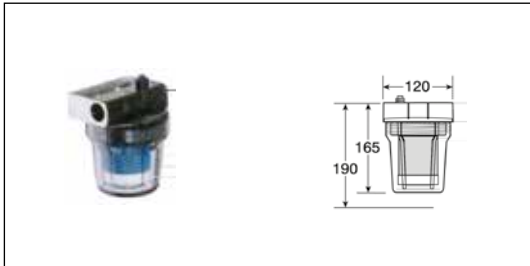
| PART No. | VOLT   | HOSE INT. Ø | DIMENSIONS mm (")         | DRAW AMP | AIR FLOW   |
|----------|--------|-------------|---------------------------|----------|------------|
| 64703Y   | 12V DC | 76 mm - 3"  | 130x140x96 (5.1x5.5x3.8)  | 3,8      | 3,3 m³/min |
| 64704A   | 12V DC | 100 mm - 4" | 130x162x122 (5.1x6.4x4.8) | 5,5      | 6,0 m³/min |

# WAVESTREAM™ - LLOYDS APPROVED BILGE WATER FILTRATION SYSTEM

wavestream™

## WAVESTREAM MICRO - 65973K

Designed for the bilges of day boats, RIBs and small sports boats or where minimal space is available, the Micro unit is easy to connect into the bilge water system, using 3/4" BSP connections. Filter cartridges can be replaced in seconds.



- Flow rate: 1 – 40 liters/minute
- Max. pressure: 10 bar
- Max. temperature: 40°C
- Min. temperature: 1°C
- Connections: 3/4" BSP
- Spare cartridge: WS-CM – 65977U



## WAVESTREAM 1000 - 65974M

The 1000 system has a larger filter element to cope with the demands of larger pleasure boats up to 20m. 3/4" BSP connections are used, and the flow rate, at 40 liters, is the same as the Micro system but filter cartridge replacement intervals double.



- Flow rate: 1-40 liters/minute
- Max. pressure: 8 bar
- Max. temperature: 40°C
- Min. temperature: 1°C
- Connections: 3/4" BSP
- Spare cartridge: WS-C1 - 65978W



# SHURFLO®

THE INDUSTRY'S LEADING  
MARINE PLUMBING SUPPLIER  
FOR MORE THAN 40 YEARS.





# U F L E X

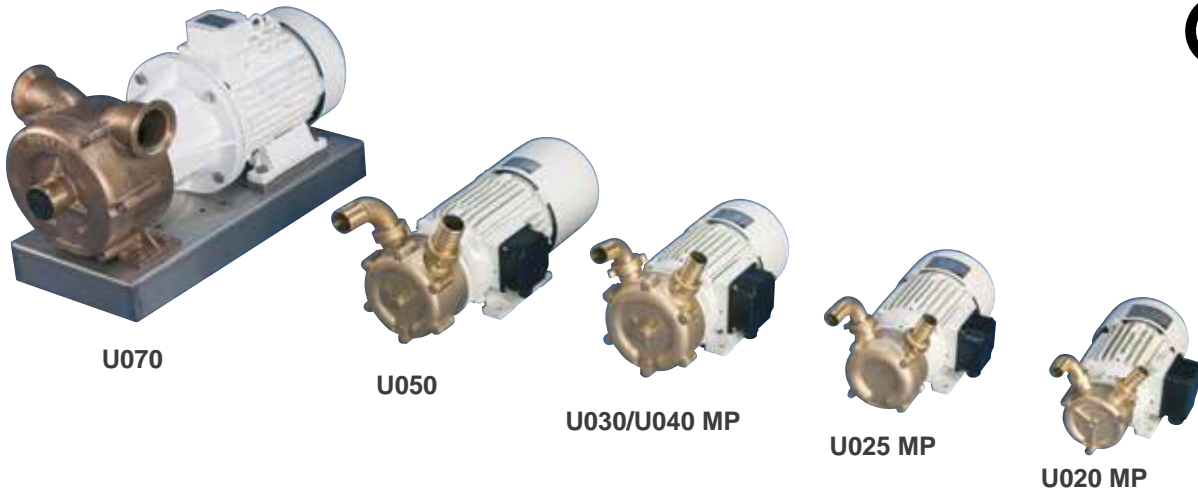


# BRONZE SELF-PRIMING - ELECTRIC PUMPS



Self-priming side liquid ring electric pumps used to empty bilges and transfer unflammable liquids such as: fresh water, sea water, fuel diesel and generally all low viscosity and free of solid impurities liquids.

The models U020/025/030/040 are supplied with permanent magnets engines (MP), in reversible configuration.



| MODEL      | PART No. | VOLT    | MAX AMP     | MAX INLET   | MAX HEAD      | MAX DELIVERY |
|------------|----------|---------|-------------|-------------|---------------|--------------|
| U020-12 MP | 64809R P | 12V DC  | 16 A        | 4 m (13.1') | 15 m (49.2')  | 30 l/min     |
| U020-24 MP | 64812D P | 24V DC  | 8 A         | 4 m (13.1') | 15 m (49.2')  | 30 l/min     |
| U025-12 MP | 64810Z P | 12V DC  | 45 A        | 6 m (19.7') | 18 m (59.0')  | 60 l/min     |
| U025-24 MP | 64813F P | 24V DC  | 36 A        | 6 m (19.7') | 18 m (59.0')  | 60 l/min     |
| U030-12 MP | 64811B P | 12V DC  | 52 A        | 6 m (19.7') | 18 m (59.0')  | 75 l/min     |
| U030-24 MP | 64814H P | 24V DC  | 28 A        | 6 m (19.7') | 18 m (59.0')  | 75 l/min     |
| U040 MP    | 64815K P | 24 V DC | 45 A        | 6 m (19.7') | 22 m (72.2')  | 120 l/min    |
| U050-M     | 66329L   | 230V AC | 12 A        | 6 m (19.7') | 30 m (98.4')  | 230 l/min    |
| U050-T     | 66330V   | 380V AC | 7,6 ÷ 4,4 A | 6 m (19.7') | 30 m (98.4')  | 230 l/min    |
| U050       | 23610J   | 24 V DC | 96 A        | 6 m (19.7') | 30 m (98.4')  | 230 l/min    |
| U070-T     | 66331X   | 380V AC | 11,8 A      | 6 m (19.7') | 40 m (131.2') | 500 l/min    |

## STANDARD FEATURES

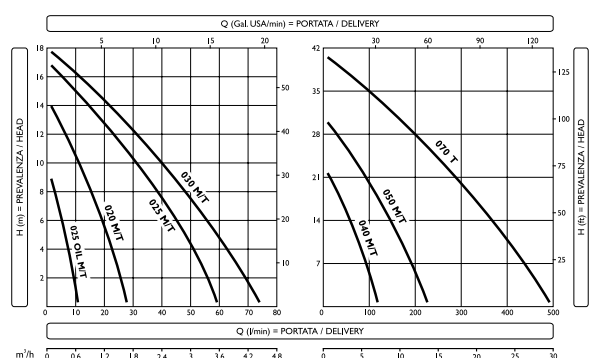
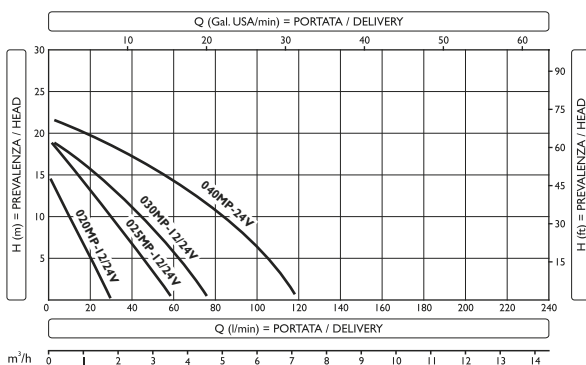
Bronze pump body, bronze impeller, AISI 316 stainless steel shaft, corrosion-proof clamping rings, continuous duty electric motor with F insulation class, IP55 protection.

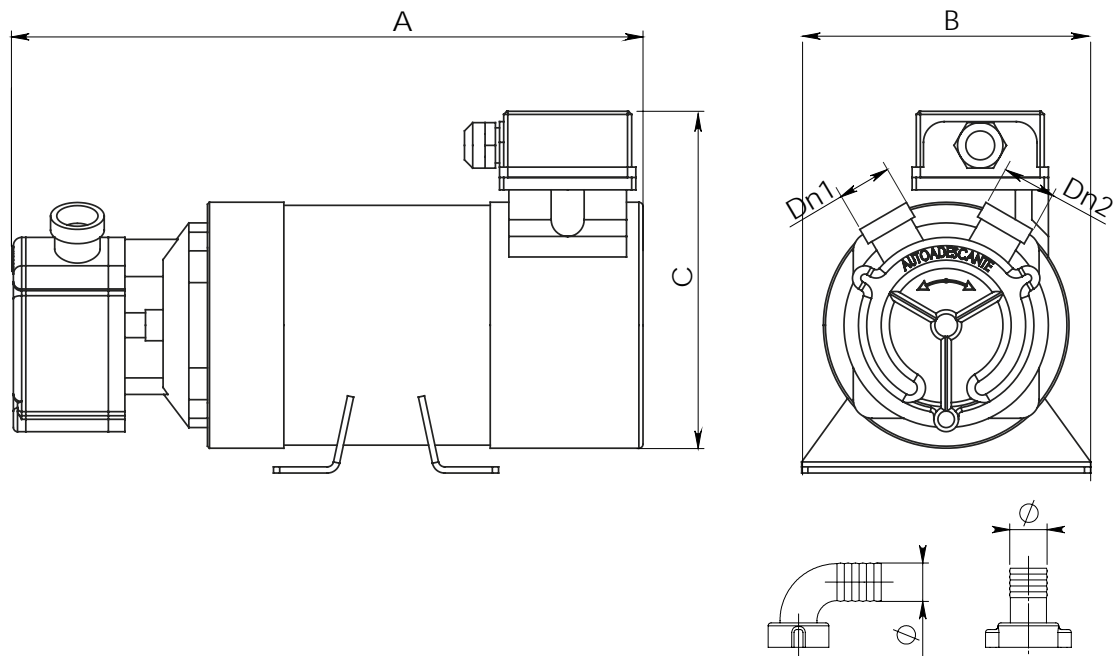
BSP threads on pumps.

## APPLICATION LIMITS

Unflammable liquids free of solid impurities.

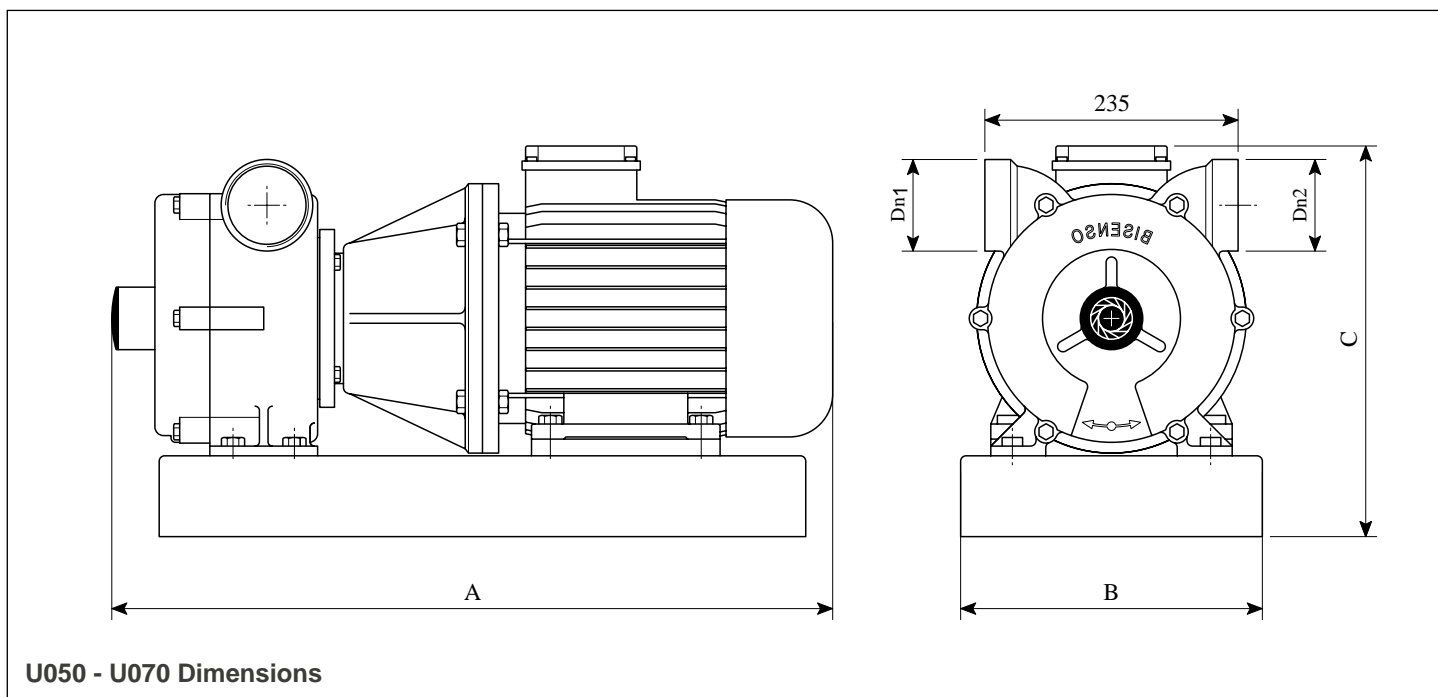
Liquid temperature range: from 0° C to 70° C. Static pressure internal to the pump body: 6 bar max.





U020 MP - U025 MP - U030 MP - U040 MP - Dimensions

Raccordi/Pipe Fittings



U050 - U070 Dimensions

**DIMENSIONS AND WEIGHTS**

| MODEL   | Ø IN mm (") | Ø OUT mm (") | A mm (")   | B mm (")  | C mm (")   | WEIGHT kg (lbs) |
|---------|-------------|--------------|------------|-----------|------------|-----------------|
| U020 MP | 20 (0.8)    | 20 (0.8)     | 295 (11.6) | 165 (6.5) | 123 (4.8)  | 7 (14.5)        |
| U025 MP | 25 (1)      | 25 (1)       | 320 (12.6) | 180 (7.1) | 139 (5.5)  | 9.6 (21.2)      |
| U030 MP | 30 (1.2)    | 30 (1.2)     | 375 (14.8) | 205 (8.1) | 156 (6.1)  | 13.5 (29.8)     |
| U040 MP | 40 (1.6)    | 40 (1.6)     | 490 (19.3) | 218 (8.6) | 178 (7)    | 21 (46.3)       |
| U050    | 50 (1.9)    | 50 (1.9)     | 435 (17.1) | 247 (9.7) | 200 (7.9)  | 26.5 (58.4)     |
| U070    | 70 (2.7)    | 70 (2.7)     | 705 (27.8) | 280 (11)  | 370 (14.6) | 75 (165.3)      |

# USBM-midex SELF-PRIMING ELECTRIC PUMP



Rotary self-priming bi-directional volumetric electric pump used on boats to empty waste tanks, toilet sewage and particularly viscous oily fluids or liquids with small debris in suspension.



## STANDARD FEATURES

AISI 316 stainless steel body pump, neoprene or nitrile impeller, AISI 316 stainless steel shaft, mechanical seal: steel-graphite-NBR (special corrosion-proof).

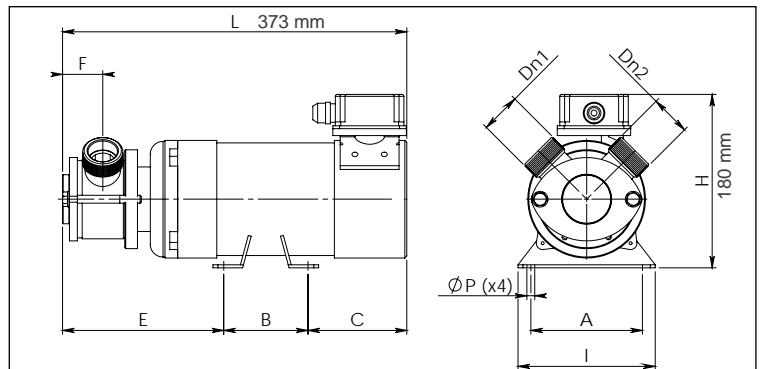
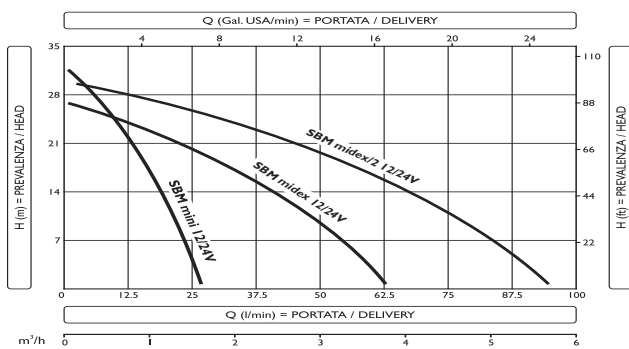
## APPLICATION LIMITS

Never let the USBM-Midex pump run when empty. Liquid temperature range: from 0° C to 70° C. Max. suction depth: 6 meter. Static pressure internal to the pump body: 6 bar max. For use as oil and/or fuel transfer pump it is necessary nitrile impeller (available on request).

## SPARE IMPELLERS

- Neoprene impeller - 66538W
- Nitrile impeller (for only transfer) - 66539Y

| MODEL           | PART No. | VOLT   | MAX AMP | MAX INLET   | MAX HEAD     | MAX DELIVERY |
|-----------------|----------|--------|---------|-------------|--------------|--------------|
| USBM - midex-12 | 24850L   | 12V DC | 55 A    | 6 m (19.7') | 27 m (88.6') | 64 l/min     |
| USBM - midex-24 | 64821E   | 24V DC | 28 A    | 6 m (19.7') | 27 m (88.6') | 64 l/min     |



## DIMENSIONS AND WEIGHTS

| MODEL         | Ø IN mm (")  | Ø OUT mm (") | A mm (")  | B mm (")  | C mm (")  | WEIGHT kg (lbs) |
|---------------|--------------|--------------|-----------|-----------|-----------|-----------------|
| USBM-midex-12 | 1" 1/4 BSP-F | 1" 1/4 BSP-F | 125 (4.9) | 100 (3.9) | 110 (4.3) | 16 (32.3)       |
| USBM-midex-24 | 1" 1/4 BSP-F | 1" 1/4 BSP-F | 125 (4.9) | 100 (3.9) | 110 (4.3) | 16 (32.3)       |

Centrifugal electric pumps made in **BRONZE** widely used in the nautical sector to transfer and/or deliver fresh water and sea water to all the plants where a large flow rate is needed such as: air conditioning, cooling and circulation etc.



UB-CE

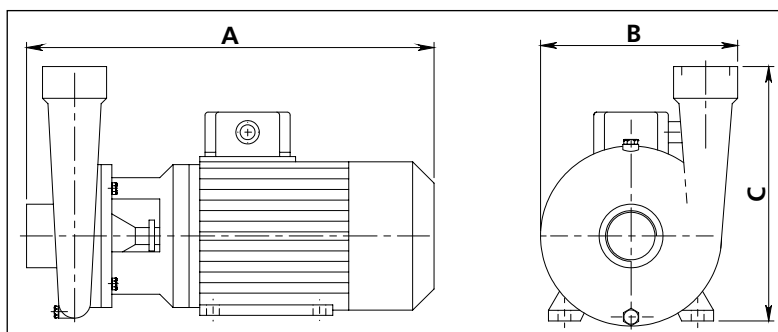
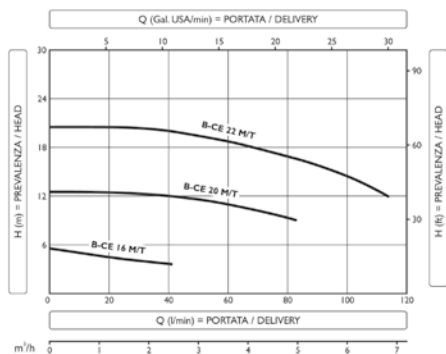
## STANDARD FEATURES

BRONZE pump body, BRONZE motor support, BRONZE impeller, AISI 316 stainless steel shaft. Mechanical seal: CERAMICS – GRAPHITE - NBR (special corrosion-proof)

## APPLICATION LIMITS

Solid impurities free liquid, liquid temperature range 0 to + 90 C°, max suction depth: 7 m, max static pressure of the body pump: 6 bar.

| MODEL          | PART No. | VOLT    | MAX AMP     | MAX INLET   | MAX HEAD     | MAX DELIVERY |
|----------------|----------|---------|-------------|-------------|--------------|--------------|
| UB-CE 16-12    | 67958A   | 12V DC  | 16 A        | 7 m (22.9') | 7 m (22.9')  | 40 l/min     |
| UB-CE 16-24    | 67959C   | 24V DC  | 8 A         | 7 m (22.9') | 7 m (22.9')  | 40 l/min     |
| UB-CE 16-M     | 67960L   | 230V AC | 1,7 A       | 7 m (22.9') | 7 m (22.9')  | 40 l/min     |
| UB-CE 16-T     | 67961N   | 380V AC | 1,5 ÷ 1 A   | 7 m (22.9') | 7 m (22.9')  | 40 l/min     |
| UB-CE 20-12    | 67962R   | 12V DC  | 38 A        | 7 m (22.9') | 14 m (45.9') | 80 l/min     |
| UB-CE 20-24    | 67963T   | 24 V DC | 20 A        | 7 m (22.9') | 14 m (45.9') | 80 l/min     |
| UB-CE 20-M     | 67964V   | 230V AC | 2,8 A       | 7 m (22.9') | 14 m (45.9') | 80 l/min     |
| UB-CE 20-T     | 67965X   | 380V AC | 2,3 ÷ 1,3 A | 7 m (22.9') | 14 m (45.9') | 80 l/min     |
| UB-CE 22-24    | 67966Z   | 24V DC  | 30 A        | 7 m (22.9') | 21 m (68.9') | 120 l/min    |
| UB-CE 22-M     | 67967B   | 230V AC | 4,5 A       | 7 m (22.9') | 21 m (68.9') | 120 l/min    |
| UB-CE 22-T     | 67968D   | 380V AC | 3 ÷ 1,7 A   | 7 m (22.9') | 21 m (68.9') | 120 l/min    |
| UB-CE 25-12-M  | 20848D   | 230V AC | 5,8 A       | 7 m (22.9') | 24 m (78.7') | 200 l/min    |
| UB-CE 25-12-T  | 20849F   | 380V AC | 4 ÷ 2,3 A   | 7 m (22.9') | 24 m (78.7') | 200 l/min    |
| UB-CE 41-1 A-M | 20850P   | 230V AC | 5,8 A       | 7 m (22.9') | 19 m (62.3') | 250 l/min    |
| UB-CE 41-1 A-T | 20851S   | 380V AC | 4 ÷ 2,3 A   | 7 m (22.9') | 19 m (62.3') | 250 l/min    |



## DC - DIMENSIONS AND WEIGHTS

| MODEL    | Ø IN mm (") | Ø OUT mm (") | A mm (")   | B mm (")  | C mm (")  | WEIGHT kg (lbs) |
|----------|-------------|--------------|------------|-----------|-----------|-----------------|
| UB-CE 16 | 1/2"        | 1/2"         | 285 (11.2) | 122 (4.8) | 138 (5.4) | 5,6 (12.3)      |
| UB-CE 20 | 1"          | 1"           | 325 (12.8) | 154 (6.0) | 161 (6.3) | 9,1 (20.0)      |
| UB-CE 22 | 1"          | 1"           | 325 (12.8) | 174 (6.9) | 181 (7.1) | 10,3 (22.7)     |

## AC - DIMENSIONS AND WEIGHTS

| MODEL        | Ø IN mm (") | Ø OUT mm (") | A mm (")   | B mm (")  | C mm (")  | WEIGHT kg (lbs) |
|--------------|-------------|--------------|------------|-----------|-----------|-----------------|
| UB-CE 16     | 1/2"        | 1/2"         | 266 (10.5) | 122 (4.8) | 138 (5.4) | 5,6 (12.3)      |
| UB-CE 20     | 1"          | 1"           | 303 (11.9) | 154 (6.0) | 161 (6.3) | 9,1 (20.0)      |
| UB-CE 22     | 1"          | 1"           | 303 (11.9) | 174 (6.9) | 181 (7.1) | 10,3 (22.7)     |
| UB-CE 25-12  | 1"1/2       | 1"           | 313 (12.3) | 173 (4.8) | 230 (9.0) | 14,5 (31.9)     |
| UB-CE 41-1 A | 1"1/2       | 1"1/2        | 380 (14.9) | 193 (7.6) | 240 (9.5) | 17,5 (38.6)     |

## BRONZE SELF-PRIMING ELECTRIC PUMPS - UABR SERIES

Multi-stage bronze self-priming electric pump fitted with radial impellers. These pumps are widely used to empty bilges, to attend fire equipments, to wash chains, to transfer fuel diesel etc.



### STANDARD FEATURES

Bronze pump body, bronze impellers, AISI 316 stainless steel shaft, continuous duty electric motor with F insulation class, IP20 protection.

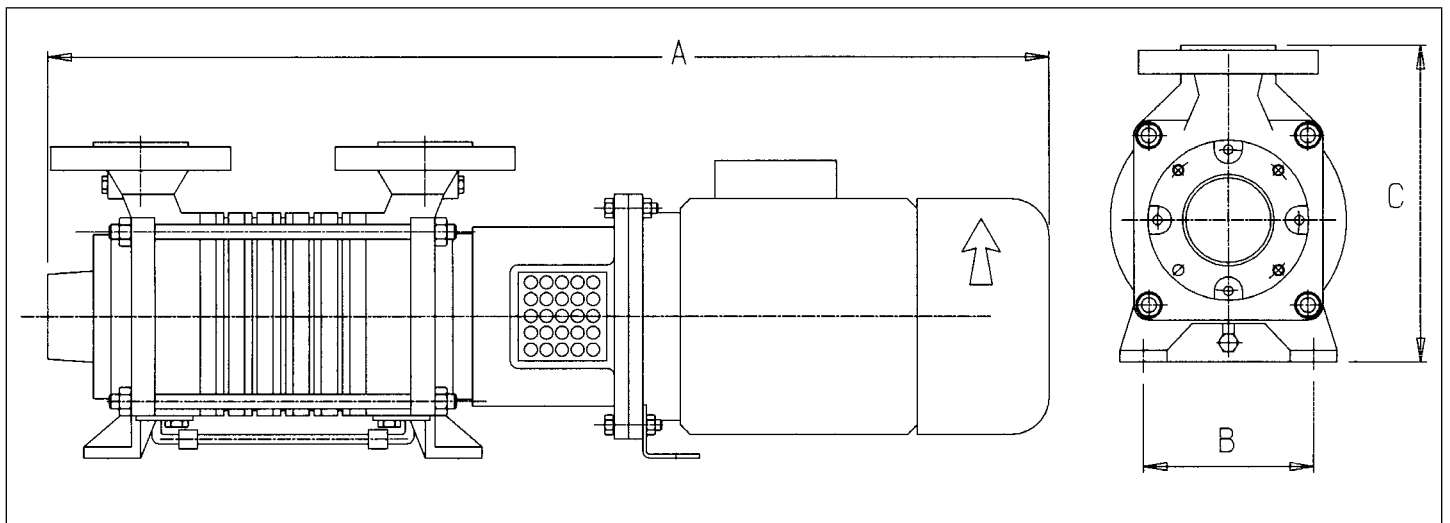
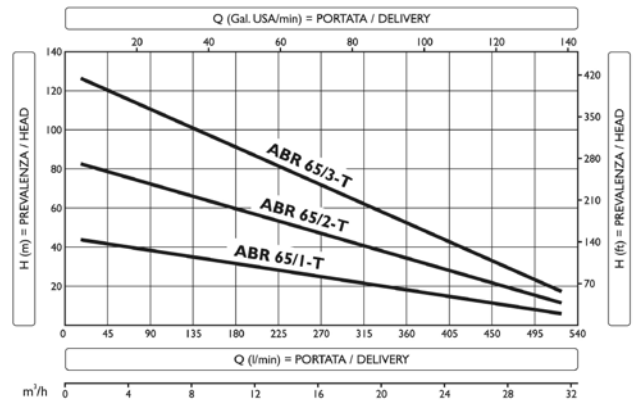
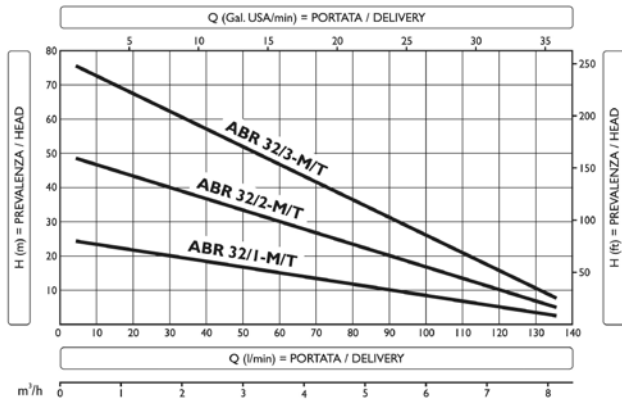


UABR

### APPLICATION LIMITS

Solid impurities free liquid, liquid temperature range from 0 to + 90 C°, max static internal pressure of the pump body: 20 bar.

| MODEL       | PART No. | VOLT    | MAX AMP       | MAX INLET   | MAX HEAD      | MAX DELIVERY |
|-------------|----------|---------|---------------|-------------|---------------|--------------|
| UABR 32/1   | 66068J   | 24V DC  | 52 A          | 9 m (29.5') | 28 m (82')    | 160 l/min    |
| UABR 32/2   | 66069L   | 24V DC  | 90 A          | 9 m (29.5') | 52 m (164')   | 160 l/min    |
| UABR 40/1   | 66070V   | 24V DC  | 90 A          | 9 m (29.5') | 40 m (114.8') | 250 l/min    |
| UABR 32/1-M | 67948X   | 230V AC | 9,6 A         | 9 m (29.5') | 25 m (82')    | 150 l/min    |
| UABR 32/1-T | 67949Z   | 380V AC | 4,8 ÷ 2,7 A   | 9 m (29.5') | 25 m (82')    | 150 l/min    |
| UABR 32/2-M | 66071X   | 230V AC | 12 A          | 9 m (29.5') | 50 m (164')   | 150 l/min    |
| UABR 32/2-T | 66092F   | 380V AC | 7,7 ÷ 4,4 A   | 9 m (29.5') | 50 m (164')   | 150 l/min    |
| UABR 40/1-M | 67950H   | 230V AC | 14 A          | 9 m (29.5') | 38 m (124.7') | 220 l/min    |
| UABR 40/1-T | 67951K   | 380V AC | 9 ÷ 5,2 A     | 9 m (29.5') | 38 m (124.7') | 220 l/min    |
| UABR 40/2-T | 66093H   | 380V AC | 15 ÷ 8,7 A    | 9 m (29.5') | 75 m (236.2') | 220 l/min    |
| UABR 50/2-T | 66073B   | 380V AC | 18,2 ÷ 10,2 A | 9 m (29.5') | 82 m (269')   | 400 l/min    |
| UABR 65/2-T | 66074D   | 380V AC | 29 ÷ 16 A     | 9 m (29.5') | 85 m (278.8') | 600 l/min    |



## DIMENSIONS AND WEIGHTS

| MODEL            | Ø IN mm (") | Ø OUT mm (") | A mm (")    | B mm (")  | C mm (")   | WEIGHT kg (lbs) |
|------------------|-------------|--------------|-------------|-----------|------------|-----------------|
| UABR 32/1        | 100 (3.9)   | 140 (5.5)    | 690 (27.2)  | 135 (5.3) | 247 (9.7)  | 56 (123.4)      |
| UABR 32/2        | 100 (3.9)   | 140 (5.5)    | 730 (28.7)  | 135 (5.3) | 247 (9.7)  | 60 (132.3)      |
| UABR 40/1        | 110 (4.3)   | 150 (5.9)    | 785 (30.9)  | 155 (6.1) | 272 (10.7) | 70 (154.3)      |
| UABR 32/1-M or T | 100 (3.9)   | 140 (5.5)    | 680 (26.7)  | 135 (5.3) | 247 (9.7)  | 40 (88.2)       |
| UABR 32/2-M or T | 100 (3.9)   | 140 (5.5)    | 720 (28.3)  | 135 (5.3) | 247 (9.7)  | 44 (97.0)       |
| UABR 40/1-M or T | 110 (4.3)   | 150 (5.9)    | 780 (30.7)  | 155 (6.1) | 272 (10.7) | 58 (127.8)      |
| UABR 40/2-T      | 110 (4.3)   | 150 (5.9)    | 840 (33.1)  | 155 (6.1) | 272 (10.7) | 75 (165.3)      |
| UABR 50/2-T      | 125 (4.9)   | 165 (6.5)    | 1100 (43.3) | 170 (6.7) | 325 (12.8) | 132 (291.0)     |
| UABR 65/2-T      | 145 (5.7)   | 185 (7.3)    | 1225 (48.2) | 195 (7.6) | 360 (14.2) | 202 (445.3)     |

# BRONZE/STAINLESS STEEL SELF-PRIMING ELECTRIC PUMPS – USBR SERIES



Bronze self-priming electric pumps fitted with a worm screw rotor. These pumps are widely used to empty waste tanks, toilet sewage and particularly viscous fluids or liquids with small debris in suspension.



## STANDARD FEATURES

### Standard features

BRONZE pump body, AISI 316 stainless steel rotor, AISI 316 stainless steel shaft, permanent magnet electric motor with F insulation class. IP 55 protection (DC), IP 44 protection (DC).

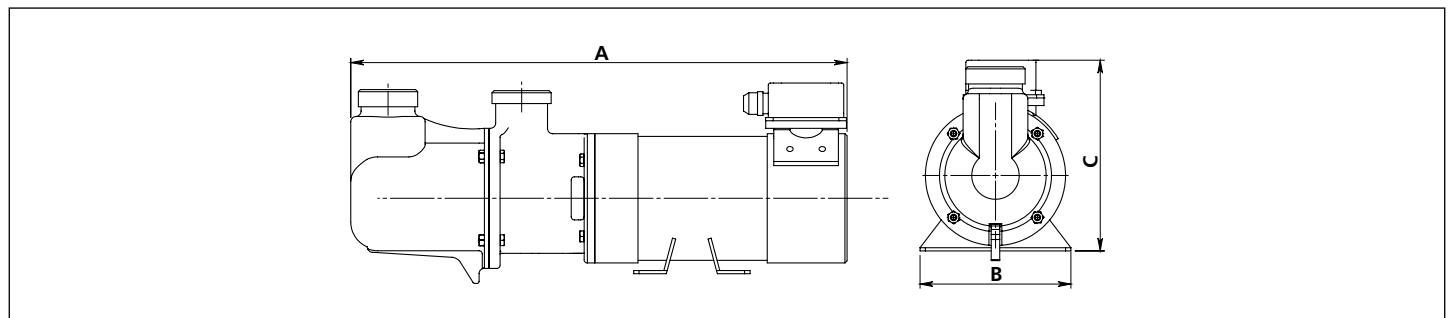
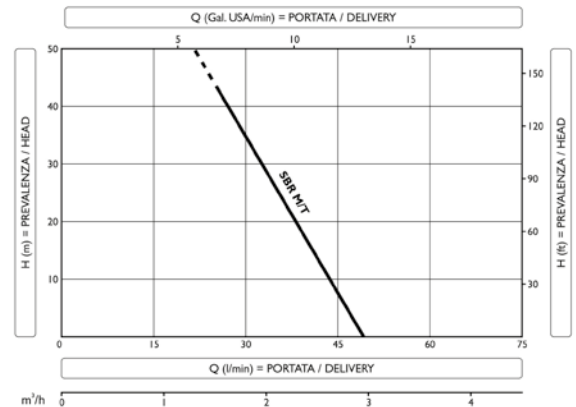
## APPLICATION LIMITS

Liquid temperature range from 0 to +70°C, max static internal pressure of the pump body: 6 bar.



USBR

| MODEL   | PART No. | VOLT    | MAX AMP   | MAX INLET   | MAX HEAD   | MAX DELIVERY |
|---------|----------|---------|-----------|-------------|------------|--------------|
| USBR-12 | 67954S   | 12V DC  | 36 A      | 6 m (19.7') | 50 m (164) | 50 l/min     |
| USBR-24 | 67955U   | 24V DC  | 20 A      | 6 m (19.7') | 50 m (164) | 50 l/min     |
| USBR-M  | 67956W   | 230V AC | 4 A       | 6 m (19.7') | 50 m (164) | 50 l/min     |
| USBR-T  | 67957Y   | 380V AC | 3,6 ÷ 2 A | 6 m (19.7') | 50 m (164) | 50 l/min     |



## DIMENSIONS AND WEIGHTS

| MODEL      | Ø IN mm (") | Ø OUT mm (") | A mm (")   | B mm (")  | C mm (")  | WEIGHT kg (lbs) |
|------------|-------------|--------------|------------|-----------|-----------|-----------------|
| USBR-12/24 | 1"          | 1"           | 500 (19.7) | 160 (6.3) | 190 (7.5) | 15 (33)         |
| USBR-M     | 1"          | 1"           | 465 (18.3) | 160 (6.3) | 210 (8.3) | 16,5 (36.4)     |
| USBR-T     | 1"          | 1"           | 465 (18.3) | 160 (6.3) | 210 (8.3) | 16,5 (36.4)     |



## UJ-INOX

Self-priming centrifugal electric pumps, Jet type, with high suction capacity. These electric pumps are used to deliver pressurized water to on-board appliances (showers, toilets, washbasins etc.).

### Standard features

AISI 304 stainless steel pump body, noryl diffuser and venture tube, AISI 316 stainless steel shaft, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

### Application limits

Liquid free of solid impurities, liquid temperature range: from 0° C to 50° C, static pressure inside the pump body: 6 bar max.



UJ-INOX



## UMG-INOX

Self-priming electric pumps featuring 4 impellers that allow for a higher pressure and flow rate than the UJ-Inox pumps.

### Standard features

AISI 304 stainless steel pump body, noryl diffuser and Venturi tube, AISI 316 stainless steel shaft, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

### Application limits

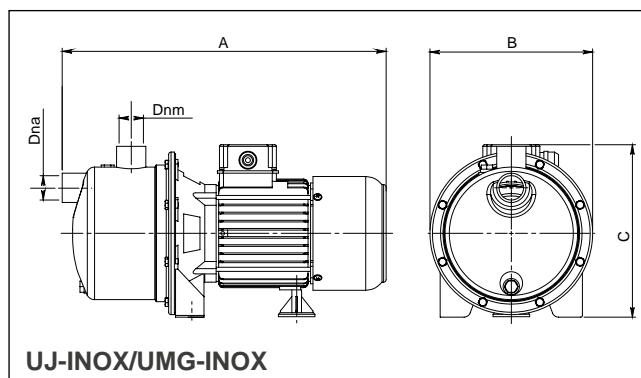
Liquid free of solid impurities. Liquid temperature range: from 0°C to 50°C. Static pressure inside the pump body: 6 bar max.



UMG-INOX



| MODEL       | PART No. | VOLT    | MAX AMP | MAX INLET   | MAX HEAD      | MAX DELIVERY |
|-------------|----------|---------|---------|-------------|---------------|--------------|
| UJ-INOX 12  | 64824L   | 12V DC  | 40 A    | 9 m (29.5') | 30 m (118.8') | 50 l/min     |
| UJ-INOX 24  | 64825N   | 24V DC  | 28 A    | 9 m (29.5') | 38 m (124.7') | 50 l/min     |
| UJ-INOX M   | 64827T   | 230V AC | 3,8 A   | 9 m (29.5') | 48 m (177.2') | 50 l/min     |
| UMG-INOX 24 | 64826R   | 24V DC  | 40 A    | 9 m (29.5') | 50 m (164.0') | 90 l/min     |
| UMG-INOX M  | 64828V   | 230V AC | 5 A     | 9 m (29.5') | 50 m (164.0') | 90 l/min     |



UJ-INOX/UMG-INOX

## DIMENSIONS AND WEIGHTS

| MODEL       | Ø IN mm (") | Ø OUT mm (") | A mm (")   | B mm (")  | C mm (")  | WEIGHT kg (lbs) |
|-------------|-------------|--------------|------------|-----------|-----------|-----------------|
| UJ-INOX 12  | 1" BSP-F    | 1" BSP-F     | 400 (15.7) | 185 (7.3) | 215 (8.5) | 10 (22.0)       |
| UJ-INOX 24  | 1" BSP-F    | 1" BSP-F     | 400 (15.7) | 185 (7.3) | 215 (8.5) | 10 (22.0)       |
| UJ-INOX M   | 1" BSP-F    | 1" BSP-F     | 345 (13.6) | 185 (7.3) | 200 (7.9) | 8,5 (18.7)      |
| UMG-INOX 24 | 1" BSP-F    | 1" BSP-F     | 507 (19.9) | 200 (7.9) | 230 (9.0) | 15 (33.0)       |
| UMG-INOX M  | 1" BSP-F    | 1" BSP-F     | 420 (16.5) | 200 (7.9) | 215 (8.5) | 11,5 (25.3)     |

## UJ-INOX

**UJ-INOX water pressure systems** are equipped with **UJ** electric pumps and with a stainless steel cylindrical tank with inside butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

## UMG-INOX

**UMG-INOX water pressure systems** are equipped with a **UMG** series electric pump and with a stainless steel cylindrical tank with inside butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

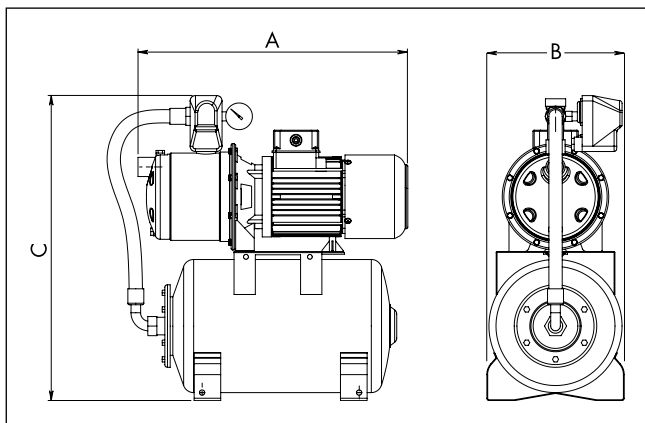
### Standard features

Manual safety pressure switch, pressure gauge, non return valve, 5 ways brass pipe fitting.

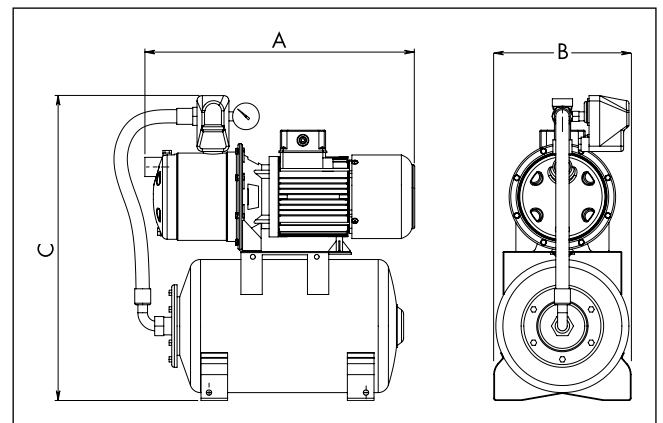


UJ-INOX 20X - UMG-INOX 20X

| MODEL           | PART No. | SWITCH PRE-SET | TANK PRESSURE | MAX DELIVERY | MAX PRESSURE | TANK CAPACITY |
|-----------------|----------|----------------|---------------|--------------|--------------|---------------|
| UJ-INOX 12/20X  | 64833M   | 1.2-2.0 bar    | 1.2 bar       | 50 l/min     | 3.0 bar      | 20 litres     |
| UJ-INOX 24/20X  | 64834P   | 1.4-2.8 bar    | 1.2 bar       | 50 l/min     | 3.8 bar      | 20 litres     |
| UJ-INOX M/20X   | 64836U   | 1.4-3.0 bar    | 1.2 bar       | 50 l/min     | 4.8 bar      | 20 litres     |
| UMG-INOX 24/20X | 64835S   | 1.4 – 4.0 bar  | 1.4 bar       | 90 l/min     | 5 bar        | 20 litres     |
| UMG-INOX M/20X  | 64837W   | 1.4 – 4.0 bar  | 1.4 bar       | 90 l/min     | 5 bar        | 20 litres     |



UJ-INOX 20X



UMG-INOX 20X

## DIMENSIONS AND WEIGHTS

| MODEL             | Ø IN mm (") | Ø OUT mm (") | A mm (")   | B mm (")   | C mm (")   | WEIGHT kg (lbs) |
|-------------------|-------------|--------------|------------|------------|------------|-----------------|
| UJ-INOX 12/24-20X | 1" BSP-F    | 1" BSP-F     | 440 (17.3) | 260 (10.2) | 575 (22.6) | 15 (33.0)       |
| UJ-INOX M-20X     | 1" BSP-F    | 1" BSP-F     | 440 (17.3) | 260 (10.2) | 575 (22.6) | 13.5 (29.7)     |
| UMG-INOX 24-20X   | 1" BSP-F    | 1" BSP-F     | 507 (19.9) | 260 (10.2) | 575 (22.6) | 20 (44.0)       |
| UMG-INOX M-20X    | 1" BSP-F    | 1" BSP-F     | 507 (19.9) | 260 (10.2) | 575 (22.6) | 16.5 (36.4)     |

Self-priming electric pumps, Jet type, with closed impeller, featuring a high suction capacity. These electric pumps are used **for rising both fresh and sea water and to deliver pressurized water to on-board appliances** (showers, toilets, washbasins etc), to air-conditioning units, anti-fire equipment. Used for washing of decks and chains.

## STANDARD FEATURES

Bronze pump body, polycarbonate diffuser and Venturi tube, AISI 316 stainless steel shaft, special brass alloy impeller, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

## APPLICATION LIMITS

Liquid free of solid impurities. Liquid temperature range: from 0° C to 70° C. Static pressure inside the pump body: 6 bar max.



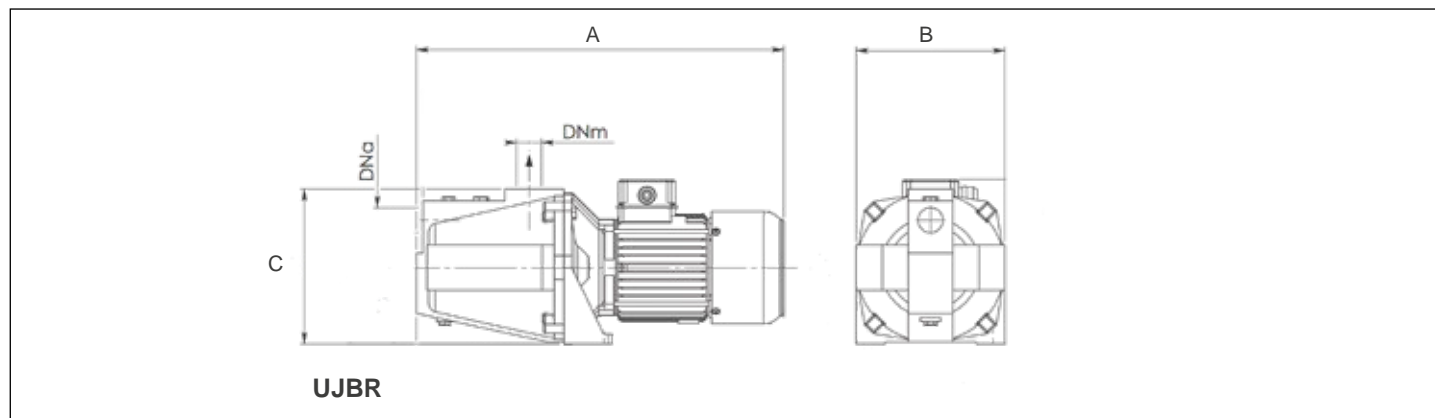
UJBR-3



UJBR



| MODEL    | PART No. | VOLT    | MAX AMP | MAX INLET   | MAX HEAD      | MAX DELIVERY |
|----------|----------|---------|---------|-------------|---------------|--------------|
| UJBR 12  | 64816M   | 12V DC  | 40 A    | 9 m (29.5') | 30 m (98.4')  | 44 l/min     |
| UJBR 24  | 64817P   | 24V DC  | 28 A    | 9 m (29.5') | 36 m (118.1') | 55 l/min     |
| UJBR M   | 64818S   | 230V AC | 4,5 A   | 9 m (29.5') | 52 m (170.6') | 55 l/min     |
| UJBR-3 M | 69659A   | 230V AC | 7,4 A   | 9 m (29.5') | 50 m (164')   | 100 l/min    |



## DIMENSIONS AND WEIGHTS

| MODEL    | Ø IN mm (")  | Ø OUT mm (") | A mm (")   | B mm (")  | C mm (")  | WEIGHT kg (lbs) |
|----------|--------------|--------------|------------|-----------|-----------|-----------------|
| UJBR 12  | 1" BSP-F     | 1" BSP-F     | 455 (17.9) | 185 (7.3) | 195 (7.7) | 25 (55.1)       |
| UJBR 24  | 1" BSP-F     | 1" BSP-F     | 455 (17.9) | 185 (7.3) | 195 (7.7) | 25 (55.1)       |
| UJBR M   | 1" BSP-F     | 1" BSP-F     | 430 (16.9) | 185 (7.3) | 195 (7.7) | 21 (46.3)       |
| UJBR-3 M | 1 1/2" BSP-F | 1" BSP-F     | 560 (19.9) | 215 (8.5) | 222 (8.7) | 31.5 (69.5)     |

**UJBR water pressure systems** are equipped with a **UJBR** electric pump and with a stainless steel cylindrical tank with inside butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

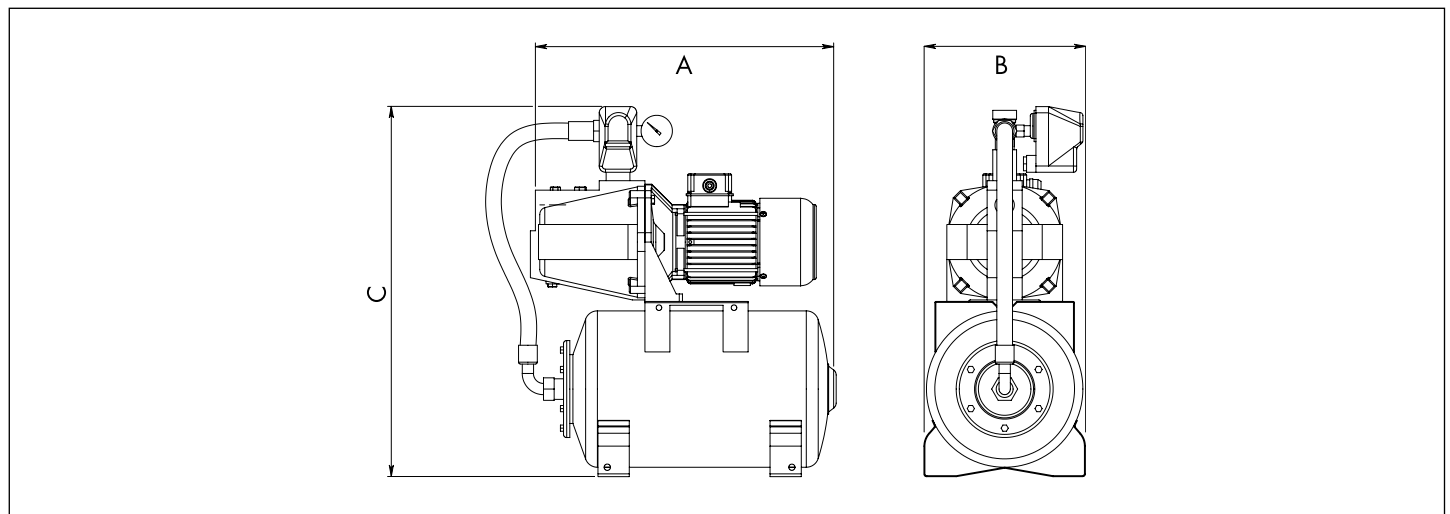
## STANDARD FEATURES

Manual safety pressure switch, pressure gauge, non return valve, 5 ways brass pipe fitting.



UJBR 20X

| MODEL       | PART No. | SWITCH PRE-SET | TANK PRESSURE | MAX DELIVERY | MAX PRESSURE | TANK CABACITY |
|-------------|----------|----------------|---------------|--------------|--------------|---------------|
| UJBR 12/8X  | 64838Y   | 1.2-2.0 bar    | 1.2 bar       | 44 l/min     | 3.0 bar      | 8 litres      |
| UJBR 12/20X | 64840J   | 1.2-2.0 bar    | 1.2 bar       | 44 l/min     | 3.0 bar      | 20 litres     |
| UJBR 24/8X  | 64839A   | 1.4-2.8 bar    | 1.2 bar       | 55 l/min     | 3.8 bar      | 8 litres      |
| UJBR 24/20X | 64841L   | 1.4-2.8 bar    | 1.2 bar       | 55 l/min     | 3.8 bar      | 20 litres     |
| UJBR M/20X  | 64842N   | 1.4-3.5 bar    | 1.2 bar       | 55 l/min     | 5.2 bar      | 20 litres     |



## DIMENSIONS AND WEIGHTS

| MODEL       | Ø IN mm (")  | Ø OUT mm (") | A mm (")   | B mm (")   | C mm (")   | WEIGHT kg (lbs) |
|-------------|--------------|--------------|------------|------------|------------|-----------------|
| UJBR 12/8X  | 1" BSP-F     | 1" BSP-F     | 455 (17.9) | 220 (8.7)  | 420 (16.5) | 26 (57.3)       |
| UJBR 12/20X | 1" BSP-F     | 1" BSP-F     | 460 (18.1) | 260 (10.2) | 590 (23.2) | 28 (61.7)       |
| UJBR 24/8X  | 1" BSP-F     | 1" BSP-F     | 455 (17.9) | 220 (8.7)  | 420 (16.5) | 26 (57.3)       |
| UJBR 24/20X | 1" BSP-F     | 1" BSP-F     | 460 (18.1) | 260 (10.2) | 590 (23.2) | 28 (61.7)       |
| UJBR M/20X  | 1 1/2" BSP-F | 1" BSP-F     | 460 (18.1) | 260 (10.2) | 590 (23.2) | 26 (57.3)       |

## UPB SERIES - ELECTRIC PUMPS

Compact single-impeller peripheral electric pumps apt to develop high pressures compared to limited flow rate. These electric pumps are used for rising both and sea water and to deliver pressurized water to on-board appliances (showers, toilets, washbasins etc.), to air-conditioning units, anti-fire equipment. Used for washing of decks and chains.

### Standard features

Bronze body pump, AISI 316 stainless steel shaft, special BRASS alloy impeller, corrosion-proof clamping rings, continuous duty electric motor with F insulation class.

### Application limits

Liquid free of solid impurities. Liquid temperature range: from 0° C to 70° C. Static pressure inside the pump body: 6 bar max.



UPB

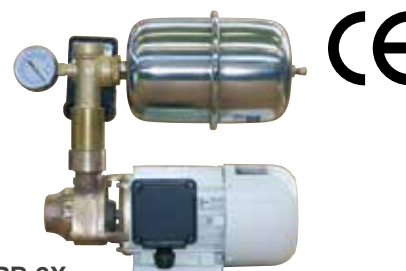
| MODEL  | PART No. | VOLT   | MAX AMP | MAX INLET   | MAX HEAD      | MAX DELIVERY |
|--------|----------|--------|---------|-------------|---------------|--------------|
| UPB 12 | 64819U   | 12V DC | 36 A    | 6 m (19.7') | 40 m (131.2') | 36 l/min     |
| UPB 24 | 64820C   | 24V DC | 22 A    | 6 m (19.7') | 42 m (137.8') | 36 l/min     |

## UPB SERIES - WATER PRESSURE SYSTEMS

UPB are equipped with a UPB electric pump, a stainless steel or white painted steel cylindrical tank with a stainless steel flange and with an internal butyl rubber diaphragm suitable for food stuff, widely used for constant water pressure for all on-board appliances such as kitchens, showers, washbasins etc.

### Standard features

Manual safety pressure switch, pressure gauge, non return valve, 5 ways brass pipe fitting.

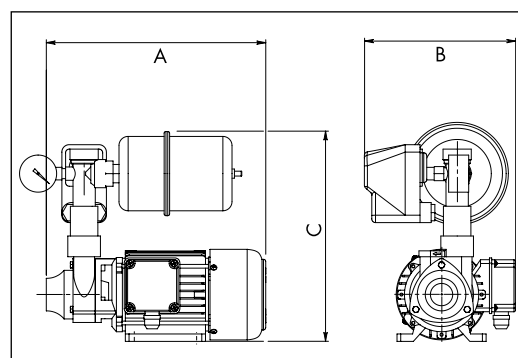


UPB 2X

| MODEL      | PART No. | SWITCH PRE-SET | TANK PRESSURE | MAX DELIVERY | MAX PRESSURE | TANK CAPACITY |
|------------|----------|----------------|---------------|--------------|--------------|---------------|
| UPB-12/2-X | 64843R   | 1.4-2.8 bar    | 1.2 bar       | 35 l/min     | 4 bar        | 2 litres      |
| UPB-12/8-L | 64829X   | 1.4-2.8 bar    | 1.2 bar       | 35 l/min     | 4 bar        | 8 litres      |
| UPB-12/8-X | 64845V   | 1.4-2.8 bar    | 1.2 bar       | 35 l/min     | 4 bar        | 8 litres      |
| UPB-24/2-X | 64844T   | 1.4-2.8 bar    | 1.2 bar       | 36 l/min     | 4.2 bar      | 2 litres      |
| UPB-24/8-L | 64830F   | 1.4-2.8 bar    | 1.2 bar       | 36 l/min     | 4.2 bar      | 8 litres      |
| UPB-24/8-X | 64846X   | 1.4-2.8 bar    | 1.2 bar       | 36 l/min     | 4.2 bar      | 8 litres      |

## DIMENSIONS AND WEIGHTS

| MODEL        | Ø IN     | Ø OUT    | A mm (")   | B mm (")  | C mm (")   | WEIGHT kg (lbs) |
|--------------|----------|----------|------------|-----------|------------|-----------------|
| UPB-12/24    | 1" BSP-F | 1" BSP-F | 295 (11.6) | 160 (6.3) | 142 (5.6)  | 7 (15.4)        |
| UPB-12/24-2X | 1" BSP-F | 1" BSP-F | 455 (17.9) | 220 (8.6) | 350 (13.8) | 25 (55.1)       |
| UPB-12/24-8X | 1" BSP-F | 1" BSP-F | 455 (17.9) | 220 (8.6) | 420 (16.5) | 26 (57.3)       |
| UPB-12/24-8L | 1" BSP-F | 1" BSP-F | 430 (16.9) | 220 (8.6) | 420 (16.5) | 24 (52.9)       |



## TWIN WATER PRESSURE SYSTEMS



Twin water pressure systems including 2 self-priming electric pumps (UJ-INOX or UMG-INOX stainless steel made), or 2 self priming electric pumps (UJBR bronze made), widely used in the marine field to grant a proper and constant water pressure for all on board utilities such as: showers, kitchen, washbasins, toilets, etc.

With this peculiar application a double flow rate can be obtained and the system can face an emergency stop of one of the pumps during navigation.

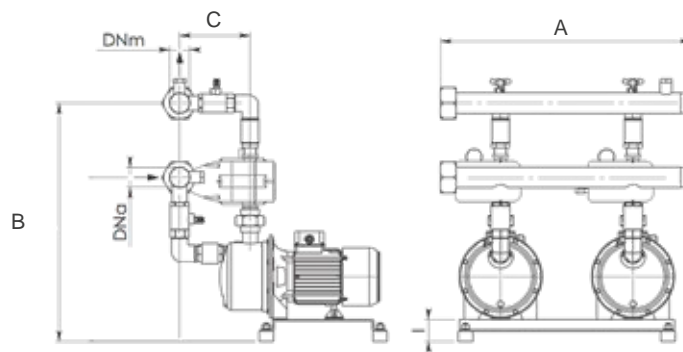
The use of twin water pressure systems **UGDE-J**, **UGDE-MG** and **UGDE-JBR** Series allows a water capacity higher than the traditional pressure sets, as the two pumps, whatever DC, AC, or mixed DC and AC, can work either simultaneously or singularly. For a proper operation of the group, a water tank is recommended.

Vertical twin water pressure systems are available on request.



UGDE J/1 - UGDE MG/1

| MODEL      | PART No. | PUMP 1      | PUMP 2      | MOTOR | POWER Kw  | CURRENT A | MAX DELIVERY | MAX PRESSURE |
|------------|----------|-------------|-------------|-------|-----------|-----------|--------------|--------------|
| UGDE J/1   | 66332Z   | UJ-INOX 24  | UJ-INOX 24  | DC+DC | 0,6+0,6   | 28+28     | 50+50 l/min. | 4 bar        |
| UGDE J/2   | 66333B   | UJ-INOX M   | UJ-INOX M   | AC+AC | 0,6+0,6   | /         | 50+50 l/min. | 4 bar        |
| UGDE J/3   | 20852U   | UJ-INOX 24  | UJ-INOX M   | DC+AC | 0,6+0,6   | 28+ /     | 50+50 l/min. | 4 bar        |
| UGDE MG/1  | 66335F   | UMG-INOX 24 | UMG-INOX 24 | DC+DC | 0,75+0,75 | 40+40     | 90+90 l/min. | 5 bar        |
| UGDE MG/2  | 66336H   | UMG-INOX M  | UMG-INOX M  | AC+AC | 0,75+0,75 | /         | 90+90 l/min. | 5 bar        |
| UGDE MG/3  | 66337K   | UMG-INOX 24 | UMG-INOX M  | DC+AC | 0,75+0,75 | 40+ /     | 90+90 l/min. | 5 bar        |
| UGDE JBR/1 | 66338M   | UJBR 24     | UJBR 24     | DC+DC | 0,6+0,6   | 28+28     | 55+55 l/min. | 3,6 bar      |
| UGDE JBR/2 | 66339P   | UJBR M      | UJBR M      | AC+AC | 0,6+0,6   | /         | 55+55 l/min. | 5 bar        |
| UGDE JBR/3 | 66340Y   | UJBR 24     | UJBR M      | DC+AC | 0,6+0,6   | 28+ /     | 55+55 l/min. | 5 bar        |



### DIMENSIONS AND WEIGHTS

| MODEL           | Ø IN mm (")  | Ø OUT mm (") | A mm (") | B mm (")   | C mm (")  | WEIGHT kg (lbs)                 |
|-----------------|--------------|--------------|----------|------------|-----------|---------------------------------|
| UGDE J/ 1-2-3   | 1" 1/2 BSP-F | 1" 1/2 BSP-F | 610 (24) | 540 (21.3) | 160 (6.3) | 30-26-28<br>(66.1-57.3-61.7)    |
| UGDE UMG/ 1-2-3 | 1" 1/2 BSP-F | 1" 1/2 BSP-F | 610 (24) | 540 (21.3) | 160 (6.3) | 40-35-37<br>(88.2-77.2-81.6)    |
| UGDE JBR/ 1-2-3 | 1" 1/2 BSP-F | 1" 1/2 BSP-F | 610 (24) | 540 (21.3) | 150 (5.9) | 60-52-56<br>(132.3-114.6-123.5) |

Water Pressure Systems featuring an **Electronic Control System EPC (Electronic Pressure Control)** that automatically controls the pump start and stop stages when the pressure drops or when the water supply to the system is interrupted.

The electronic control system EPC will guarantee the automatic stop of the pump when the water supply has run out (preventing damage to the pump if dry running) and will offer constant monitoring of the operation by means of warning lights.

If in lack of water the pump stops, in which case the EPC device will allow the pump to make brief starts at regular breaks to check the availability of water. If the pump is able to take in water during one of these attempts (maximum 4), the pressure booster set will restart its normal operation. After four attempts, the EPC device will stop the pump definitively. The pump can then be restarted only by pressing the "Reset" button.



UJ-mini/EPC



UMG-INOX/EPC



UJBR/EPC



UPB/EPC

| MODEL           | PART No. | VOLT    | MAX AMP | MAX DELIVERY | MAX PRESSURE |
|-----------------|----------|---------|---------|--------------|--------------|
| UJ-mini/EPC-12  | 69660J   | 12V DC  | 33 A    | 55 l/min     | 2,8 bar      |
| UJ-mini/EPC-24  | 69661L   | 24V DC  | 16 A    | 55 l/min     | 3 bar        |
| UJ-mini/EPC-M   | 69662N   | 230V AC | 3,6 A   | 55 l/min     | 3,9 bar      |
| UMG-INOX/EPC-24 | 66079P   | 24V DC  | 40 A    | 90 l/min     | 5 bar        |
| UMG-INOX/EPC-M  | 66080Y   | 230V AC | 5 A     | 90 l/min     | 5 bar        |
| UJBR/EPC-12     | 66081A   | 12V DC  | 42 A    | 44 l/min     | 3 bar        |
| UJBR/EPC-24     | 66082C   | 24V DC  | 28 A    | 55 l/min     | 3,6 bar      |
| UJBR/EPC-M      | 66083E   | 230V AC | 4,5 A   | 55 l/min     | 5,2 bar      |
| UPB/EPC-12      | 66084G   | 12V DC  | 36 A    | 36 l/min     | 4 bar        |
| UPB/EPC-24      | 66085J   | 24V DC  | 22 A    | 36 l/min     | 4,2 bar      |

Inlet: 1" BSP - F (Gas)

Outlet: 1" BSP - M (Gas)

# BIDIRECTIONAL SELF-PRIMING PUMPS NAUTIC AND SPECIAL SERIES



UN



UN F



US



US FM

Bidirectional side liquid ring self-priming pumps. Thanks to their high delivery capability, these pumps are widely used in marine applications sector to empty bilges or for sea water suction. Upon request these pumps are also available with BSP thread.

## STANDARD FEATURES

Bronze body pump, bronze impeller, bronze pipe fittings, AISI 316 stainless steel shaft, corrosion-proof clamping rings.

## APPLICATION LIMITS

Liquid free of solid impurities, liquid temperature range: from 0° C to 70° C, static pressure inside the pump body: 6 bar max.

## NAUTIC SERIES

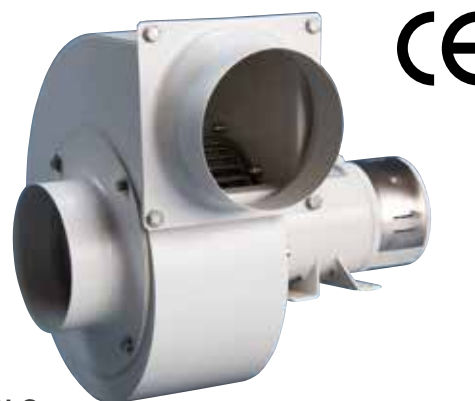
| MODEL    | PART No. | OPERATION     | MAX INLET   | MAX HEAD      | MAX DELIVERY l/min@ rpm |
|----------|----------|---------------|-------------|---------------|-------------------------|
| UN 025   | 64847Z   | Bare shaft    | 6 m (19.7') | 18 m (70.8')  | 60 @ 2800               |
| UN 030 F | 64857C   | Manual clutch | 6 m (19.7') | 18 m (70.8')  | 75 @ 1400               |
| UN 040 F | 64858E   | Manual clutch | 6 m (19.7') | 22 m (88.6')  | 120 @ 1400              |
| UN 050 F | 64859G   | Manual clutch | 6 m (19.7') | 30 m (118.1') | 230 @ 1400              |
| UN 070 F | 64860R   | Manual clutch | 6 m (19.7') | 40 m (157.4') | 500 @ 1400              |

## SPECIAL SERIES

| MODEL         | PART No. | OPERATION              | MAX INLET   | MAX HEAD      | MAX DELIVERY l/min@ rpm |
|---------------|----------|------------------------|-------------|---------------|-------------------------|
| US 020        | 64852S   | Bare shaft             | 6 m (19.7') | 15 m (59.0')  | 30 @ 2800               |
| US 025        | 64853U   | Bare shaft             | 6 m (19.7') | 18 m (70.8')  | 60 @ 2800               |
| US 030 FM 12V | 64861T   | Electromagnetic clutch | 6 m (19.7') | 18 m (70.8')  | 75 @ 1400               |
| US 030 FM 24V | 64864Z   | Electromagnetic clutch | 6 m (19.7') | 18 m (70.8')  | 75 @ 1400               |
| US 040 FM 12V | 64862V   | Electromagnetic clutch | 6 m (19.7') | 22 m (88.6')  | 120 @ 1400              |
| US 040 FM 24V | 64865B   | Electromagnetic clutch | 6 m (19.7') | 22 m (88.6')  | 120 @ 1400              |
| US 050 FM 12V | 64863X   | Electromagnetic clutch | 6 m (19.7') | 30 m (118.1') | 230 @ 1400              |
| US 050 FM 24V | 64866D   | Electromagnetic clutch | 6 m (19.7') | 30 m (118.1') | 230 @ 1400              |



UBLC spiral centrifugal electric blowers are used for suction and ventilation of air in closed compartments such as toilets, kitchen, engine room etc.

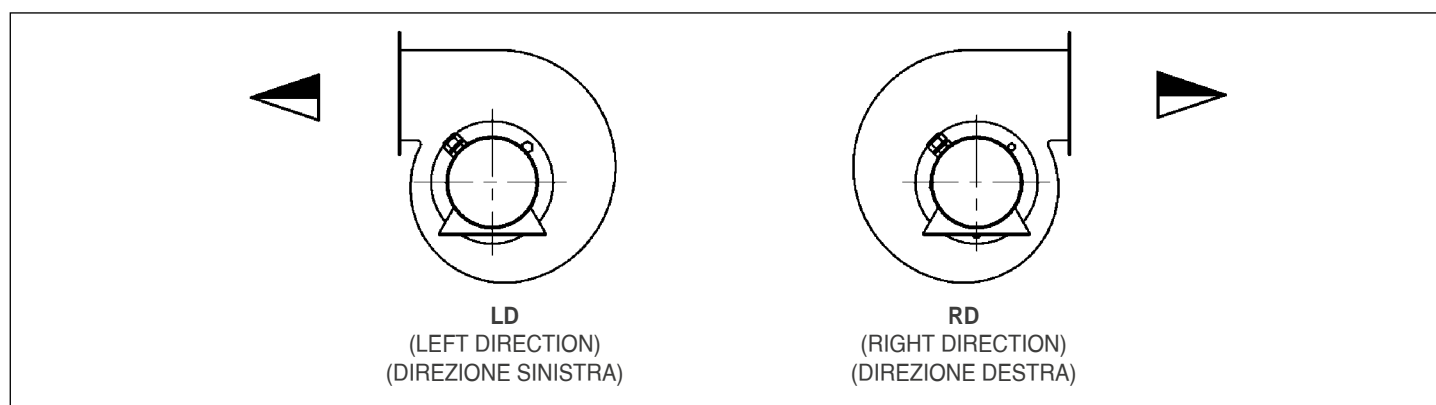


## STANDARD FEATURES

Painted steel casing, fan with forward and balanced steel blades, continuous duty electric motor with F insulation class, IP 44 protection (alternating current), IP 23 (direct current)

The orientation of the blower must be stated when ordering (see drawing).

UBLC



| MODEL           | PART No.      | VOLT            | MAX AMP   | RPM  | MAX HEAD<br>m <sup>3</sup> /min | MAX DELIVERY<br>mm H <sub>2</sub> O |
|-----------------|---------------|-----------------|-----------|------|---------------------------------|-------------------------------------|
| UBLC 002-12     | 65433A        | 12V DC          | 3,2 A     | 2800 | 4,5                             | 22                                  |
| UBLC 002-24     | 65434C        | 24V DC          | 1,6 A     | 2800 | 4,5                             | 22                                  |
| UBLC 002-M or T | 65435E 65436G | 230V AC/380V AC | 0,8/0,5 A | 2800 | 4,5                             | 22                                  |
| UBLC 004-12     | 65437J        | 12V DC          | 6 A       | 2500 | 12                              | 35                                  |
| UBLC 004-24     | 64867F        | 24V DC          | 3 A       | 2500 | 12                              | 35                                  |
| UBLC 004-M or T | 65438L 65439N | 230V AC/380V AC | 2,2/0,8 A | 2800 | 15                              | 45                                  |
| UBLC 015-12     | 67971S        | 12V DC          | 24 A      | 1400 | 24                              | 34                                  |
| UBLC 015-24     | 64868H        | 24V DC          | 12 A      | 1400 | 24                              | 34                                  |
| UBLC 015-M or T | 65440X 65441Z | 230V AC/380V AC | 2,2/0,8 A | 1400 | 24                              | 34                                  |
| UBLC 028-12     | 67973W        | 12V DC          | 26 A      | 2800 | 24                              | 64                                  |
| UBLC 028-24     | 64869K        | 24V DC          | 14 A      | 2800 | 24                              | 64                                  |
| UBLC 028-M or T | 65442B 65443D | 230V AC/380V AC | 2,8/0,9 A | 2800 | 24                              | 64                                  |
| UBLC 023-12     | 67972U        | 12V DC          | 30 A      | 2000 | 37                              | 64                                  |
| UBLC 023-24     | 65444F        | 24V DC          | 22 A      | 2000 | 37                              | 64                                  |
| UBLC 023-M or T | 65445H 65446K | 230V AC/380V AC | 7/2,9 A   | 2800 | 58                              | 130                                 |
| UBLC 025-24     | 65447M        | 24V DC          | 30 A      | 1400 | 50                              | 55                                  |
| UBLC 025-M or T | 65448P 65449S | 230V AC/380V AC | 5,2/2,2 A | 1400 | 50                              | 55                                  |
| UBLC 030-M or T | 65450A 65451C | 230V AC/380V AC | 7,2/2,9 A | 1400 | 95                              | 75                                  |

# HELICOIDAL ELECTRIC BLOWERS - UVE SERIES

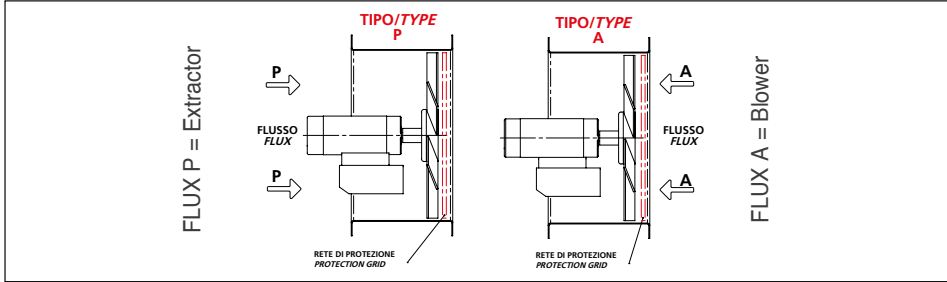


UVE helicoidal electric blowers are used for suction and ventilation of air in closed compartments such as toilets, kitchen and engine rooms.

## STANDARD FEATURES

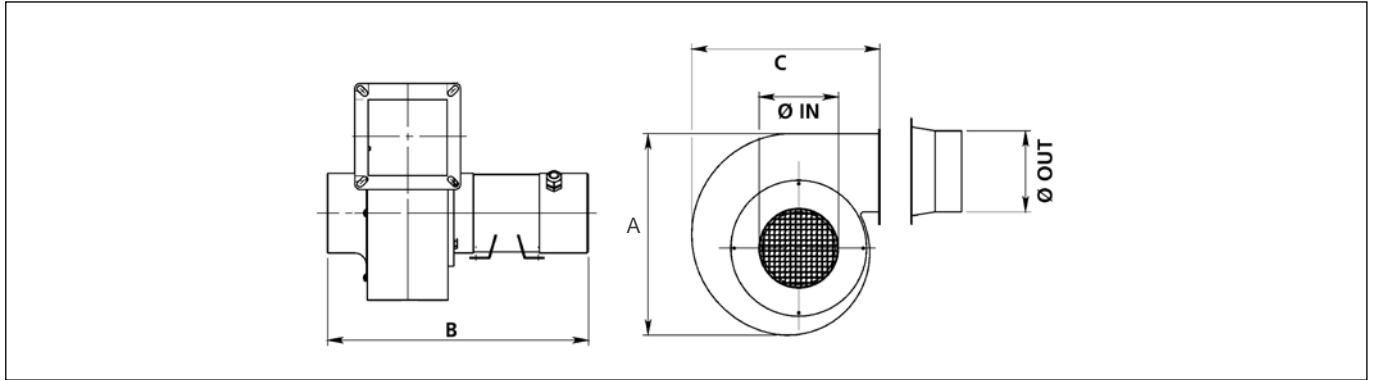
Painted sheet steel drum, polypropylene balanced fan (temperature range: from -5° C to 70° C), continuous duty electric motor with F insulation class, IP 44 protection.

The orientation of the blower must be specified when ordering (see drawing below).



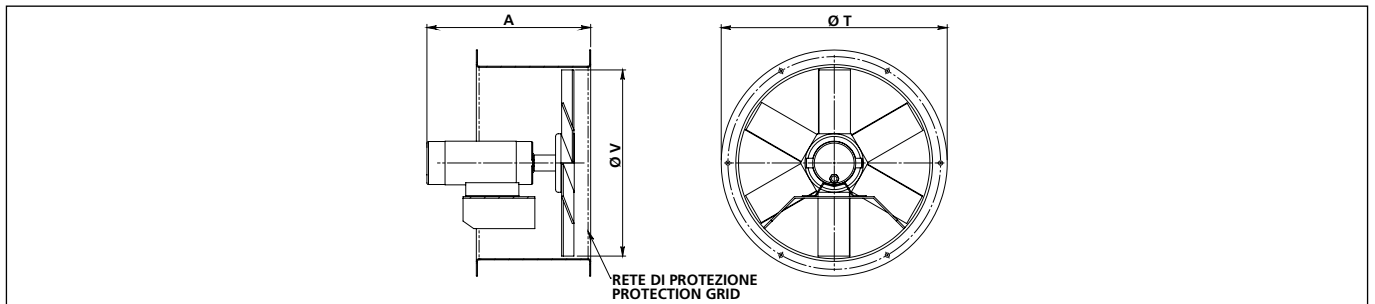
| MODEL           | PART No.      | VOLT            | MAX AMP   | RPM  | MAX DELIVERY m <sup>3</sup> /min | MAX HEAD mm H <sub>2</sub> O |
|-----------------|---------------|-----------------|-----------|------|----------------------------------|------------------------------|
| UVE 21-12       | 67969F        | 12V DC          | 12 A      | 2800 | 22                               | 14                           |
| UVE 21-24       | 67970P        | 24V DC          | 6 A       | 2800 | 22                               | 14                           |
| UVE 25-12       | 65452E        | 12V DC          | 17 A      | 2500 | 37                               | 19                           |
| UVE 25-24       | 64873A        | 24V DC          | 9 A       | 2500 | 37                               | 19                           |
| UVE 25-M or T   | 65453G 65454J | 230V AC/380V AC | 2,7/0,8 A | 2800 | 42                               | 20                           |
| UVE 30-12       | 65455L        | 12V DC          | 10 A      | 1400 | 42                               | 10                           |
| UVE 30-24       | 65456N        | 24V DC          | 5 A       | 1400 | 42                               | 10                           |
| UVE 30-M or T   | 65457R 65458T | 230V AC/380V AC | 1,8/0,6 A | 1400 | 42                               | 10                           |
| UVE 30/2-24     | 65459V        | 24V DC          | 14 A      | 2000 | 75                               | 22                           |
| UVE 30/2-M or T | 65460D 65491R | 230V AC/380V AC | 4/1,7 A   | 2800 | 80                               | 35                           |
| UVE 35-12       | 65461F        | 12V DC          | 12 A      | 1400 | 62                               | 16                           |
| UVE 35-24       | 64874C        | 24V DC          | 6 A       | 1400 | 62                               | 16                           |
| UVE 35-M or T   | 65462H 65463K | 230V AC/380V AC | 1,8/0,6 A | 1400 | 62                               | 16                           |
| UVE 35/2-24     | 65464M        | 24V DC          | 16 A      | 2000 | 96                               | 22                           |
| UVE 35/2-M or T | 65465P 65466S | 230V AC/380V AC | 7,2/2,9 A | 2800 | 100                              | 60                           |
| UVE 40-12       | 65467U        | 12V DC          | 14 A      | 1400 | 70                               | 20                           |
| UVE 40-24       | 65468W        | 24V DC          | 7 A       | 1400 | 70                               | 20                           |
| UVE 40-M or T   | 65469Y 65470G | 230V AC/380V AC | 1,8/0,6 A | 1400 | 70                               | 20                           |
| UVE 40/2-24     | 65471J        | 24V DC          | 20 A      | 2000 | 130                              | 24                           |
| UVE 40/2-M or T | 65472L 65473N | 230V AC/380V AC | 7,2/2,9 A | 2800 | 135                              | 70                           |
| UVE 45-24       | 65474R        | 24V DC          | 9 A       | 1400 | 108                              | 20                           |
| UVE 45-M or T   | 65475T 65476V | 230V AC/380V AC | 2,6/0,9 A | 1400 | 108                              | 20                           |
| UVE 45/2-24     | 65477X        | 24V DC          | 28 A      | 2000 | 145                              | 28                           |
| UVE 45/2-M or T | 65478Z 65479B | 230V AC/380V AC | 9,6/4,3 A | 2800 | 175                              | 74                           |
| UVE 50-24       | 65480K        | 24V DC          | 22 A      | 1400 | 160                              | 28                           |
| UVE 50-M or T   | 65481M 65482P | 230V AC/380V AC | 5,1/2,2 A | 1400 | 160                              | 28                           |
| UVE 56-24       | 65483S        | 24V DC          | 22 A      | 1400 | 225                              | 28                           |
| UVE 56-M or T   | 65484U 65485W | 230V AC/380V AC | 5,1/2,2 A | 1400 | 225                              | 28                           |
| UVE 63-M or T   | 65486Y 65487A | 230V AC/380V AC | 7,2/2,9 A | 1400 | 312                              | 36                           |
| UVE 71-T        | 65489E        | 380V AC         | 4,3 A     | 1400 | 330                              | 36                           |
| UVE 71/B - T    | 65490N        | 380V AC         | 8,2 A     | 1400 | 400                              | 42                           |

## UBLC - DIMENSIONS AND WEIGHTS



| MODEL    | Ø IN mm (") | Ø OUT mm (") | A mm (")   | B mm (")   | C mm (")   | WEIGHT kg (lbs) |
|----------|-------------|--------------|------------|------------|------------|-----------------|
| UBLC 002 | 58 (2.3)    | 58 (2.3)     | 190 (7.5)  | 295 (11.6) | 168 (6.6)  | 3,5 (7.7)       |
| UBLC 004 | 98 (3.8)    | 98 (3.8)     | 270 (10.6) | 370 (14.6) | 225 (8.8)  | 6 (13.2)        |
| UBLC 015 | 148 (5.8)   | 148 (5.8)    | 405 (16.0) | 415 (16.3) | 338 (13.3) | 14 (30.9)       |
| UBLC 028 | 118 (4.6)   | 118 (4.6)    | 322 (12.7) | 390 (15.3) | 273 (12.6) | 10 (22.1)       |
| UBLC 023 | 200 (7.8)   | 160 (6.3)    | 420 (16.5) | 530 (20.9) | 340 (13.4) | 18 (39.7)       |
| UBLC 025 | 250 (9.8)   | 200 (7.8)    | 510 (20)   | 570 (22.7) | 420 (16.5) | 23 (50.7)       |
| UBLC 030 | 300 (11.8)  | 250 (9.8)    | 610 (24)   | 580 (22.8) | 500 (19.7) | 38 (83.8)       |

## UVE - DIMENSIONS AND WEIGHTS



| MODEL    | A mm (")   | Ø V mm (") | Ø T mm (") | WEIGHT Kg (lbs) |
|----------|------------|------------|------------|-----------------|
| UVE 21   | 255 (10)   | 205 (8.1)  | 275 (10.8) | 6 (13.2)        |
| UVE 25   | 325 (12.8) | 240 (9.5)  | 315 (12.2) | 7 (15.4)        |
| UVE 30   | 300 (11.8) | 305 (12.0) | 378 (14.9) | 8 (17.6)        |
| UVE 30/2 | 330 (13.0) | 305 (12.0) | 378 (14.9) | 10 (22)         |
| UVE 35   | 300 (11.8) | 350 (13.8) | 425 (16.7) | 9 (19.8)        |
| UVE 35/2 | 330 (13.0) | 350 (13.8) | 425 (16.7) | 11 (14.3)       |
| UVE 40   | 330 (13.0) | 400 (15.7) | 473 (18.6) | 12 (26.4)       |
| UVE 40/2 | 370 (14.5) | 400 (15.7) | 473 (18.6) | 14 (30.8)       |
| UVE 45   | 330 (13.0) | 450 (17.7) | 523 (20.6) | 13 (28.6)       |
| UVE 45/2 | 380 (14.9) | 450 (17.7) | 523 (20.6) | 18 (39.7)       |
| UVE 50   | 400 (15.7) | 500 (19.7) | 573 (22.5) | 21 (46.3)       |
| UVE 56   | 400 (15.7) | 560 (22.0) | 633 (24.9) | 24 (52.9)       |
| UVE 63   | 420 (16.5) | 630 (24.8) | 704 (27.7) | 27 (59.5)       |
| UVE 71   | 450 (17.7) | 700 (27.5) | 774 (30.5) | 48 (105.8)      |
| UVE 71/B | 510 (20.1) | 700 (27.5) | 774 (30.5) | 58 (127.9)      |

# STAINLESS STEEL FIRE DAMPERS



Multi blades stainless steel fire dampers approved "MED" and USCG by LLOYDS REGISTER – MCA for class of fire A0-A60 with MIL 901-D certificate (Shock test). Our fire dampers are standard supplied with electrical actuator (24V, 120V, 230V) and safety thermal fuse rated at 72°C..

## STANDARD FEATURES

**Square/rectangular flange selection or circular flange:**

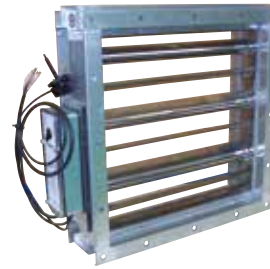
- UFD-A60: AISI 316 stainless steel case and blades
- UFD-A60Z: galvanized steel case, AISI 316 stainless steel blades.

## OPTIONAL ACCESSORIES

- Dampers supplied with pneumatic actuator
- Dampers with ignition protected actuator (ATEX rule)

## HOLES

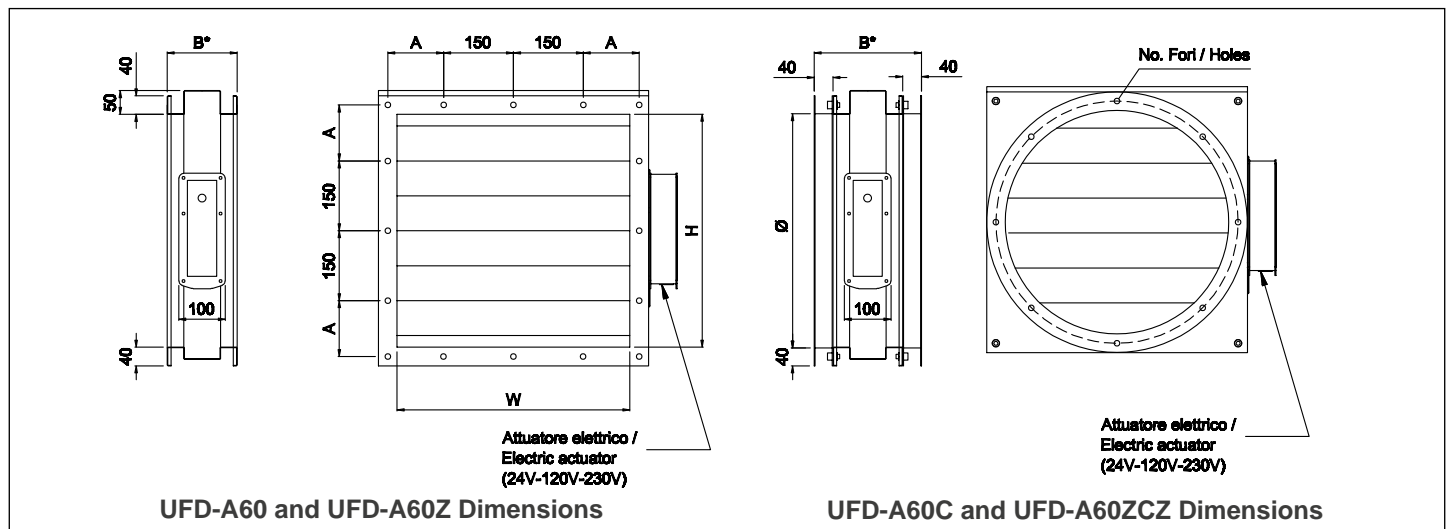
| DAMPER Ø   | No. | Ø  |
|------------|-----|----|
| 100 – 250  | 4   | 7  |
| 251 – 500  | 8   | 10 |
| 501 – 750  | 12  | 12 |
| 751 – 1000 | 16  | 12 |



UFD-A60 and UFD-A60Z



UFD-A60C and UFD-A60CZ



## DIMENSIONS

| MODEL            | A mm (")                       | B* mm (") | W Duct Width mm (")   | H Duct Height mm (")  | Case Thickness mm (") |
|------------------|--------------------------------|-----------|-----------------------|-----------------------|-----------------------|
| UFD-A60/UFD-A60Z | Min.75 (2.9)<br>Max. 150 (5.9) | 150 (5.9) | 100 / 1000 (3.9/39.4) | 100 / 1000 (3.9/39.4) | 1,5 (0.06)            |

| MODEL              | B* mm (") | Ø Duct mm (")         | Case Thickness mm (") |
|--------------------|-----------|-----------------------|-----------------------|
| UFD-A60C/UFD-A60CZ | 230 (9.0) | 100 / 1000 (3.9/39.4) | 1,5 (0.06)            |

\*B: 210 mm (8.3") on request

Electric actuator width: 42 mm (1.6")

Electric actuator height: 155 mm (6.1") (for 100/400 mm - 3.9"/15.7" dampers) – 248 mm (9.7") (for 400/1000 mm - 15.7"/39.4" dampers)

# MARLUNCO®



## EASY LOCK™ SYSTEM

Marinco's exclusive Easy Lock System has been designed to make hook-up quick and easy. Just connect the cordset (with an Easy Lock locking ring installed) to the inlet and turn the locking ring less than a quarter turn.

The tabs on the locking ring lock into the inlet for a positive watertight hook-up while eliminating any chance of cross threading. The locking ring features lock locators positioned at 180° to improve finger grip during attachment.

Easy Lock inlets have a threaded boss that will accept threaded cordsets as well.

## SOFT TOUCH™ CAP DESIGN

MARINCO inlets feature the Soft Touch cap design. The Soft Touch hinge is designed with a special cam feature that allows it to stay "locked" open in the upright position during hook-up. A "soft touch" unlocks it for closing.

## POWERCORD PLUS® CORDSET

The PowerCord PLUS® has features you will not find on other cordsets.

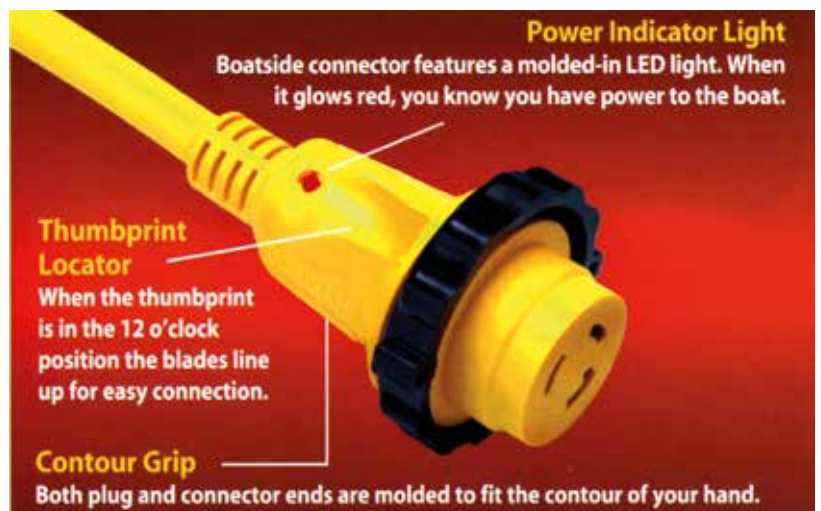
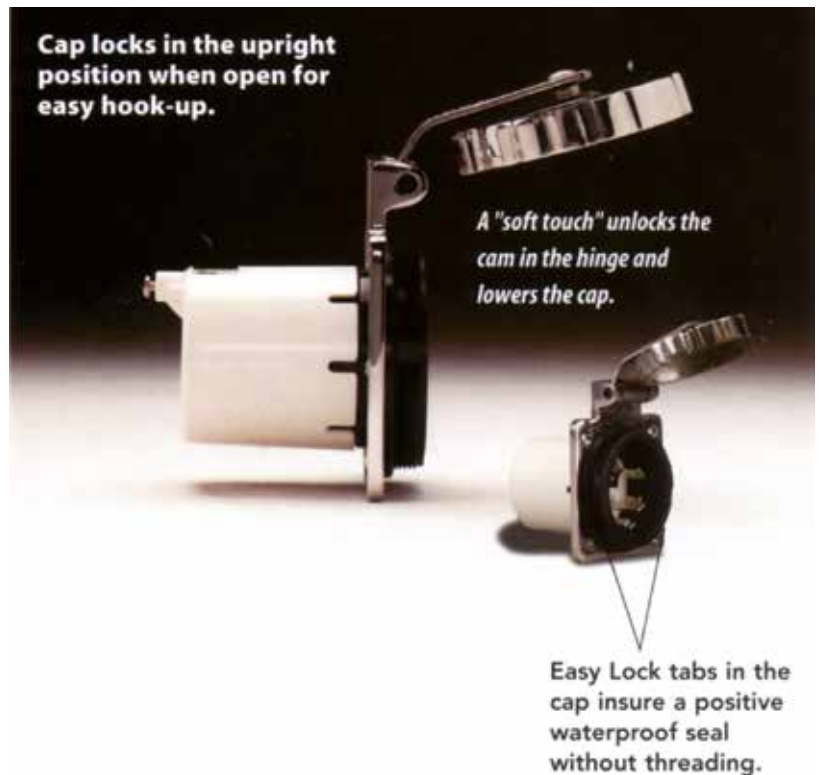
### Power Indicator light

LED Power indicator light – lets you know if you have power

### Comfort Grip with Thumbprint Locator

Moulded to fit the contour of your hand. Thumbprint Locator lines up the locking blades for quick and easy connections.

- LED Power Indicator Light
- Contour Grip Ends
- Thumbprint Locator
- Super Flexible 10/3 Cable
- Easy Lock™ System
- High Quality Marine Grade Construction
- Watertight Molded Plug & Connectors
- Includes threaded ring and Easy Lock ring
- All PowerCord PLUS cords assembled complete with Watertight Connector Cap to ensure CE compliance
- CE marked



### 16 AMP/220V & 32 AMP/220V 50 HZ - POWER INLETS



- 316 Stainless Steel
- Easy Lock System
- Soft Touch cap design
- Rear safety enclosure with strain relief
- IP56

**303SSEL-BX** - 66753A - 16A  
**6371EL-BX** - 66766K - 32A



- Glass-filled polyester
- Easy Lock System
- Watertight
- Rear safety enclosure with strain relief
- IP56

**301EL-BX** - 66754C - 16A  
**6351EL-BX** - 66767M - 32A



- Glass-filled polyester
- Easy Lock System
- Watertight
- Rear safety enclosure with strain relief
- IP56

**304EL-BX** - 66755E - 16A  
**6343EL-BX** - 66768P - 32A

### 16 AMP/220V & 32AMP/220V - FEMALE CONNECTORS



- Female Connector
- Corrosion resistant contacts and terminals

**305CRCXN** - 66757J - 16A  
**6360CRNX** - 66770A - 32A



- Weatherproof Cover with threaded ring
- Use with female connectors

**103RNX** - 66758L - for 16A  
**7715CRNX** - 66771C - for 32A



- Watertight Connector Sealing Cap
  - For use on 16 or 32 A products for CE compliance
  - For use on 30 or 50 A products to protect the connector when not in use
- 199109PK** - 66759N - for 16A/30A  
**199110PK** - 66772E - for 32A/50A



- Includes female connector, weatherproof cover with treaded ring and watertight cap
- 199114** - 22555Y - for 16A  
**199115** - 22556A - for 32A

### 16 AMP/220V 50 HZ - SHORE POWER CORDSETS



- PowerCord™ Cordset
- 3,3 mm<sup>2</sup> (12/3)
- With Female connector
- Blunt cut male end

**50PCMX** - 66760X - 15,24 m (50 ft)



- PowerCord™ PLUS Cordset
- 3,3 mm<sup>2</sup> (12/3)
- With moulded connector with LED power indicator light
- Blunt cut male end

**50SPPX** - 66762B - 15,24 m (50 ft)



- PowerCord™ PLUS Cordset
- 2,5 mm<sup>2</sup> (10/3)
- With moulded connector with LED power indicator light and IEC 60309 male plug (IP44)
- Watertight connector sealing cap for CE compliance

**20MSPPXP** - 66763D - 20 m (65.6 ft)  
**15MSPPXP** - 66764F - 15 m (49.2 ft)  
**10MSPPXP** - 66765H - 10 m (32.8 ft)

### 32 AMP/220V 50 HZ - SHORE POWER CORDSETS



- PowerCord™ PLUS Cordset
- 3,3 mm (12/3)
- With moulded connector with LED power indicator light and IEC 60309 male plug (IP44)
- Watertight connector sealing cap for CE compliance

**15M32AXP** - 66773G - 15 m (49.2 ft)



- Blunt cut
- Watertight connector sealing cap for CE compliance
- With moulded connector with LED power indicator light

**15M32AX** - 22557C - 15 m (49.2 ft)

### CABLE CLIP – 66825Z

- Includes 6 Cable Clips with stainless steel mounting screws, easy to install

## 50 Amp 125V/250V; 3 POLE, 4-WIRE SHORE POWER PRODUCTS

**MARINCO**

### 50 AMP 125V/250V; 3 POLE, 4-WIRE - POWER INLETS



- Solid cast 316 stainless steel
  - Easy Lock System
  - Soft Touch cap stays open in the upright position
  - Rear safety enclosure with strain relief
  - Locking waterproof cap
  - IP56
- 6373EL-B – 66774J - 50A**

- Same as 6373EL-B power inlet, without rear safety enclosure
  - IP56
- 6373EL - 66776N - 50A**

- Glass-filled polyester
  - Easy Lock System
  - Watertight cap
  - Rear safety enclosure w/strain relief
  - Marine stainless steel trim
  - IP56
- 6353EL-B – 66775L - 50A**

### 50 AMP 125V/250V; 3 POLE, 4-WIRE - MALE PLUG AND FEMALE CONNECTOR



- Male Plug ribbed, thick wall nylon housing for secure gripping
  - Use with weatherproof 7717N cover for superior seal
- 6365CRN – 66778T -50A**



- Weatherproof cover for male plug 6365CRN
- 7717N – 66822T**



- Female connector ribbed, nylon housing for secure gripping
  - Use with weatherproof 7715CRN cover for superior seal
- 6364CRN – 66779V - 50A**



- Weatherproof cover for female connector 6364CRN
- 7715CRN – 66771C**

### SEALING COLLAR WITH THREADED RING

- 510R – 66782H - 50A**
- 110R – 67056G - 30A**



## 63 Amp/230V 50 Hz SHORE POWER PRODUCTS Single Phase 3-wire, Three Phase 4-wire



**6401EL-BX** - 66785M - 63A Single Phase, 3-wire  
**6402EL-BX** - 66788W - 63 A Three Phase, 4-wire

- Power Inlet
- 316 stainless steel
- Easy Lock System
- Soft Touch cap design
- Rear safety enclosure with strain relief
- IP56



**6401CRCX** - 66786S - 63A Single Phase, 3-wire  
**6402CRCX** - 66789Y - 63A Three Phase, 4-wire

- Female Connector
- Corrosion resistant contacts and terminals
- Best when used with weatherproof cover 7715CRNX



**6401CRPX** - 66787U - 63A Single Phase, 3-wire  
**6402CRPX** - 66790G - 63A Three Phase, 4-wire

- Male Plug
- Corrosion resistant materials
- Best when used with weatherproof cover 7715CRNX



**7715CRNX** - 66771C

- Weatherproof cover for 63 Amp male plugs and female connectors both single and three phase



**19911PK** - 60102TA

- Watertight Connector Cap
- For use on 16, 32 or 63 A products for CE compliance
- For use on 30 or 50 A products to protect the connector when not in use

## 100 Amp 125/250V SHORE POWER PRODUCTS



**M4100P12** - 67038E - 3 pole, 4 wire  
**M5100P9** - 20856C - 4 pole, 5 wire

- Plugs with gasketed locking ring
- For use with 100A 125/250V shore power cordsets



**M4100C12** - 20857E - 3 pole, 4 wire  
**M5100C9** - 20858G - 4 pole, 5 wire

- Body connectors
- Mate with plug on extension cords or adapters. Note: It does not mate with shore power inlet



**M4100C12R** - 66792L - 3 pole, 4 wire (Mate with M4100B12R)  
**M5100C9R** - 66794R - 4 pole, 5 wire (Mate with M5100B9R)

- Body connectors with gasketed locking ring
- For use with 100A 125/250V shore power cordsets



**M4100B12R** - 66793N - 3 pole, 4 wire  
**M5100B9R** - 66795T - 4 pole, 5 wire

- Shore power inlets on boat side
- Gray inlets have a gasketed, spring-loaded cover providing an IP-67 watertight rating (withstands temporary immersion) when tightened

## 30 Amp/125V SHORE POWER PRODUCTS

**MARINCO**



### 305CRPN - 66817A - 30A

- Male Plug ribbed for secure gripping
- Compact design



### 102N - 66818C

- Weatherproof cover for male plug 305CRPN



### 305CRCN - 66819E - 30A

- Female Connector ribbed for secure gripping
- Compact design



### 103RNX - 66758L

- Weatherproof cover with threaded ring for female connector 305CRCN

## 50 Amp/125V; 2 POLE, 3-WIRE SHORE POWER PRODUCTS



### 6361CRN - 66821R - 50A

- Male Plug ribbed, thick wall nylon housing for secure gripping
- Use with weatherproof 7717N cover for superior seal



### 7717N - 66822T

- Weatherproof cover for male plug 6361CRN
- White version also available on request (Art. 102182)



### 6360CRN - 66823V - 50A

- Female connector ribbed, nylon housing for secure gripping
- Use with weatherproof 7715CRN cover for superior seal



### 7715CRNX - 66771C

- Weatherproof cover for female connector 6360CRN



- 316 stainless steel inlet
- Locking waterproof cap
- Soft Touch cap design
- Watertight rear boot (PH/TV inlet only)

**PH6592TV-SS** - 66796V - Phone and Cable TV Inlet

**TV6592** - 66797X - Cable TV / internet inlet



**TV6444** - 66801J

Cable TV / internet inlet



- Standard glass-filled polyester inlet
- Watertight cap
- Stainless steel trim on cap

**PH6574TV** – 66798Z

Phone and Cable TV Inlet

**TV6574** - 66799B

Cable TV / internet inlet



- Female Phone Connector With cover

**PH6629** – 66848M

**PHONE AND CABLE TV CORDSETS**



**Telephone Cordset**

- 3 conductor vinyl cord provides portable connection for RVs and pleasure boats

**PH6599** – 66802L - 15,24 m (50 ft)



**TV Cable Cordset**

- Standard 75 Ohm, with quick, slip-on connections and heavy duty boots included on both ends

**TV99-25** - 66805T - 7,62 m (25 ft)



### 12VCPS3 - 70A Trolling motor plug & receptacle

- 70A continuous rating
- Universal design for 2 or 3-wire configuration 12V, 24V, 12/24V, 24/36V, 36V or 48V systems
- Corrosion resistant, plated brass electrical components
- Receptacle contains watertight sealing cap
- Plug contains Integrated strain relief and keyed design with thumbprint locator

12VCPS3 – 22129E



### 12V DC Receptacle

- Watertight sealing cap
- Easy to install with mounting plate for front panel installation, or locking ring for rear access installation

**Mounting plate** – 20767D (optional)

- Compatible with standard 12V plugs

12VRC – 66156F



### 12V DC Receptacle white

- Weather resistant plug cover
- Easy to install, with supplied mounting plate for front panel installation, or locking ring for rear access installation
- Compatible with standard 12V plugs

12VRCW – 66862F



### 12V DC Plug

- Moisture proof sealing ring
- LED power indicator light
- Interchangeable 10A fuse
- Internal strain relief and cord seal
- Compatible with standard 12V receptacles

12VPG – 66415D



### 12VBP Plug

- O-ring seal for waterproof connections
- Weather resistant plug cover
- Corrosion resistant, plated brass electrical components
- Ergonomic contoured grip for easy hook-up and ground blade alignment

12VBP – 67219J



### 12VBR Receptacle

- Watertight sealing cap
- Corrosion resistant, plated brass electrical components
- Drain holes in receptacle keep water away from electrical components
- Perma-Lock screw terminals will not loosen under extreme hull vibration
- Easy to install with supplied mounting plate for front panel installation or locking ring for rear access installation

12VBR – 67220T



### 12VCP Plug + Receptacle

- 12VBP and 12VBR packaged together

12VCP – 67225D



### 12V USB

- 12 to 24VDC input
- 5V, 2.1 amp total output
- Blue LED power indicator light for USB
- Water resistant cover protects against dust and water
- Dual USB ports
- Terminals not included

12VDUSB-B – 21630E Black

12VDUSB-W – 21631G White

## ACCESSORIES



### 12V DC Extension Cord

- Heavy duty 18 gauge wire, extends to over 1,8 m (6 ft)
- Watertight cap
- Plug features a LED indicator light, moisture proof sealing ring, strain relief and built-in 10A fuse
- Works with any standard 12V plug and receptacle

12VXT – 66810K



### 12V DC Dual Outlet Cord

- Heavy duty 18 gauge wire, extends to over 0,3 m (1 ft)
- Watertight cap
- Plug features a LED indicator light, moisture proof sealing ring, strain relief and built-in 10A fuse
- Works with any standard 12V plug and receptacle

12VAD – 66811M

The EEL (Easily Engaged Lock) ShorePower Cordsets has a patented industry first, jaw-clamp design providing one-handed operation and a secure waterproof seal which completely eliminates the need for a locking ring. The EEL connection is built for the harshest environments and is UL approved. This easy-to-use cordset features a built-in cord light which serves as an alert to boaters when the cord is left plugged in. And, best of all, it works with your current inlet. In addition to cordsets with EEL System, Marinco® also has a full set of Pigtail and “Y” adapters all using the new EEL technology



**PATENTED EEL TECHNOLOGY**

- Designed for use with standard inlets (NEMA)
- Single-handed operation
- No sealing ring required
- Patented jaw-clamp technology provides a watertight seal every time

**FEATURES & BENEFITS**

- Built-in cord light for added safety - alert light indicates if you are plugged into the dock and cord is powered
- Power indicator light on both ends informs you full power is flowing through the cord
- Meets and exceeds rigorous UL testing standards
- 50 Amp 125/250V cordset models, 50’ lengths in white and yellow available
- EEL product line includes connectors, pigtail, straight and “Y” adapters



| MODEL            | PART No. | LENGTH | COLOUR |
|------------------|----------|--------|--------|
| <i>CS504-50</i>  | 21507F   | 50’    | yellow |
| <i>CS504-50W</i> | 21644S   | 50’    | white  |

# SPL SERIES – PRECISION WIRELESS CONTROLLED SPOTLIGHTS



## FEATURES

- Bright 100W halogen bulb
- Uniform 132sq. ft (25 m) coverage with 370° rotation and 120° tilt
- Durable, weatherproof housing
- Universal 12V or 24V operation
- Wireless, hand held control SPRL-2 supplied with spotlight. Range 65 m (200 ft)
- Current draw: 7 Amp in use. 0,03 Amp standby
- Peak beam intensity: 210.000 CP. Peak beam distance: 280 m
- Operation temperature: -15°C a 45°C
- Dimensions: 7,5"x7,5"x9,25" (cm 19x19x23,5)
- Weight: 3,3 lbs (1.5 kg)
- IP rating: IP56
- Housing material: UV resistant PC/ASA
- Lens material: UV resistant Lexan®

**SPL-12W** – 68115B 12/24 V, white

**SPL-12B** – 68116D 12/24 V, black

**SPL-12C** – 68117F 12/24 V, chrome



SPL-12W



SPL-12B



SPL-12C

## SPLR-2 - 68120U

Wireless control supplied with spotlight  
Dim. 88x57x19mm (3.5"x2.5"x0.75")  
12V or 24V power supply



## SPLR-1 - 68121W

Hand held bridge remote (optional)  
Dim. 51x96x25 mm (2.0"x3.78"x1")



## SPLR-3 - (optional) 68122Y

Wired remote control  
Dim. 88x57x19mm (3.5"x2.5"x0.75")  
12V or 24V power supply



## REPLACEMENT BULBS

| MODEL  | PART No. | DESCRIPTION         |
|--------|----------|---------------------|
| 202319 | 68118H   | 12 Volt, halogen H3 |
| 202320 | 68119K   | 24 Volt, halogen H3 |

- 316 stainless steel base, 304 stainless steel head
- Includes joystick control and 15' wiring cable with easy to install plug ends
- Secondary station may be added (see parts and accessories)
- Light can be directed manually without damaging motors
- Spot Power: 72.000 CP
- Flood Power: 30.000 CP
- Amp Draw: 7 Amp
- Operation: 12V Incandescent
- Bulb: Replaceable Incandescent
- Lamp Dimensions: H 241mm (9.5") x W 114mm (4.5") x L 190mm (7.5")
- Base Dimensions: L 140mm (5.5") x W 89mm (3.5")
- Weight: 2,7 kg (6 lbs)
- Joystick requires 70mm (2.75") installation hole



**22040 A**

**22040A** - 66860B - Stainless Steel Halogen Spot/Flood with Joystick Control

**PARTS & ACCESSORIES**

| SPOTLIGHT MODEL        | CONTROL PANEL           | REPLACEMENT 12V BULB KIT |
|------------------------|-------------------------|--------------------------|
| <b>22040A</b> - 66860B | <b>22240-R</b> - 66989G | <b>22014-P</b> - 67001E  |

**IP67 HALOGEN STAINLESS STEEL SPOT/FLOODLIGHT**

- Wireless remote communication
- 316 stainless steel base, 304 stainless steel head
- 350 degree horizontal, 60 degree vertical two speed movement
- Peak beam intensity: 165.000 CP
- Amp draw: Spot 8.3A, flood 7.5A @12V- Spot 4.15A, flood 3.75A @24V
- Power (input voltage): 12V or 24V
- Bulb: H4 halogen
- Dimensions: H 250,1 mm (9.875") x W 120,6 mm (4.75") x L 212,1 mm (8.35")
- Weight: 2,7 kg (6 lbs)
- IP Rating: IP67

**22050A** - 21505B - 12V remote control included  
**22051A** - 21645U- 12V remote control not included  
**22150A** - 22590A - 24V remote control included  
**22151A** - 23513L - 24V remote control not included



**22050A (12V)**  
**22150A (24V)**

**22051A (12V)**  
**22151A (24V)**

**IP67 LED STAINLESS STEEL SPOTLIGHTS**

- Wireless remote communication
- 316 stainless steel base, 304 stainless steel head
- 350 degree horizontal, 60 degree vertical two speed movement
- Amp draw: 3A @12V DC - 1.5A @24V DC
- Power (input voltage): 12V or 24V
- Dimensions: H 250,1 mm (9.875") x W 120,6 mm (4.75") x L 212,1 mm (8.35")
- Weight: 5,2 kg (11.46)
- IP Rating: IP67
- 92000 CD bright intensity (12 and 24 V) no. of LEDS 12

**23050A** - 22361J - 12V remote control included  
**23051A** - 22362L - 12V remote control not included  
**23150A** - 23403D - 24V remote control included  
**23151A** - 22591C - 24V remote control not included



**23050A (12V)**  
**23150A (24V)**

**23051A (12V)**  
**23151A (24V)**



**23250-R** - 22542N  
12V wireless IP67 LED spotlights bridge remote

**23350-R** - 22543R  
24V wireless IP67 LED spotlights bridge remote



**23250-HH** - 22544T  
Wireless IP67 LED spotlights hand held remote

Marinco® is the leading supplier of horns to the marine industry, with over a fifty years of experience in designing and manufacturing sound devices specifically for use in harsh marine environments. Stainless steel is used for all critical components such as trumpets, motor cover, diaphragms and mounting hardware.

Marinco® offers a complete line of marine horn products designed to meet almost any need, including electric and air trumpet horns, compact horns, below deck and deck horns.

## DROP-IN HIDDEN HORN

- Easy installation: 69,8mm (2.75") diameter hole x 25,4mm (1") deep
- 12 Volt, maximum Amp draw: 4 Amp
- dB(A) rating: 111 at one meter
- Fundamental frequency: 370±20Hz
- Grills have water resistant fabric liners. Ordered separately.
- Easy retrofit

**11080** - 66904V - Drop-in Hidden Horn without Grill

**11187** - 66905X - Screw-in White ASA Grill for 11080

**11188** - 66906Z - Screw-in Black ABS Grill for 11080

**11096** - 66907B - Screw-in Stainless Steel Grill Kit for 11080: includes stainless steel grill cover and plastic white (11187) screw-in grill



**11080**



Only 1" deep



## HORN WITH GRILLS

- Comes with both black ABS and white ASA snap-in grills
- dB(A) rating: 107 at one meter
- Fundamental frequency: 370±20Hz
- Internal space requirements: H 50,8mm (2") x W 85,6mm (3.37") x D 82,5mm (3.25")
- Distinctive marine horn sound
- Easy installation or retrofit, mounts from the outside
- 12 Volt, maximum Amp draw: 4 Amp

**10079** - 66908D - Drop-in "H" Horn with Grills



**10079**

## DROP-IN HIDDEN HORN WITHOUT GRILL

- Internal space requirements: H 57,2mm (2.25") x W 92,2mm (3.63") x D 88,9mm (3.5")
- Maximum Amp draw: 3 Amp
- dB(A) rating: 105 at one meter
- Fundamental frequency: 440±20Hz
- Mounts from the outside, horn grill snap on for easy installation
- Easy retrofit
- Grill must be ordered separately

**11095** - 66909F - Drop-in Hidden Horn without Grill

**11090** - 66910P - Snap-in White ASA Grill for 11095

**11091** - 66911S - Snap-in Black ABS Grill for 11095

**11225** - 66912U - Snap-in Chrome Plated ABS Grill for 11095 horn



**11095**





- Long lasting, non-corrosive ASA plastic cover
- Sealed sound unit with stainless steel diaphragm
- Dimensions: L 109,2mm (4.37") x W 85,6mm (3.37") x H 50,8mm (2.0")
- Maximum Amp draw: 3 Amp, 12Volt
- dB(A) rating: 106 at one meter (3ft)
- Fundamental frequency: 440±20Hz

**10099** – 66920T – White MiniBlast Compact Electric Horn  
**10098** – 66921V – Black MiniBlast Compact Electric Horn



**10099**



**10098**

**DECK HORNS - FULLBLAST™ AIR HORNS**

Marinco® FullBlast compressor driven air horns are the loudest and most complete line of 12V air horns available. They produce sound levels ranging between 120 and 127 dB, which means they meet the ABYC and NMMA regulations for boats up to 20 meters (66 ft). Both 12V and 24V compressors are CE listed.

**SINGLE TRUMPET MINI AIR HORNS**

- Solid brass construction
- Non-corrosive Lexan® diaphragm
- Include compressor, air tubing, fittings and hardware
- Dimensions: L 241,3mm (9.5") x W 88,9mm (3.5") x H 88,9mm (3.5")
- Maximum Amp draw: 12 Volt: 20 Amp
- dB rating: 126 at one meter, 1/3 octave band
- Fundamental frequency: 630±15Hz

**10107** – 66913W – 12 Volt Chrome Single Trumpet Mini Air Horn - chrome plated solid brass  
**10104** – 66914Y – 12 Volt White Single Trumpet Mini Air Horn - white epoxy powder-coated finish over solid brass



**10107**



**10104**

**DUAL TRUMPET MINI AIR HORNS**

- Solid brass construction
- Non-corrosive Lexan® diaphragm
- Includes compressor, air tubing, fittings and hardware
- Dimensions: L 241,3mm (9.5") x W 127,0mm (5.0") x H 95,3mm (3.75")
- Maximum Amp draw: 12 Volt: 20 Amp
- dB rating: 127 at one meter, 1/3 octave band
- Fundamental frequency: 630±15Hz/525±15Hz

**10108** – 66915A – 12 Volt Chrome Dual Trumpet Mini Air Horn - chrome plated solid brass



**10108**

**AIR COMPRESSORS**

- Replacement compressors fit all Marinco® 12 Volt Air Horns
- Dimensions: L 127,0mm (5.0") x D 66,8mm (2.63")
- Include mounting bracket
- Maximum Amp draw: 12 Volt: 20 Amp, 24 Volt: 10 Amp. Produce 9-11 PSI
- CE marked

**10102** – 66917E – 12 Volt Air Compressor  
**10224** – 66918G – 24 Volt Air Compressor



**10102**

## UNDER DECK HORN

**MARINCO**

- dB(A) rating: 110 at one meter
- Fundamental frequency: 420±20Hz
- 12V DC
- Dimensions:  
L 146,05mm (5.75") x W 101,6mm (4") x H 92,33mm (3.635")
- Permanently mounted grill to protect against water intrusion

11045 – 21511W – Under deck horn



11045

## SINGLE TRUMPET ELECTRIC HORN

- dB(A) rating: 110 at one meter
- Fundamental frequency: 420±20Hz
- Dimensions:  
L 350mm (14") x W 87,5mm (3.5") x H 100mm (4")
- Maximum Amp draw: 3.5 amps (12V)
- 100% stainless steel exterior
- Type 304 stainless steel diaphragm

10010 – 22558E – 12 Volt Compact Single Trumpet Electric Horn

**new**



10010

## DUAL TRUMPET ELECTRIC HORN

- dB(A) rating: 115 at one meter
- Fundamental frequency: 370±20Hz / 420±20Hz
- Dimensions:  
L 400mm (16") x W 187,5mm (7.5") x H 100mm (4")
- Maximum Amp draw: 7 amps (12V)
- 100% stainless steel exterior
- Type 304 stainless steel diaphragm

10011 – 22404A – 12 Volt Compact Dual Trumpet Electric Horn

**new**



10011

**500 WIPER KIT - 80 DEGREE**

This kit includes a 12V 500 Waterproof Wiper Motor with 11.5" Deluxe stainless steel curved blade (33004) and Deluxe adjustable (6.75" to 10.5") stainless steel arm (33006AS).

- Windshield Mount: 0.5" shaft diameter
- Shaft length: 2.5"
- Sweep 80°

| MODEL | PART No | DESCRIPTION |
|-------|---------|-------------|
| 30004 | 23615V  | Wiper kit   |



**INTELLIGENT SWITCH FOR HEAVY DUTY PLUS WIPER SYSTEMS**

AFI's microcontroller based "intelligent" switch provides all necessary wiper motor functions in one small component

- Settings for two continuous speed functions and three intermittent speed functions (2 sec delay, 4 sec delay, 8 sec delay)
- Washer system operation function
- Blinking LED lights in switch indicate operating function
- Works with 12V or 24V DC motors
- Fits standard switch size openings, requires 67,5mm (2.65") depth
- Includes one ten pole connector with female pins and two female quick-connects

| MODEL | PART No | DESCRIPTION                     |
|-------|---------|---------------------------------|
| 76030 | 66935G  | Single Motor Intelligent Switch |



**INTERMITTENT WIPER MOTOR CONTROLLER**

- Single speed and dual speed options
- Allows for the control of single motor systems and synchronized control of dual motor systems
- Intuitive automotive-style functionality-features adjustable intermittent settings, adjustable continuous settings and washer system operation
- IP67-Potted case for harsh environment durability
- Includes Contura Switch, SPDT (On)-Off-(On)
- Easy to install with 1/4" spade connectors
- Reverse polarity protection
- Compatible with 12V and 24V DC motors

| MODEL | PART No | DESCRIPTION  |
|-------|---------|--------------|
| 76090 | 23957A  | Single speed |
| 76080 | 23958C  | Dual speed   |

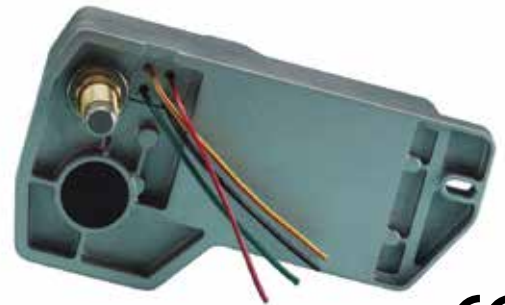


## 2.5 - HEAVY DUTY WATERPROOF WIPER MOTOR

- The most powerful waterproof wiper motor available
- Fully sealed powder coated aluminum waterproof base and housing
- Powers a 26" Deluxe arm and blade combination or a 24" Premier arm and blade combination
- Available in two shaft lengths: 1.5" and 2.5" (knurled arm fitting adds ½" to overall length)
- Factory pre-set sweep angle of 80° or 110°, can be easily adjusted to 45° or 60°
- Chrome plated solid brass knurled drive nut with 16 mm (5/8") dia. brass and stainless steel drive shaft
- Measures approx.: L 201,0mm (7.91"), W 108,0mm (4.25"), D 76,8mm (3.02")
- Available in 12V and 24V models
- Coast to park with adjustable right or left self parking
- Two speed motor
- CE marked



CE



CE

| MODEL | PART No. | SWEEP | SHAFT | VOLT |
|-------|----------|-------|-------|------|
| 82082 | 66938N   | 80°   | 2"    | 12V  |
| 82012 | 66940Z   | 110°  | 2"    | 12V  |
| 82312 | 66941B   | 110°  | 2"    | 24V  |

## 1.5 - HEAVY DUTY WATERPROOF WIPER MOTOR

- Fully sealed powder coated aluminum waterproof base and housing
- Powers a 22" Deluxe arm and blade combination or a 20" Premier arm and blade combination
- Available in two shaft lengths: 1" and 2" (knurled arm fitting adds ½" to overall length)
- Factory pre-set sweep angle of 80° or 110°, can be easily adjusted to 45° or 60°
- Chrome plated solid brass knurled drive nut with 16 mm (5/8") dia. brass and stainless steel drive shaft
- Measures approx.: L 197,0mm (7.76"), W 101,0mm (3.98"), D 70,3mm (2.77")
- Available in 12V
- Coast to park with adjustable right or left self parking
- Two speed motor
- CE marked
- It replaces AFI 2000 engine model



CE



CE

| MODEL | PART No. | SWEEP | SHAFT | VOLT |
|-------|----------|-------|-------|------|
| 71081 | 66952G   | 80°   | 1"    | 12V  |
| 71082 | 66953J   | 80°   | 2"    | 12V  |
| 71011 | 66954L   | 110°  | 1"    | 12V  |
| 71012 | 66955N   | 110°  | 2"    | 12V  |

## DELUXE™ - STAINLESS STEEL WIPER BLADES

- Works well on curved or flat windshields
- All stainless steel construction
- Marine grade silicone squeegee

| MODEL  | PART No. | DESCRIPTION         |
|--------|----------|---------------------|
| 34016S | 23075N   | 16" stainless steel |
| 34018S | 23076R   | 18" stainless steel |
| 34020S | 22883S   | 20" stainless steel |
| 34022S | 23077T   | 22" stainless steel |
| 34024S | 22884U   | 24" stainless steel |



## PREMIER™ - STAINLESS STEEL ADJUSTABLE SINGLE AND PANTOGRAPHIC WIPER ARMS

- Available in standard and pantographic styles with both versions offered in normal and wet arm configurations

| MODEL  | PART No. | DESCRIPTION                              |
|--------|----------|--|
| 33086  | 66957T   | Single Arm, Adjusts 20" to 25"           |
| 33092  | 66958V   | Pantographic Arm, Adjusts 17" to 22"     |
| 33094  | 66959X   | Pantographic Arm, Adjusts 22" to 26"     |
| 33086W | 66960F   | Single Wet Arm, Adjusts 20" to 25"       |
| 33092W | 66961H   | Pantographic Wet Arm, Adjusts 17" to 22" |



Note: pantographic wiper arms will ONLY function properly with wiper motor sweep angles 80° or less

## PREMIER™ - STAINLESS STEEL WIPER BLADES

- Available in stainless steel or black finish

| MODEL  | PART No. | DESCRIPTION     |
|--------|----------|-----------------|
| 34020B | 22918J   | 20" Black Blade |
| 34024B | 23426S   | 24" Black Blade |



## DELUXE™ - STAINLESS STEEL ADJUSTABLE SINGLE AND PANTOGRAPHIC WIPER ARMS

- Available in stainless steel or black finish

| MODEL  | PART No. | DESCRIPTION                                |
|--------|----------|--|
| 33010A | 66967W   | Single Arm, Adjusts 14" to 20"             |
| 33070A | 66968Y   | Single Black Arm, Adjusts 18" to 24"       |
| 33037A | 66969A   | Pantographic Black Arm, Adjusts 17" to 22" |



Note: pantographic wiper arms will ONLY function properly with wiper motor sweep angles 80° or less

## UFLEX® - PERMANENT IMMERSION SHORE POWER CORDS

- Conductor: Red Copper Class 5 in conformity with HD 383 / IEC 228 rules
- Insulation: special compound
- Protective covering: yellow special compound, for marine applications.  
Flame retardant: NFC.32-070 C2 – IEC 60332-1
- Rated voltage: 0,6/1kW – 50/60 Hz
- Operating temperature in air: -40°C to +70°C. In motion: -25°C to +70°C
- Operating temperature in immersion: 50°C
- Immersion depth: 250 m (820') – 25 bar
- Permanent immersion in conformity with BS 6920 – AD8 NF C 15-100 rule
- Flame retardant in conformity with NF C 32-070 C2 – IEC 60332-1 rules
- Excellent resistance to weathering and low water absorption: 1% / 2%
- Excellent resistance to UV according to SEPAP test 1000 hours at 60°C
- Resistance to radiations: 80 Mrad (8.100 cJ/kg)
- Excellent resistance to ozone in conformity with VDE 0472 § 805 rule
- Resistance to salt fogs: in conformity with ASTM B - 117 test 500 hours



| DIMENSION mm <sup>2</sup> | COIL 20 m | COIL 30 m | COIL 60 m | Amp |
|---------------------------|-----------|-----------|-----------|-----|
| 3 x 2,5                   | 69845X    | 67310U    | 69846Z    | 16  |
| 3 x 4                     | 69847B    | 67311W    | 69848D    | 32  |
| 3 x 6                     | 69849F    | 67837M    | 69850P    | 32  |
| 3 x 10                    | 67755K    | 68946Y    | 69815M    | 50  |
| 3 x 16                    | 68911C    | -         | 69600P    | 63  |
| 4 x 10                    | 69817S    | -         | 69816P    | 50  |
| 4 x 16                    | 69599J    | -         | 69598G    | 63  |
| 4 x 25                    | 20920J    | -         | 20921L    | 100 |

### UFLEX® - MONOFILAMENT POLYESTER BRAIDED SLEEVINGS FOR CABLES

- Temperature class: F
- Continuous working temperature rating: -50°C +155°C with peaks at +180°C
- Halogen free
- Flammability: self extinguishing
- Good mechanical resistance
- Excellent resistance to abrasion
- Good resistance to solvent
- Non watertight
- Very flexible
- Expansion ratio: from 1 to 2
- Use: hot cutting to avoid fraying
- Colour: black



#### APPLICATIONS



#### STANDARDS



- Compliant with RoHS 2002/95/CE specifications
- NF EN 60684-1 (10-2003)
- NF EN 60684-2 (01-1998) modified by NF EN 60684-2/A1 (12-2003), NF EN 60684-2/A2 (05/2006)
- NF EN 60684-3 sheets 340 to 342 (4-2003)

| NOMINAL INTERNAL DIAMETER | PART No. 1 m length | PART No. 10 m length | PART No. 20 m length | BULK PART No. 100 m length | ROLL WEIGHT Kg |
|---------------------------|---------------------|----------------------|----------------------|----------------------------|----------------|
| 10 mm (0.39")             | 23622S              | 24853T               | 24858D               | 68180N                     | 8,0            |
| 15 mm (0.59")             | 23623U              | 24854V               | 24859F               | 20540Y                     | 12,16          |
| 20 mm (0.78")             | 23624W              | 24855X               | 24863W               | 20542C                     | 17,8           |
| 25 mm (0.98")             | 23625Y              | 24856Z               | 24861S               | 20543E                     | 20,2           |
| 30 mm (1.18")             | 23626A              | 24857B               | 24862U               | 20544G                     | 27,0           |

# BEP



# CIRCUIT BREAKER PANELS



BEP Marine manufactures a wide range of control panels for any type and dimension of boats utilizing high quality products and components as, for instance, the certified AIRPAX® circuit breakers fitted in modern and elegant designed panels.

Panels are supplied standard with preassembled cables for an easy installation and equipped with back lit label sets and indication LED's.

Configurations available: 12V DC, 24V DC (please specify voltage requested on ordering to receive the correct back lit labels), 220V AC or voltage combination. All panels are available with Analog or Digital meters.

BEP AC Panels back covers are designed to insulate the exposed terminals at the rear of the AC panels. The back covers are made from flame retardant PVC.



## CUSTOM PANELS

BEP Marine manufactures a wide range of Custom panel sizes for OEM's. The Contour panel design allows for flexibility in layout. Although the panels shown in this catalogue are BEP Marine standard range, there are a number of changes that can be made to fit the needs of custom and production boatbuilders.

For example, a panel can be made up with eight circuit breakers, four systems in operation lights plus a meter; or a panel can consist of a mixture of analog and digital meters if required.

If the panel involves a total custom layout, as described above, a specific part number will be applied to that panel and quoted accordingly.

If the design is unable to be achieved we will notify the customer.



R158 - Back

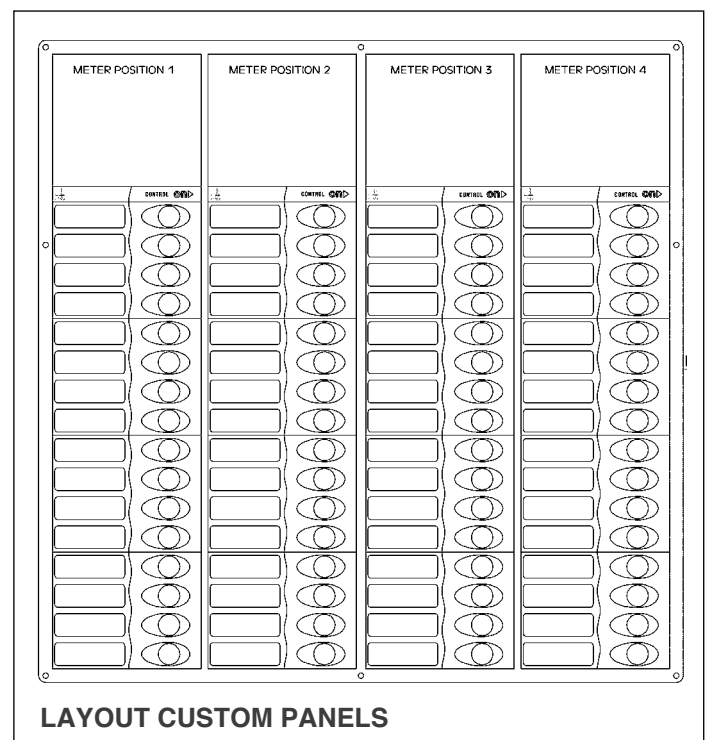
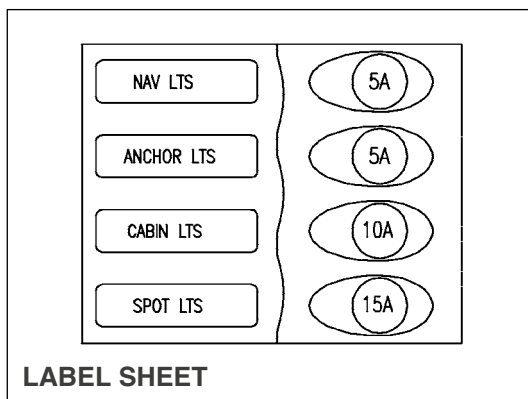
R158 - Front

Alternatively a customer may request a standard panel with circuit breakers laid out to their requirements with labels factory fitted: this involves a personalised layout charge.

When ordering personalised panels, please specify the desired label sets.

When ordering BEP Marine standard range panels or smaller size models, it may be useful to refer to the following layout panel template where you can fill in model and number of meters requested, circuit breaker rating (double pole for 220V AC) and label set.

Layout template available directly from Uflex or from BEP Marine website.





New Zealand has a world wide recognized success both in pleasure and sport boats field as developer of innovative quality boats and electrical products for the marine market. The success of BEP Marine has been brought about through world class campaigns by New Zealand boats and crews in events such as the One Ton Cup, Admirals Cup Sydney to Hobart race, Volvo round the World Race and more recently the America's Cup.

BEP Marine Ltd is actively involved in the research and development of new products as circuit panels, circuit breakers panels and accessories that will be installed in the most important boats all around the world.

BEP Marine is today the most innovative manufacturer of electrical products for the sport and commercial boats. Its product are today available in Italy through UFLEX.

### FEATURES

- Stylish Contour Design
- Red LED's for systems "ON"
- Green LED backlit labels
- 12V (24V Backlighting kit available)
- Cutout size: 10 mm (3/8") inside all external edges
- Depth for mounting 64 mm (2.5") all panels



900-DC



900-AM



901V



901V-DCSM



901H



902-AM & 902-DCSM



904NM



NC32Y-DCSM & NC32Y-AM



NC36L-DCSM



902NMH



903-DCSM

| MODEL      | PART No. | DIMENSIONS mm (")<br>H x W x D | CIRCUIT BREAKERS - SINGLE POLE |    |    |    |    |    | NEG BUS | VOLT   | METER    | LABEL SHEET |
|------------|----------|--------------------------------|--------------------------------|----|----|----|----|----|---------|--------|----------|-------------|
|            |          |                                | 5                              | 10 | 15 | 20 | 25 | 30 |         |        |          |             |
| 900-DC     | 63125C   | 115x127x65<br>(4.5x5.0x2.5)    | 1                              | 2  | 1  |    |    |    | 6 way   | 12V DC | N/D      | Set 1       |
| 900-AM     | 64363A   | 200x127x65<br>(7.8x5.0x2.5)    | 1                              | 2  | 1  |    |    |    | 6 way   | 12V DC | ANALOGIC | Set 1       |
| 901V       | 63126E   | 200x127x65<br>(7.9x5.0x2.5)    | 2                              | 2  | 3  | 1  |    |    | 6 way   | 12V DC | N/D      | Set 1       |
| 901V-DCSM  | 25139Z   | 295x127x65<br>(11.6x5.0x2.5)   | 2                              | 2  | 3  | 1  |    |    | 6 way   | 12V DC | DIGITAL  | Set 1       |
| 901H       | 63127G   | 115x239x65<br>(4.5x9.4x2.5)    | 2                              | 2  | 3  | 1  |    |    | 6 way   | 12V DC | N/D      | Set 1       |
| 902-AM     | 63128J   | 200x239x65<br>(7.8x9.4x2.5)    | 3                              | 4  | 4  |    | 1  |    | 6 way   | 12V DC | ANALOGIC | Set 1       |
| 902-DCSM   | 64365E   | 200x239x65<br>(7.8x9.4x2.5)    | 3                              | 4  | 4  |    | 1  |    | 6 way   | 12V DC | DIGITAL  | Set 1       |
| 902NMH     | 65538R   | 115x351x65<br>(4.5x13.9x2.5)   | 3                              | 4  | 4  |    | 1  |    | 6 way   | 12V DC | N/D      | Set 1       |
| 904NM      | 63129L   | 200x239x65<br>(7.8x9.4x2.5)    | 4                              | 5  | 5  | 1  | 1  |    | 12 way  | 12V DC | N/D      | Set 1       |
| 903-DCSM   | 22236F   | 200x351x65<br>(7.8x13.9x2.5)   | 5                              | 6  | 7  | 1  |    | 1  | 12 way  | 12V DC | DIGITAL  | Set 1       |
| NC32Y-DCSM | 63145J   | 380x351x65<br>(15x13.9x2.5)    | 7                              | 11 | 11 | 1  | 1  | 1  | 24 way  | 12V DC | DIGITAL  | Set 1-4, 6  |
| NC32Y-AM   | 66413Z   | 380x351x65<br>(15x13.9x2.5)    | 7                              | 11 | 11 | 1  | 1  | 1  | 24 way  | 12V DC | ANALOGIC | Set 1-4, 6  |
| NC36LD     | 63144G   | 380x351x65<br>(15x13.9x2.5)    | 8                              | 12 | 12 | 2  | 1  | 1  | 24 way  | 12V DC | DIGITAL  | Set 1-4, 6  |

# AC CIRCUIT BREAKER PANELS



900-ACM2W



900-ACCH



900-ACM6W



900-ACM2-AM



900-ACM6V-AM



900-AC2H-ACSM

## FEATURES

- All AC panels available in 110 V or 230 V options
- Double pole circuit breakers
- The panels are available with analog and digital meter.  
Models with digital meters show Volt, Amp and Frequency
- **NOTE:** All panels are supplied with label set 5.

| MODEL         | PART No. | DIMENSIONS mm ("")<br>H x W x D | SINGLE POLE |    |    |    |    |    | DOUBLE POLE |    |    |    | METER     | LABEL SHEET |          |       |
|---------------|----------|---------------------------------|-------------|----|----|----|----|----|-------------|----|----|----|-----------|-------------|----------|-------|
|               |          |                                 | 5           | 10 | 15 | 20 | 25 | 30 | 20          | 25 | 30 | 50 |           |             |          |       |
| 900-ACM2W     | 64517B   | 115X127X65<br>(4.5X5.0X2.5)     |             | 2  |    |    |    |    |             | 1  |    |    | IS-6 mm-2 | 230 V       | N/D      | Set 5 |
| 900-ACCH      | 68859D   | 115X127X65<br>(4.5X5.0X2.5)     |             |    | 2  |    |    |    |             |    |    |    | IS-6 mm-2 | 230 V       | N/D      | Set 5 |
| 900-ACM6W     | 63131X   | 115X127X65<br>(4.5X5.0X2.5)     |             | 2  | 3  | 1  |    |    |             | 1  |    |    | IS-6 mm-2 | 230 V       | N/D      | Set 5 |
| 900-ACM2-AM   | 20861V   | 200X127X65<br>(7.9X5.0X2.5)     |             | 2  |    |    |    |    |             | 1  |    |    | IS-6 mm-2 | 230 V       | ANALOGIC | Set 5 |
| 900-ACM6V-AM  | 20862X   | 295X127X65<br>(11.6X5.0X2.5)    |             | 2  | 3  | 1  |    |    |             | 1  |    |    | IS-6 mm-2 | 230 V       | ANALOGIC | Set 5 |
| 900-AC2H-ACSM | 20863Z   | 200X239X65<br>(7.9X9.75X2.5)    | 1           | 3  | 3  | 1  |    |    |             | 1  |    | 1  | 2x6 way   | 230 V       | DIGITAL  | Set 5 |

## CIRCUIT BREAKERS PANELS LABEL SETS

| ACCESSORIES   | BAIT TANK PUMP  | AFT DECK LIGHT   | BILGE ALARM   | AC MAINS  | ACCESSORIES  |
|---|---|--|---|---|--|
| <b>Set 1N</b><br>63254P   | <b>Set 2N</b><br>63255S   | <b>Set 3N</b><br>63256U  | <b>Set 4N</b><br>63257W   | <b>Set 5N</b><br>63258Y   | <b>Set 6N</b><br>63259A  |
| Accessories<br>Auto Pilot<br>Bilge Pumps<br>Cabin Lights<br>Cabin Lights<br>Cockpit Lights<br>Compass Lights<br>DC Outlets<br>Depth Sounder<br>Freezer<br>Freshwater Pump<br>GPS<br>Instruments<br>LPG Control<br>Mast Light<br>Navigation Light<br>Riding Light<br>Saltwater Pump<br>Shower Drain Pump<br>Spare<br>Spreader Light<br>Spotlight<br>Stereo<br>Trim Tabs<br>VHF<br>Winch<br>Wiper | Bait Tank Pump<br>Bilge Pump Aft<br>Bilge Pump Forward<br>Bilge Pump Mid<br>Bilge Pump Port<br>Bilge Pump STBD<br>Blower<br>Boarding Light<br>Cabin Lights Aft<br>Cabin Lights Mid<br>Cabin Lights Port<br>Cabin Lights STBD<br>Deck Wash Pump<br>Electric Toilet<br>Engine room Lights<br>Fridge<br>Horn<br>Nav Lts Port<br>Nav Lts STBD<br>Panel Lights<br>Radar<br>Saloon Lights<br>SSB<br>Start<br>Stern Lights<br>Stop<br>Sum Log<br>Tri Light | AFT Deck Light<br>Bilge Auto Man<br>Bow Lights<br>Docking Lights<br>Emergency Parallel<br>Engine Alarm<br>Engine Blowers<br>Extraction Fan<br>Floodlights<br>Fore Deck Light<br>Holding Tank Pump<br>House Batteries<br>Lazerette Light<br>Port<br>Radio Battery<br>Toilet LT<br>Search Light<br>Spare<br>Galley LT<br>Starboard<br>Start Batteries<br>Step Light<br>Strobe Light<br>Weather Fax<br>Window Washers<br>Windex Light<br>12v Outlets<br>24v Outlets | 1,2,3,4,5<br>6,7,8,9,10,<br>Bilge Alarm<br>Davit Winch<br>Engine ALT<br>Fire System<br>Fish Finder<br>Fishing Light<br>House ALT<br>Intercom<br>Load<br>Locker Light<br>Tank Room Lights<br>Mid Wiper<br>Mlzzen Spar Light<br>Plotter<br>Port Wiper<br>Preheat<br>Sole Light<br>Heater Fan<br>Spare<br>Spare<br>Starboard Wiper<br>Start<br>Stop<br>Sub Main<br>Sump Pump<br>Towing Light | AC Mains<br>AC Outlets<br>AC Outlets<br>AC Outlets<br>Air Conditioning<br>Battery Changer<br>Cook Top<br>Dive Comp<br>Dryer<br>Frequency<br>Genset<br>Hotwater Cylinder<br>Ice Maker<br>Inverter<br>Refrigeration<br>Microwave<br>Oven<br>Reverse Polarity<br>Ships Power<br>Shore Power<br>Trash Compactor<br>TV<br>Video<br>Washing Machine<br>Wastemaster<br>Water Maker<br>230v AC<br>110v AC | Accessories<br>AC Mains<br>Anchor Wash<br>Automatic<br>Autopilot<br>Auxiliary<br>Bilge Auto-Manual<br>Bilge Lights<br>Book Furl<br>Bridge Lights<br>Burglar Alarm<br>CB Radio<br>Cell Phone<br>Computer<br>DC Mains<br>Fuel Transfer<br>Cabin Fan<br>Hatch Controls<br>Hydraulics<br>Loud Hailer<br>Macerator<br>Manual<br>Night Lights<br>Pelmet Lights<br>Solar Panel<br>Galley Fan<br>Spare<br>TV Antenna |

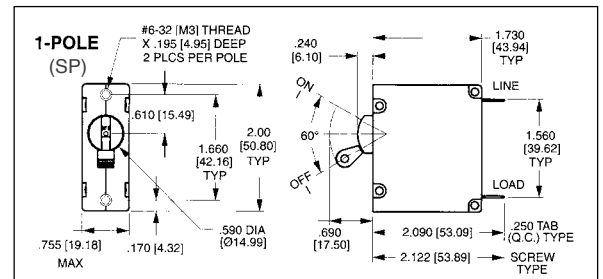
## AIRPAX® IEG

B Series circuit breakers Carlingswitch magnetic circuit breakers are current sensing devices employing a time proven hydraulic magnetic design. These precision mechanisms are temperature stable and are not adversely affected by temperature changes in their operating environment. As such, derating consideration due to temperature variations are not normally required and heat induced nuisance tripping is avoided

### FEATURES

- Trip free mechanism, a safety feature which makes it possible to manually hold the contacts closed during overcurrent or fault condition
- Certifications: UL1077/CSA C22.2 – No 235 / EN60947 – 2 & EN60934
- Common trip linkage between all poles. Another safety feature ensures that an overload in one pole will trip all adjacent poles.

| SINGLE POLE PART No.    | DOUBLE POLE PART No. | TRIPLE POLE PART No. |
|-------------------------|----------------------|----------------------|
| CBS 2.5A - SP 63260J    | -                    | -                    |
| CBS 5A - SP 63261L      | -                    | -                    |
| -                       | CBS 10A - DP 63265V  | -                    |
| CBS 15A - SP 63146L     | CBS 15A - DP 63151D  | -                    |
| CBS 20A - SP 63147N     | CBS 20A - DP 63152F  | -                    |
| CBS 25A - SP 63148R     | -                    | -                    |
| CBS 30A - SP 63149T     | -                    | CBS 30A - TP 63266X  |
| CBS 40A - SP 63150B     | -                    | -                    |
| CBS 50A - SP-IGP 63263R | -                    | -                    |



## BUSSMANN

Single pole thermal type breakers

### FEATURES

- Ratings: 50Amp to 150Amp; 30V DC; 3000Amp Interrupt Capacity
- Operating temperature: -32°C to 82°C
- Storage temperature: -32°C to 150°C
- Applications: Typically used in auxiliary and accessory circuits - trucks, buses, RV's and marine applications. Others might include battery charges and DC audio systems. Series 184 and 185 are sealed for engine compartment and bilge area applications.
- Mounting: Panel or surface
- Indicator: series 184 and 185 have a unique reset mechanism which provides visible indication of tripped condition.
- Approvals: complies with SAE J 1625, J1171 and UL1500 (Ignition Protected)



### MANUAL RESET

| MODEL         | PART No. | RATING | SURFACE | PANNEL |
|---------------|----------|--------|---------|--------|
| 184 050P-01-1 | 65382K   | 50     | -       | X      |
| 184 060P-01-1 | 65383M   | 60     | -       | X      |
| 184 100F-01-1 | 63160E   | 100    | X       | -      |
| 184 100P-01-1 | 63162J   | 100    | -       | X      |
| 184 150F-01-1 | 63161G   | 150    | X       | -      |
| 184 150P-01-1 | 63163L   | 150    | -       | X      |

### SWITCHABLE RESET

| MODEL         | PART No. | RATING | SURFACE | PANNEL |
|---------------|----------|--------|---------|--------|
| 185 050P-01-1 | 63927S   | 50     | -       | X      |
| 185 070P-01-1 | 65385S   | 70     | -       | X      |
| 185 080P-01-1 | 63928U   | 80     | -       | X      |
| 185 100P-01-1 | 63166T   | 100    | -       | X      |
| 185 120P-01-1 | 23602K   | 120    | -       | X      |
| 185 135P-01-1 | 23603M   | 135    | -       | X      |
| 185 150P-01-1 | 23604P   | 150    | -       | X      |

Also available in FM version

# SPRAY PROOF SWITCH PANELS – 900 SERIES



The 900 series panels have the same dimensions as the previous series and are therefore easily replaceable.

Switches clip easily into rear of panel and can be removed to replace with different function switches eg. on/on, on/off/on, off/on and (on)off(on)



Custom designed toggle cover with unique sealing feature

900-5WPS



900-2WPOFO



900-2WP



900-2WPMOM



900-3WPSW



900-4WP



900-6WP

## SPECIFICATIONS

| MODEL      | PART No. | COLOUR | DIMENSIONS mm (")<br>H x W x D | LABEL SHEET          | SWITCHES      |
|------------|----------|--------|--------------------------------|----------------------|---------------|
| 900-2WPOFO | 63135F   | BLACK  | 86x58x28<br>(3.4x2.3x1.2)      | LBL-WP               | 2             |
| 900-2WP    | 63133B   | BLACK  | 86x58x28<br>(3.4x2.3x1.2)      | LBL-MIC1<br>LBL-MIC2 | 2             |
| 900-2WPMOM | 63134D   | BLACK  | 86x58x28<br>(3.4x2.3x1.2)      | LBL-MICSYM           | 2             |
| 900-3WPS   | 64401F   | BLACK  | 95x107x75<br>(3.75x4.25x2.9)   | LBL-WP               | 3 + DC socket |
| 900-3WPSW  | 64405P   | WHITE  | 95x107x75<br>(3.75x4.25x2.9)   | LBL-WP               | 3 + DC socket |
| 900-4WP    | 63139P   | BLACK  | 95x107x75<br>(3.75x4.25x2.9)   | LBL-WP               | 4             |
| 900-5WPS   | 64402H   | BLACK  | 95x107x75<br>(3.75x4.25x2.9)   | LBL-WP               | 5 + DC socket |
| 900-6WP    | 63140Y   | BLACK  | 95x107x75<br>(3.75x4.25x2.9)   | LBL-WP               | 6             |

## LABEL SHEET

| LBL - WP - 63252K                    |        |
|--------------------------------------|--------|
| LBL - MIC1 - 63136H                  |        |
| LBL - MIC2 - 63137K                  |        |
| LBL - MICSYM - 63138M                |        |
| ATM FUSES ARE SUPPLIED IN PACKS OF 2 |        |
| PART No                              | RATING |
| 66520A                               | 5 A    |
| 66521C                               | 10 A   |
| 66522E                               | 15 A   |
| 66523G                               | 20 A   |
| 66524J                               | 30 A   |

The CSP6 panel range comes in 3 models. All models are back lit.

**CSP6** Includes six switches unfused for installation where separate fused supply is available.

**CSP6-F** Includes six switches and 3 **WAFH14** fuse holders with fuses behind panel.

**CSP6-PTC** This panel utilises the latest technology in overload protection – Positive Temperature Coefficient (PTC). PTC fuses are solid state resettable fuses which will change to a high resistance device on over-current. To reset: Switch circuit off for 10 seconds.

If fault remains the PTC will trip back to a resistive state. The panel is supplied with 6 x 9A PTC fuses mounted internally.

No more changing fuses!

All CSP6 models are supplied with label back lit sheet set



CSP6

### FEATURES

- Switches protected by high quality neoprene rubber boots
- Green LED backlit labels
- Red LED's for system "ON"
- Waterproof to IP56 rating
- Removable cover plate over switches conceals screws and water drain
- Switch current ratings 20 Amp DC, 10 Amp AC
- Charcoal colour

### Set - 1SP

63253M

<Anc.Light Nav.Lts>  
 Accessories  
 Aerator  
 Anchor Lights  
 Autopilot  
 Bait Tank Pump  
 Bilge Pump  
 Bilge Pump Auto/Man  
 Blower  
 Cabin Lights  
 Cockpit Lights  
 DC Outlets  
 Deck Wash  
 Depth Sounder  
 Flood Lights  
 Freshwater Pump  
 Fridge  
 Horn  
 Inst. Lights  
 Instruments  
 Navigation Lights  
 Trim Tabs  
 Radio  
 Saltwater Pump  
 Spot Lights  
 Winch  
 Wiper

| MODEL    | PART No. | DIMENSIONS mm (")<br>H x W x D | SET LABEL SHEET | FUSES | PTC |
|----------|----------|--------------------------------|-----------------|-------|-----|
| CSP6     | 64375H   | 158x112x65<br>(6.2x4.4x2.5)    | SET-1SP         | NO    | NO  |
| CSP6-F   | 64376K   | 158x112x65<br>(6.2x4.4x2.5)    | SET-1SP         | 3     | NO  |
| CSP6-PTC | 63141A   | 158x112x65<br>(6.2x4.4x2.5)    | SET-1SP         | NO    | 6   |

### SPARE PARTS FOR SPRAY PROOF PANELS

- **WAFH-14** - 63537C Waterproof fuse holder
- **SW-M331** - 64404M Splash proof cover



# CONTOUR G2 SERIES SPRAY PROOF PANELS



The Generation 2 spray proof range offers unique styling utilising the latest techniques in injection moulding. The switch tray is moulded plastic with a rubber gasket and seal moulded into the plastic. The cover is moulded in a clear plastic with a rubber over-mould allowing the flexibility to operate the switches through the front of the panel while providing a clear window for label backlighting. Panels available in black or white colour with charcoal or blue strips. When ordering white add "W" on the end of black colour model. G2 can be mounted vertically or horizontally and is available in 2, 4 and 6 way configurations. A joiner is available for multiple panel installations. Supplied complete with on/off switches.



CG2-2W



CG2-4W



CG2-4W-W



CG2-2W-W



CG2-6W



CG2-6W-W

Joiner available for linking multiple panels



CG2-JB  
64403K

| MODEL    | PART No. | SWITCHES | FUSE | LABEL SHEET  |
|----------|----------|----------|------|--------------|
| CG2-2W   | 64366G   | 2        | No   | Set - G2 - 1 |
| CG2-2W-W | 64591P   | 2        | No   | Set - G2 - 1 |
| CG2-2W-F | 64367J   | 2        | 1    | Set - G2 - 1 |
| CG2-4W   | 64368L   | 4        | No   | Set - G2 - 1 |
| CG2-4W-W | 64542A   | 4        | No   | Set - G2 - 1 |
| CG2-4W-F | 64369N   | 4        | 2    | Set - G2 - 1 |
| CG2-6W   | 64370X   | 6        | No   | Set - G2 - 1 |
| CG2-6W-W | 64543C   | 6        | No   | Set - G2 - 1 |
| CG2-6W-F | 64371Z   | 6        | 3    | Set - G2 - 1 |

## LABEL SET FOR G2 SPRAY PROOF PANELS

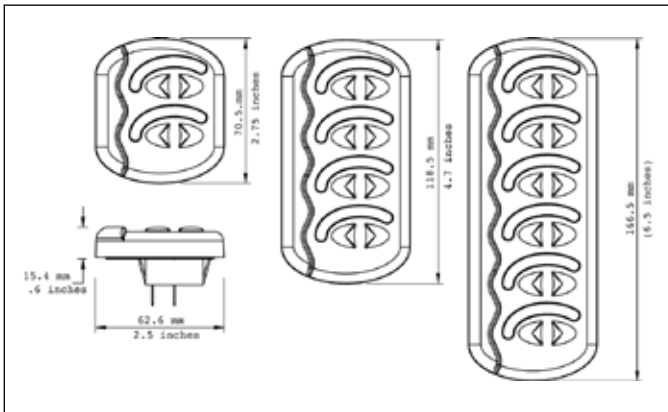
### LABEL SET SET - G2 - 2 64374F

B/Pump Port  
B/Pump Stbd  
B/Pump Fwd  
B/Pump Mid  
B/Pump Aft  
B/Pump Eng Rm  
Compass Lt  
Deck Lts  
Steaming Lt  
Nav Lts Pt  
Nav Lts Stbd  
Step Lts  
Stern Lt  
Wiper Pt  
Wiper Mid  
Wiper Stbd  
Washers  
Freezer  
H/Tank Pump  
Sump Pump  
Locker Lts  
Panel Lts  
Tri Lt  
Bow Lts  
Shower Lt  
Shower Pump  
Spare  
Spare

**NOTE:** Label set G2-2 optional, to be ordered separately.



**CG2-4W**



Switch rated for 16 Amp



**SW-CG1**

| MODEL  | PART No. | SPARE SWITCH FOR G2 PANELS    |
|--------|----------|-------------------------------|
| SW-CG1 | 64372B   | ON/OFF                        |
| SW-CG2 | 64750H   | MOMENTARY ON/OFF              |
| SW-CG3 | 64751K   | ON/OFF/ON                     |
| SW-CG4 | 64752M   | MOMENTARY ON/OFF/MOMENTARY ON |

## CONTOUR 1100 SERIES SWITCHES

The Contour Interior switch can be either surface or recess mounted. The interior series is supplied standard with a three terminal on/on switch which can be used for ON/OFF circuits or two way light installations. For applications, eg: shower drain pumps or electric toilets, momentary switches can be interchanged into the switch plate. Switches can be turned 90° for horizontal mounting, and all are current rated at 10A DC. All switches include a label set.

| MODEL   | PART No. | AMP  | SINGLE/DUAL | DIMENSIONS LxWxH mm ("")           |
|---------|----------|------|-------------|------------------------------------|
| 1100-BK | 63666P   | 10 A | Single      | 60 x 30 x 18<br>(2.4 x 1.2 x 0.75) |
| 1101-BK | 63668U   | 10 A | Dual        | 91 x 30 x 18<br>(3.6 x 1.2 x 0.75) |



### REPLACEMENT

SW-6064B3P - 20866F - ON/ON - ON/OFF switch (supplied as standard)

# 1000 SERIES CONTROL PANEL

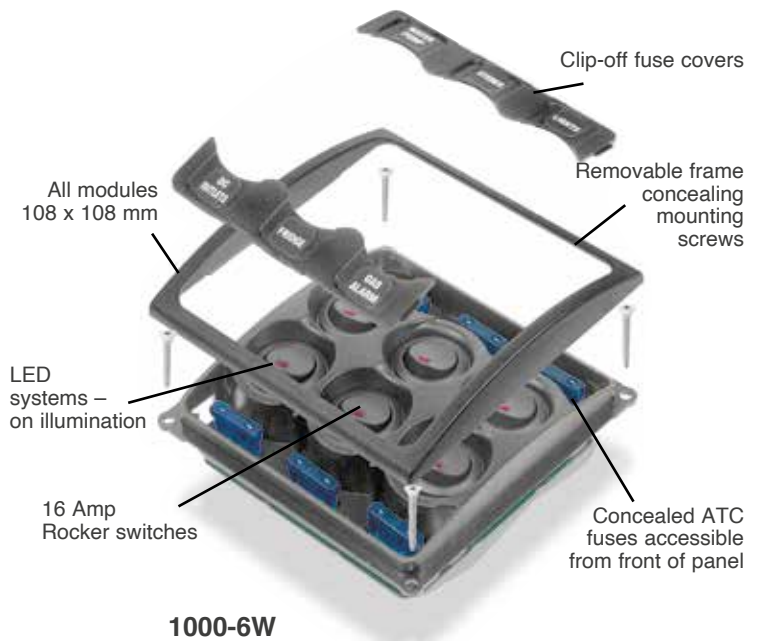


The 1000 Series control panels are offered for interior use on smaller sail boats or cruises.

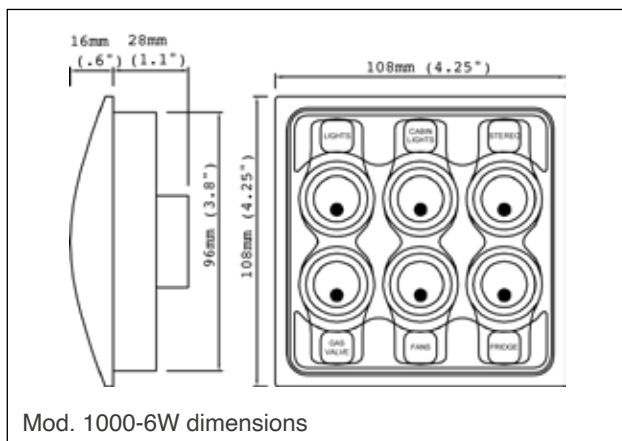
- The ATC fuses are easily accessible from the front of the unit.
- The range is fully modular allowing it to be mounted in a vertical or horizontal configuration.

## FEATURES

- Supplied with ATC fuses accessible from front cover
- Square dimensions allow for modular mounting
- Supplied with label sheet part no. SET-1000
- Systems – on LED on each switch
- Matching trim conceals mounting screws
- An On/Off/Momentary switch is available for horn operation. Ordered separately Part No. SW-RVS2 - 65380F
- Max load: 50A



| MODEL       | PART No. | SWITCHES | FUSES | VOLT   |
|-------------|----------|----------|-------|--------|
| 1000-6W-12V | 64379S   | 6        | 6     | 12V DC |
| 1000-6W-24V | 24926U   | 6        | 6     | 24V DC |



## LABEL SHEETS FOR 1000 SERIES CONTROL PANEL

### Included



SET-1000 - 64383G

### Ordered separately



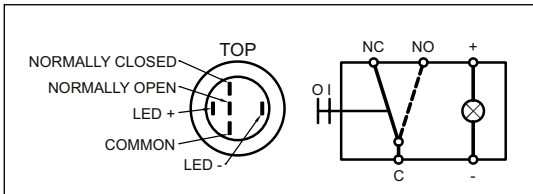
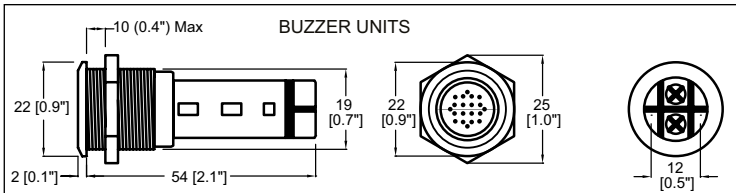
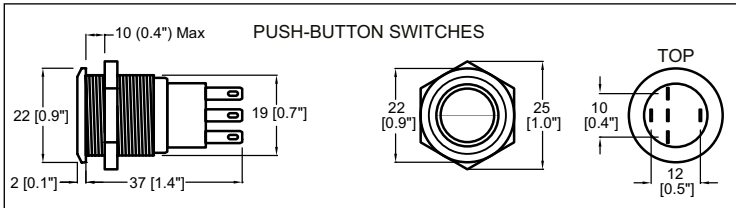
SET-1002 - 64384J



New push-button Switches & Buzzers are built to last with their stainless steel components and silver alloy contacts. The through panel mount switches are ideal for lighting, switch, or dash panels, with colored rings that can be wired to either display power to the system or switch back lighting. The product line includes both switches and warning buzzers with LED light rings.

### FEATURES & BENEFITS

- Maximum switch current rating 5 amps
- IP67 environmental protection switches
- IP50 environmental protection buzzers
- 80 decibel buzzer sound intensity
- Warning buzzers flash red on alarm



| MODEL 12V      | PART No. | DESCRIPTION        | COLOUR |
|----------------|----------|--------------------|--------|
| 80-511-0001-00 | 20872A   | ON/OFF             | Red    |
| 80-511-0003-00 | 20873C   | ON/OFF             | Blue   |
| 80-511-0002-00 | 20874E   | Momentary (ON)/OFF | Red    |
| 80-511-0004-00 | 20875G   | Momentary (ON)/OFF | Blue   |
| 80-511-0009-00 | 20876J   | Buzzer             | Red    |
| 80-511-0012-01 | 24927W   | Momentary (ON)/OFF | Green  |

| MODEL 24V      | PART No. | DESCRIPTION        | COLOUR |
|----------------|----------|--------------------|--------|
| 80-511-0005-00 | 20877L   | ON/OFF             | Red    |
| 80-511-0007-00 | 20878N   | ON/OFF             | Blue   |
| 80-511-0006-00 | 20922N   | Momentary (ON)/OFF | Red    |
| 80-511-0008-00 | 20923R   | Momentary (ON)/OFF | Blue   |
| 80-511-0010-00 | 20924T   | Buzzer             | Red    |

### CONNECTION CABLE

This 300 mm (12") cable simply pushes onto the back of the push button switches and features 0.8 mm<sup>2</sup> / 18 g cables for switch and backlight connections that comply with ISO/ABYC. Other end is stripped wire for easy connection.

80-511-0031-00 - 21652R



## BEP MARINE BATTERY SWITCH TEST PROCEDURES (UL 1107)

Continuous (1 hour) intermittent (5 minutes) and cranking (engine starting – 10 seconds). The test is to determine the maximum current the switch can handle for the stated time, without the rear terminals exceeding 100°C above the ambient temperature. The continuous and intermittent ratings are tested at 110% of specified ratings. All BEP switches are tested independently to this specification by a 3rd party laboratory.

## 701 BATTERY SWITCH - 63142C

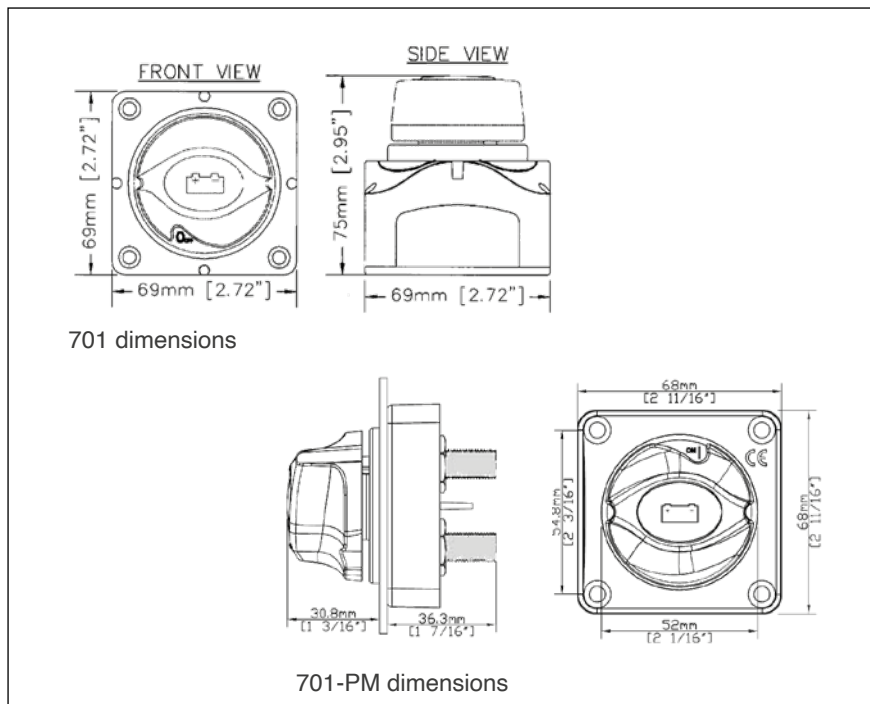
The 701 Contour Battery Master Switch offers a number of unique features. The highlights being the patented contour lock system, allowing it to be a stand alone unit, or locked together with other switches. The 701 also features a control knob which cannot be removed whilst in the On or OFF position, however can be removed by switching to an anti-clockwise 45° position. The control knob also features an interchangeable labelling system allowing a full range of applications (Set 715-713). The 701 also features removable side plates on 4 sides for access of up to 1/0 cables. Plus a rear cover insulating the rear terminals against any short circuits ensuring the switch meets ABYC requirements. The 701 can be either surface or recess mounted by cutting a 52 mm (2 1/16") hole.

## FEATURES

- Continuous rating: 275 Amp DC
- Intermittent rating: 455 Amp DC
- Cranking rating: 1250 Amp DC
- Voltage rating: 48V DC
- Operation: ON/OFF
- Mounting: recessed or surface
- Termination stud size: 2 x 10 mm (3/8")
- Dimensions: 69 x 69 x 75h mm (2.75 x 2.75 x 3h inches)
- Tin plated copper studs and nuts
- Ignition protected

## 701-PM PANEL MOUNT BATTERY SWITCHES - 65494X

Same specifications as 701 switch



701-KEY  
- 63930E  
Spare Part  
Removable knob

701

Standard BEP  
interchangeable  
label system

Countersunk  
recess for  
surface mount  
application



701 - PM

Removable  
key

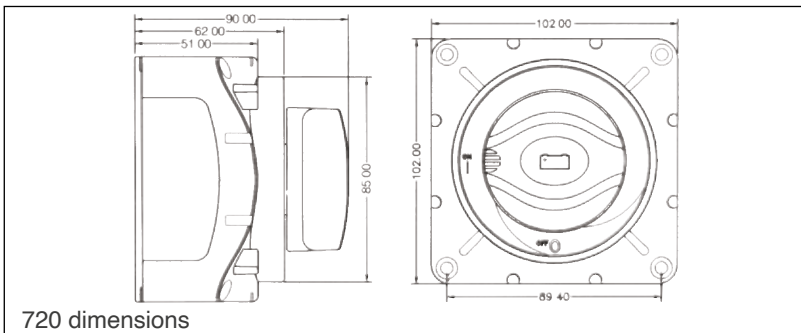
Standard  
52,4 mm (2 1/16")  
hole cut out

## 720 HEAVY DUTY BATTERY SWITCH - 63174S

The 720 Heavy Duty Battery Switch fits into the same contour lock system as used on the battery distribution system. Rated at 600 Amp continuous and 2500 Amp cranking. It is well suited to larger vessels. As with the 701 and 720 can be recessed or surface mounted. The 720 uses the same style of self cleaning sliding contact as used in the 701. Also utilises the same label sheet as 701 (Set-715).

### FEATURES

- Continuous rating: 600 Amp DC
- Intermittent rating: 800 Amp DC
- Cranking rating: 2500 Amp DC
- Voltage rating: 48V DC
- Operation: ON/OFF
- Mounting: recessed or surface
- Termination stud size: 2 x 12 mm (1/2")
- Dimensions: 102 x 102 x 90h mm (4 x 4 x 3.5h inches)
- Tin plated copper studs and nuts
- Ignition protected
- Available in bulk only

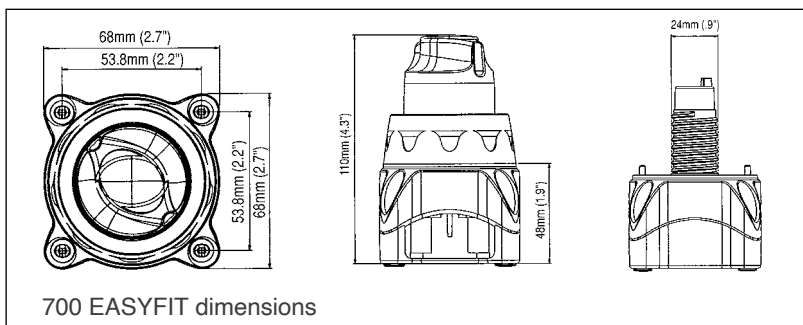


## 700 EASYFIT BATTERY SWITCH - 63672 J

The 700 Easyfit is ideal on those installations where switches need to be recessed through varying thickness of panels. 700 Easyfit features an easily removable threaded ring allowing for panel thickness up to 19 mm (3/4"). It uses the same features as the 701 with the removable key 45° past the off position.

### FEATURES

- Continuous rating: 275 Amp DC
- Intermittent rating: 455 Amp DC
- Cranking rating: 1250 Amp DC
- Voltage rating: 48V DC
- Operation: ON/OFF
- Mounting: recessed or surface
- Termination stud size: 2 x 10 mm (3/8")
- Tin plated copper studs and nuts
- Ignition protected



# BATTERY DISTRIBUTION SWITCHES



## 701-S MINI BATTERY SELECTOR SWITCH - 64387R

The 701-S is the most compact selector switch available on the market. Housed in the same dimensions as the 701 and includes the same removable side plates and back cover.

**Please note this system will not separate electronics from harmful engine starting spikes.**

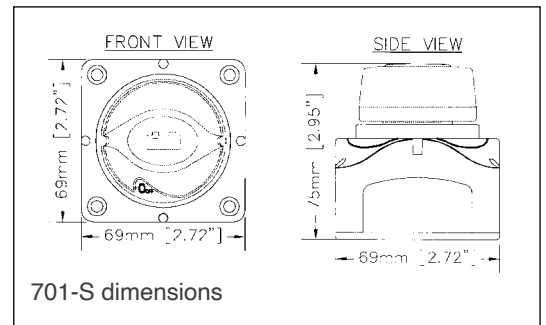
### FEATURES

- Continuous rating: 200 Amp DC
- Intermittent rating: 300 Amp DC
- Cranking rating: 1000 Amp DC
- Voltage rating: 48V DC
- Operation: Selector 1-2-both-off
- Mounting: recessed or surface
- Termination stud size: 3 x 8 mm (5/16")
- Dimensions: 69 x 69 x 75h mm (2.75 x 2.75 x 3h inches)
- Tin plated copper studs and nuts



701-S

Recessed hole cut out 52 mm (2.1")



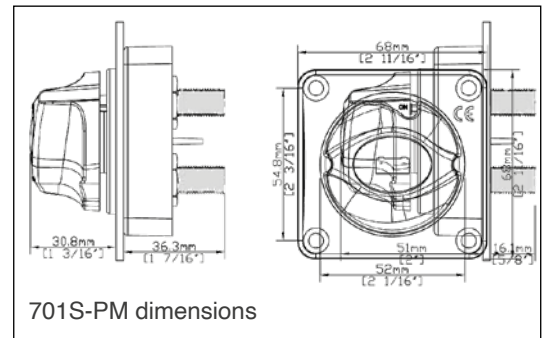
## 701S-PM Panel mount battery switches - 66163C

Same specifications as 701S switch



Countersunk recess for surface mount application

Standard 52,4 mm (2 1/16") hole cut out



## SELETTORE PER BATTERIE 721 - 63143E

The 721 is our heavy duty selector switch, housed in the same module as the 720 and includes the same removable plates and back cover. **Please note this system will not separate electronics from harmful engine starting spikes.**

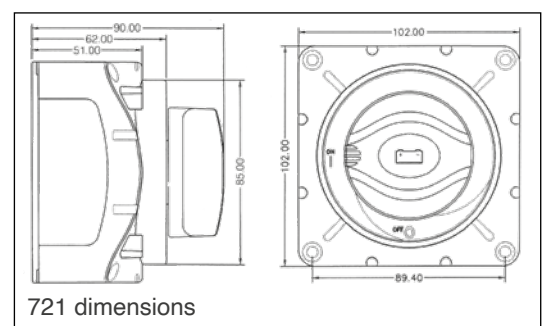
### FEATURES

- Continuous rating: 600 Amp Dc
- Intermittent rating: 800 Amp DC
- Cranking rating: 2500 Amp DC
- Voltage rating: 48V DC
- Operation: Selector – Battery 1-2-both off
- Mounting: recessed or surface
- Termination stud size: 3 x 12 mm (1/2")
- Dimensions: 102 x 102 x 90h mm (4 x 4 x 3.5h inches)
- Tin plated copper studs and nuts
- Ignition protected



721

Recessed hole cut out 85 mm (3.3")



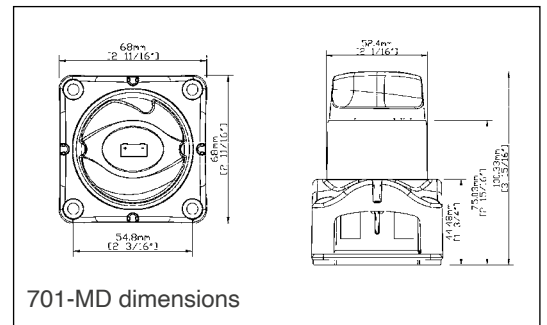
Due to the increased loading requirements on modern boats and large increases in the cost of copper battery cable, the MD range of battery switches allows you to mount the battery switch very close to the battery, reducing cable lengths to starter motor. They are also ideal for remote isolation of bow thrusters.

### MD SERIES FEATURES

- Remote operation (easier access for battery control).
- Battery switch can be mounted alongside battery, reducing cable lengths and battery cable (large cost saving in copper cable).
- Reduced labour for fitting, due to shorter battery cabling.
- Manual override option to meet CE requirements.
- LED status identification for remote control switch.
- Same capacity/specification and mounting options as standard BEP battery switches.
- Utilize same interchangeable labelling system as BEP battery switches.



701-MD



### 701-MD SPECIFICATIONS - 66026S

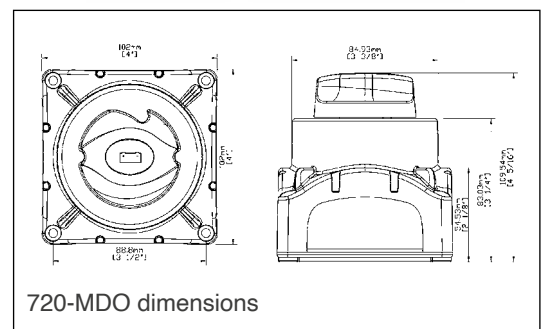
- Continuous rating: 275 Amp DC
- Intermittent rating: 455 Amp DC
- Cranking rating: 1250 Amp DC
- Voltage rating: 9,5 – 32 Volt
- Operation: On / Off
- Mounting: recessed or surface
- Ignition protected
- Stud size: 2 x 10 mm (3/8")
- Tin plated copper studs and nuts

### 720-MDO SPECIFICATIONS - 66027U

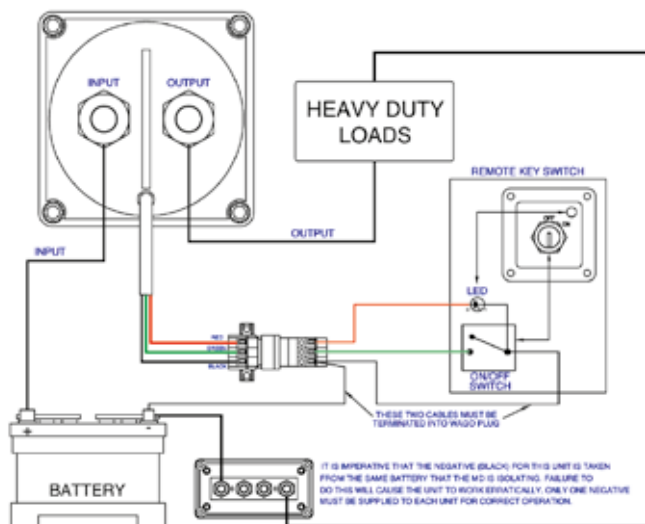
- Continuous rating: 500 Amp DC
- Intermittent rating: 700 Amp DC
- Cranking rating: 2500 Amp DC
- Voltage rating: 9,5 – 32 Volt
- Operation: On / Off
- Mounting: recessed or surface
- Ignition protected
- Stud size: 2 x 12 mm (1/2")
- Tin plated copper studs and nuts



720-MDO



### WIRING DIAGRAM



### Optical sensor benefits (720-MDO only)

- Can be used to switch in positive or negative lines
- Low stand by current draw (5mA).
- Main contacts isolated from control circuit allowing operation via another battery source

# WIRELESS REMOTE CONTROL AND RECEIVER TO OPERATE BATTERY SWITCHES



You can now wire your Battery to the BEP receiver and operate the On/Off switch by remote control, from a distance of up to 50 metres away

- You can control up to 4 separate 5 Amp circuits, eg. 701/720-MD battery switches, anchor light, navigation lights and courtesy lights
- No more lifting hatches to turn on battery switches – it is now all controlled from your remote keyfob
- Control battery switches easily (On/Off) from the dock or carpark
- The remote has a rolling code, for your security



**80-911-0045-00** - 66951E - Wireless remote control

## REPLACING KNOBS FOR 701 SWITCHES

**701-KEY-EP** – 67866V replacing knob  
**701-KEY** – 63930E replacing knob

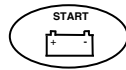
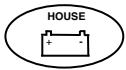


**701-KEY-EP**  
67866V

**701-KEY**  
63930E

## LABEL SET FOR BATTERY DISTRIBUTION SWITCHES

**Set - 715** - 64389V - Set 715 contains the three most commonly requested labels



## TERMINAL LINK KITS (TLK'S)

Available for the 701 and 720 size battery switches, the TLK's allow for cable connections to be made outside of the body of the switches.

**80-708-0017-00** - 67996J - for 701-MD  
**80-708-0013-00** - 66843B - for 720-MDO



## BATTERY SWITCH CONTROL CENTER (BCC)

Sophisticated electrical systems need reliable automation. It is possible to centralize power handling with BEP Battery Control Center (BCC) that can control all battery switches from one convenient position.



**80-700-0051-00**

## FEATURES

- The BCC is equipped with locks that ensures group operation at the turn of the key. Any switch can be isolated by disengaging its lock and toggling the switch off
- Isolate each battery via key switch or designated battery banks via breaker.
- LED Status indicators for battery switch status.

| MODEL                 | PART No. | DESCRIPTION          |
|-----------------------|----------|----------------------|
| <b>80-700-0050-00</b> | 68857Z   | Single engine remote |
| <b>80-700-0051-00</b> | 67405F   | Dual engine remote   |
| <b>80-700-0052-00</b> | 68858B   | Triple engine remote |

## REMOTE ON/OFF KEY SWITCH

The remote On/Off key switch is used for the remote operation of the 701-MD and 720-MDO battery switches. It can be mounted standalone or within the Contour Connect panel range.

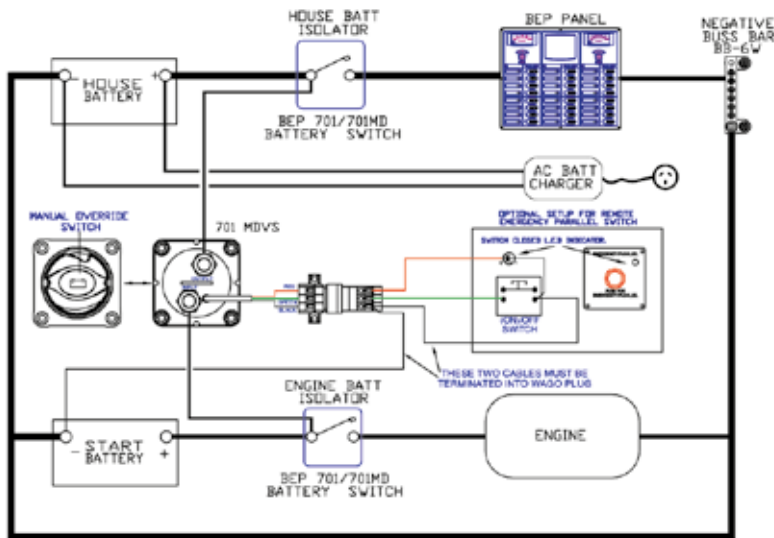
**80-724-0006-00** – 21651N



**80-724-0006-00**

### REMOTE OPERATED WITH EMERGENCY PARALLEL

The VSS switch utilizes the same operation as the MD battery switches and is packed with features which compliment the MD range.



IT IS IMPERATIVE THAT THE NEGATIVE (BLACK) FOR THE MD/MDVS IS TAKEN FROM THE SAME BATTERY THAT IT IS ISOLATING. FAILURE TO DO THIS WILL CAUSE THE UNIT TO WORK ERRATICALLY. ONLY ONE NEGATIVE MUST BE SUPPLIED TO EACH UNIT FOR CORRECT OPERATION.



**701-MDVS**  
and 80-701-0018-00  
Same specifications  
as 701-MD

### FEATURES

- Dual battery sensing
- Remote emergency parallel function 701-MDVS and 720-MDVSO can be operated through a momentary button on the dash which will parallel the batteries for a present time of 10 minutes. Once this 10 minutes has passed, if the voltage is up high enough for the voltage sensitive switch to operate, it will stay engaged. If not, it will discharge.
- Engine run sensing VSS will engage when the voltage on either start or house battery reaches 13,7 Volt. If the combined battery voltage drops below 13,0 Volt and the engine is not running, after 5 seconds the contacts will open and stay open until the start or house battery voltage exceeds 13,7 Volt. If the combined battery voltage drops below 12,2 Volt and the engine is running, after 5 minutes the contacts will open and stay open until the start or house battery voltage exceeds 13,7 Volt. If voltage drops below 13,0 Volt and stays above 12,2 Volt on either start or house battery while engine is running, the VSS will stay engaged.
- Manual override option
- The VSS will cover your dual battery charging requirements and emergency parallel operation in one unit



**720-MDVSO**  
and 720-MDO-EP  
Same specifications  
as 720-MD

| MODEL          | PART No. | VOLT      | RATING | ENGAGES                 | DISENGAGES     |
|----------------|----------|-----------|--------|-------------------------|----------------|
| 701-MDVS       | 66416F   | 12V DC    | 275A   | 13.7V DC                | 12.2-13.00V DC |
| 701-MDVS-24V   | 66418K   | 24V DC    | 275A   | 27.4V DC                | 24.4-26.00V DC |
| 720-MDVSO      | 21374N   | 12/24V DC | 500A   | 13.3-26.6V DC           | 12.7-25.4V DC  |
| 80-701-0018-00 | 68152H   | 12/24V DC | 275A   | Emergency parallel only |                |
| 720-MDO-EP     | 68346X   | 12/24V DC | 500A   | Emergency parallel only |                |

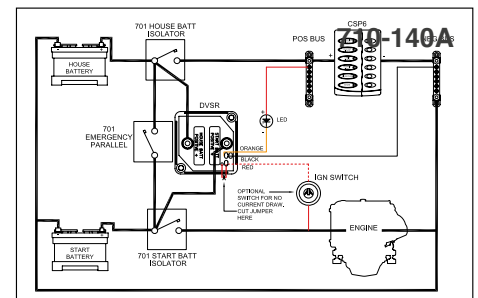
# DUAL BATTERY CHARGING VOLTAGE SENSING RELAY



## 710 -140A - DIGITAL VOLTAGE SENSING RELAY (DVSR)

The Voltage Sensing Relay (VSR) allows the charging of a second battery from a single charging source. When the voltage on the start battery rises to a level indicating a 60% charge, the VSR engages allowing the 2nd battery to charge. When charging stops and voltage falls, the VSR will disengage isolating the two battery banks from each other. Dual sensing functionality enables the sensing of two battery banks allowing two way charging.

- Safely charge two or more independent battery banks from one charge source (alternator, battery charger....)
- Protects start batteries from becoming flattened by domestic loads
- Simple to install 3-wire connection, leaves alternator wiring intact
- No Volt drop vs. diode isolators
- Zero stand by current draw
- Multi voltage, auto selects between 12 and 24V DC operation
- Ignition protected
- Surface or panel mountable



It replaces previous models 710-125A and 710-125A-DS

| MODEL    | PART No. | VOLT          | APPLICATIONS                               | SIZE mm (")<br>H x W x D       |
|----------|----------|---------------|--|--------------------------------|
| 710-140A | 68101P   | 12V DC/24V DC | For use on charging systems up to: 140 Amp | 69 x 69 x 50 (2.75 x 2.75 x 2) |

# GALVANIC ISOLATORS PROSAFE SERIES

- ABYC A-28 compliant
- Prevent galvanic corrosion due to dissimilar metals between boats
- Gold plated terminals provide superior corrosion resistance to marine environment
- Block DC current from flowing through shore power cable
- Ignition protected
- Use the 22034 model for 30 Amp Shore Cord Applications
- Use the 22074 model for (1) 50 Amp or (2) 30 Amp Shore Cord Applications



| MODEL | PART No. | AMP                                | VOLTAGE  | FREQUENCY | OPERATING TEMPERATURE | DIMENSIONS mm (")                           | WEIGHT kg (lbs) |
|-------|----------|------------------------------------|----------|-----------|-----------------------|---|-----------------|
| 22034 | 20588D   | 15/30A<br>single cable             | 120/240V | 50/60 Hz  | max 50° C             | 171,5 x 177,8 x 63,5<br>(6.75 x 7 x 2.5)    | 1,4 (3)         |
| 22074 | 20589F   | 50A single cable<br>30A dual cable | 120/240V | 50/60 Hz  | max 50° C             | 184,2 x 165,1 x 95,3<br>(7.25 x 6.5 x 3.75) | 1,7 (3.7)       |



### 715-H DUAL BATTERY CHARGING CLUSTERS

To be used on following systems:

- Single outboard dual battery bank
- Single alternator dual battery bank
- Twin alternator dual battery bank



715-H

### 716-SQ-140A-DVSR DUAL BATTERY CHARGING CLUSTERS

For use on charging systems up to 150A. To be used on following systems:

- Single outboard dual battery bank
- Single alternator inboard engine dual battery bank



716-SQ-140A-DVSR

### 715-S DUAL BATTERY CHARGING CLUSTERS

The 715-S is designed for systems with twin engines and 2 batteries. The house loads can be switched between port and starboard battery.

The selector switch can also be used to parallel the batteries when in both position.



715-S

### 717-140A-DVSR THREE BATTERY CHARGING CLUSTERS

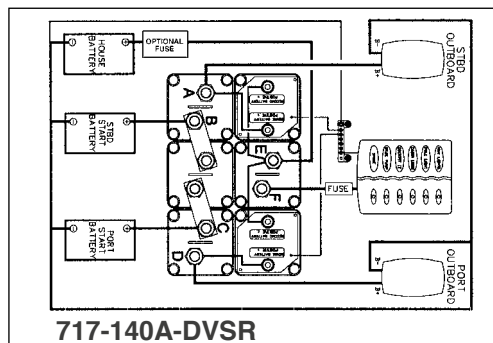
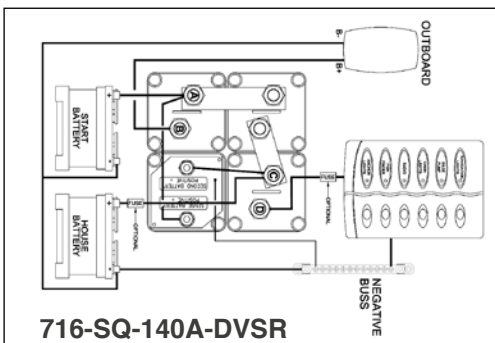
This system is designed for twin outboard installations using outboards without AUX outputs. It will allow the port engine to charge the port start battery and the house battery when the VSR is engaged. It will also allow the starboard engine to charge the starboard start battery and the house battery when the starboard VSR is engaged, giving a combined charge from two outboards into the house battery until the voltage regulators on both engines control the charge. It will also allow the house battery to be charged if steaming on one engine.



717-140A-DVSR

### 719-140A-DVSR TWO ENGINE AND FOUR BATTERY SYSTEMS

For triple motor installations. Using multiple VSRs combines service battery charging using the 3 engines on board



| MODEL            | PART No. | ENGINE/BATTERIES                          | ORIENTATION | SIZE mm (")<br>W x D  |
|------------------|----------|---|-------------|-----------------------|
| 715-H            | 68856X   | Single inboard or outboard engine/2 banks | RECTANGULAR | 207 x 69 (8.1 x 2.75) |
| 716-SQ-140A-DVSR | 68102S   | Single inboard or outboard engine/2 banks | SQUARE      | 138 x 138 (5.4 x 5.4) |
| 715-S            | 65352A   | Twin inboard or outboard engine/2 banks   | RECTANGULAR | 138 x 69 (5.4 x 2.75) |
| 717-140A-DVSR    | 68103U   | Twin outboard engine/3 banks              | RECTANGULAR | 207 x 138 (8.1 x 5.4) |
| 719-140A-DVSR    | 21368U   | Triple outboard engine                    | SQUARE      | 207 x 207 (8.1 x 8.1) |

The BEP Smart Battery Hub is a complete all in one battery management system. Simplify battery management with remotely activated switches, automatic Voltage Sensitive Switching combined with emergency parallel functionality. Enclosed in a robust easy to install, Ignition Protected IPX7 enclosure. Monitoring and transmission of battery voltages and full house bank state of charge over NMEA2000 for integration with multi-function displays. Options for two to six engine configurations available.

## FEATURES AND BENEFITS

- Monitors and transmits all battery voltages, including house bank state of charge via NMEA2000®
- IPX7 and Ignition Protected
- Remotely operated switches via analog inputs or CZone®
- Ultra low power consumption
- Full mechanical override of all switches for safety and servicing
- Works with NMEA 2000® MFD

## ADDITIONAL FEATURES

- Remotely operated emergency parallel switches
- Bi-directional Voltage Sensitive Switching with configurable cut in and out voltage thresholds
- Monitor up to 2 tank levels, additional battery voltage, temperature or pressure using industry standard sensors
- Status LED's for all switch outputs and fault indication
- Equipped with advanced core CZone® feature set like load shedding, NMEA2000® switch bank support and many more
- Support for CZone® logic blocks and data switching
- USB port allows firmware upgrades and full CZone® system updates including configuration changes over the NMEA2000® network (no PC or adapters required)
- 2 x 10A fused 24 hr house outputs with State of Charge monitoring
- Stand-alone functionality for systems without CZone®

| MODEL          | PART No. | DESCRIPTION                                 |
|----------------|----------|---|
| 80-716-0030-00 | 24716G   | Smart Battery Hub twin engine               |
| 80-716-0031-00 | 24717J   | Smart Battery Hub triple engine             |
| 80-716-0032-00 | 24718L   | Smart Battery Hub temperature sensor (15 m) |

## PRODUCT IMAGES



**CLOSED**

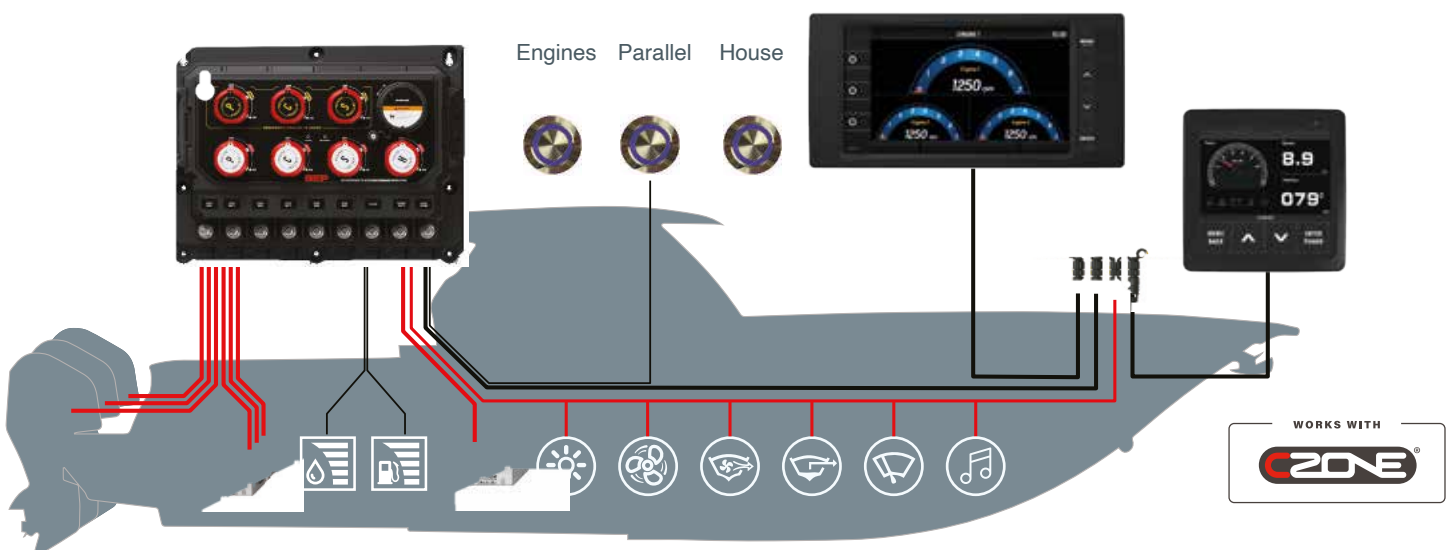


**OPENED  
(Triple engine version)**

## SPECIFICATIONS

|                             |   |
|-----------------------------|---|
| Weight kg (lbs)             | 8,4 (18.5)  |
| Power consumption max       | 92 mA   |
| Power consumption sleep     | < 3.5 mA  |
| NMEA 2000® connectivity     | 1x NMEA 2000® Micro-C port, 1 LEN   |
| Operating temperature range | -15°C to +55°C  |
| Storage temperature range   | -40°C to +85°C  |
| Dimensions mm ("") WxHxD    | 363.5x275.4x159.5 (14.3x10.8x6.3)   |
| NMEA 2000® PGN output       | Fluid level, pressure, temperature, battery volts, state of charge  |
| Monitoring                  | Battery voltage, house current draw, house state of charge  |
| Ingress protection          | IPX7  |
| Compliance                  | CE, NMEA, ISO8846/SAEJ1171 Ignition Protected   |
| Nominal voltage             | 12 or 24 V, power harvested from all batteries  |
| Continuous rating           | 300 A   |
| Intermittent rating         | 700 A   |
| Cranking rating             | 1450 A  |
| Additional input            | 3 x Master switch<br>2x Analogue inputs:<br>positive or negative switching, 0-30 Volt,<br>0-1000 Ohm resistance and 4-20 mA current<br>1 x Battery temperature sensor |

## SYSTEM EXAMPLE (TRIPLE ENGINE)



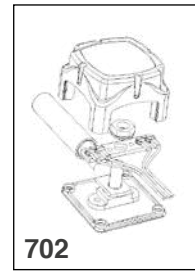
And NMEA 2000®  
MFD displays

## 702 - 703 DISTRIBUTION STUD

# BEP

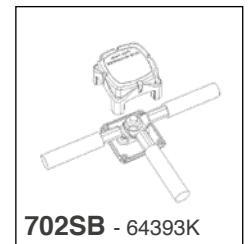
The 702 Contour Distribution Stud allows terminating of heavy duty cables for 1 or more connections. Contour lock housing has removable side plates which allow for connections from all sides, utilising link bars 702SB.

| MODEL    | PART No. | STUD SIZE    | AMP  | DIMENSIONS mm (")      |
|----------|----------|--------------|------|------------------------|
| 702      | 63687Y   | 10 mm (3/8") | 200A | 69x69x50 (2.71x2.71x2) |
| 703-300A | 68058S   | 10 mm (3/8") | 300A | 138x69x50 (5.4x2.71x2) |
| 703-500A | 63688A   | 10 mm (3/8") | 500A | 69x69x50 (2.71x2.71x2) |



### 702SB SECONDARY BUS

Fitted to distribution stud 702 allows for small wire connections without cluttering main stud. Terminal screws 4 mm (1/8").



### BUS BARS

- 4 mm (5/32") stainless steel screws with shakeproof washers
- 2x6 mm (1/4") input stud
- Tin plated brass
- Insulated mounting base
- Optional cover for compliance with ABYC standards with polarity inversion (model IS-10MM-1R)

| MODEL     | PART No. | OUTPUT SCREWS<br>4 mm (5/32") | INPUT STUDS<br>6 mm (1/4") | CURRENT<br>RATING |
|-----------|----------|-------------------------------|----------------------------|-------------------|
| BB-6W-2S  | 63690L   | 6                             | 1                          | 100A              |
| BB-12W-2S | 63691N   | 12                            | 1                          | 100A              |
| BB-24W-2S | 63692R   | 24                            | 2                          | 150A              |



### INSULATED STUDS

- 6 mm (1/4"), 8 mm (5/16") e 10 mm (3/8") tinned copper and brass studs with spring washers
- High temperature plastic insulated mounting base
- 6 mm and 10 mm black and red covers available on request



| MODEL     | IS-6MM-1     | IS-6MM-1R    | IS-8MM-1      | IS-8MM-1 R    | IS-10MM-1     | IS-10MM-1R    | IS-6MM-2     | IS-10MM-2     | IS-10MM-8MM  |
|-----------|--------------|--------------|---------------|---------------|---------------|---------------|--------------|---------------|--------------|
| Part No.  | 23517V       | 23518X       | 23124Z        | 23519Z        | 64392H        | 23904C        | 63689C       | 65766E        | 23520H       |
| Terminals | 1x6mm (1/4") | 1x6mm (1/4") | 1x8mm (5/16") | 1x8mm (5/16") | 1x10mm (3/8") | 1x10mm (3/8") | 2x6mm (1/4") | 2x10mm (3/8") | 1x10mm/1x8mm |
| Polarity  | Neg.         | Pos.         | Neg.          | Pos.          | Neg.          | Pos.          | Neg.         | Neg.          | Neg.         |

BEP Marine's new heavy duty fuse holders are an economical way of fusing heavy loads 30-80 amp. Ideal for battery charger outputs or mains feeds. 6 mm (1/4") studs receive ring terminals and cables up to 25 mm<sup>2</sup> (4 gauge). Fuse is clamped between tinned brass clamp for positive connection. Covers enclose exposed terminals to meet ABYC standards.



702-MFH

| MODEL   | PART No. | STUD SIZE   | DIMENSIONS mm (")             |
|---------|----------|-------------|-------------------------------|
| 702-MFH | 67406H   | 6 mm (1/4") | 71 x 53 x 36 (2,8 x 2 x 1.42) |

### HIGH AMPERAGE FUSES MOD. MAXI

- Fuses available 30-80 Amp
- Interrupt capacity: 1000 Amp DC
- Maximum voltage: 32 Volt DC



BFHD-30A

### HEAVY DUTY FUSES

| MODEL    | PART No. | RATING | MODEL    | PART No. | RATING |
|----------|----------|--------|----------|----------|--------|
| BFHD-30A | 66132R   | 30 Amp | BFHD-60A | 66135X   | 60 Amp |
| BFHD-40A | 66133T   | 40 Amp | BFHD-70A | 66136Z   | 70 Amp |
| BFHD-50A | 66134V   | 50 Amp | BFHD-80A | 66137B   | 80 Amp |

### 704-ANL FUSE HOLDER HEAVY DUTY - 63235K

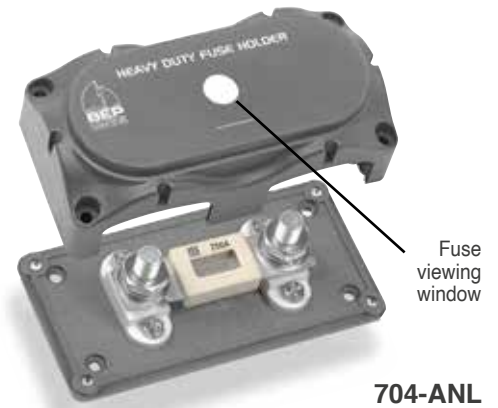
The 704-ANL allows fusing of heavy duty accessories between 80 Amp - 500 Amp. Mounted in contour lock mouldings with removable sides. Meets ABYC standards for exposed terminals.



ANL-FUSE



704-ANL



704-ANL

### HIGH AMPERAGE FUSES

| MODEL      | PART No. | ANL FUSE LINKS | DIMENSIONS mm (")              |
|------------|----------|----------------|--------------------------------|
| IP100P/DSP | 64395P   | 100 Amp        | 138 x 69 x 50 (5.4 x 2.75 x 2) |
| IP150P/DSP | 63806D   | 150 Amp        | 138 x 69 x 50 (5.4 x 2.75 x 2) |
| IP200P/DSP | 63807F   | 200 Amp        | 138 x 69 x 50 (5.4 x 2.75 x 2) |
| IP250P/DSP | 63808H   | 250 Amp        | 138 x 69 x 50 (5.4 x 2.75 x 2) |
| IP300P/DSP | 20764X   | 300 Amp        | 138 x 69 x 50 (5.4 x 2.75 x 2) |
| IP425P/DSP | 63810U   | 425 Amp        | 138 x 69 x 50 (5.4 x 2.75 x 2) |
| IP500P/DSP | 64407U   | 500 Amp        | 138 x 69 x 50 (5.4 x 2.75 x 2) |

IGNITION PROTECTED

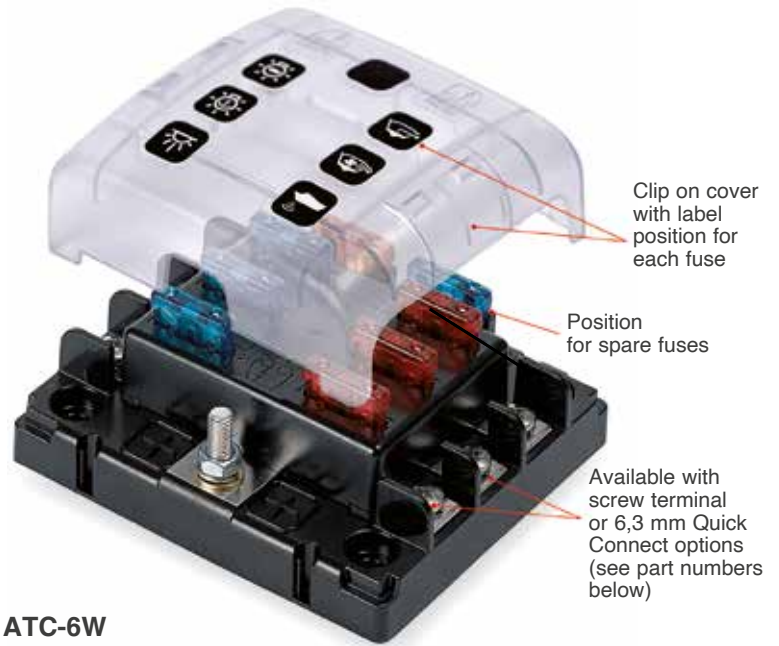
# ATC FUSE HOLDERS



The BEP ATC fuse holder includes the patented contour lock system (as used in all BEP battery management products). This allows you to module as many fuse holders as you like together.

The advantage of this is that it allows you to link the inputs together, or split them apart to allow multiple power groups within one fuse holder: eg. switched supply or 24 hour supply.

For the aftermarket the modular system allows you to carry one part number instead of 3 or 4. The 6W-ATC also includes a clip on cover and label positions. The label (included) positions receive the same label as the 1000 series panels.



ATC-6W

## SPECIFICATIONS

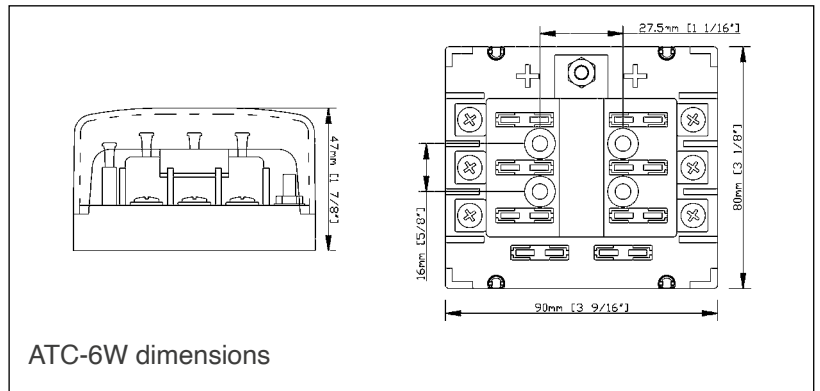
- Maximum amperage per circuit: 30 Amp
- Maximum amperage per block: 100 Amp
- Maximum voltage: 32V DC
- Base material: polycarbonate
- Cover material: clear polycarbonate

### ATC FUSES

| MODEL | PART No. | RATING  |
|-------|----------|---------|
| J03A  | 66018T   | 3 Amp   |
| J05A  | 66019V   | 5 Amp   |
| J7.5A | 66020D   | 7.5 Amp |
| J10A  | 66021F   | 10 Amp  |
| J15A  | 66022H   | 15 Amp  |
| J20A  | 66023K   | 20 Amp  |
| J25A  | 66024M   | 25 Amp  |
| J30A  | 66025P   | 30 Amp  |
| J40A  | 24695B   | 40 Amp  |



J05A



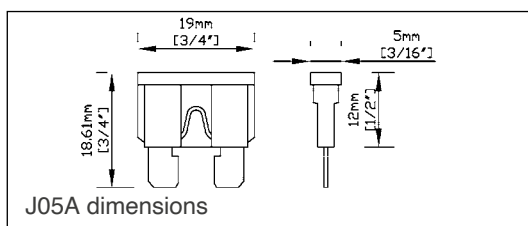
ATC-6W dimensions

### ATC FUSE HOLDERS

| MODEL          | PART No. | DESCRIPTION                                   |
|----------------|----------|---|
| ATC-6W         | 65569C   | 6 way fuseholder, screw terminals, with cover |
| ATC-6WQC       | 66017R   | 6 way fuseholder, quick connect, with cover   |
| 80-712-0039-00 | 24928Y   | ATC 6 way, negative bus bar                   |

## SPECIFICATIONS

- Fuses available: 1-40 Amp
- Interrupt capacity: 1000 amp DC
- Maximum voltage: 32 Volt DC



J05A dimensions



BB-LINK - 23006T - 17 mm  
Fuse holder to be ordered separately

### STANDARD MOUNT SWITCHES

The new series of powerful 400 Amp rated battery switches have very high quality features and performance that satisfy both the installer and the end user at the same time. Three mounting options, surface, rear panel, front panel, and optimized cable access make installation safe and fast. They have been designed using the best materials to withstand the most hostile marine environment

### EZ MOUNT SWITCHES

These switches offer a revolutionary three-step installation procedure, with front cable connection. Just remove the bottom of the switch, wire up, and replace the cover with the knob. EZ-Mount switches have a standard footprint that allows them to be installed alongside other Pro Installer products, have a continuous rating of 400 Amp and intermittent rating of 600 Amp

### ALL PRO INSTALLER SWITCHES FEATURES

- Continuous rating: 400 Amp DC
- Intermittent rating: 600 Amp (5 mins)
- Cranking rating: 1500 Amp (10 secs)
- Waterproof to IP66
- Tinned copper 10 mm (3/8") studs
- Stainless steel washers/nuts
- Fiber reinforced plastics
- Removable knob allows isolation during servicing
- 3 removable sideplates for protection
- Industry standard 3.85" x 3.85" footprint
- Dimensions mm ("): 97.8 x 97.8 (3.85 x 3.85)
- Tested to UL1107 ignition protection, CE

- 770-EZ** - 69149A - On/off master switch EZ-MOUNT
- 770-DP** - 69952Y - Double pole, on/off master switch
- 770-DP-EZ** - 69953A - Double pole on/off master switch EZ-MOUNT
- 771-S-EZ** - 69150J - Selector battery switch EZ-MOUNT
- 771-S** - 69954C - Selector battery switch
- 772-DBC-EZ** - 69889U - Dual bank control battery switch EZ-MOUNT
- 771-SFD** - 69955E - Selector battery switch with alternator switch disconnect
- 770-KEY-EP** - 21978Y - Yellow knob, for application where emergency parallel switch needs to be highlighted. To order separately, replaces existing knob



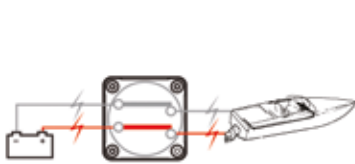
770-DP-EZ



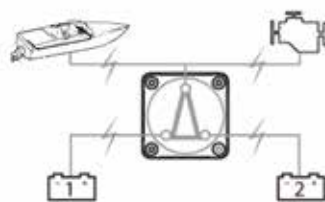
771-S-EZ



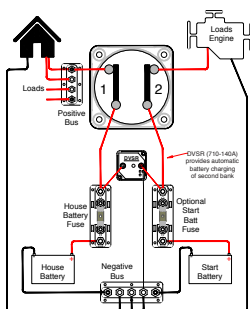
772-DBC-EZ



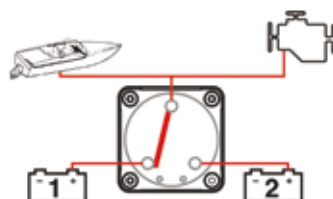
770-DP-A - 770-DP-EZ



771-S-A - 771-S-EZ



772-DBC-EZ



771-SFD

BEP Marine have created a completely new concept for small cable termination with the Z-Bar range. These bus bars maximize power density by utilizing high and low level bars to optimize cable runs, saving even more installation space

## FEATURES

- Modular sizing and common interconnection height: Easily linked with other Pro Installer Busbars and Fuseholders to save installation time and space
- Clean installation—all cables can be run from one side of the Z-bar
- Innovative clear covers insulate/protect on three sides, with “snap outs” for extra cable access as required
- Label recess on cover allows fitting up to ½” width (12.7mm) printed labels
- Insert molded studs offer superior mechanical strength
- Designed for the harsh marine environment



777-Z18W-200



777-Z10W-200

## SPECIFICATIONS

- 10 way and 18 way versions
- 4 x 6 mm ( ¼” ) studs with anti-seize lubricant
- 4 mm ( 5/32” ) terminals with captive lock washers
- 200 A max per Bar ( 2 x 200 A )
- 50 V DC
- Tinned CDA102 copper conductors
- Stainless steel studs, washers, nuts for longevity in marine environment
- Metric threads

| MODEL        | PART No. | TERMINAL |                      | CONNECTING STUD |                      | AMPS | DIMENSIONS<br>mm (“)    |
|--------------|----------|----------|----------------------|-----------------|----------------------|------|-------------------------|
|              |          | Q.TY     | DIMENSIONS<br>mm (“) | Q.TY            | DIMENSIONS<br>mm (“) |      |                         |
| 777-Z18W-200 | 68864W   | 18       | 4 (5/32)             | 4               | 6x19 (1/4x3/4)       | 200A | 147x49x51 (5.8x1.9x2.0) |
| 777-Z10W-200 | 68865Y   | 10       | 4 (5/32)             | 4               | 6x19 (1/4x3/4)       | 200A | 98x49x51 (3.9x1.9x2.0)  |





Pro Installer Heavy-duty Bus Bars provide a robust means to connect together the multitude of large cables found in modern electrical installations. They offer unrivaled flexibility to meet the requirements of any installation, saving significant cost and space



**BUSBARS**

### SPECIFICATIONS

- 3,5 and 8 stud – 650 A bus bar 10 mm ( 3/8" ) stainless steel studs
- 4 stud – 500 A bus bar 8 mm ( 5/16" ) stainless steel studs
- Studs treated with anti-seize lubricant
- 50 V DC
- Tinned CDA102 copper conductors
- Stainless steel studs, washers, nuts for longevity in marine environment
- Generous stud lengths, metric threads

| MODEL        | PART No. | CONNECTING STUD |                   | AMPS | DIMENSIONS mm (")        |
|--------------|----------|-----------------|-------------------|------|--------------------------|
|              |          | Q.TY            | DIMENSIONS mm (") |      |                          |
| 777-BB8S-650 | 68860M   | 8               | 10x25 (3/8x1)     | 650A | 249x48x66 (9.8x1.9x2.6)  |
| 777-BB5S-650 | 68861P   | 5               | 10x25 (3/8x1)     | 650A | 147x48x66 (5.8x1.9x2.6)  |
| 777-BB3S-650 | 68862S   | 3               | 10x22 (3/8x7/8)   | 650A | 99x48x63,5 (3.9x1.9x2.5) |
| 777-BB4S-500 | 68863U   | 4               | 8x22 (5/16x7/8)   | 500A | 99x48x63,5 (3.9x1.9x2.5) |

- A range of linking bars complement the Pro Installer range of products
- High purity copper, tin plated for optimum marine electrical performance
- Fastest, most economic way of connecting for the most compact installations
- Saves space, allows clustering for the most compact installations
- Links can be doubled for higher loads



Application example

### LB-1



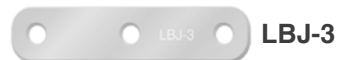
### LBZ-1



### LBZ-2



### LBJ-2



### LBJ-3



### LBJ-4



### LBJ-5



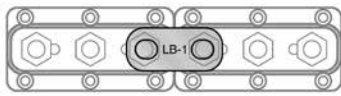
### LBJ-6



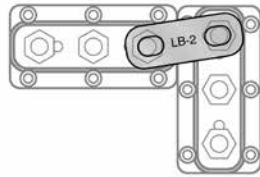
Application example

| MODEL | PART No. | DESCRIPTION                           | LINK                                   | MAX AMPS | DIMENSIONS mm (") |
|-------|----------|---------------------------------------|--|----------|-------------------|
| LB-1  | 69318X   | Link bar 31-34.7 mm                   | Short Link Bar<br>8 & 10 mm studs      | 650      | 56x25 (2.2x1.0)   |
| LBJ-2 | 69320H   | Joiner 2-way 46-50 mm                 | Long Link Bar<br>8 & 10 mm studs       | 650      | 74x25 (3.0x1.0)   |
| LBZ-1 | 69321K   | Link Z Bar to Z Bar                   | Joins Z Bar E:E and S:S                | 250      | 49x12 (2.0x0.5)   |
| LBZ-2 | 69322M   | Link Z Bar to Busbar<br>or Fuseholder | Joins Z Bar<br>to Busbar or FuseHolder | 400      | 53x25 (2.1x1.0)   |
| LBJ-3 | 69324S   | Joiner 3-way                          | Side to Side 3 products                | 525      | 123x25 (4.9x1.0)  |
| LBJ-4 | 69325U   | Joiner 4-way                          | Side to Side 4 products                | 450      | 172x25 (6.9x1.0)  |
| LBJ-5 | 69326W   | Joiner 5-way                          | Side to Side 5 products                | 400      | 221x25 (8.8x1.0)  |
| LBJ-6 | 69327W   | Joiner 6-way                          | Side to Side 6 products                | 350      | 270x25 (10.8x1.0) |

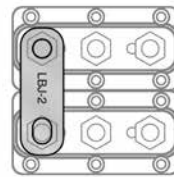
## LINK BAR DIAGRAMS:



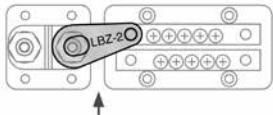
**E:E** End to End linking



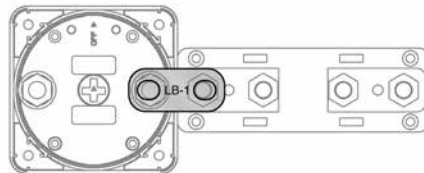
**S:E** Side to End linking



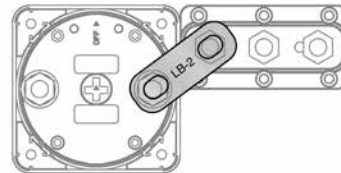
**S:S** Side to Side joining



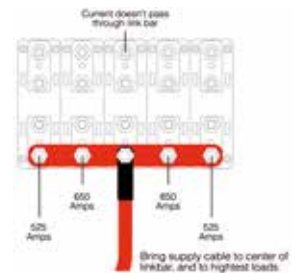
**Gap** For small gaps between products



**C** Centerline linking



**O** Offset linking



## FOR HIGH LOAD LINK JOINER APPLICATIONS

Links can be doubled for higher loads. Example: If 2 x 779-LBJ-5-B joiners are used in the diagram at right, quoted Amps can be doubled: maximum of 1300 Amps to the adjacent stud, or 1050 Amps to the stud 2 positions away from the feed cable.

|                                  | Heavy Duty Busbars     | Z Busbars | Fuseholder 778ANL    | Fuseholder ANL | Fuseholder ANL & Class T | Single insulated studs | Double insulated studs | EZ Mount battery switch On/Off |
|----------------------------------|------------------------|-----------|----------------------|----------------|--------------------------|------------------------|------------------------|--------------------------------|
| <b>BUSBARS</b>                   |                        |           |                      |                |                          |                        |                        |                                |
| Heavy Duty Busbars               | LB-1                   | LBZ-2     | LB-1                 | -              | LB-1 (4 Gap)             | LB-2                   | S:E LB-1<br>Gap LB-1   | O: LB-2<br>C: LB-1             |
| Z Bars                           | LBZ-2                  | LBZ-1     | LBZ-2                | -              | LBZ-2                    | -                      | Gap LBZ-2              | LBZ-2                          |
| <b>FUSEHOLDER</b>                |                        |           |                      |                |                          |                        |                        |                                |
| 778ANL                           | LB-1                   | LBZ-2     | LB-2                 | -              | LB-1                     | LB-2                   | S:E LB-1<br>Gap LB-1   | O: LB-2<br>C: LB-1             |
| 778ANLTP                         | -                      | -         | -                    | LB-2           | -                        | -                      | -                      | -                              |
| 778ANL2S                         | LB-1                   | LBZ-2     | LB-1                 | -              | LB-1                     | LB-2                   | S:E LB-1<br>Gap LB-1   | O: LB-2<br>C: LB-1             |
| <b>INSULATED STUDS</b>           |                        |           |                      |                |                          |                        |                        |                                |
| Single insulated stud            | LB-2                   | -         | LB-2                 | -              | LB-2                     | LBJ-2                  | LB-1                   | LBJ-2<br>C: LB-2               |
| Double insulated studs           | S:E LB-1<br>Gap LB-1   | Gap LBZ-2 | S:E LB-1<br>Gap LB-1 | -              | S:E LB-1<br>Gap LB-1     | LB-1                   | S:S LBJ-2<br>Gap LB-1  | O: LB-1<br>C: Gap LB-1         |
| <b>EZ MOUNT BATTERY SWITCHES</b> |                        |           |                      |                |                          |                        |                        |                                |
| EZ – ON/OFF                      | O: LB-2<br>C: LB-1     | LBZ-2     | LBZ-2<br>C: LB-1     | -              | O: LB-2<br>C: LB-1       | O: LBJ-2<br>C: LB-2    | O: LB-1<br>C: Gap LB-1 | LB-1                           |
| EZ – Battery studs               | LB-2<br>(4 studs LB-1) | LBZ-2     | LB-2                 | -              | O: LB-1<br>C: LB-2       | LBJ-2                  | LB-1                   | -                              |
| EZ – Common studs                | O: LB-2<br>C: LB-1     | LBZ-2     | O: LB-2<br>C: LB-1   | -              | O: LB-2<br>C: LB-1       | O: LBJ-2<br>C: LB-2    | O: LB-1<br>C: Gap LB-1 | -                              |

The Pro Installer insulated studs are a smart choice for marine installers. Increased stainless steel stud length allows up to three large cable lugs to be connected. The clear polycarbonate cover provides insulation/protection, while the snap-out side skirts allow for additional cable entry. The power tapping plate variant provides additional termination points for small cables.

## FEATURES

- Modular sizing and common interconnection height: Easily linked with other Pro Installer Busbars and Fuseholders saving installation time and space
- Power tapping plate converts from a single stud, adding four connection points for smaller cables, while preserving access for larger cables
- Generous stud lengths allow securing of three 95mm<sup>2</sup> (3/0) cable lugs
- Innovative clear covers provide insulation/protection, with “snap outs” for extra cable access as required
- Label recess on cover allows fitting up to ½” width (12.7mm) printed labels
- Snap out partition on double stud base provides insulation to separate studs for isolated (positive/negative) application. Snapping this partition allows easy linking of the studs
- Insert moulded studs offer superior mechanical strength
- Four mounting holes in base allow installer choice of using two, or four fastenings depending on level of securing required
- Designed for the harsh marine environment



IST-8MM-2S



IST-8MM-1SPT



IST-8MM-1S

## SPECIFICATIONS

- Note: no power passes through the stud so no amp rating is given
- 50 VDC
- High temperature, fiber reinforced plastic base provides strength and chemical resistance
- Clear poly carbonate cover
- Stainless steel studs/screws, and nickel plated brass nuts for longevity in the marine environment
- All threads are metric
- Double studs feature “snap out” insulating partition, to allow linking of studs

| MODEL        | PART No. | Q.TY | TERMINAL |                   | DIMENSIONS mm (")      |
|--------------|----------|------|----------|-------------------|------------------------|
|              |          |      |          | DIMENSIONS mm (") |                        |
| IST-8MM-1S   | 68866A   | 1    |          | 8 (5/16)          | 49x49x62 (1.9x1.9x2.5) |
| IST-8MM-1SPT | 68867C   | 1    |          | 8 (5/16)          | 49x49x62 (1.9x1.9x2.5) |
| IST-8MM-2S   | 68868E   | 2    |          | 8 (5/16)          | 49x49x62 (1.9x1.9x2.5) |
| IST-10MM-1S  | 24929A   | 1    |          | 10 (3/4)          | 49x49x62 (1.9x1.9x2.5) |
| IST-10MM-2S  | 24930J   | 2    |          | 10 (3/4)          | 49x49x62 (1.9x1.9x2.5) |

These ANL fuse holders offer unparalleled circuit protection choice for both the installer and end-users. The innovative Through-Panel fuse holder (778-ANLTP) provides superior access for fuse inspection and replacement. Small electrical loads are catered to with the compact 778-ANL unit while additional cable security and highest capacity is provided by the 778-ANL-2S featuring additional studs for separate clamping



**SPECIFICATIONS**

- Cable connection studs: 8 mm (5/16”) on 778-ANL, 10 mm (3/8”) on 778-ANL-TP and 778-ANL-2S
- Fuse mounting studs 8 mm (5/16”)
- Double washers allow any ANL fuse brand to be fitted
- Fuse type ANL or ANN (fast blow)
- Swinging fuse style allows changing fuse w/out removal of fastening nuts
- Amperage: determined by fuse sizing, 778-ANL (35 – 300 A), 778-ANL-2S (35 – 750 A), 778-ANLTP (35 – 500 A)
- 50 V DC
- Tinned CDA102 copper conductors (778-ANL-2S) / CDA260 high conductivity brass conductors (778-ANLTP)

| MODEL           | PART No. | FUSE            | CONNECTING STUD             |                    | AMPS | DIMENSIONS mm (")       |
|-----------------|----------|-----------------|-----------------------------|--------------------|------|-------------------------|
|                 |          |                 | Q.TY                        | DIMENSIONS mm (")  |      |                         |
| <b>778ANL</b>   | 68869G   | 8 mm<br>(5/16") | 2 studs<br>shared with fuse | 8x22<br>(5/16x7/8) | 300A | 98x49x54 (3.9x1.9x2.1)  |
| <b>778ANLTP</b> | 68870R   | 8 mm<br>(5/16") | +2 per cable                | 10x25<br>(3/8x1)   | 500A | 98x49x36 (3.9x1.9x1.4)  |
| <b>778ANL2S</b> | 68871T   | 8 mm<br>(5/16") | +2 per cable                | 10x29<br>(3/8x1/8) | 750A | 147x49x61 (5.8x1.9x2.4) |

# CLASS T FUSEHOLDERS



Class-T fusing provide high-capacity fusing, with very fast response and very high interrupt ratings (Class-T 20.000 A ). These fuse holders are ideal for protecting today's demanding on board power electronics technology including inverters and battery chargers. They also protect wiring from short circuits, for example as a main fuse to protect house circuits, where modern battery technologies such as Lithium Ion and AGM, are capable of producing very high short circuit currents

## SPECIFICATIONS

- Cable connection studs: 10mm (3/8") studs
- Fuse mounting studs: 10mm (3/8") 225-400 A holder, 12 mm ( 1/2" ) 450 – 600 A holder
- Fuse type: Class T (JLLN / TJN / A3T)
- Maximum amperage: Determined by fuse sizing, either 400 A or 600 A
- 50 VDC
- High temperature, fiber reinforced plastic base provides strength and chemical resistance
- Clear poly carbonate cover
- Tinned CDA102 copper conductors, stainless steel studs, and nickel plated brass nuts for longevity in the marine environment
- Metric threads



CLASS T

| MODEL      | PART No. | FUSE      | FUSE STUD | CONNECTING STUD |                   | AMPS   | DIMENSIONS mm (")       |
|------------|----------|-----------|-----------|-----------------|-------------------|--------|-------------------------|
|            |          |           |           | Q.TY            | DIMENSIONS mm (") |        |                         |
| 778T2S-400 | 68872V   | Class T   | 10 mm     | + 2             | 10x29             | 225A - | 147x49x61 (5.8x1.9x2.4) |
|            |          | 225A-400A | (3/8")    | per cable       | (3/8x1/8)         | 400A   |                         |
| 778T2S-600 | 68873X   | Class T   | 12 mm     | + 2             | 10x29             | 400A - | 147x49x61 (5.8x1.9x2.4) |
|            |          | 450A-600A | (0.47")   | per cable       | (3/8x1/8)         | 600A   |                         |

# CLASS T FUSES

- Interrupt capacity: 20,000A DC
- Maximum voltage: 160V DC
- Diameter: 34 mm (1.34") - 41 mm (1.62") heavy-duty models
- Length: 70 mm (2.77") - 77 mm (3.03") heavy-duty models
- Use with: Pro Installer Class T Fuse Holders



| MODEL      | FT-225-B | FT-250-B | FT-300-B | FT-350-B | FT-400-B | FT-450-B | FT-500-B | FT-600-B |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Part No.   | 23230Y   | 23231A   | 23232C   | 23233E   | 23234G   | 23235J   | 23236L   | 22186T   |
| Rating     | 225 A    | 250 A    | 300 A    | 350 A    | 400 A    | 450 A    | 500 A    | 600 A    |
| Heavy-duty | No       | No       | No       | No       | No       | Yes      | Yes      | Yes      |
| Q.ty       | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |

### ACSM SYSTEM INCLUDES 1 X AC-VSEN-4 AND 2 X CT-10-3 80-600-0023-00 - 67408M

#### MONITORS:

- AC volts, amps and frequency

#### FEATURES:

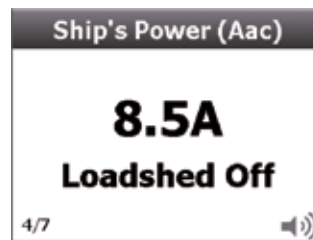
- 3 generic user configurable inputs
- Displays data in analogue, digital and graphic forms
- Programmable high/low audio/visual alarms for each input

#### SPECIFICATIONS:

- 2.8" colour QVGA LCD
- Input voltage: 8-32VDC
- Dimensions: W 90mm (3.5") x H 100mm (3.9")
- Backlit keypad



80-600-0023-00



#### AC POWER METER:

- Displays AC volts, amps frequency and power for two supplies with a third position for monitoring AC volts and frequency of a third supply
- Displays AC power in kW

#### AC VOLTS/FREQUENCY:

- Displays AC voltage and frequency, 80-264 Vac 50 & 60 Hz

#### AC AMP:

- Visualizza la corrente per due sorgenti AC (0-75A)

#### AC AMPS:

- Displays current for 2 x AC supplies (0-75A)

### DCSM SYSTEM INCLUDES 1 X SHUNT AND CABLE-10-3 80-600-0021-00 - 67407K

#### MONITORS:

- Charge/discharge amps for two banks
- Capacity remaining in A/h and %
- Battery condition
- Tank fluid level
- Circuit status

#### FEATURES:

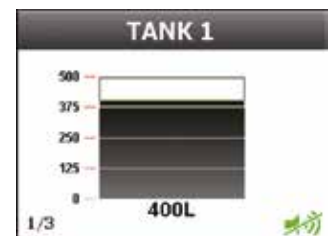
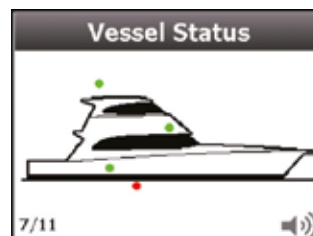
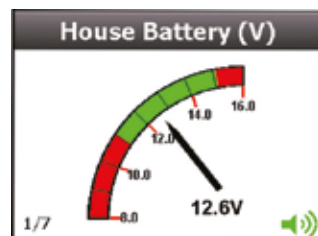
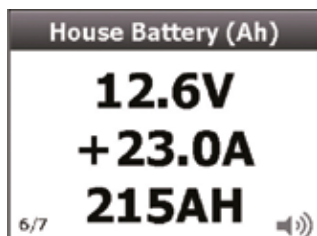
- 8 Generic, user configurable inputs
- Programmable high/low audio/visual alarms for volts, amps and tank levels
- Backlit keypad and dimmable screen
- Can be panel or surface mounted

#### SPECIFICATIONS:

- 2.8" Color QVGA LCD
- Input voltage 8-32V DC
- Dimensions (WxH): 90 x 100 mm
- Backlit keypad



80-600-0021-00



#### DC POWER METER:

- Displays voltages of multiple battery banks (0-32V DC)
- Displays charge and discharge (amps) of 2 battery banks
- Displays battery capacity in amp hours
- High/Low level alarms

#### DYSPLAY TYPE:

- Configure the DCSM to show the data in analog, digital and graphic form

#### CIRCUIT STATUS:

- View the status of important circuits (on/off)
- In graphic and numeric form

#### TANK LEVEL:

- View tank level information for multiple tanks in numeric and graphic forms
- Resetable when leaving boat

## AC TRASDUCER

- The AC-VSEN-4 includes 3 voltage transformers for up to 3 voltage inputs.
- Dimensions: 69x140x50 mm (2.75"x5.5"x2")

AC-VSEN-4 – 67314C



AC TRASDUCER

## HEAVY-DUTY CURRENT TRANSFORMER

- Maximum current 150A AC
- CT-HD is available for systems with large mains cables, too large for CT-10-3 (ordered separately)
- CT-HD dimensions: Ø 47x10.5 mm (1.85"x0.4")
- Hole size: 32 mm (1.25")

CT-HD - 68904F

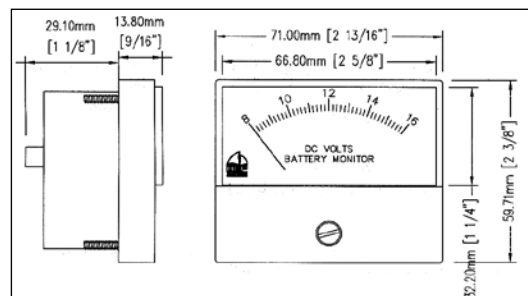


CT-HD

## ANALOG STAND-ALONE METERS

### ANALOG VOLTMETERS

| MODEL    | PART No. | VOLT   | SCALE         |
|----------|----------|--------|---------------|
| N816DCV  | 63682M   | 12V DC | 8-16 Volt DC  |
| N1632DCV | 63683P   | 24V DC | 16-32 Volt DC |



### ANALOG VOLTMETERS

| MODEL    | PART No. | SCALE        | CURRENT TRASFORMER | SHUNT MODEL |
|----------|----------|--------------|--------------------|-------------|
| N050A    | 64399A   | 0-50 Amp DC  | N/D                | 50A-50MV    |
| N0100ACT | 64400D   | 0-100 Amp DC | N/D                | 100A-50MV   |
| N0150A   | 64183Y   | 0-150 Amp DC | N/D                | 150A-50MV   |



N816DCV

### AMMETER SHUNT

| MODEL       | PART No. | SCALE                         |
|-------------|----------|-------------------------------|
| 50A - 50MV  | 64515X   | 0-50 A                        |
| 100A - 50MV | 64178F   | 0-100 A                       |
| 150A - 50MV | 64516Z   | 0-150                         |
| 711L        | 24931L   | Shunt Enclosure (50/100/150A) |



AMMETER SHUNT



711L



## TS1 - 66322W

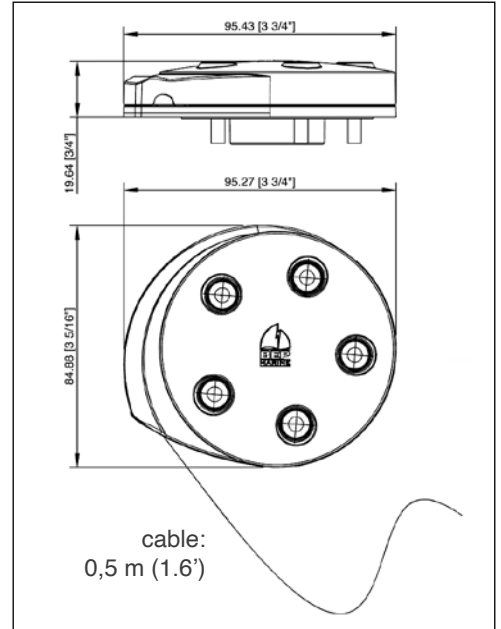
The TS1 Ultrasonic Tank Sender can be used on fuel (petrol or diesel), fresh water, grey or black water tanks. One part number suits all tanks! Not suitable for tank depths less than 200 mm (8")



TS1

## FEATURES

- The TS1 is programmable for the following outputs: 240-33 Ohm, 10-180 Ohm and 0-5 Volt
- The TS1 offers low profile and standard SAE 5 hole mounting pattern, allowing it to be retrofitted to practically all other sender brands
- The TS1 can be programmed for tank dimensions via a computer utilizing BEP Marine's proprietary TS1 software and TS1-PK kit software avoiding experimental tank filling on site
- The TS1 configured to a 0-5V output will connect straight into the BEP DCSM digital tank monitor
- When configured to a 240-33 Ohm or 10-180 Ohm output the TS1 can be connected to Uflex®, Wema®, Faria®, VDO®, Teleflex® and many other popular instrument brands. When connecting to non-adjustable gauges the TS1 must be pre-calibrated
- Standard off the shelf TSI sender is set for 0-2000 mm (6.5')
- The TS1 sender is not compatible with digital systems like Volvo® EVC, Mercury® SmartCraft, etc. For any information, please contact our Technical Service.



cable:  
0,5 m (1.6')

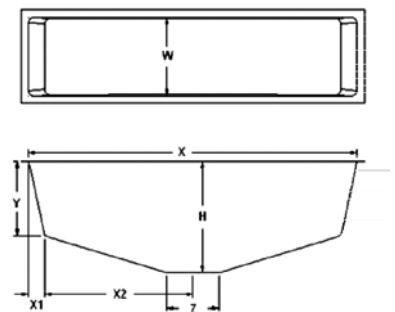


TS1-PK - 66323Y

## SPECIFICATIONS

|                            |   |
|----------------------------|---|
| <b>Current draw</b>        | 10-32VDC  |
| <b>Power draw</b>          | 25mA with 5 volt gauge output   |
| <b>Measurement method</b>  | acoustic sonic measurement  |
| <b>Tank depth</b>          | 0 to 2000mm (6.5 ft)  |
| <b>Accuracy</b>            | distance 0-2000mm (6.5') at 2 mm accuracy   |
| <b>Mounting</b>            | SAE 5 stud mounting pattern with gasket, seal and screws. Top mount only            |
| <b>Environmental</b>       | temperature 4 to 65 degrees C   |
| <b>Chemical resistance</b> | Petrol, diesel, water, toilet chemicals   |
| <b>Tank type</b>           | Metal and plastic with non linear capacity, grey and black water, petrol and diesel |

## Non linear Tank Parameter Calculation



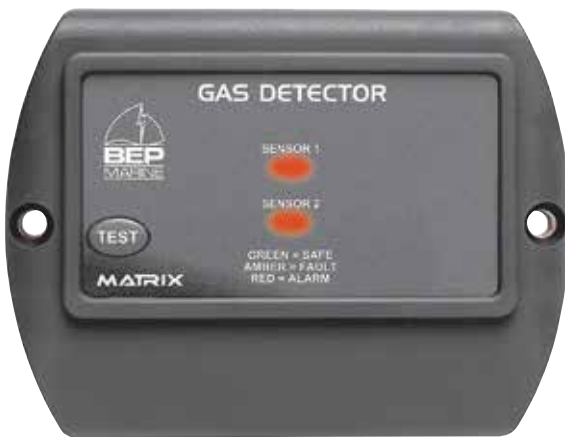
BEP Marine's proprietary software allows distributors or volume users to pre-programme tank dimensions giving accurate measurement avoiding experimental tank filling.

## 600-GD, 600-GDL / 600-GDRV

The BEP Detectors use microprocessor control to ensure correct sensor sensitivity. The Detectors have the capability to control two sensors which detect both LPG and Petrol, with visual and audible alarms.

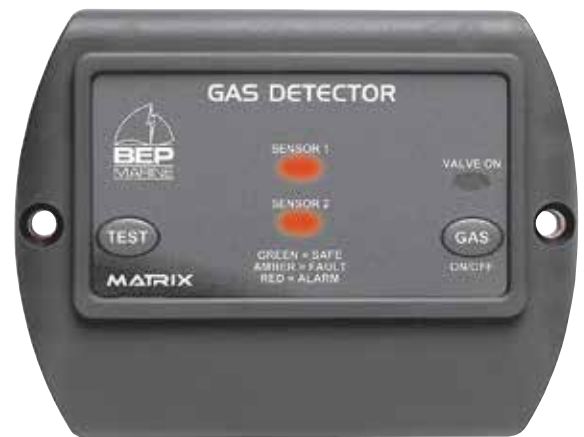
- Dual sensor for LPG and petrol
- Visual and audible alarms; provision for external alarm
- Automatic shut-off solenoid control with pulse and hold circuit for low power draw (600-GDL only)
- Self-testing
- Provision of bilge blower

|                          |                           |
|--------------------------|---------------------------|
| <b>Voltage (V DC)</b>    | 10-32                     |
| <b>Current (mA)</b>      | 350 max.                  |
| <b>Alarm sensitivity</b> | 20% lower explosive limit |
| <b>Current@Out (mA)</b>  | 800 max.                  |
| <b>Solenoid (mA)</b>     | 700 pulse, 250 hold       |
| <b>Dimensions mm (")</b> | 67x88x17 (2.4x3.5x0.7)    |



**600-GD - 68008A**

600-GD will detect LPG, Petrol and CNG fumes. Supplied with one sensor, with an option for a second sensor (BL-SL-L) output for remote alarm and blower unit. 600-GD can be used on 12 or 24V systems.



**600-GDL - 63597X**

Same features as the 600-GD, with the ability to switch a valve on. It contains a unique "Pulse & Hold" circuit within the detector. This reduces power consumption and heat while gas is turned on.



**600-GDRV - 20871Y**

600-GDRV has the sensor mounted in the front fascia creating a stand alone unit. The unit is designed to be surface mounted at the vessel's lowest point.



**BL-SL-L - 64487V**

Gas sensor lead with a 5 meter lead. Fits 600-GD, 600-GDL and 600-GDRV.

# SAFE ALERT™



# CARBON MONOXIDE ALARMS



- Microprocessor technology programmed to detect carbon monoxide levels using time weighted average (TWA) at 10% COHb curves.
- No false alarms from new boat smell or outgassing.
- Full 5 year service life. End of Life clock starts when power is applied, not in inventory or on retail shelves.
- No nuisance alarms caused by temporary background levels of CO.
- Alarm Mute button silences alarm while boat is ventilated.
- Low Current Draw. Innovative micro current circuit saves precious battery power. 37 milliamp (.037 amp.) current draw.
- 62-541-R-Marine and 62-542-R-Marine include normally closed or normally open relay. Use to turn on exhaust fans, remote horns/ lights/signals or connect to alarm systems.
- Listed NMMA Component. Meets ABYC A-24, Marine CO Alarm.
- Listed to UL 2034 Carbon Monoxide Alarms – Marine Use.
- Meets ISO: 12133 Small craft – Carbon Monoxide (CO) detection systems.



**62-542-MARINE**

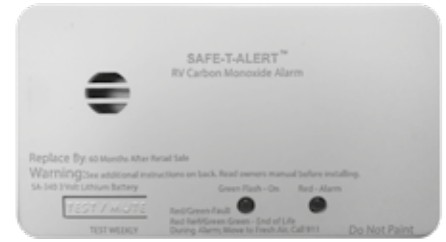


**62-541-MARINE**

| SURFACE MOUNT             | PART No. (WHITE) | PART No. (BLACK) | DESCRIPTION   | DIMENSIONS WxHxD mm (") |
|---------------------------|------------------|------------------|---|-------------------------|
| <b>62-541-MARINE</b>      | 20930M           | 21265H           | CO alarm - 12 V                                     | 89x63x32 (3.5x2.5x1.25) |
| <b>62-541-MARINE-R-NC</b> | 20931P           | 21635R           | CO alarm with relay that breaks when in alarm- 12 V | 89x63x32 (3.5x2.5x1.25) |
| <b>62-541-MARINE-R-NO</b> | 20932S           | 21636T           | CO alarm with relay that makes when in alarm - 12 V | 89x63x32 (3.5x2.5x1.25) |

| FLUSH MOUNT               | PART No. (WHITE) | PART No. (BLACK) | DESCRIPTION   | DIMENSIONS WxHxD mm (")   |
|---------------------------|------------------|------------------|---|---------------------------|
| <b>62-542-MARINE</b>      | 20933U           | 21619T           | CO alarm - 12 V                                     | 114x83x32 (4.5x3.25x1.25) |
| <b>62-542-MARINE-R-NC</b> | 20934W           | 21418G           | CO alarm with relay that breaks when in alarm- 12 V | 114x83x32 (4.5x3.25x1.25) |
| <b>62-542-MARINE-R-NO</b> | 20935Y           | 21266K           | CO alarm with relay that makes when in alarm - 12 V | 114x83x32 (4.5x3.25x1.25) |

- Sealed-In Lithium Battery, No Replacement Needed
- Long 5 Year Battery Life
- Easy Installation.
- Low Battery Indication.
- Built-In Test / Hush Functions.
- Approved. Meets RVIA/NFPA requirements.
- End of Life Signal. Provides audible confrmation when alarm needs to be replaced, with 30 day override. Replacement date is 60 months (5 years) after pulling battery tab.
- Conforms to ANSI / UL STD 2034.



**SA-340-WT**

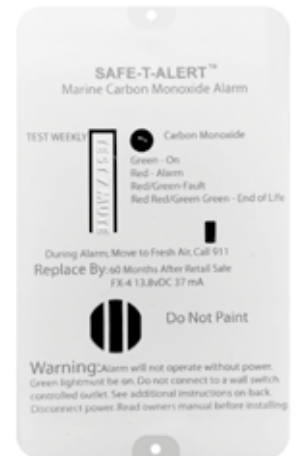


**SA-340-BL**

| SURFACE MOUNT     | PART No. | DESCRIPTION              | DIMENSIONS WxH mm (") |
|-------------------|----------|--------------------------|-----------------------|
| <b>SA-340--WT</b> | 23515R   | Battery CO alarm (white) | 120x69 (4.75x2.75)    |
| <b>SA-340-BL</b>  | 23516T   | Battery CO alarm (black) | 120x69 (4.75x2.75)    |

## FX-4 - CARBON MONOXIDE ALARMS

- Conforms to ANSI / UL STD 2034 - Marine. Meets ABYC A-24. NMMA Listed Component.
- Most Reliable. Boats DC electrical system or marine grade batteries supply power to the alarm. No missing or dead batteries to replace.
- Proven Sensing Technology. Prevents nuisance alarms which could lead to confusion and disconnected detectors.
- Advanced Technology. Alarm Mute button with advanced technology that silences alarm while boat is ventilated. Rapid recovery sensor resets when silenced or reactivates alarm if dangerous levels of CO remain.
- Loud. 85 dB alarm alerts you to CO
- Replaces Fireboy - Xintex CMD-4M and CMD-3M



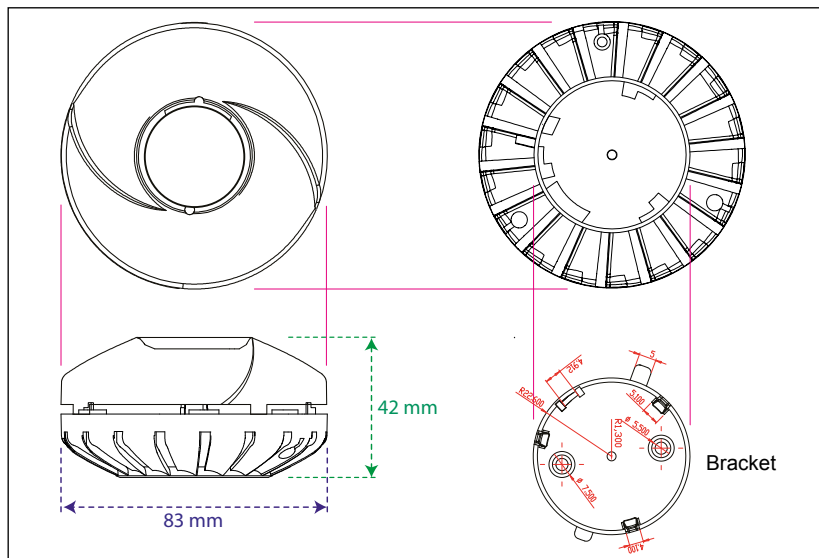
**FX-4**

| SURFACE MOUNT | PART No. | DESCRIPTION     | DIMENSIONS WxH mm (")           |
|---------------|----------|-----------------|---------------------------------|
| <b>FX-4</b>   | 22567F   | CO alarm - 12 V | 63 x 89 x 32 (2.5 x 3.5 x 1.25) |

# PHOTOELECTRIC SMOKE ALARMS



- Sealed-in Battery - No replacement needed.
- For marine use
- Low battery indication (audible & visual)
- 3V DC seal-in battery operated
- Built-in test / hush functions
- Easy push - Test / Hush button
- Easy Installation
- Conforms to UL 217-RV (USA version)
- Meets US Coast Guard and ABYC A-24 Standards for Marine Smoke Alarms (USA version)
- Certified BS EN14604:2005 (EN versions)
- 85 dB alarm



| MODEL     | PART No. (WHITE) | PART No. (BLACK) | DESCRIPTION                                |
|-----------|------------------|------------------|--|
| SA-866    | 22568H           | -                | USA specific version (UL listed: UL217 RV) |
| SA-866-EN | 20936A           | 22570U           | EU specific version (meets EN 14604:2005)  |

# HANDHELD CARBON MONOXIDE MONITOR

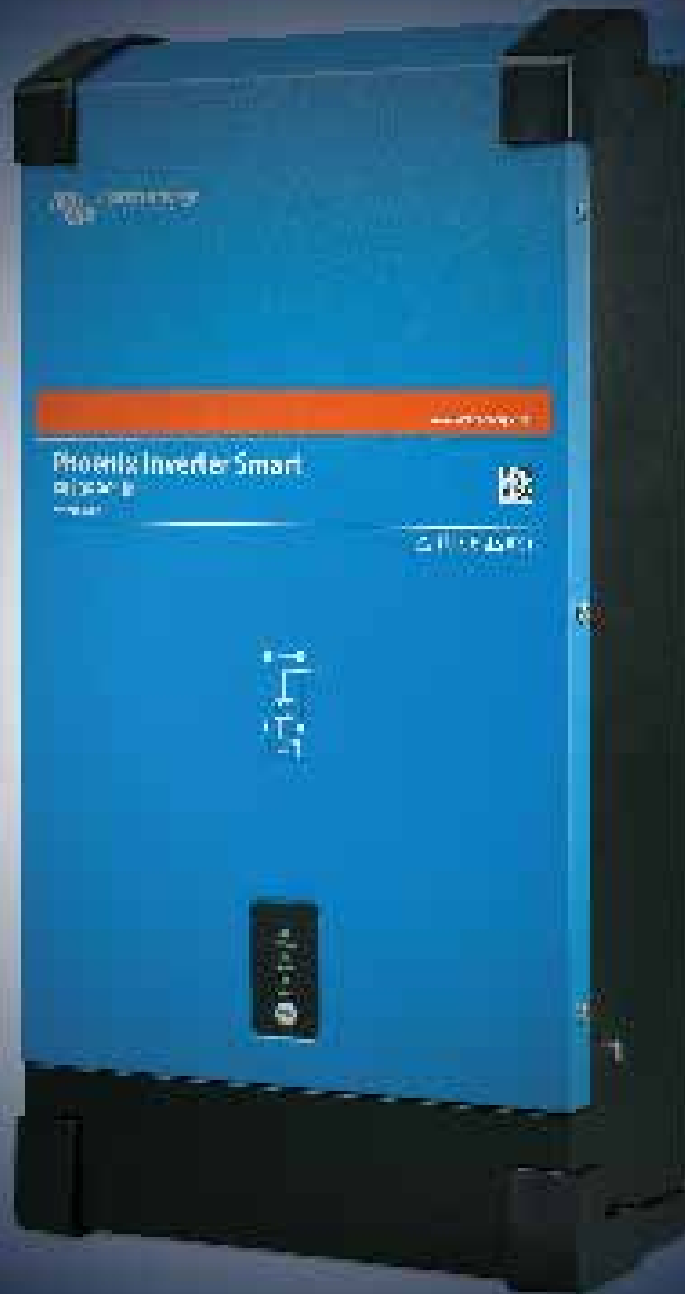
- Portable CO analyzer verifies the CO level anywhere you travel.
- Technicians can use to verify and identify CO leaks in and around boats during service.
- Digital readout displays CO level from 0 to 999 PPM.
- Pocket sized, single button operation no adjustment needed.
- Dimensions WxHxD: 38,1x101,6x25,4 mm (1-1/2"x4"x1")
- 2 Ni-MH rechargeable batteries give over 6 months of continuous operation on a single charge. Recharge from any computer using a standard USB 2.0 to mini USB cord (not included).

SA-HHCO - 23524S





**victron energy**  
B L U E P O W E R



## AUTOMOTIVE IP65

Depending on the application, clamps, eyelets or a cigarette plug (all included) can be connected to the charger.

The state of charge of the battery is indicated by 4 LED's:

- Red LED marked 25% flashing: state of charge less than 25%.
- Red LED marked 25% on, and red LED marked 50% flashing: state of charge less than 50%.
- Red LED's on, and yellow LED marked 75% flashing: state of charge less than 75%.
- Red and yellow LED's on and green LED marked 100% flashing: battery nearly charged.
- All charge level LED's solid on: battery fully charged. Flooded, AGM or GEL batteries.

In case of reverse polarity connection, the red LED ! will turn on after pressing the MODE button.

If the red LED STANDBY remains on, even after pressing the MODE button, the connection to the battery is interrupted.

The charger always starts in STANDBY mode when connected to the AC supply.



**AUTOMOTIVE IP65**



| MODEL           | PART No. | INPUT VOLTAGE RANGE | CHARGE VOLTAGE | CHARGE CURRENT | DIMENSIONS HxWxD mm (")    | WEIGHT kg (lbs) |
|-----------------|----------|---------------------|----------------|----------------|----------------------------|-----------------|
| 6V/12V-1,1A     | 69868K   | 200-265V / 50-60 Hz | 7,2 or 14,4    | 1,1 A          | 42x61x185<br>(1.6x2.4x7.3) | 0,6<br>(1.3)    |
| 12V/4A-12V/0,8A | 69869M   | 200-265V / 50-60 Hz | 14,4 or 14,7   | 4 A or 0,8 A   | 42x61x185<br>(1.6x2.4x7.3) | 0,6<br>(1.3)    |

## BLUE SMART IP65 SERIES WITH DC CONNECTOR

- Water, dust and chemical resistant
- Seven step smart charge algorithm
- Recovery of fully discharged "dead" batteries
- Automatic power supply function
- Automatic compensation for high or low temperature
- Several other battery life enhancing features
- Li-ion battery mode
- Bluetooth built-in function for smartphone monitoring



**BLUE SMART IP 65**



| MODEL          | PART No. | INPUT VOLTAGE RANGE    | CHARGE VOLTAGE ABSORPTION | CHARGE CURRENT | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|----------------|----------|------------------------|---------------------------|----------------|--------------------------|-----------------|
| 6/12V-1.1 IP65 | 24989V   | 180-265V AC / 45-65 Hz | 7,2 - 14,4V DC            | 1,1A           | 38x64x153 (1.5x2.5x6)    | 0,4 (0.9)       |
| 12/4 IP65S     | 21654V   | 180-265V AC / 45-65 Hz | 14,4V DC                  | 4A             | 47x95x190 (1.8x3.7x7.5)  | 0,8 (1.8)       |
| 12/5 IP65S     | 21655X   | 180-265V AC / 45-65 Hz | 14,4V DC                  | 5A             | 45x81x182 (1.7x3.2x7.2)  | 0,6 (1.3)       |
| 12/7 IP65      | 21656Z   | 180-265V AC / 45-65 Hz | 14,4V DC                  | 7A             | 47x95x190 (1.8x3.7x7.5)  | 0,8 (1.8)       |
| 12/10 IP65     | 21657B   | 180-265V AC / 45-65 Hz | 14,4V DC                  | 10A            | 60x105x190 (2.4x4.1x7.5) | 0,9 (2.0)       |
| 12/15 IP65     | 21658D   | 180-265V AC / 45-65 Hz | 14,4V DC                  | 15A            | 60x105x190 (2.4x4.1x7.5) | 0,9 (2.0)       |
| 12/25 IP65     | 23053C   | 180-265V AC / 45-65 Hz | 14,4V DC                  | 25A            | 75x140x240 (2.9x5.5x9.5) | 1,9 (4.2)       |
| 24/5 IP65      | 21659F   | 180-265V AC / 45-65 Hz | 28,8V DC                  | 5A             | 47x95x190 (1.8x3.7x7.5)  | 0,8 (1.8)       |
| 24/8 IP65      | 21660P   | 180-265V AC / 45-65 Hz | 28,8V DC                  | 8A             | 60x105x190 (2.4x4.1x7.5) | 0,9 (2.0)       |
| 24/13 IP65     | 23054E   | 180-265V AC / 45-65 Hz | 28,8V DC                  | 13A            | 47x95x190 (1.8x3.7x7.5)  | 1,9 (4.2)       |

## ACCESSORIES

M6 eyelet connector with fuse - 69856C  
2 m extension cable - 69857E

12V cigarette lighter plug with fuse - 69858G  
Connect clamps with fuse - 69859J  
Battery indicator panel - 23976E



With up to 94% efficiency, these chargers generate up to four times less heat when compared to the industry standard. And once the battery is fully charged, power consumption reduces to 0,5 Watt, some five to ten times better than the industry standard.

Bluetooth built-in function for smartphone monitoring

## STANDARD FEATURES

Adaptive 6-stage charge algorithm: test-bulk-absorption-recondition-float-storage. Storage Mode: less maintenance and aging when the battery is not in use. Also charges Li-ion batteries. NIGHT and LOW setting: the output current is reduced to max. 50% of the nominal output and the charger will be totally noiseless. Protected against overheating. Eleven LEDs for Status indication.



**BLUE SMART IP 22**



| MODEL                     | PART No. | INPUT VOLTAGE RANGE    | CHARGE VOLTAGE ABSORPTION | CHARGE CURRENT | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|---------------------------|----------|------------------------|---------------------------|----------------|--------------------------|-----------------|
| 12/15 IP22 <sup>(1)</sup> | 21661S   | 180-265V AC / 45-65 Hz | Variable*                 | 15A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 12/15 IP22 <sup>(3)</sup> | 21662U   | 180-265V AC / 45-65 Hz | Variable*                 | 15A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 12/20 IP22 <sup>(1)</sup> | 21663W   | 180-265V AC / 45-65 Hz | Variable*                 | 20A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 12/20 IP22 <sup>(3)</sup> | 21664Y   | 180-265V AC / 45-65 Hz | Variable*                 | 20A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 12/30 IP22 <sup>(1)</sup> | 21665A   | 180-265V AC / 45-65 Hz | Variable*                 | 30A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 12/30 IP22 <sup>(3)</sup> | 21553N   | 180-265V AC / 45-65 Hz | Variable*                 | 30A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 24/8 IP22 <sup>(1)</sup>  | 22135Z   | 180-265V AC / 45-65 Hz | Variable*                 | 8A             | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 24/12 IP22 <sup>(1)</sup> | 23129K   | 180-265V AC / 45-65 Hz | Variable*                 | 12A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 24/16 IP22 <sup>(1)</sup> | 22219F   | 180-265V AC / 45-65 Hz | Variable*                 | 16A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |
| 24/16 IP22 <sup>(3)</sup> | 22258S   | 180-265V AC / 45-65 Hz | Variable*                 | 16A            | 235x108x65 (9.2x4.2x2.6) | 1,4 (3.1)       |

\* **Absorption:** 12V Normal 14,4V, High 14,6V, Li-ion 14,2V – 24V Normal 28,8V, High 29,2V, Li-ion 28,4V

**Float:** 12V Normal 13,8V, High 13,8V, Li-ion 13,35V – 24V Normal 27,6V, High 27,6V, Li-ion 26,7V

**Storage:** 12V Normal 13,2V, High 13,8V, Li-ion n.d. – 24V Normal 26,4V, High 26,4V, Li-ion: n.d

## BLUE SMART IP67

- Power supply range: 180-265 VAC
- Completely encapsulated body. Water, oil or dirt will not damage the Blue Power IP67 charger. The casing is made of cast aluminium and the electronics are moulded in resin.
- Top level efficiency: with 92% efficiency or better, these chargers waste three to four times less heat
- Adaptive 4-stage charge algorithm: bulk – absorption – float – storage. The Blue Power charger features a microprocessor controlled ‘adaptive’ battery management. This feature will automatically optimise the charging process relative to the way the battery is being used.
- Bluetooth built-in function for smartphone monitoring



BLUE SMART IP 67



| MODEL                     | PART No. | INPUT VOLTAGE RANGE    | CHARGE VOLTAGE | CHARGE CURRENT | DIMENSIONS HxWxD mm (") | WEIGHT kg (lbs) |
|---------------------------|----------|------------------------|----------------|----------------|-------------------------|-----------------|
| 12/7 IP67 <sup>(1)</sup>  | 21544M   | 180-265V AC / 45-65 Hz | 14,4V DC       | 7A             | 85x211x60 (3.4x8.3x2.4) | 1.8 (4)         |
| 12/13 IP67 <sup>(1)</sup> | 21378X   | 180-265V AC / 45-65 Hz | 14,4V DC       | 13A            | 85x211x60 (3.4x8.3x2.4) | 1.8 (4)         |
| 12/17 IP67 <sup>(1)</sup> | 21667E   | 180-265V AC / 45-65 Hz | 14,4V DC       | 17A            | 99x219x65 (3.9x8.6x2.6) | 2.4 (5.3)       |
| 12/25 IP67 <sup>(1)</sup> | 21668G   | 180-265V AC / 45-65 Hz | 14,4V DC       | 25A            | 99x219x65 (3.9x8.6x2.6) | 2.4 (5.3)       |
| 12/25 IP67 (1+SI)         | 21669J   | 180-265V AC / 45-65 Hz | 14,4V DC       | 25A            | 99x219x65 (3.9x8.6x2.6) | 2.4 (5.3)       |
| 24/5 IP67 <sup>(1)</sup>  | 21670T   | 180-265V AC / 45-65 Hz | 28,8V DC       | 5A             | 85x211x60 (3.4x8.3x2.4) | 1.8 (4)         |
| 24/8 IP67 <sup>(1)</sup>  | 21671V   | 180-265V AC / 45-65 Hz | 28,8V DC       | 8A             | 99x219x65 (3.9x8.6x2.6) | 2.4 (5.3)       |
| 24/12 IP67 <sup>(1)</sup> | 21672X   | 180-265V AC / 45-65 Hz | 28,8V DC       | 12A            | 99x219x65 (3.9x8.6x2.6) | 2.4 (5.3)       |
| 24/12 IP67 (1+SI)         | 21673Z   | 180-265V AC / 45-65 Hz | 28,8V DC       | 12A            | 99x219x65 (3.9x8.6x2.6) | 2.4 (5.3)       |

The models with suffix (1+Si) feature a second current limited output which is always powered as long as 180 - 265 VAC is present on the input. This output can for example be used to prevent starting of a vehicle before unplugging the battery charger (start interrupt function).

## PHOENIX SERIES: MICROPROCESSOR CONTROL

Phoenix automatic battery chargers with microprocessor can suit perfectly and automatically the charge for the batteries. During the 4 charge stages (bulk-absorption-float-storage) the battery charger will maintain the optimal charge depending on battery status and use.

### STANDARD FEATURES

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, built-in temperature sensors, forced cooling, protection against output short circuit and over temperature, battery temperature sensor, compensation on cable voltage fall, two full charge output and one oputput limited to 4 A, RS-485 data port for computer connection, feeder function.



PHOENIX



| MODEL | PART No. | INPUT VOLTAGE         | CHARGE VOLTAGE (Absorption) | CHARGE CURRENT <sup>(1)</sup> | Ah BATTERIES | DIMENSIONS HxWxD mm (")    | WEIGHT kg (lbs) |
|-------|----------|-----------------------|-----------------------------|-------------------------------|--------------|----------------------------|-----------------|
| 12/30 | 64900A   | 90-265V AC / 45-65 Hz | 14,4V DC                    | 30 A (x2) + 4 A               | 100/400      | 350x200x108 (13.8x7.9x4.3) | 3.8 (8.4)       |
| 12/50 | 64901C   | 90-265V AC / 45-65 Hz | 14,4V DC                    | 50 A (x2) + 4 A               | 200/800      | 350x200x108 (13.8x7.9x4.3) | 3.8 (8.4)       |
| 24/16 | 64902E   | 90-265V AC / 45-65 Hz | 28,8V DC                    | 16 A (x2) + 4 A               | 100/200      | 350x200x108 (13.8x7.9x4.3) | 3.8 (8.4)       |
| 24/25 | 64903G   | 90-265V AC / 45-65 Hz | 28,8V DC                    | 25 A (x2) + 4 A               | 100/400      | 350x200x108 (13.8x7.9x4.3) | 3.8 (8.4)       |

(1) 100 % output up to 40°C, 80% nominal output at 50°C and 60% of nominal at 60°C

### Bluetooth Smart enabled

Any Bluetooth enabled smart phone, tablet or other device can be used to monitor, to change settings and to update the charger when new software features become available.

### Phoenix Smart (1+1): two outputs to charge 2 battery banks

The second output, limited to approximately 3A and with a slightly lower output voltage, is intended to top up a starter battery.

### Phoenix Smart (3): three full current outputs to charge 3 battery banks

Each output can supply the full rated output current. But the total of the 3 outputs combined can never exceed the current rating of the charger

### Automatic voltage compensation

The charger compensates for voltage drop over the DC cabling by slightly increasing output voltage when the DC current increases.

### Adaptive 5-stage charge algorithm:

#### bulk – absorption – recondition – float – storage

The Phoenix Smart Charger features Victron well-known 'adaptive' battery management system that can be preset to suit different types of batteries. The 'adaptive' feature will automatically optimise the charge process relative to the way the battery is being used.

### The right amount of charge: variable absorption time

When only shallow discharges occur (a yacht connected to shore power for example) the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery will be fully charged.

### Also charges Li-ion (LiFePO<sub>4</sub>) batteries

Charger on-off control can be implemented by connecting a relay or open collector optocoupler output from a Li-ion BMS to the remote on-off port.

Alternatively full control of voltage and current can be achieved with Bluetooth.

### Fully programmable charge algorithm

The charge algorithm can be programmed with help of Bluetooth or the VE.Direct interface. Three preprogrammed algorithms can be selected with the mode button.

### Remote on-off

The remote on/off consists of two terminals: Remote H and Remote L.

A remote on/off switch or relay contact can be connected between H and L. Alternatively, terminal H can be pulled high, or terminal L can be pulled low.

### VE.Direct interface

For a wired data connection to a Color Control panel, PC or other devices.

### Programmable relay

Can be programmed using the VE.Direct interface or a Bluetooth enabled device to trip on an alarm or other events.



PHOENIX SMART IP43 (1+1)



PHOENIX SMART IP43 (3)



2m AC cord CEE 7/7  
to be ordered separately - 23069U

| MODEL                  | PART No. | INPUT VOLTAGE | FREQUENCY | CHARGE VOLTAGE | CHARGE CURRENT | DIMENSIONS HxWxD mm (") | WEIGHT kg (lbs) |
|------------------------|----------|---------------|-----------|----------------|----------------|-------------------------|-----------------|
| 12/30 <sup>(3)</sup>   | 23063F   | 230 VCA       | 45-65 Hz  | 14,4 V         | 30/50 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 12/50 <sup>(1+1)</sup> | 23064H   | 230 VCA       | 45-65 Hz  | 14,4 V         | 30/50 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 12/50 <sup>(3)</sup>   | 23880R   | 230 VCA       | 45-65 Hz  | 14,4 V         | 30/50 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 24/25 <sup>(3)</sup>   | 23068S   | 230 VCA       | 45-65 Hz  | 28,8 V         | 16/25 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 12/30 <sup>(1+1)</sup> | 24990D   | 120 - 240 VCA | 45-65 Hz  | 14,4 V         | 30/50 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 12/30 <sup>(3)</sup>   | 24991F   | 120 - 240 VCA | 45-65 Hz  | 14,4 V         | 30/50 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 12/50 <sup>(1+1)</sup> | 22946P   | 120 - 240 VCA | 45-65 Hz  | 14,4 V         | 30/50 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 12/50 <sup>(3)</sup>   | 24992H   | 120 - 240 VCA | 45-65 Hz  | 14,4 V         | 30/50 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 24/16 <sup>(1+1)</sup> | 24943U   | 120 - 240 VCA | 45-65 Hz  | 28,8 V         | 16/25 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 24/25 <sup>(1+1)</sup> | 24944W   | 120 - 240 VCA | 45-65 Hz  | 28,8 V         | 16/25 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |
| 24/25 <sup>(3)</sup>   | 24945Y   | 120 - 240 VCA | 45-65 Hz  | 28,8 V         | 16/25 A        | 180x249x100 (7.1x9.8x4) | 3,5 (7.7)       |

# CENTAUR BATTERY CHARGERS: ANALOGIC CONTROL



Centaur battery chargers have automatic three stage IUoUo charging. All models are designed to operate all over the world without any adjustment needed on input voltage range or frequency.

They have three isolated outputs to simultaneously charge 3 battery banks. Each output is capable to supply the full rated current.

## STANDARD FEATURES

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, built-in temperature sensors, forced cooling, protection against output short circuit and over temperature, analog ammeter, DIP switch for selection of charge/float voltage for flooded lead-acid, gel or AGM batteries, Europe CE certification and U.S.A. UL certification.

Temperature range: -20 + 60° C



CENTAUR



| MODEL  | PART No. | INPUT VOLTAGE RANGE   | CHARGE VOLTAGE ABSORPTION | CHARGE CURRENT <sup>(1)</sup> | Ah BATTERIES | DIMENSIONS HxWxD mm (")        | WEIGHT kg (lbs) |
|--------|----------|-----------------------|---------------------------|-------------------------------|--------------|--------------------------------|-----------------|
| 12/20  | 64886K   | 90-265V AC / 45-65 Hz | 14.3V DC                  | 20 A                          | 80/200       | 355x215x110<br>(14.0x8.5x4.3)  | 3.8<br>(8.4)    |
| 12/30  | 64887M   | 90-265V AC / 45-65 Hz | 14.3V DC                  | 30 A                          | 120/300      | 355x215x110<br>(14.0x8.5x4.3)  | 3.8<br>(8.4)    |
| 12/40  | 64888P   | 90-265V AC / 45-65 Hz | 14.3V DC                  | 40 A                          | 160/400      | 426x239x135<br>(16.8x9.4x5.3)  | 5<br>(11)       |
| 12/50  | 64889S   | 90-265V AC / 45-65 Hz | 14.3V DC                  | 50 A                          | 200/500      | 426x239x135<br>(16.8x9.4x5.3)  | 5<br>(11)       |
| 12/60  | 64890A   | 90-265V AC / 45-65 Hz | 14.3V DC                  | 60 A                          | 240/600      | 426x239x135<br>(16.8x9.4x5.3)  | 5<br>(11)       |
| 12/80  | 64891C   | 90-265V AC / 45-65 Hz | 14.3V DC                  | 80 A                          | 320/800      | 505x255x130<br>(19.9x10.0x5.2) | 12<br>(26.4)    |
| 12/100 | 64892E   | 90-265V AC / 45-65 Hz | 14.3V DC                  | 100 A                         | 400/1000     | 505x255x130<br>(19.9x10.0x5.2) | 12<br>(26.4)    |
| 24/16  | 64894J   | 90-265V AC / 45-65 Hz | 28.5V DC                  | 16 A                          | 45/150       | 355x215x110<br>(14.0x8.5x4.3)  | 3.8<br>(8.4)    |
| 24/30  | 64895L   | 90-265V AC / 45-65 Hz | 28.5V DC                  | 30 A                          | 120/300      | 426x239x135<br>(16.8x9.4x5.3)  | 5<br>(11)       |
| 24/40  | 64896N   | 90-265V AC / 45-65 Hz | 28.5V DC                  | 40 A                          | 160/400      | 505x255x130<br>(19.9x10.0x5.2) | 12<br>(26.4)    |
| 24/60  | 64897R   | 90-265V AC / 45-65 Hz | 28.5V DC                  | 60 A                          | 240/600      | 505x255x130<br>(19.9x10.0x5.2) | 12<br>(26.4)    |

(1) 100 % output up to 40°C, 80% nominal output at 50°C and 60% of nominal at 60°C.

### Skylla-IP65 (1+1): two outputs to charge 2 battery banks

The Skylla-IP65 (1+1) features 2 isolated outputs. The second output, limited to approximately 3A and with a slightly lower output voltage, is intended to top up a starter battery.

### Skylla-IP65 (3): three full current outputs to charge 3 battery banks

The Skylla-IP65 (3) features 3 isolated outputs. All outputs can supply the full rated output current.



SKYLLA IP65

### IP65 protection

Steel epoxy powder coated case and splash proof. Withstands the rigors of an adverse environment: heat, humidity and salt air.

Circuit boards are protected with an acrylic coating for maximum corrosion resistance.

Temperature sensors ensure that power components will always operate within specified limits, if needed by automatic reduction of output current under extreme environmental conditions.

### LCD display

For status monitoring and to easily adapt the charge algorithm to a particular battery and its conditions of use.

### CAN bus interface (NMEA2000)

To connect to a CAN bus network, to a Skylla-i Control panel or to the Color Control digital display.

### Synchronised parallel operation

Several chargers can be connected in parallel and synchronised with help of the CAN bus interface. This is achieved by simply interconnecting the chargers with RJ45 UTP-cables.

### The right amount of charge for a lead-acid battery: variable absorption time

When only shallow discharges occur the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.

### Preventing damage due to excessive gassing: the BatterySafe mode

If, in order to quickly charge a battery, a high charge current in combination with a high absorption voltage has been chosen, the Skylla-IP65 will prevent damage due to excessive gassing by automatically limiting the rate of voltage increase once the gassing voltage has been reached.

### Less maintenance and aging when the battery is not in use: the Storage mode

The Storage mode kicks in whenever the battery has not been subjected to discharge during 24 hours. In the storage mode float voltage is reduced to 2,2V/cell (26,4V for 24V battery) to minimise gassing and corrosion of the positive plates. Once a week the voltage is raised back to the absorption level to 'refresh' the battery. This feature prevents stratification of the electrolyte and sulphation, a major cause of early battery failure.

### To increase battery life: temperature compensation

Every Skylla-IP65 comes with a battery temperature sensor. When connected, charge voltage will automatically decrease with increasing battery temperature. This feature is especially recommended for sealed lead-acid batteries and/or when important fluctuations of battery temperature are expected.

### Battery voltage sense

In order to compensate for voltage loss due to cable resistance, the Skylla-IP65 is provided with a voltage sense facility so that the battery always receives the correct charge voltage.

### Use as a power supply

As a result of the excellent control circuit, the Skylla-IP65 can be used as a power supply with perfectly stabilized output voltage if batteries or large buffer capacitors are not available.

### Li-Ion (LiFePO4) ready

Simple charger on-off control can be implemented by connecting a relay or open collector opto coupler output from a Li-Ion BMS to the remote control port of the charger. Alternatively complete control of voltage and current can be achieved by connecting to the CAN bus port.

| MODEL            | PART No. | INPUT VOLTAGE RANGE   | CHARGE VOLTAGE | Ah BATTERIES | DIMENSIONS HxWxD mm (") | WEIGHT kg (lbs) |
|------------------|----------|-----------------------|----------------|--------------|-------------------------|-----------------|
| 12/70 IP65 (1+1) | 23776W   | 90-265V AC / 45-65 Hz | 14.4V          | 350-700 Ah   | 401x265x151 (16x10.5x6) | 6 (14)          |
| 12/70 IP65 (3)   | 23777Y   | 90-265V AC / 45-65 Hz | 14.4V          | 350-700 Ah   | 401x265x151 (16x10.5x6) | 6 (14)          |
| 24/35 IP65 (1+1) | 23778A   | 90-265V AC / 45-65 Hz | 28.8V          | 150-350 Ah   | 401x265x151 (16x10.5x6) | 6 (14)          |
| 24/35 IP65 (3)   | 23779C   | 90-265V AC / 45-65 Hz | 28.8V          | 150-350 Ah   | 401x265x151 (16x10.5x6) | 6 (14)          |

## MICROPROCESSOR CONTROL

Skylla battery chargers have automatic three stage IUoUo charging. They are designed for use on battery banks with 24V DC / 48V DC. They have two outputs, two full charge output and one output limited to 4 A.

## STANDARD FEATURES

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, built-in temperature sensors, forced cooling, protection against output short circuit and over temperature, battery temperature sensor, compensation on cable voltage fall, feeder function.

SKYLLA



## GMDSS

**Power supply:** The Skylla TG has proven itself to be an excellent battery charger and power supply for GMDSS applications. However, when using a standard Skylla charger, additional equipment is needed to perform the monitoring and alarm functions required for GMDSS.

**No adjustments needed:** The whole system is 'click and go': the panels are pre-programmed for GMDSS functionality. A simple, intuitive menu allows changing of settings if required.

**Battery time to go:** The Skylla GMDSS charger has a built-in battery controller. The capacity of the battery is fully monitored so the panel can even indicate the 'time to go' in case of a power supply black out.



VE.Net GMDSS panel - 67598W



SKYLLA GMDSS



| MODEL              | Part No. | INPUT VOLTAGE RANGE    | CHARGE VOLTAGE (Absorption) | CHARGE CURRENT <sup>(1)</sup> | Ah BATTERIES | DIMENSIONS HxWxD mm (")              | WEIGHT kg (lbs) |
|--------------------|----------|------------------------|-----------------------------|-------------------------------|--------------|--------------------------------------|-----------------|
| TG 24/30           | 64904J   | 120-230V AC / 45-65 Hz | 28.5 VDC                    | 30 A + 4 A                    | 150/300      | 365 x 250 x 147 (14.4 x 9.9 x 5.8)   | 5.5 (12.1)      |
| TG 24/30 GMDSS     | 66036V   | 120-230V AC / 45-65 Hz | 28.5 VDC                    | 30 A + 4 A                    | 150/300      | 485 x 250 x 147 (19.1 x 9.9 x 5.8)   | 6 (13.2)        |
| TG 24/50           | 64905L   | 230V AC / 45-65 Hz     | 28.5 VDC                    | 50 A + 4 A                    | 250/500      | 365 x 250 x 147 (14.4 x 9.9 x 5.8)   | 5.5 (12.1)      |
| TG 24/50 GMDSS     | 67918M   | 120-230V AC / 45-65 Hz | 28.5 VDC                    | 50 A + 4 A                    | 250/500      | 485 x 250 x 147 (19.1 x 9.9 x 5.8)   | 6 (13.2)        |
| TG 24/50 3 phases  | 68895H   | 320-450V AC / 45-65 Hz | 28.5 VDC                    | 50 A + 4 A                    | 250/500      | 365 x 250 x 257 (14.4 x 9.9 x 10.1)  | 13 (28.7)       |
| TG 24/80           | 64906N   | 230V AC / 45-65 Hz     | 28.5 VDC                    | 80 A + 4 A                    | 400/800      | 365 x 250 x 257 (14.4 x 9.9 x 10.1)  | 10 (22)         |
| TG 24/100          | 64907R   | 230V AC / 45-65 Hz     | 28.5 VDC                    | 100 A + 4 A                   | 500/1000     | 365 x 250 x 257 (14.4 x 9.9 x 10.1)  | 10 (22)         |
| TG 24/100 3 phases | 64908T   | 320-450V AC / 45-65 Hz | 28.5 VDC                    | 100 A + 4 A                   | 500/1000     | 515 x 260 x 265 (20.0 x 10.2 x 10.4) | 23 (48)         |

(1) 100 % output up to 40°C, 80% nominal output at 50°C and 60% of nominal at 60°C.

OPTIONAL: Skylla control panel - 65007G

TG 48/25 and TG 48/50 models are available on request.

### Synchronised parallel operation

Several chargers can be synchronised with the CAN bus interface. This is achieved by simply interconnecting the chargers with RJ45 UTP cables. Please see the manual for details.

### The right amount of charge for a lead-acid battery: variable absorption time

When only shallow discharges occur the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.

### Preventing damage due to excessive gassing: the BatterySafe mode

If, in order to quickly charge a battery, a high charge current in combination with a high absorption voltage has been chosen, the Skylla-i will prevent damage due to excessive gassing by automatically limiting the rate of voltage increase once the gassing voltage has been reached

### Less maintenance and aging when the battery is not in use: the Storage mode

The storage mode kicks in whenever the battery has not been subjected to discharge during 24 hours. In the storage mode float voltage is reduced to 2,2 V/cell (26,4 V for 24 V battery) to minimise gassing and corrosion of the positive plates. Once a week the voltage is raised back to the absorption level to 'refresh' the battery. This feature prevents stratification of the electrolyte and sulphation, a major cause of early battery failure.

### To increase battery life: temperature compensation

Every Skylla-i comes with a battery temperature sensor. When connected, charge voltage will automatically decrease with increasing battery temperature. This feature is especially recommended for sealed lead-acid batteries and/or when important fluctuations of battery temperature are expected.

### Battery voltage sense

In order to compensate for voltage loss due to cable resistance, the Skylla-i is provided with a voltage sense facility so that the battery always receives the correct charge voltage.

- Power supply range: 180-265 VAC and 180-350 VDC
- This particular version has all the features of excellence present in the Skylla family and it adds other interesting features such as The Predisposition to charge Li-Ion (LiFePO<sub>4</sub>) and the Synchronised parallel operation via CANbus interface
- The Skylla-I chargers, as the other Skylla units, are suitable for AC and DC (AC-DC and DC-DC operation), and as a power source due to the perfect stabilization of the output voltage



SKYLLA-i

| MODEL          | PART No. | INPUT VOLTAGE RANGE    | CHARGE VOLTAGE | Ah BATTERIES | DIMENSIONS HxWxD mm (")       | WEIGHT kg (lbs) |
|----------------|----------|------------------------|----------------|--------------|-------------------------------|-----------------|
| i 24/80 (1+1)  | 68896K   | 180-265V AC / 45-65 Hz | 28.8V          | 400-800      | 402x250x140<br>(15.8x9.9x5.5) | 8.0<br>(17.6)   |
| i 24/80 (3)    | 68897M   | 180-265V AC / 45-65 Hz | 28.8V          | 400-800      | 402x250x140<br>(15.8x9.9x5.5) | 8.0<br>(17.6)   |
| i 24/100 (1+1) | 68898P   | 180-265V AC / 45-65 Hz | 28.8V          | 500-1000     | 402x250x140<br>(15.8x9.9x5.5) | 8.0<br>(17.6)   |
| i 24/100 (3)   | 68899S   | 180-265V AC / 45-65 Hz | 28.8V          | 500-1000     | 402x250x140<br>(15.8x9.9x5.5) | 8.0<br>(17.6)   |

(1+1) one full power output and a second one limited  
 (3) three full current outputs

Developed for professional duty, **Phoenix** pure sine inverters are suitable for the widest range of applications.

The design criteria have been to produce a true sine wave inverter with optimised efficiency without compromise in performance.

Employing hybrid HF technology, the result is a top quality product with compact dimensions, light in weight and capable of supplying power, problem-free, to any load. A unique feature of the **SinusMax** technology is very high start-up power. Phoenix inverters, in fact, are well suited to power up difficult loads such as: refrigeration compressors, electric motors and similar applications. Conventional high frequency technology does not offer such extreme performance.



## PHOENIX INVERTER UP TO 1200 VA

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, forced cooling with temperature sensors, remote connector, battery cables (1.5 m), output short circuit protection, over temperature protection. 48V input models also available



| MODEL              | PART No. | INPUT VOLTAGE RANGE DC | CONT. OUTPUT POWER - VA <sup>(1)</sup> | PEAK POWER-W |                                    | MAX. EFFIC. % | DIMENSIONS HxWxD mm (")    | WEIGHT kg (lbs) |
|--------------------|----------|------------------------|--|--------------|------------------------------------|---------------|----------------------------|-----------------|
| 12/250 VE. Direct  | 20404P   | 9,2 – 17,0             | 250                                    | 400          | OUTPUT*: 230V AC ± 2% - 50 Hz ± 2% | 87            | 86x165x260 (3.4x6.5x10.2)  | 2,4 (5.3)       |
| 12/375 VE. Direct  | 20405S   | 9,2 – 17,0             | 375                                    | 700          |                                    | 89            | 86x165x260 (3.4x6.5x10.2)  | 3,0 (6.6)       |
| 12/500 VE. Direct  | 20809T   | 9,2 – 17,0             | 500                                    | 900          |                                    | 90            | 86x172x275 (3.4x6.8x10.8)  | 3,9 (8.6)       |
| 12/800 VE. Direct  | 21549Y   | 9,2 – 17,0             | 800                                    | 1600         |                                    | 91            | 105x216x305 (4.2x8.5x11.9) | 5,5 (12.1)      |
| 12/1200 VE. Direct | 22852E   | 9,2 – 17,0             | 1200                                   | 2200         |                                    | 91            | 117x232x327 (4.6x9.1x12.9) | 7,4 (16.3)      |
| 24/250 VE. Direct  | 20406U   | 18,4 – 34,0            | 250                                    | 350          |                                    | 88            | 86x165x260 (3.4x6.5x10.2)  | 2,4 (5.3)       |
| 24/375 VE. Direct  | 20407W   | 18,4 – 34,0            | 375                                    | 700          |                                    | 89            | 86x165x260 (3.4x6.5x10.2)  | 3,0 (6.6)       |
| 24/500 VE. Direct  | 20810B   | 18,4 – 34,0            | 500                                    | 900          |                                    | 90            | 86x172x275 (3.4x6.8x10.8)  | 3,9 (8.6)       |
| 24/800 VE. Direct  | 21550G   | 18,4 – 34,0            | 800                                    | 1500         |                                    | 90            | 105x216x305 (4.2x8.5x11.9) | 5,5 (12.1)      |
| 24/1200 VE. Direct | 21802H   | 18,4 – 34,0            | 1200                                   | 2200         |                                    | 91            | 117x232x327 (4.6x9.1x12.9) | 7,4 (16.3)      |

(1) Continuous output power at 25° C

\*Output 120V-60Hz also available



### Bluetooth built-in: fully configurable with a tablet or smartphone

- Low battery voltage alarm
- Low battery voltage cut-off and restart levels
- Dynamic cut-off: load dependent cut-off level
- Output voltage: 210 - 245V
- Frequency: 50 Hz or 60 Hz
- ECO mode on/off and ECO mode sense level
- Alarm relay

### Monitoring:

- In- and output voltage, load and alarms

### VE.Direct communication port

The VE.Direct port can be connected to a computer (VE.Direct to USB interface cable needed) to configure and monitor the same parameters.

### Proven reliability

The full bridge plus toroidal transformer topology has proven its reliability over many years. The inverters are short circuit proof and protected against overheating, whether due to overload or high ambient temperature.

### High start-up power

Needed to start loads such as power converters for LED lamps, halogen lamps or electric tools.

### ECO mode

When in ECO mode, the inverter will switch to standby when the load decreases below a preset value. Once in standby the inverter will switch on for a short period every 2,5 seconds (adjustable). If the load exceeds the preset level, the inverter will remain on.

### Remote on/off

A remote on/off switch or relay contact can be connected to a two pole connector. Alternatively, the H terminal (left) of the two pole connector can be switched to battery plus, or the L terminal (right) of the two pole connector can be switched to battery minus (or the chassis of a vehicle, for example). 48V input models also available



**PHOENIX SMART 12/1600**

| MODEL         | PART No. | INPUT VOLTAGE RANGE DC | CONT. OUTPUT POWER - VA <sup>(1)</sup> | PEAK POWER-VA | OUTPUT: 230V AC ±2%<br>50 Hz o 60 Hz ± 1% | MAX. EFFIC. % | DIMENSIONS HxWxD mm (")     | WEIGHT kg (lbs) |
|---------------|----------|------------------------|--|---------------|---|---------------|-----------------------------|-----------------|
| 12/1600 Smart | 22825B   | 9,3 – 17,0             | 1600                                   | 3000          |   | 92            | 485x219x125 (19.1x8.6x4.9)  | 12 (26.5)       |
| 12/2000 Smart | 22826D   | 9,3 – 17,0             | 2000                                   | 4000          |   | 92            | 485x219x125 (19.1x8.6x4.9)  | 13 (28.7)       |
| 12/3000 Smart | 23059R   | 9,3 – 17,0             | 3000                                   | 6000          |   | 93            | 533x285x150 (21x11.2x5.9)   | 19 (41.9)       |
| 24/1600 Smart | 22827F   | 18,6 – 34,0            | 1600                                   | 3000          |   | 94            | 485x219x125 (19.1x8.6x4.9)  | 12 (26.5)       |
| 24/2000 Smart | 22828H   | 18,6 – 34,0            | 2000                                   | 4000          |   | 94            | 485x219x125 (19.1x8.6x4.9)  | 13 (28.7)       |
| 24/3000 Smart | 23060Z   | 18,6 – 34,0            | 3000                                   | 6000          |   | 94            | 485x285x150 (19.1x11.2x5.9) | 19 (41.9)       |
| 24/5000 Smart | 23758U   | 18,6 – 34,0            | 5000                                   | 10000         |   | 95            | 595x295x160 (23.4x11.6x6.3) | 29 (63.9)       |

(1) Continuous output power at 25° C

# 1200VA - 5000VA PHOENIX INVERTERS

Developed for professional duty, the Phoenix range of inverters is suitable for the widest range of applications. The design criteria have been to produce a true sine wave inverter with optimized efficiency but without compromise in performance. A unique feature of the SinusMax technology is very high start-up power. Conventional high frequency technology does not offer such extreme performance. Phoenix inverters, however, are well suited to power up difficult loads such as refrigeration compressors, electric motors and similar appliances.

Up to 6 units can operate in parallel to achieve higher power output. Six 24/5000 units, for example, will provide 24kW / 30kVA output power. Operation in 3-phase configuration is also possible.

### To transfer the load to another AC source: the automatic transfer switch.

If an automatic transfer switch is required we recommend using the MultiPlus inverter/charger instead. The switch is included in these products and the charger function of the MultiPlus can be disabled. Computers and other electronic equipment will continue to operate without disruption because the MultiPlus features a very short switchover time (less than 20 milliseconds).

**Computer interface:** All models have a RS-485 port. All you need to connect to your PC is our MK2 interface (see under accessories). This interface takes care of galvanic isolation between the inverter and the computer, and converts from RS-485 to RS-232.



PHOENIX 1200 VA



## STANDARD FEATURES

Aluminum epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, forced cooling with temperature sensors, protection against: output short circuit, overload, low battery voltage, reverse polarity, reverse voltage on output, input voltage ripple, high temperature.  
Relay multifunction.

| MODEL    | PART No. | INPUT VOLTAGE RANGE V DC | CONT OUTPUT POWER VA <sup>(1)</sup> | PEAK POWER W |                                   | MAX. EFFIC % | DIMENSIONS HxWxD mm (")     | WEIGHT kg (lbs) |
|----------|----------|--------------------------|-------------------------------------|--------------|-----------------------------------|--------------|-----------------------------|-----------------|
| C12/1200 | 64918W   | 9,5 – 17,0               | 1200                                | 2400         | OUTPUT: 230V AC ± 2% - 50 Hz ± 2% | 92           | 375x214x110 (14.7x8.4x4.3)  | 10 (22)         |
| C12/1600 | 64919Y   | 9,5 – 17,0               | 1600                                | 3000         |                                   | 92           | 375x214x110 (14.7x8.4x4.3)  | 10 (22)         |
| C12/2000 | 66407E   | 9,5 – 17,0               | 2000                                | 4000         |                                   | 92           | 520x255x125 (20.5x10.0x4.9) | 13 (28.6)       |
| 12/3000  | 66037X*  | 9,5 – 17,0               | 3000                                | 6000         |                                   | 93           | 362x258x218 (14.2x10.1x8.6) | 18 (39.7)       |
| C24/1600 | 64922L   | 19,0 – 33,0              | 1600                                | 3000         |                                   | 94           | 375x214x110 (14.7x8.4x4.3)  | 10 (22)         |
| C24/2000 | 66408G   | 19,0 – 33,0              | 2000                                | 4000         |                                   | 92           | 520x255x125 (20.5x10.0x4.9) | 13 (28.6)       |
| 24/3000  | 64923N*  | 19,0 – 33,0              | 3000                                | 6000         |                                   | 94           | 362x258x218 (14.2x10.1x8.6) | 18 (39.7)       |
| 24/5000  | 66244C   | 19,0 – 33,0              | 5000                                | 10.000       |                                   | 94           | 444x328x240 (17.5x12.9x9.4) | 28 (61.7)       |

(1) Continuous output power at 25°C

All models are suitable for parallel (max 6 parallel units) and 3-phase operation

OPTIONAL: control panel Phoenix CC Inverter – 65006E

Also available 3000/5000 48V models

\*Output 120V-60Hz also available

### Two AC inputs with integrated transfer switch

The Quattro can be connected to two independent AC sources, for example shore-side power and a generator, or two generators: the Quattro will automatically connect to the active source.

### Two AC outputs

The main output has no-break functionality. In the event of a grid failure, or shore or generator power being disconnected, the Quattro takes over the supply to the connected loads. This happens so fast (less than 20 milliseconds) that computers and other electronic equipment will continue to operate without disruption. The second output is live only when AC source is available. Loads that should discharge the battery, like a water heater for example can be connected to this output.

### Virtually unlimited power thanks to parallel operation

Up to 10 Quattro's can operate in parallel. Ten units 24/5000/120, for example, will provide 40kW / 50kVA output power and 1200 Amp charging capacity.

### Three phase capability

Three units can be configured for three-phase output and up to 6 sets of three units can be parallel connected to provide 75kW / 90kVA inverter power and more than 2000 Amp charging capacity.

### Power Control - Dealing with limited generator, shore-side or grid power

The Quattro is a very powerful battery charger. It will therefore draw a lot of current from the generator or shore-side supply (16A per Quattro at 230 VAC). A current limit can be set for both AC inputs. The Quattro will then take account of the other AC loads and use whatever is spare for charging, thus preventing the generator or shore supply from being overloaded.

### Power Assist – Boosting shore or generator power

Where peak power is so often required only for a limited period, the Quattro makes sure that insufficient shore or generator power is immediately compensated for by power from the battery. When the load reduces, the spare power is used to recharge the battery. With this feature, problems related to insufficient shore or generator power are solved once and for all. Air conditioning, an electric hob, a washing machine, a dish washer, a 16A shore connection, or even less than 16A, will not limit you in any way.



**QUATTRO**  
5kVA



| MODEL               | PART No. | INPUT VOLTAGE RANGE | CONT. OUTPUT POWER <sup>(1)</sup> | OUTPUT: 230V AC ± 2% 50 Hz ± 2% | BATTERY CHARGE                            |                | DIMENSIONS HxWxD mm (")        | WEIGHT kg (lbs) |
|---------------------|----------|---------------------|-----------------------------------|---------------------------------|---|----------------|--------------------------------|-----------------|
|                     |          |                     |                                   |                                 | INPUT VOLTAGE RANGE                       | CHARGE CURRENT |                                |                 |
| 12/3000/120-50-50   | 69355D   | 9,5 - 17            | 3000                              |                                 | 14.4V DC (absorption)<br>13.8V DC (float) | 120A + 4A      | 362x258x218<br>(14.3x10.1x8.6) | 19,0<br>(41.8)  |
| 12/5000/220-100-100 | 67437V   | 9,5 - 17            | 5000                              |                                 | 14.4V DC (absorption)<br>13.8V DC (float) | 220A + 4A      | 470x350x280<br>(18.5x13.8x11)  | 34,0<br>(74.9)  |
| 24/3000/70-50-50    | 69356F   | 19 - 33             | 3000                              |                                 | 28.8V DC (absorption)<br>27.6V DC (float) | 70A + 4A       | 362x258x218<br>(14.3x10.1x8.6) | 19,0<br>(41.8)  |
| 24/5000/120-100-100 | 66097S   | 19 - 33             | 5000                              |                                 | 28.8V DC (absorption)<br>27.6V DC (float) | 120A + 4A      | 444x328x240<br>(17.4x12.9x9.4) | 30,0<br>(66.1)  |
| 24/8000/200-100-100 | 67338T   | 19 - 33             | 8000                              |                                 | 57,6V DC (absorption)<br>55,2V DC (float) | 110A + 4A      | 470x350x280<br>(18.5x13.8x11)  | 41,0<br>(90.4)  |

(1) Continuous output power at 25°C  
Also available 48V models

The MultiPlus is a powerful true sine wave inverter, a sophisticated battery charger that features adaptive charge technology, and a high-speed AC transfer switch in a single compact enclosure. **The MultiPlus is compatible with Lithium-ion batteries.**

### Double AC outputs

The main output features a no-break function: when the shore power or the genset power fails, the MultiPlus takes charge of the active loads without discontinuity. The second output is active only when an AC source is connected. The loads that may discharge the batteries, like the boiler, shall be connected to the second output.

### Parallel operation and three-phase configuration

The MultiPlus are able to be installed in parallel up to 6 units. In addition to parallel connection, three units of the same model can be configured for three-phase output: up to 6 sets of three units can be parallel connected for a total output of 75KW /90kVA and a current of 2000A.

### Power Control

The MultiPlus is a very powerful battery charger, drawing high currents from the genset or from the shore power (up to 10A per 5kVA Multi at 230 VAC). In order to avoid any generator or shore overload, a current limit can be set through the Multi Control Panel; this way the Multiplus will charge the battery with the current not used from the others AC loads on board.

### Power Assist

In the event that the onboard load exceeds the available shore power, the inverter function works in parallel with the shore connection to boost the total energy available and avoid overload. This works just the same with a generator.

### Four stage adaptive charger and dual battery charging

#### System configuration

After installation, the MultiPlus is ready to work. If settings have to be changed, this can be done with the DIP switch setting procedure. Even parallel and 3-phase operation can be programmed with DIP switches. The VE.Net panel can be used as well for any setting modification.

48V input models also available.



**MULTIPLUS  
500VA - 1600VA**



**MULTIPLUS 2000VA**

| MODEL         | PART No. | INPUT VOLTAGE RANGE | CONT. OUTPUT POWER <sup>(1)</sup> | OUTPUT                  | BATTERY CHARGE          |                | DIMENSIONS HxWxD mm (")     | WEIGHT kg (lbs) |
|---------------|----------|---------------------|-----------------------------------|-------------------------|-------------------------|----------------|-----------------------------|-----------------|
|               |          |                     |                                   |                         | INPUT VOLTAGE RANGE     | CHARGE CURRENT |                             |                 |
| 12/500/20-16  | 20813H   | 9,5 – 17 V          | 500                               | 230V AC ± 2% 50 Hz ± 2% | 187-265 V AC / 45-55 Hz | 20 A + 1 A     | 311x182x100 (12.2x7.2x3.9)  | 4,4 (9.7)       |
| 12/800/35-16  | 21623H   | 9,5 – 17 V          | 800                               |                         |                         | 35 A + 1 A     | 360x240x100 (14.2x9.5x3.9)  | 6,4 (14.1)      |
| 12/1200/50-16 | 21711E   | 9,5 – 17 V          | 1200                              |                         |                         | 50 A + 1 A     | 406x250x100 (16x9.8x3.9)    | 8,2 (18.1)      |
| 12/1600/70-16 | 23061B   | 9,5 – 17 V          | 1600                              |                         |                         | 70 A + 1 A     | 470x265x120 (18.5x10.4x4.7) | 10,2 (22.5)     |
| 12/2000/80-32 | 21869T   | 9,5 – 17 V          | 2000                              |                         |                         | 80 A + 4 A     | 520x255x125 (20.5x10x4.9)   | 13 (28.7)       |
| 24/500/10-16  | 21554R   | 19 – 33 V           | 500                               |                         |                         | 10 A + 1 A     | 311x182x100 (12.2x7.2x3.9)  | 4,4 (9.7)       |
| 24/800/16-16  | 21624K   | 19 – 33 V           | 800                               |                         |                         | 16 A + 1 A     | 360x240x100 (14.2x9.5x3.9)  | 6,4 (14.1)      |
| 24/1200/25-16 | 21712G   | 19 – 33 V           | 1200                              |                         |                         | 25 A + 1 A     | 406x250x100 (16x9.8x3.9)    | 8,2 (18.1)      |
| 24/1600/40-16 | 23062D   | 19 – 33 V           | 1600                              |                         |                         | 40 A + 1 A     | 470x265x120 (18.5x10.4x4.7) | 10,2 (22.5)     |
| 24/2000/50-32 | 21870B   | 19 – 33 V           | 2000                              |                         |                         | 80 A + 4 A     | 520x255x125 (20.5x10x4.9)   | 13 (28.7)       |

(1) Continuous output power at 25°C. **Color Control GX** - 68999W is available to monitor and manage system functions.

The MultiPlus-II is a multifunctional inverter/charger with all the features of the MultiPlus, plus an external current sensor option which extends the PowerControl and PowerAssist function to 50A resp. 100A. The MultiPlus-II is ideally suited for professional marine, yachting, vehicle and land based off-grid applications. It also has built-in anti-islanding functionality, and an increasingly long list of country approvals for ESS application. Several system configurations are possible.

**PowerControl and PowerAssist - Boosting the capacity of the grid or a generator:** a maximum grid or generator current can be set. The MultiPlus-II will then take account of other AC loads and use whatever is extra for battery charging, thus preventing the generator or grid from being overloaded (PowerControl function).

PowerAssist takes the principle of PowerControl to a further dimension. Where peak power is so often required only for a limited period, the MultiPlus-II will compensate insufficient generator, shore or grid power with power from the battery. When the load reduces, the spare power is used to recharge the battery.

**Two AC Outputs:** the main output has no break functionality. The MultiPlus-II takes over the supply to the connected loads in the event of a grid failure or when shore/generator power is disconnected. This happens so fast (less than 20 milliseconds) that computers and other electronic equipment will continue to operate without disruption. The second output is live only when AC is available on the input of the MultiPlus-II. Loads that should not discharge the battery, like a water heater for example, can be connected to this output.

**On-site system configuring, monitoring and control:** settings can be changed in a matter of minutes with VEConfigure software (computer or laptop and MK3-USB interface needed).

**Remote configuring and monitoring:** install a Cerbo GX or other GX product to connect to the internet. Operational data can be stored and displayed on our VRM (Victron Remote Management) website, free of charge. When connected to the internet, systems can be accessed remotely, and settings can be changed.



MULTIPLUS-II



| MODEL          | PART No. | INPUT VOLTAGE RANGE | CONT. OUTPUT POWER <sup>(1)</sup> | MAX BATTERY CHARGE CURRENT | DIMENSIONS HxWxD mm (")      | WEIGHT kg (lbs) |
|----------------|----------|---------------------|-----------------------------------|----------------------------|------------------------------|-----------------|
| 12/3000/120-32 | 21871D   | 9,5 - 17 V          | 3000                              | 120/70/35 A                | 546x275x147 (21.5x10.8x5.8)  | 19 (41.9)       |
| 24/3000/70-32  | 23276Z   | 19 - 33 V           | 3000                              | 120/70/35 A                | 499x268x141 (19.6x10.5x5.85) | 19 (41.9)       |
| 24/5000/120-50 | 21872F   | 19 - 33 V           | 5000                              | 120/70 A                   | 565x328x141 (22.2x12.9x5.5)  | 30 (66.1)       |

**OUTPUT:** 230V AC ± 2% / 50 Hz ± 0,1%

**BATTERY CHARGE INPUT VOLTAGE RANGE:** 187-265 V AC / 45-65 Hz

(1) Continuous output power at 25°C.

Orion DC/DC Converters are designed to deliver a stable 12 Volt supply from a 24 Volt system. An inferior supply can cause irreparable damage to 12 Volt system, but the use of an Orion voltage converter prevents such problems. Next to converters from 24V to 12V, a wide range of other models is available.

## NON ISOLATED RESIN ENCAPSULATED - IP67 ORION CONVERTERS

Completely encapsulated: waterproof, shockproof and ignition protected

Water, oil or dirt will not damage the Orion IP67 DC-DC Converter. The casing is made of cast aluminium and the electronics are moulded in resin.

Extra-long input and output cables

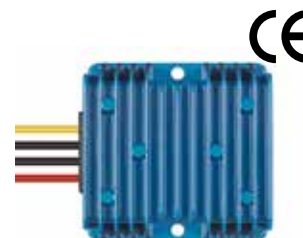
Thanks to the cables of 1.8 meters in length, intermediate cable interconnections to increase length even more will in most cases not be needed. This is an important reliability increasing feature in an area where IP67 protection grade is needed.

Wide input voltage range

With 15 to 40 Volts input range, a stable output is ensured during surges or sags due to other equipment connected to same battery.

Protected against overheating

It can be used in a hot environment such as a machine room.



ORION IP67 24/12-10-20

| MODEL                | PART No. | INPUT VOLTAGE RANGE | OUTPUT VOLTAGE - VDC | MAX OUTPUT CURRENT | TEMPERATURE CONTROL | DIMENSIONS HxWxD mm (") | WEIGHT kg (lbs) |
|----------------------|----------|---------------------|----------------------|--------------------|---------------------|-------------------------|-----------------|
| Orion IP67 12/24-50  | 23080F   | 10-15               | 24                   | 50                 | no                  | 340x127x63 (13.4x5x2.5) | 3 (6.6)         |
| Orion IP67 24/12-5   | 69893J   | 15-40               | 12                   | 5                  | no                  | 25x43x20 (1.0x1.7x0.8)  | 0,1 (0.2)       |
| Orion IP67 24/12-10  | 69894L   | 15-40               | 12                   | 10                 | no                  | 74x74x32 (2.9x2.9x1.3)  | 0,4 (0.8)       |
| Orion IP67 24/12-20  | 69895N   | 15-40               | 12                   | 20                 | no                  | 74x74x32 (2.9x2.9x1.3)  | 0,45 (1)        |
| Orion IP67 24/12-100 | 23081H   | 18-35               | 12                   | 100                | no                  | 265x127x63 (10.4x5x2.5) | 2,15 (4.7)      |

## NON ISOLATED ORION CONVERTERS

### Remote on-off connector

The remote on-off eliminates the need for a high current switch in the input wiring. The remote on-off can be operated with a low power switch or by the engine run/stop switch.

### All models with adjustable output can also be used as a battery charger

For example to charge a 12 Volt starter or accessory battery in an otherwise 24V system.

### All models with adjustable output can be paralleled to increase output current

Up to five units can be connected in parallel.

### Easy to install

Delivery includes four Insulated Fastons Female Crimp 6.3 mm (eight Fastons in case of the Orion 24/12-40).



ORION DC-DC 24/12-40

| MODEL           | PART No. | INPUT VOLTAGE RANGE | OUTPUT VOLTAGE - VDC | MAX OUTPUT CURRENT | TEMPERATURE CONTROL | DIMENSIONS HxWxD mm (") | WEIGHT kg (lbs) |
|-----------------|----------|---------------------|----------------------|--------------------|---------------------|-------------------------|-----------------|
| Orion 12/24-8   | 68126G   | 9-18                | 24                   | 20                 | no                  | 45x90x115 (1.8x3.5x4.5) | 0,3 (0.7)       |
| Orion 12/24-10* | 64956E   | 9-18                | 20-30                | 20                 | no                  | 45x90x125 (1.8x3.5x4.9) | 0,4 (0.8)       |
| Orion 12/24-20* | 68882Y   | 9-18                | 20-30                | 30                 | yes                 | 65x88x195 (2.6x3.5x7.7) | 0,9 (2.0)       |
| Orion 24/12-25* | 68027E   | 18-35               | 10-15                | 25                 | no                  | 65x88x160 (2.6x3.5x6.3) | 0,7 (1.55)      |
| Orion 24/12-40  | 68107C   | 18-35               | 13,2                 | 40                 | yes                 | 65x88x185 (2.6x3.5x7.3) | 0,85 (1.9)      |
| Orion 24/12-70* | 68222C   | 18-35               | 10-15                | 70                 | yes                 | 65x88x195 (2.6x3.5x7.7) | 0,9 (2.0)       |

## NON ISOLATED ORION-TR CONVERTERS

### High efficiency

Using synchronous rectification, full load efficiency exceeds 95%.

### IP43 protection

When installed with the screw terminals oriented downwards.

### Screw terminals

No special tools needed for installation.



ORION-TR DC-DC 24/12-10

| MODEL             | PART No. | INPUT VOLTAGE RANGE | OUTPUT VOLTAGE - VDC | MAX OUTPUT CURRENT | CONT. OUTPUT CURRENT | DIMENSIONS HxWxD mm (") | WEIGHT kg (lbs) |
|-------------------|----------|---------------------|----------------------|--------------------|----------------------|-------------------------|-----------------|
| Orion-Tr 24/12-5  | 20391H   | 18-35               | 12.7                 | 7                  | 5                    | 53x51x27 (2.1x2x1.1)    | 0,1 (0.2)       |
| Orion-Tr 24/12-10 | 20179K   | 18-35               | 12.5                 | 12                 | 10                   | 73x94x37 (2.9x3.7x1.5)  | 0,2 (0.44)      |
| Orion-Tr 24/12-15 | 20392K   | 18-35               | 12.5                 | 20                 | 15                   | 73x94x45 (2.9x3.7x1.8)  | 0,3 (0.7)       |
| Orion-Tr 24/12-20 | 20393M   | 18-35               | 12.5                 | 25                 | 20                   | 73x94x45 (2.9x3.7x1.8)  | 0,3 (0.7)       |

## ISOLATED ORION-TR CONVERTERS

### Adjustable output voltage: can also be used as a battery charger

For example to charge a 12 Volt starter or accessory battery in an otherwise 24V system.

### All models are short circuit proof and can be paralleled to increase output current

An unlimited number of units can be connected in parallel.

### High temperature protected

The output current will reduce at high ambient temperature.

### IP43 protection

When installed with the screw terminals oriented downwards.

### Screw terminals

No special tools needed for installation.

### Input fuse (not replaceable)

On 12V and 24V input models only.



ISOLATED ORION-TR DC-DC

| MODEL             | PART No. | INPUT VOLTAGE RANGE | OUTPUT VOLTAGE - VDC | MAX OUTPUT CURRENT | EFFICIENCY | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|-------------------|----------|---------------------|----------------------|--------------------|------------|--------------------------|-----------------|
| Orion-Tr 12/12-9  | 20396U   | 8-17                | 10-15                | 12,5               | 87%        | 100x113x47 (3.9x4.5x1.9) | 0,6 (1.3)       |
| Orion-Tr 12/12-18 | 21588J   | 8-17                | 10-15                | 25                 | 88%        | 130x186x70 (5.1x7.3x2.8) | 1,3 (2.9)       |
| Orion-Tr 12/12-30 | 23082K   | 10-17               | 10-15                | 40                 | 87%        | 130x186x80 (5.1x7.3x3.2) | 1,8 (4)         |
| Orion-Tr 12/24-5  | 20398Y   | 8-17                | 20-30                | 6,3                | 88%        | 100x113x47 (3.9x4.5x1.9) | 0,6 (1.3)       |
| Orion-Tr 12/24-10 | 21681Y   | 8-17                | 20-30                | 12,5               | 88%        | 130x186x70 (5.1x7.3x2.8) | 1,3 (2.9)       |
| Orion-Tr 12/24-15 | 22903V   | 10-17               | 20-30                | 25                 | 88%        | 130x186x80 (5.1x7.3x3.2) | 1,8 (4)         |
| Orion-Tr 24/12-9  | 20399A   | 16-35               | 10-15                | 12,5               | 85%        | 100x113x47 (3.9x4.5x1.9) | 0,6 (1.3)       |
| Orion-Tr 24/12-20 | 21682A   | 16-35               | 10-15                | 25                 | 88%        | 130x186x70 (5.1x7.3x2.8) | 1,3 (2.9)       |
| Orion-Tr 24/12-30 | 22823X   | 20-35               | 10-15                | 45                 | 88%        | 130x186x80 (5.1x7.3x3.2) | 1,8 (4)         |
| Orion-Tr 24/24-5  | 20073T   | 16-35               | 20-30                | 6,3                | 87%        | 100x113x47 (3.9x4.5x1.9) | 0,6 (1.3)       |
| Orion-Tr 24/24-12 | 20976N   | 16-35               | 20-30                | 15                 | 88%        | 130x186x70 (5.1x7.3x2.8) | 1,3 (2.9)       |
| Orion-Tr 24/24-17 | 64968M   | 20-35               | 20-30                | 25                 | 89%        | 130x186x70 (5.1x7.3x2.8) | 1,6 (3.5)       |

## ISOLATED ORION-TR SMART CC SERIES

### Bluetooth Smart enabled

Any Bluetooth enabled smart phone, tablet or other device can be used to monitor, to change settings and to update the charger when new software features become available.

### Fully programmable

- Battery charge algorithm (configurable) or fixed output.
- Smart alternator compatibility: engine running detection mechanism.

### Remote on-off

A remote on/off switch or relay contact can be connected to a two-pole connector. Alternatively, the H terminal (right) of the two-pole connector can be switched to battery plus, or the L terminal (left) of the two pole connector can be switched to battery minus



ORION-TR SMART 12/12-30

| Orion-Tr Smart  | PART No. | INPUT VOLTAGE RANGE | OUTPUT VOLTAGE - VDC | MAX OUTPUT CURRENT | CONT. OUTPUT CURRENT | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|-----------------|----------|---------------------|----------------------|--------------------|----------------------|--------------------------|-----------------|
| 12/12-18 (220W) | 23260H   | 8-17                | 12.2                 | 25                 | 18                   | 130x186x70 (5.1x7.3x2.7) | 1,3 (3)         |
| 12/24-10 (240W) | 23261K   | 8-17                | 24.2                 | 15                 | 10                   | 130x186x70 (5.1x7.3x2.7) | 1,3 (3)         |
| 24/12-20 (240W) | 23262M   | 16-35               | 12.2                 | 25                 | 20                   | 130x186x70 (5.1x7.3x2.7) | 1,3 (3)         |
| 24/24-12 (280W) | 23263P   | 16-35               | 24.2                 | 15                 | 12                   | 130x186x70 (5.1x7.3x2.7) | 1,3 (3)         |
| 12/12-30 (360W) | 23149S   | 10-17               | 12.2                 | 40                 | 30                   | 130x186x80 (5.1x7.3x3.1) | 1,8 (4)         |
| 12/24-15 (360W) | 23151C   | 10-17               | 24.2                 | 25                 | 15                   | 130x186x80 (5.1x7.3x3.1) | 1,8 (4)         |
| 24/12-30 (360W) | 23162H   | 20-35               | 12.2                 | 45                 | 30                   | 130x186x80 (5.1x7.3x3.1) | 1,8 (4)         |
| 24/24-17 (400W) | 23155L   | 20-35               | 24.2                 | 25                 | 17                   | 130x186x70 (5.1x7.3x2.7) | 1,6 (3.5)       |

## NON ISOLATED ORION-TR SMART CC SERIES

### Bluetooth Smart enabled

Any Bluetooth enabled smart phone, tablet or other device can be used to monitor, to change settings and to update the charger when new software features become available.

### Fully programmable

- Battery charge algorithm (configurable) or fixed output.
- Smart alternator compatibility: engine running detection mechanism.

### Remote on-off

A remote on/off switch or relay contact can be connected to a two-pole connector. Alternatively, the H terminal (right) of the two-pole connector can be switched to battery plus, or the L terminal (left) of the two pole connector can be switched to battery minus



ORION-TR SMART 12/24-15

| Orion-Tr Smart  | PART No. | INPUT VOLTAGE RANGE | OUTPUT VOLTAGE - VDC | MAX OUTPUT CURRENT | CONT. OUTPUT CURRENT | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|-----------------|----------|---------------------|----------------------|--------------------|----------------------|--------------------------|-----------------|
| 12/12-30 (360W) | 23150A   | 10-17               | 12.2                 | 40                 | 30                   | 130x186x70 (5.1x7.3x2.7) | 1,8 (4)         |
| 12/24-15 (360W) | 23152E   | 10-17               | 24.2                 | 25                 | 15                   | 130x186x70 (5.1x7.3x2.7) | 1,8 (4)         |
| 24/12-30 (360W) | 23525U   | 20-35               | 12.2                 | 45                 | 30                   | 130x186x70 (5.1x7.3x2.7) | 1,8 (4)         |
| 24/24-17 (400W) | 23156N   | 20-35               | 24.2                 | 25                 | 17                   | 130x186x70 (5.1x7.3x2.7) | 1,6 (3.5)       |



## ISOLATION TRANSFORMER

The isolation transformer eliminates any electrical continuity between AC shore power and the ship. It is essential for safety and eliminates the need for galvanic isolators and polarity alarms. The shore power is fed to the primary side of the transformer and the ship is connected to the secondary. The isolation transformer completely isolates the boat from the shore ground. By connecting all metal parts to the neutral output on the secondary side of the transformer, a GFCI (ground fault current interrupter) will trip or a fuse will blow in case of a short circuit.

### Features

Aluminium epoxy powder coated case with drip shield, circuit board protection with an acrylic coating, toroidal transformer.



**ISOLATION TRANSFORMER**

| MODEL                        | PART No. | WATT   | DIMENSIONS HxWxD mm (")     | WEIGHT kg (lbs) |
|------------------------------|----------|--------|-----------------------------|-----------------|
| <b>2000W 115/230 V</b>       | 64969P   | 2000 W | 375x214x110 (14.8x8.4x4.3)  | 10 (22.0)       |
| <b>3600W 115/230 V</b>       | 64970Y   | 3600 W | 362x258x218 (14.2x10.1x8.5) | 23 (50.7)       |
| <b>7000W 230 V</b>           | 64972C   | 7000 W | 362x258x218 (14.2x10.1x8.5) | 26 (57.3)       |
| <b>3600W Auto 115/230 V*</b> | 69852U   | 3600 W | 362x258x218 (14.2x10.1x8.5) | 23 (50.7)       |

\*Automatic input voltage detection

## AUTOTRANSFORMERS 120/240 32A AND 100A

- An autotransformer or autostep down transformer is an electrical transformer with only one winding. An autotransformer, portions of the same winding act as both the primary and secondary sides of the transformer. The winding has at least three taps where electrical connections are made. Autotransformers have the advantages of often being smaller, lighter, and cheaper than typical dual-winding transformers, but autotransformers have the disadvantage of not providing electrical isolation.
- Autotransformers are often used to step up or step down voltages in the 110-115-120 volt range and voltages in the 220-230-240 volt range - for example. providing 120V (with taps) from 240V input, allowing equipment designed for 120 volts to be used with a 240 volt supply (as in using US electrical equipment with higher European voltages)
- Temperature protected. In case of overheating, the autotransformer is disconnected from the supply. Reset is manual
- Transformator type: toroidal
- Enclosure Aluminium. Protection category IP21



**AUTOTRANSFORMER**

| MODEL        | PART No. | INPUT/OUTPUT VOLTAGE | MAXIMUM 240V FEED CURRENT | DIMENSIONS HxWxD mm (")    | WEIGHT kg (lbs) |
|--------------|----------|----------------------|---------------------------|----------------------------|-----------------|
| <b>32 A</b>  | 68349D   | 120/ 240 V - 50/60Hz | 32 A                      | 375x214x110 (14.8x8.4x4.3) | 10 (22.0)       |
| <b>100 A</b> | 68883A   | 120/ 240 V - 50/60Hz | 100 A                     | 425x214x110 (16.7x8.4x4.3) | 14 (30.9)       |

## GALVANIC ISOLATORS VDI-16, VDI-32, VDI-64

- Prevent galvanic corrosion due to dissimilar metals between boats
- Gold plated terminals provide superior corrosion resistance to marine environment
- Block DC current from flowing through shore power cable
- Ignition protected



**VDI-32**

| MODEL         | PART No. | PEAK CURRENT   | MAX CURRENT | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|---------------|----------|----------------|-------------|--------------------------|-----------------|
| <b>VDI-16</b> | 68884C   | 1600 A / 20 ms | 16 A        | 60x120x200 (2.3x4.7x7.9) | 1 (2.2)         |
| <b>VDI-32</b> | 69851S   | 1600 A / 20 ms | 32 A        | 63x164x235 (2.4x6.5x9.2) | 2 (4.4)         |
| <b>VDI-64</b> | 23078V   | 1600 A / 20 ms | 64 A        | 64x164x224 (2.5x6.5x8.8) | 2 (4.4)         |

# BATTERY MONITORING

These accessories allow to control: voltage, charge/discharge current, SOC, remaining time in the battery. Using the dongle Bluetooth (opt), all the data can be monitored by smartphone. Standard with connection cables and shunt.

**Mounting hole:** 52 mm (2")

**BMV 700** - 69112A – monitoring 1 battery 9-90 VDC

**BMV 702** - 69151L – monitoring 2 batteries 9-90 VDC

**BMV 702 BLACK** - 69159D – monitoring 2 batteries 9-90 VDC

**BMV 712 Smart** - 21396Z – monitoring 2 batteries 9-90 VDC - Bluetooth included

**Temperature Sensor** - 69160M – Temperature sensor for BMV 702/712

**Smart Shunt 500A-50mV** - 23352N– monitoring batteries via Bluetooth / Victron Connect directly on your phone.

**Smart Shunt 1000A-50mV** - 23678W

**Smart Shunt 2000A-50mV** - 24988T

**new**



**Smart Shunt IP65-500A**

**new Smart Shunt IP65- 500A/50mV** - 21989D

**new Smart Shunt IP65-1000A/50mV** - 25489D

**new Smart Shunt IP65-2000A/50mV** - 22017T

## ARGO – DIODE BATTERY ISOLATORS

Battery isolators allow simultaneous charging of two or more batteries from one alternators, without connecting the batteries together. Discharging the accessory battery, for example, will not result in discharging the starter battery. The Argo battery isolators feature a low voltage drops thanks to the use of Schottky diodes: at low current the voltage drop is approximately 0,3V and at the rated output approximately 0,45 V.

All models are fitted with a compensation diode that can be used to slightly increase the output voltage of the alternator. This compensates for the voltage drop over the diodes in the isolator.



### Alternator energize input

Some alternators need DC voltage on the B+ output to start charging. Obviously, DC will be present when the alternator is directly connected to a battery. Inserting a Diode or FET splitter will however prevent any return voltage/current from the batteries to the B+, and the alternator will not start. The new diode isolators have a special current limited energize input that will power the B+ when the engine run/stop switch is closed.

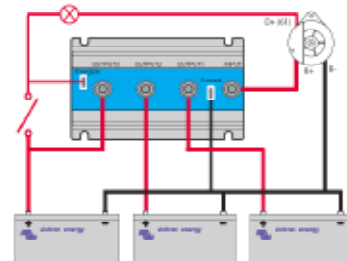
| MODEL   | PART No. | MAX CHARGE CURRENT | ALTERNATOR MAX CURRENT | No. of BATTERIES | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|---------|----------|--------------------|------------------------|------------------|--------------------------|-----------------|
| 80-2AC  | 67435R   | 80A                | 80A                    | 2                | 60x120x90 (2.4x4.7x3.5)  | 0.6 (1.3)       |
| 100-3AC | 64984K   | 100A               | 100A                   | 3                | 60x120x115 (2.4x4.7x4.5) | 0.8 (1.8)       |
| 120-2AC | 64985M   | 120A               | 120A                   | 2                | 60x120x115 (2.4x4.7x4.5) | 0.8 (1.8)       |
| 140-3AC | 64986P   | 140A               | 140A                   | 3                | 60x120x150 (2.4x4.7x6.0) | 1.1 (2.4)       |
| 160-2AC | 64987S   | 160A               | 160A                   | 2                | 60x120x150 (2.4x4.7x6.0) | 1.1 (2.4)       |
| 180-3AC | 64988U   | 180A               | 180A                   | 3                | 60x120x200 (2.4x4.7x7.9) | 1.5 (3.3)       |

## ARGO FET BATTERY ISOLATORS

Differently from diode battery isolators, FET isolators have virtually no voltage loss. Voltage drop is less then 0,02 Volt at low current and averages 0,1 Volt at higher currents. When using ARGO FET battery isolators, there is no need to also increase the output voltage of the alternator. Care should be taken however to keep cable lengths short and of sufficient cross section.

### Alternator energize input

The new ARGO FET isolators have a special current limited energize input that will power the B+ when the engine run/stop switch is closed.



**ARGO FET**

| MODEL     | PART No. | MAX CHARGE CURRENT | ALTERNATOR MAX CURRENT | No. of BATTERIES | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|-----------|----------|--------------------|------------------------|------------------|--------------------------|-----------------|
| 100/2-FET | 64989W   | 100A               | 100A                   | 2                | 65x120x200 (2.6x4.7x7.9) | 1.4 (3.1)       |
| 100/3-FET | 64990E   | 100A               | 100A                   | 3                | 65x120x200 (2.6x4.7x7.9) | 1.4 (3.1)       |
| 200/2-FET | 64991G   | 200A               | 200A                   | 2                | 65x120x200 (2.6x4.7x7.9) | 1.4 (3.1)       |
| 200/3-FET | 64992J   | 200A               | 200A                   | 3                | 65x120x200 (2.6x4.7x7.9) | 1.4 (3.1)       |

The Ciryx battery combiner is a microprocessor controlled heavy duty relay that automatically connects batteries in parallel when one of them has reached a preset voltage (indicating that the battery has been charged) and disconnects when the voltage decreases below float level (indicating that one or more batteries have been discharged).

### No voltage loss

Ciryx battery separators are an excellent replacement for diode isolators. The main feature is that there is virtually no voltage loss so that the output voltage of alternators or battery chargers does not need to be increased.

### Prioritising the starter battery

In a typical setup the alternator is directly connected to the starter battery. The accessory battery and possibly also a bow thruster and other batteries are each connected to the starter battery by Ciryx battery combiners.

When a Ciryx senses that the starter battery has reached its connect voltage will engage, to allow for parallel charging of the other batteries.

### Bidirectional voltage sensing

The Ciryx senses the voltage of both connected batteries. It will therefore also engage if for example the accessory battery has been charged by a battery charger.

### Parallel connection in case of emergency

The Ciryx can also be engaged with a switch to connect manually batteries in parallel. This is especially useful in case of emergency when the starter battery is discharged or damaged.

### 12/24V auto ranging with Ciryx-i

The Ciryx-i 12/24-400 automatically detects system voltage.



**CYRIX-i 12/24-400A**



**CYRIX-CT 12/24-120A**



**CYRIX-CT 12/24-230A**

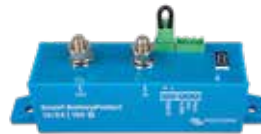
| MODEL        | PART No. | CONTINUOUS CURRENT | PEAK CURRENT | CONNECT VOLTAGE     | DISCONNECT VOLTAGE    | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|--------------|----------|--------------------|--------------|---------------------|-----------------------|--------------------------|-----------------|
| CT 12/24-120 | 68956B   | 120A               | 180          | 13÷13.8V & 26÷27.6V | 11÷12.8V & 22÷25.7V   | 46x46x80 (1.8x1.8x3.2)   | 0.11 (0.24)     |
| CT 12/24-230 | 69357H   | 230A               | 500          | 13÷13.8V & 26÷27.6V | 11÷12.8V & 22÷25.7V   | 65x100x50 (2.6x3.9x2.0)  | 0.27 (0.6)      |
| i 12/24-400  | 67064F   | 400A               | 2000         | 13÷13.8V & 26÷27.6V | 10.5÷12.8V & 21÷25.6V | 78x102x110 (3.0x4.0x4.3) | 0.9 (1.9)       |

## 65A/100A/220A BATTERY PROTECTION

The Victron battery protection disconnects the battery from non essential loads before it is completely discharged (which would damage the battery) or before it has insufficient power left to crank the engine.



**BP-65A Smart**



**BP-100A Smart**



**BP-220A Smart**

| MODEL        | PART No. | MAX CONTINUOUS CURRENT | PEAK CURRENT | OPERATING VOLTAGE RANGE | LOAD DISCONNECT DELAY | DIMENSIONS HxWxD mm (")  | WEIGHT kg (lbs) |
|--------------|----------|------------------------|--------------|-------------------------|-----------------------|--------------------------|-----------------|
| BP-65        | 69853W   | 12/24V 65A             | 250A         | 6-35V                   | 1 minute              | 40x48x106 (1.6x1.9x4.2)  | 0.2 (0.5)       |
| BP-65 Smart  | 22835E   | 12/24V 65A             | 250A         | 6-35V                   | 1 minute              | 40x48x106 (1.6x1.9x4.2)  | 0.2 (0.5)       |
| BP-100       | 69854Y   | 12/24V 100A            | 600A         | 6-35V                   | 1 minute              | 59x42x115 (2.4x1.7x4.6)  | 0.6 (1.3)       |
| BP-100 Smart | 22836G   | 12/24V 100A            | 600A         | 6-35V                   | 1 minute              | 59x42x115 (2.4x1.7x4.6)  | 0.6 (1.3)       |
| BP-220       | 69855A   | 12/24V 220A            | 600A         | 6-35V                   | 1 minute              | 62x123x120 (2.5x4.9x4.8) | 0.8 (1.8)       |
| BP-220 Smart | 22837J   | 12/24V 220A            | 600A         | 6-35V                   | 1 minute              | 62x123x120 (2.5x4.9x4.8) | 0.8 (1.8)       |

# REMOTE CONTROL PANELS AND CONNECTION CABLES



Cerbo GX



GX Touch 50



DMC



CCGX



PHOENIX CC



Phoenix Inverter Control VE. Direct

| MODEL                               | PART No. | DESCRIPTION  |
|-------------------------------------|----------|--|
| Cerbo S GX <b>new</b>               | 25081U   | Communication-centre to monitor the system                   |
| Cerbo GX                            | 23264S   | Communication-centre to monitor the system                   |
| GX Touch 50                         | 23265U   | Accessory 5" display for Cerbo GX                            |
| GX Touch 70                         | 21977W   | Accessory 7" display for Cerbo GX                            |
| DMC 200/200A                        | 66717W   | Digital Multi Control 200/200A                               |
| DMC 200/200A GX                     | 67920Y   | Digital Multi Control 200/200GX for Multi (Plus) and Quattro |
| Color Control GX                    | 68999W   | Digital Remote Control                                       |
| Phoenix CC Charger                  | 65006E   | Phoenix Charger Control Panel                                |
| Phoenix Inverter                    | 66202K   | Phoenix Inverter Control Panel                               |
| Phoenix Inverter Control VE. Direct | 23003L   | Phoenix Inverter VE. Direct Remote Control Panel             |
| Skylla-i                            | 68885E   | Skylla-i Control GX Panel                                    |
| Skylla CC                           | 65007G   | Skylla Control Panel   |
| VE. Direct Bluetooth Dongle         | 69545E   | Dongle Bluetooth for remote monitoring data                  |
| Wifi Module Simple                  | 69536H   | CCGX Wifi Module Simple                                      |
| Wifi Module Long Range              | 69537K   | CCGX Wifi Module Long Range                                  |
| Global Link 520 <b>new</b>          | 21941Y   | VE-Direct Remote monitoring system                           |
| UTP-1,8 RJ 45                       | 67776U   | UTP 1,8 m cable  |
| UTP-3 RJ 45                         | 20413R   | UTP 3 m cable  |
| UTP-5 RJ 45                         | 65010V   | UTP 5 m cable  |
| UTP-10 RJ 45                        | 65011X   | UTP 10 m cable   |
| UTP-15 RJ 45                        | 65012Z   | UTP 15 m cable   |
| UTP-20 RJ 45                        | 65013B   | UTP 20 m cable   |
| UTP-25 RJ 45                        | 65014D   | UTP 25 m cable   |
| UTP-30 RJ 45                        | 65015F   | UTP 30 m cable   |
| RS232/MK.2b                         | 65018M   | Connection KIT RS232/MK.2b Victron Interface                 |
| USB/RS232                           | 65019P   | Converter USB/RS232  |
| MK2/USB                             | 67082H   | Converter Kit USB/MK.2 (CB Phoenix only)                     |
| MK3/USB                             | 21329H   | VE.Bus/USB interface   |
| VE.Direct Cable 0,3                 | 69278M   | VE.Direct cable - 0,3 m (CCGX to BMV70x)                     |
| VE.Direct Cable 0,9                 | 20414T   | VE.Direct cable -0,9 m (CCGX to BMV70x)                      |
| VE.Direct Cable 1,8                 | 69266E   | VE.Direct cable -1,8 m (CCGX to BMV70x)                      |
| VE.Direct Cable 3                   | 21021C   | VE.Direct cable -3 m (CCGX to BMV70x)                        |
| VE.Direct Cable 5                   | 69479Y   | VE.Direct cable -5 m (CCGX to BMV70x)                        |
| VE.Direct Cable 10                  | 69543E   | VE.Direct cable -10 m (CCGX to BMV70x)                       |





**new**

The Ekrano GX represents the next generation in the GX product family. With its complete range of connections and interfaces as well as its integrated 7-inch touchscreen display, it is the most powerful GX device to date and allows you to always have perfect control over your system from wherever you are and to maximise its performance. Simply access your system via Victron Remote Management (VRM) portal, or access it directly, using the built-in touchscreen, a Multi-Functional Display (MFD) or VictronConnect app thanks to its built-in WiFi Access Point. The Ekrano GX is also the successor to the Color Control GX..  
**EKRANO GX - 25403P**

## AGM SUPER CYCLE BATTERIES

The AGM Super Cycle batteries are the result of recent battery electrochemistry developments.

The paste of the positive plates is less sensitive to softening, even in case of repeated 100% discharge of the battery, and new additives to the electrolyte reduce sulfation in case of deep discharge.

### Exceptional 100% depth of discharge (DoD) performance

Tests have shown that the Super Cycle battery does withstand at least three hundred 100% DoD cycles.

The tests consist of a daily discharge to 10,8V with  $I = 0,2C_{20}$ , followed by approximately two hours rest in discharged condition, and then a recharge with  $I = 0,2C_{20}$ .

The two hours rest period in discharged condition will damage most batteries within 100 cycles, but not the Super Cycle battery.

We recommend the Super Cycle battery for applications where an occasional discharge to 100% DoD, or frequent discharge to 60-80% DoD is expected

An additional advantage of the new chemistry is a slightly smaller size and less weight compared to our standard deep cycle AGM batteries.

The internal resistance is also slightly lower compared to our standard deep cycle AGM batteries.

### Cycle life

**≥ 300 cycles @ 100% DoD** (discharge to 10,8V with  $I = 0,2C_{20}$ , followed by approximately two hours rest in discharged condition, and then a recharge with  $I = 0,2C_{20}$ )

**≥ 700 cycles @ 60% DoD** (discharge during three hours with  $I = 0,2C_{20}$ , immediately followed by recharge at  $I = 0,2C_{20}$ )

**≥ 1000 cycles @ 40% DoD** (discharge during two hours with  $I = 0,2C_{20}$ , immediately followed by recharge at  $I = 0,2C_{20}$ )



| SUPER CYCLE AGM | PART No. | NOMINAL VOLTAGE | Ah C5 | Ah C10 | Ah C20 | TERMINALS | DIMENSIONS mm ("")<br>WxDxH | WEIGHT kg (lbs) |
|-----------------|----------|-----------------|-------|--------|--------|-----------|-----------------------------|-----------------|
| 12V/60Ah        | 21583Y   | 12 V            | 52    | 56     | 60     | M5 insert | 224x135x178 (8.8x5.3x7)     | 14 (30.9)       |
| 12V/100Ah       | 21402R   | 12 V            | 82    | 90     | 100    | M6 insert | 260x168x215 (10.2x6.6x8.5)  | 26 (57.3)       |
| 12V/125Ah       | 21584A   | 12 V            | 105   | 114    | 125    | M8 insert | 330x171x214 (13x6.7x8.4)    | 33 (72.7)       |
| 12V/170Ah       | 21403T   | 12 V            | 145   | 153    | 170    | M8 insert | 336x172x280 (13.2x6.8x11)   | 45 (99.2)       |
| 12V/230Ah       | 21404V   | 12 V            | 200   | 210    | 230    | M8 insert | 532x207x226 (20.9x8.1x8.9)  | 57 (125.7)      |



**AGM**



**GEL**

Deep cycle **AGM** batteries are more suitable for short-time delivery of very high currents (engine starting) than gel batteries.  
Life: 7 – 10 years

| AGM Type | PART No. | CAPACITY*    | DIMENSIONS<br>WxDxH mm (") | WEIGHT<br>kg (lbs) |
|----------|----------|--------------|----------------------------|--------------------|
| 12/60    | 65022C   | 60 - 55 Ah   | 229x138x227 (9x5.4x8.9)    | 18 (39.7)          |
| 12/66    | 65023E   | 66 - 60 Ah   | 258x166x235 (10.1x6.5x9.2) | 24 (52.9)          |
| 12/90    | 65024G   | 90 - 80 Ah   | 350x167x183 (13.8x6.6x7.2) | 27 (59.5)          |
| 12/110   | 65645S   | 110 - 100 Ah | 330x171x220 (13x6.7x8.7)   | 32 (70.5)          |
| 12/130   | 65025J   | 130 - 120 Ah | 410x176x227 (16.1x6.9x8.9) | 38 (83.7)          |
| 12/165   | 65026L   | 165 - 150 Ah | 485x172x240 (19.1x6.7x9.4) | 47 (103.6)         |
| 12/220   | 65027N   | 220 - 200 Ah | 522x238x240 (20.5x9.3x9.4) | 65 (143.0)         |

\*value for 20 hours of discharging

**GEL** deep cycle batteries. Life: 12 years

| GEL Type | PART No. | CAPACITY*    | DIMENSIONS<br>WxDxH mm (")  | WEIGHT<br>kg (lbs) |
|----------|----------|--------------|-----------------------------|--------------------|
| 12/60    | 65028R   | 60 - 55 Ah   | 229x138x227 (9x5.4x8.9)     | 19 (41.9)          |
| 12/66    | 65029T   | 66 - 60 Ah   | 258x166x235 (10.1x6.5x9.2)  | 24 (52.9)          |
| 12/90    | 65030B   | 90 - 80 Ah   | 350x167x183 (13.8x6.6x7.2)  | 26 (57.3)          |
| 12/110   | 65646U   | 110 - 100 Ah | 330x171x220 (13x6.7x8.7)    | 33 (72.7)          |
| 12/130   | 65031D   | 130 - 120 Ah | 410x176x227 (16.1x6.9x8.9)  | 38 (83.7)          |
| 12/165   | 65032F   | 165 - 150 Ah | 485x172x240 (19.1x6.7x9.4)  | 48 (105.8)         |
| 12/220   | 65033H   | 220 - 200 Ah | 522x238x240 (20.5x9.3x9.4)  | 66 (145.5)         |
| 12/265   | 22887A   | 265 - 230 Ah | 520x268x223 (20.4x10.5x8.8) | 75 (165.3)         |

\*value for 20 hours of discharging

### Integrated BMS and safety switch

The SuperPack batteries are extremely easy to install, needing no additional components. The internal switch will disconnect the battery in case of over discharge, over charge or high temperature.

### Abuse proof

A lead-acid battery will fail prematurely due to sulfation:

- If it operates in deficit mode during long periods of time (i.e. if the battery is rarely, or never at all, fully charged).
- If it is left partially charged or worse, fully discharged. A Lithium-Ion battery does not need to be fully charged. Service life even slightly improves in case of partial charge instead of a full charge. This is a major advantage of Li-ion compared to lead-acid. The SuperPack batteries will cut-off the charge or discharge current when the maximum ratings are exceeded.

### Efficient

In several applications (especially off-grid solar), energy efficiency can be of crucial importance. The round-trip energy efficiency (discharge from 100% to 0% and back to 100% charged) of the average lead-acid battery is 80%.

The round-trip energy efficiency of a Li-ion battery is 92%.

The charge process of lead-acid batteries becomes particularly inefficient when the 80% state of charge has been reached, resulting in efficiencies of 50% or even less in solar systems where several days of reserve energy are required (battery operating in 70% to 100% charged state).

In contrast, a Li-ion battery will still achieve 90% efficiency even under shallow discharge conditions.

### Can be connected in parallel

The batteries can be connected in parallel. Series connection is not allowed. Use in upright position only.



12,8/20



12,8/60



12,8/100



12,8/200



25,6/50

| MODEL                             | 12,8/20                   | 12,8/60                    | 12,8/100                    | 12,8/200                       | 25,6/50                     |
|-----------------------------------|---------------------------|----------------------------|-----------------------------|--------------------------------|-----------------------------|
| Part No.                          | 23097Z                    | 22840X                     | 22841Z                      | 22842B                         | 23098B                      |
| Nominal voltage                   | 12,8 V                    | 12,8 V                     | 12,8 V                      | 12,8 V                         | 25,6 V                      |
| Nominal capacity @25°C            | 20 Ah                     | 60 Ah                      | 100 Ah                      | 200 Ah                         | 50 Ah                       |
| Nominal capacity @0°C             | 16 Ah                     | 48 Ah                      | 80 Ah                       | 160 Ah                         | 40 Ah                       |
| Nominal energy @25°C              | 256 Wh                    | 768 Wh                     | 1280 Wh                     | 2560 Wh                        | 1280 Wh                     |
| Cycle life @80% DoD and 25°C      | 2500 cycles               |                            |                             |                                |                             |
| Max. continuous discharge current | 30 A                      | 30 A                       | 50 A                        | 70 A                           | 50 A                        |
| Peak discharge current (10 sec)   | 80 A                      | 80 A                       | 100 A                       | 100 A                          | 100 A                       |
| Charge voltage, absorption        | 14,2-14,4 V               | 14,2-14,4 V                | 14,2-14,4 V                 | 14,2-14,4 V                    | 28,4-28,8 V                 |
| Charge voltage, float             | 13,5 V                    | 13,5 V                     | 13,5 V                      | 13,5 V                         | 27 V                        |
| Max. continuous charge current    | 15 A                      | 30 A                       | 50 A                        | 70 A                           | 50 A                        |
| Dimensions mm (")<br>WxDxH        | 181x77x167<br>(7.1x3x6.6) | 229x138x213<br>(9x5.4x8.4) | 330x171x220<br>(13x6.7x8.7) | 520x269x208<br>(20.5x10.6x8.2) | 330x171x220<br>(13x6.7x8.7) |
| Weight kg (lbs)                   | 3,5 (7.7)                 | 9,5 (21)                   | 14 (30.9)                   | 31 (68.3)                      | 14 (30.9)                   |

# LITHIUM-ION 12,8V & 25,6V SMART BATTERIES



Lithium-iron-phosphate (LiFePO<sub>4</sub> or LFP) is the safest of the mainstream li-ion battery types. The nominal voltage cell is 3,2V (lead-acid: 2V/cell). A 12,8V Li-ion battery therefore consists of 4 cells connected in series; and a 25,6V battery consists of 8 cells connected in series.



LFP

| MODEL                                    | LFP-SMART<br>12,8/60         | LFP-SMART<br>12,8/100       | LFP-SMART<br>12,8/160       | LFP-SMART<br>12,8/200       | LFP-SMART<br>12,8/330          | LFP-SMART<br>25,6/100         | LFP-SMART<br>25,6/200          |
|--|------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|-------------------------------|--------------------------------|
| Part No.                                 | 68763P                       | 22260C                      | 23266W                      | 68766W                      | 22262G                         | 24767A                        | 23903A                         |
| Nominal voltage                          | 12,8 V                       | 12,8 V                      | 12,8 V                      | 12,8 V                      | 12,8 V                         | 25,6 V                        | 25,6 V                         |
| Nominal capacity @25°C                   | 60 Ah                        | 100 Ah                      | 160 Ah                      | 200 Ah                      | 330 Ah                         | 100 Ah                        | 200 Ah                         |
| Nominal capacity @ 0°C                   | 48 Ah                        | 80 Ah                       | 130 Ah                      | 160 Ah                      | 260 Ah                         | 80 Ah                         | 160 Ah                         |
| Nominal capacity @ -20°C                 | 30 Ah                        | 50 Ah                       | 80 Ah                       | 100 Ah                      | 160 Ah                         | 50 Ah                         | 100 Ah                         |
| Nominal energy @ 25°C                    | 768 Wh                       | 1280 Wh                     | 2048 Wh                     | 2560 Wh                     | 4220 Wh                        | 2560 Wh                       | 5120 Wh                        |
| Maximum continuous discharge current     | 120 A                        | 200 A                       | 320 A                       | 400 A                       | 400 A                          | 200 A                         | 400 A                          |
| Recommended continuous discharge current | ≤60 A                        | ≤100 A                      | ≤160 A                      | ≤200 A                      | ≤300 A                         | ≤100 A                        | ≤200 A                         |
| Maximum charge current                   | 120 A                        | 200 A                       | 320 A                       | 400 A                       | 600 A                          | 200 A                         | 400 A                          |
| Recommended charge current               | ≤30 A                        | ≤50 A                       | ≤80 A                       | ≤100 A                      | ≤150 A                         | ≤50 A                         | ≤100 A                         |
| Power connection (threaded inserts)      | M8                           | M8                          | M8                          | M8                          | M10                            | M8                            | M8                             |
| Dimensions mm (")<br>HxWxD               | 199x187x147<br>(7.8x7.3x5.8) | 197x321x152<br>(7.8x12.6x6) | 237x321x152<br>(9.3x12.6x6) | 237x321x152<br>(9.3x12.6x6) | 265x359x206<br>(10.4x14.1x8.1) | 197x650x163<br>(7.7x25.6x6.4) | 317x631x208<br>(12.5x25.8x8.2) |
| Weight kg (lbs)                          | 12 (26.5)                    | 15 (33.1)                   | 20 (44.1)                   | 22 (48.5)                   | 30 (66.1)                      | 28 (61.7)                     | 56 (123.6)                     |

## ACCESSORIES

BMS 12/200 - 69015C  
 VE.BUS BMS - 69016E  
 SMALL BMS - 22839N

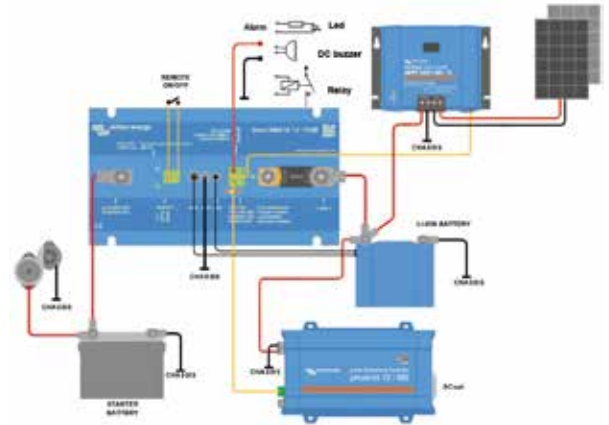
## CABLES WITH M8 CIRCULAR CONNECTOR FOR LI-ION BATTERIES

Male to female 3 pole 1 m (3.3 ft) – 68886G  
 Male to female 3 pole 2 m (6.6 ft) – 68887J  
 Male to female 3 pole 3 m (9.8 ft) – 68888L  
 Male to female 3 pole 5 m (16.4 ft) – 68889N





**SMART BMS CL 12/100 - 23527Y**  
**SMART BMS 12/200 - 21860Y**



### Battery Management system

The BMS connects to 12,8V Victron LiFePO4 (LFP) batteries. Up to 5 batteries may be connected in parallel. Can be used as a system on/off switch.

### Alternator and battery protection

The input current is electronically limited to approximately 90% of the fuse rating. A 100A fuse, for example, will therefore limit the input current to approximately 90A.

Choosing the right fuse will:

- Protect the LFP battery against excessive charge current (important in case of a low capacity LFP battery).
- Protect the alternator against overload in case of a high capacity LFP battery bank (most 12V alternators will overheat and fail if running at maximum output during more than 5 minutes).

### Starter battery protection

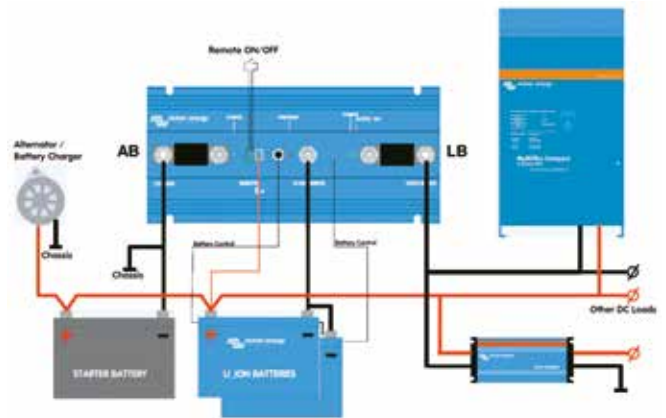
This function is similar to that of a Cyrix Battery Combiner or Argo FET Battery Isolator. Current can flow to the LFP battery only if the input voltage (= voltage on the starter battery) exceeds 13V. And current cannot flow back from the LFP battery to the starter battery, thus preventing eventual damage to the LFP battery due to excessive discharge.

### Li-ion battery protection

### Remote on/off input



**BMS 12/200 - 69015C**



**A 12V BMS that protects the alternator (and wiring), and supplies up to 200A in any DC load (including inverters and inverter/chargers)**

### Why a Battery Management System (BMS) is needed:

- A LFP cell will be damaged if the voltage over the cell falls to less than 2,5V.
- A LFP cell will be damaged if the voltage over the cell increases to more than 4,2V.
- The cells of a LFP battery do not auto-balance at the end of the charge cycle.

### Alternator/battery charger input (Power Port AB) - Features

- The first function of Power Port AB is to prevent the load connected to the LFP battery from discharging the starter battery.
- Control of transients and input voltage.
- Charge current is reduced to a safe level in case of cell unbalance or over temperature.
- The input current is electronically limited to approximately 80% of the AB fuse rating. Choosing the right fuse is very important.

### Load/battery charger output/input (Power Port LB) - Features

- Maximum current in both directions: 200A continuous.
- Peak discharge current electronically limited to 400A.
- Battery discharge cut-off whenever the weakest cell falls below 3V.
- Charge current is reduced to a safe level in case of cell unbalance or over temperature.

## VE.BUS BMS V2

Protects each individual cell of a Victron lithium iron phosphate (LiFePO<sub>4</sub> or LFP) battery

The BMS will:

- shut down or disconnect loads in case of imminent cell under voltage,
- reduce charge current in case of imminent cell overvoltage or over temperature (VE.Bus products only),
- shut down or disconnect battery chargers in case of imminent cell overvoltage or over temperature..

Protects 12 V, 24 V and 48 V systems

Operating voltage range of the BMS: 9 to 70 V DC.

Communicates with all VE.Bus products

The VE.Bus BMS connects to a MultiPlus, Quattro or Phoenix inverter with a standard RJ45 UTP cable.

- Protection grade: IP20
- Standards: EN60950; EN61000-6-3; EN55014-1 ; EN61000-6-2 ; EN61000-6-1; EN 55014-2 and EN 50498

new



VE.BUS BMS V2

| MODEL                          | VE.BUS BMS V2   |
|--------------------------------|-----------------|
| Part No.                       | 25080S          |
| Input Voltage Range            | 9-70 Vdc        |
| Current Draw, Normal Operation | 10 Ma           |
| Current Draw, Low Cell Voltage | 2 Ma            |
| Operating Temperature          | -20 +50°C       |
| Weight                         | 120 gr          |
| Dimensions mm                  | 23,8x94,5x105,5 |

## LYNX SMART BMS

The Lynx Smart BMS is a dedicated Battery Management System for Victron Lithium Smart Batteries. There are multiple BMS-es available for our Smart Lithium series of batteries, and the Lynx Smart is the most feature rich and complete option. Its main features are:

- Built-in 500A contactor used as a fallback safety mechanism and also suitable as a remote controllable main system switch.
- Battery monitor, indicating state of charge percentage and more data.
- Pre-alarm signal: provide a warning before the system shuts down due to -for example- a low cell.
- Bluetooth for use with VictronConnect App, for setup and monitoring.
- Local and remote monitoring using a Victron GX device, for example the Cerbo GX.

The Lynx Smart BMS is part of the modular Lynx Distribution system.

Lynx Smart BMS 500 - 25157B

Lynx DC Distributor - 22366V

Lynx Power In - 23412E

Lynx Shunt Ve.Can - 23741A

new



LINX SMART BMS 500

The Battery Balancer equalizes the state of charge of two series connected 12 V batteries, or of several parallel strings of series connected batteries.

When the charge voltage of a 24 V battery system increases to more than 27 V, the Battery Balancer will turn on and compare the voltage over the two series connected batteries. The Battery Balancer will draw a current of up to 1 A from the battery (or parallel connected batteries) with the highest voltage. The resulting charge current differential will ensure that all batteries will converge to the same state of charge.

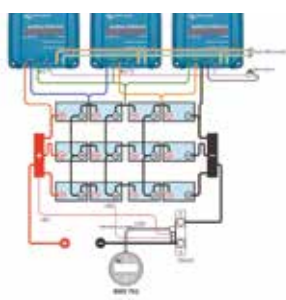
If needed, several balancers can be paralleled.

A 48 V battery bank can be balanced with three Battery Balancers.

## IP20 protection



Series connection



Parallel connection

| MODEL                                 | BATTERY BALANCER                       |
|---------------------------------------|--|
| Part No.                              | 69369R                                 |
| Input voltage range                   | Up to 18V per battery, 36 V total      |
| Turn on level                         | 27,3 V +/- 1%                          |
| Turn off level                        | 26,6 V +/- 1%                          |
| Stand-by current draw                 | 0,7 mA                                 |
| Midpoint deviation to start balancing | 50 mV                                  |
| Max. balancing current                | 0,7 A (when deviation > 100mV)         |
| Alarm trigger level                   | 210 mV                                 |
| Alarm reset level                     | 140 mV                                 |
| Alarm relay                           | 60 V / 1A                              |
| Alarm relay reset                     | Two terminals to connect a push button |
| Over temperature protection           | Yes                                    |
| Operating temperature                 | -30°C to +50°C                         |
| Dimensions mm (")                     | 100 x 113 x 47<br>(3.94 x 4.45 x 1.85) |
| Weight kg (lbs)                       | 0,6 (0.3)                              |

## SMARTSOLAR MPPT CHARGE CONTROLLERS

- **Ultra-fast Maximum Power Point Tracking (MPPT):** Especially in case of a clouded sky, when light intensity is changing continuously, an ultra fast MPPT controller will improve energy harvest by up to 30% compared to PWM charge controllers and by up to 10 % compared to slower MPPT controllers
- **Load output:** Over-discharge of the battery can be prevented by connecting all loads to the load output. The load output will disconnect the load when the battery has been discharged to a preset voltage
- **BatteryLife:** intelligent battery management. The BatteryLife algorithm will monitor the state of charge of the battery and, if needed, day by day slightly increase the load disconnect level (i. e. disconnect the load earlier) until the harvested solar energy is sufficient to recharge the battery to nearly the full 100%
- **Resin encapsulated electronics**
- **Day/night timing and light dimming option**
- **Outstanding conversion efficiency:** No cooling fan. Maximum efficiency exceeds 98%. Full output current up to 40°C (104°F). No cooling fan
- **Advanced Maximum Power Point Detection in case of partial shading conditions:** If partial shading occurs, two or more maximum power points may be present on the power-voltage curve. Conventional MPPT's tend to lock to a local MPP, which may not be the optimum MPP. The innovative BlueSolar algorithm will always maximize energy harvest by locking to the optimum MPP
- **Flexible charge algorithm:** Fully programmable charge algorithm, and eight preprogrammed algorithms, selectable with a rotary switch
- **Extensive electronic protection:** Over-temperature protection and power derating when temperature is high. PV short circuit and PV reverse polarity protection. PV reverse current protection



| MODEL                           | 75/10   | 75/15                    | 100/15                      | 100/20                    | 100/30                      | 100/50                    | 150/35                    |
|---------------------------------|---|--------------------------|-----------------------------|---------------------------|-----------------------------|---------------------------|---------------------------|
| Part No.                        | 21674B  | 21675D                   | 22401U                      | 23016W                    | 21678K                      | 21679M                    | 21680W                    |
| Battery voltage                 | 12V/24V auto detected                               |                          |                             |                           |                             |                           |                           |
| Maximum output current          | 10 A  | 15 A                     |                             | 20 A                      | 30 A                        | 50 A                      | 35 A                      |
| Maximum PV power                | 135W (12V)<br>270W (24V)                            | 200W (12V)<br>400W (24V) |                             | 290W (12V)<br>580W (24V)  | 440W (12V)<br>880W (24V)    | 700W (12V)<br>1400W (24V) | 500W (12V)<br>1000W (24V) |
| Maximum PV open circuit voltage | 75 V  |                          | 100 V                       |                           |                             | 150 V                     |                           |
| Maximum efficiency              | 98%   |                          |                             |                           |                             |                           |                           |
| Self-consumption                | 100mA   |                          |                             |                           |                             |                           |                           |
| Low voltage load disconnect     | 11,1V/22,2V or 11,8V/23,6V or algorithm BatteryLife |                          |                             |                           |                             | -                         |                           |
| Load voltage load reconnect     | 13,1V/26,2V or 14V/28V or algorithm BatteryLife     |                          |                             |                           |                             | -                         |                           |
| Operating temperature           | -30°C ÷ +60°C                                       |                          |                             |                           |                             |                           |                           |
| Protection class                | IP43 (electronic components) - IP22 (connections)   |                          |                             |                           |                             |                           |                           |
| Dimensions mm (")               | 100x113x40<br>(3.9x4.5x1.6)                         |                          | 100x113x47<br>(3.9x4.5x1.8) | 100x113x50<br>(3.9x4.5x2) | 130x186x70<br>(5.1x7.3x2.8) |                           |                           |
| Weight kg (lbs)                 | 0,4 (0.9)   | 0,5 (1.1)                | 0,6 (1.3)                   | 0,7 (1.5)                 | 1,3 (2.9)                   |                           |                           |

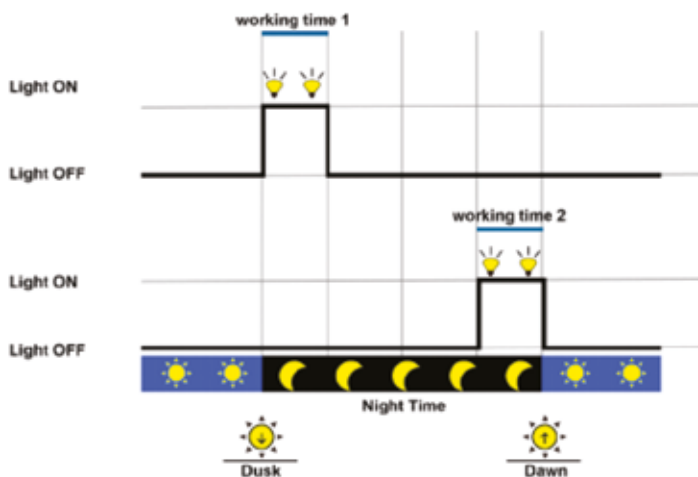
- **Programmable:** The BlueSolar PWM-Pro series is ready for use with its default settings. It also is fully programmable with help of the dedicated BlueSolar Pro Remote Panel.
- Low cost PWM controller
- Lighting control function, fully programmable with the Remote Panel (optional) - 69450X
- Three stage battery charging (bulk, absorption, float), fully programmable with the Remote Panel (optional)
- Integrated battery monitor function (Remote Panel needed to display state of charge)
- Load output with low voltage disconnect and manual control (default setting)
- **Optional external temperature sensor** - 69898V
- Load output protected against over load and short circuit
- Protected against reverse polarity connection of the solar panels and/or battery
- Protection category: IP30
- Certifications: IEC62103-1, EN61000-6-1, EN 61000-6-3, ISO 7637-2
- Warranty: 5 years



**BlueSolar PWM-Pro10A**



**BlueSolar Pro Remote Panel (optional) - 69450X**



| MODEL                       | PWM-PRO<br>12/24-10        | PWM-PRO<br>12/24-20        | PWM-PRO<br>12/24-30         |
|-----------------------------|----------------------------|----------------------------|-----------------------------|
| Part No.                    | 69446G                     | 69368N                     | 69452B                      |
| Voltage                     | 12 V 24 V                  | 12 V 24 V                  | 12 V 24 V                   |
| Rated load current          | 10 A 10 A                  | 20 A 20 A                  | 30 A 30 A                   |
| Maximum solar voltage       | 28 V 55 V                  | 28 V 55 V                  | 28 V 55 V                   |
| Self consumptions           | <10mA                      | <10mA                      | <10mA                       |
| Low voltage load disconnect | 11,1V / 22,2V              | 11,1V / 22,2V              | 11,1V / 22,2V               |
| Low voltage load reconnect  | 12,6V / 25,2V              | 12,6V / 25,2V              | 12,6V / 25,2V               |
| Operating temperature       | -20 a + 50°C               | 20 a + 50°C                | -20 a + 50°C                |
| Dimensions mm (")           | 70x138x37<br>(2.8x5.4x1.5) | 82x160x48<br>(3.2x6.2x1.8) | 100x200x57<br>(3.9x7.9x2.2) |
| Weight kg (lbs)             | 0,15 (0.3)                 | 0,3 (0.7)                  | 0,5 (1.1)                   |



**victron energy**  
BLUE POWER

# WAKESPEED



The WS500 is the only alternator regulator available that can utilize current, voltage and temperature to deliver the most precise and effective charging possible for 12V, 24V and 48V battery systems – with configurability for voltages in between – making it the perfect solution for charging lead acid based, or new generation LiFePO4 lithium-ion battery banks.

- Wide ranging support for both traditional lead acid and new lithium battery technologies
- Advanced, multi-PID engine control provides the most accurate charging available
- Easy to install, configure and operate
- Best charge control for lithium battery chemistries
- Superior protection for your investment



**WS500** - 25299Y charge regulator

**WS500**

## ACCESSORIES

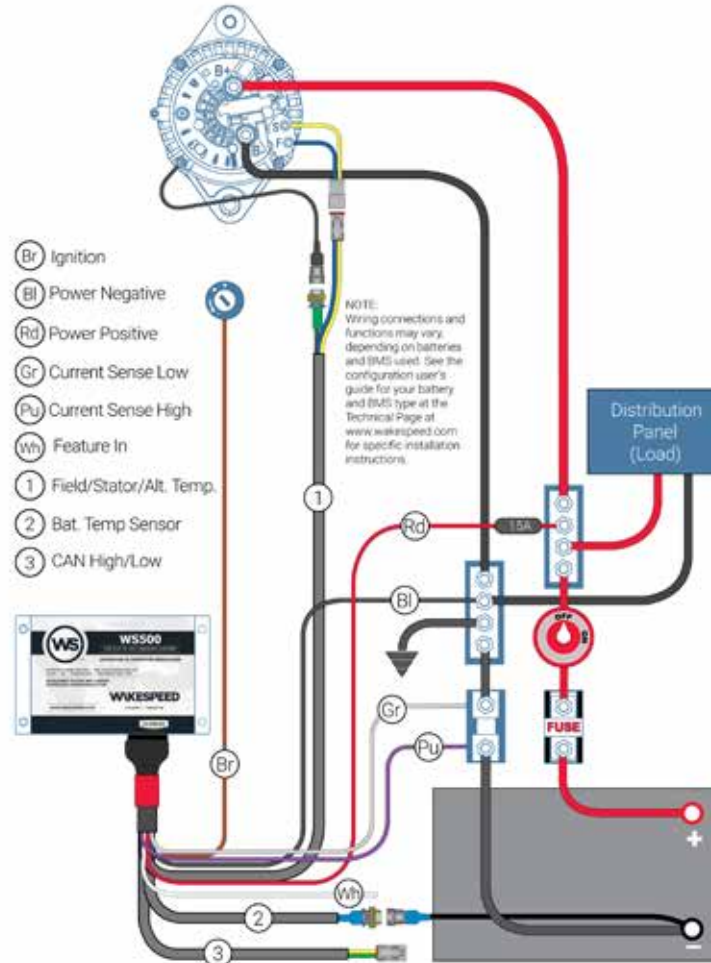
**WH500PH/CAN** - 25300D positive type alt wiring harness

**WH500NH/CAN** - 25306S negative type alt wiring harness

**Battery temperature sensor** - 25301F

**WS-VE** - 25302H WS500 to Victron Energy pinout crossover cable (4')

**500A/50mV Shunt** - 25351X





# FAAM



## START SERIES

The designing of the START range was born from the need to satisfy the demand of a high starting current, great reliability, Lack of servicing and high safety. The use of a recombination watertight cover with a centralized degassing system and a special flame retardant pad represents a remarkable benefit for the safety and reliability of this battery.



| MODEL | PART No. | V  | AH/20<br>H | CCA (EN) | LENGTH<br>L mm (") | WIDTH<br>W mm (") | TOTAL HEIGHT<br>H mm (") | WEIGHT<br>kg (lbs) |
|-------|----------|----|------------|----------|--------------------|-------------------|--------------------------|--------------------|
| 62R22 | 23102N   | 12 | 62         | 530      | 242 (9.5)          | 175 (6.9)         | 190 (7.5)                | 14,5 (32)          |
| 80R42 | 23103R   | 12 | 80         | 750      | 352 (13.9)         | 175 (6.9)         | 190 (7.5)                | 19,8 (43.6)        |
| 00R52 | 23104T   | 12 | 100        | 800      | 352 (13.9)         | 175 (6.9)         | 190 (7.5)                | 21,3 (47)          |

## CYCLES SERIES

CYCLES range satisfies the application needs through a new designing of inner electrodes concerning alloys, grids, thickness, new elaboration of active materials and special systems of inner separation. The batteries of the CYCLES range represent the best solution as regards performance, lifetime, reliability and safety due to their strong starting power, to the high cycling resistance and a strong inclination to charge acceptance.



| MODEL | PART No. | V  | AH/20<br>H | CCA (EN) | LENGTH<br>L mm (") | WIDTH<br>W mm (") | TOTAL HEIGHT<br>H mm (") | WEIGHT<br>kg (lbs) |
|-------|----------|----|------------|----------|--------------------|-------------------|--------------------------|--------------------|
| 60A22 | 23105V   | 12 | 60         | 680      | 242 (9.5)          | 175 (6.9)         | 190 (7.5)                | 18,5 (40.8)        |
| 70A32 | 23106X   | 12 | 70         | 760      | 278 (10.9)         | 175 (6.9)         | 190 (7.5)                | 20,3 (44.7)        |
| 80A42 | 23107Z   | 12 | 80         | 800      | 315 (12.4)         | 175 (6.9)         | 190 (7.5)                | 22,9 (50.5)        |
| 00A52 | 23367C   | 12 | 100        | 850      | 352 (13.9)         | 175 (6.9)         | 190 (7.5)                | 26 (57.3)          |

## SMART SERIES

The batteries of SMART series are batteries for Super Heavy Duty use. They are designed with plates (e/electrodes) with high thickness and strenghtened structure to satisfy the need for high energies and high cyclical resistance with low-maintenance.

They are an excellent compromise among performances, long-lasting and cost, for the use on professional and pleasure boats.



| MODEL | PART No. | V  | AH/20<br>H | CCA (EN) | LENGTH<br>L mm (") | WIDTH<br>W mm (") | TOTAL HEIGHT<br>H mm (") | WEIGHT<br>kg (lbs) |
|-------|----------|----|------------|----------|--------------------|-------------------|--------------------------|--------------------|
| 62061 | 23109D   | 12 | 120        | 850      | 509 (20)           | 175 (6.9)         | 228 (9)                  | 35 (77.2)          |
| 66061 | 23110M   | 12 | 160        | 950      | 513 (20.2)         | 223 (8.8)         | 223 (8.8)                | 43,8 (96.6)        |
| 72061 | 23111P   | 12 | 220        | 1200     | 518 (20.4)         | 273 (10.7)        | 242 (9.5)                | 56 (123.5)         |

# **UFLEX**



# MARINE PV SOLAR MODULES



Sunware solar modules, without glass, are functionally reliable, robust, light-weight, weather-proof and sea-water resistant: therefore they have been specially designed for marine applications on board.

The innovative manufacturing process, make them particularly suitable to be installed on the deck of the boat, avoiding vibrations and the negative effects of high temperature.

Self-cleaning and safe to step-on, SUNWARE modules are easy to bend and can therefore adhere to the deck (maximum bending 3%, i.e. bending of 3 cm per 1 m long module).

Each module is supplied complete with stainless steel back-plate, a sea-water proof and UV resistant cable (3 m long – red/blue 2x1.5 mmq).



**SW-20**  
cable outlet on the front,  
no ventilation required



**SW-40**  
cable output on the back,  
front side completely flat

| Model    | Part No. | Max. Power | No. of Cells | Nominal Voltage | I <sub>max</sub> | I <sub>sc</sub> | Dimensions HxWxD mm (")    | Weight kg (lbs) |
|----------|----------|------------|--------------|-----------------|------------------|-----------------|----------------------------|-----------------|
| SW-20143 | 22112L   | 14 Wp      | 40           | 12 V            | 0.69 A           | 0.72 A          | 468x243x6 (18.4x9.6x0.2)   | 0,7 (1.5)       |
| SW-40143 | 600100A  |            |              |                 |                  |                 |                            |                 |
| SW-20144 | 22113N   | 20 Wp      | 40           | 12 V            | 0.91 A           | 0.96 A          | 643x273x6 (25.3x10.7x0.2)  | 1,2 (2.6)       |
| SW-40144 | 600101C  |            |              |                 |                  |                 |                            |                 |
| SW-20145 | 22114R   | 25 Wp      | 40           | 12 V            | 1.2 A            | 1.37 A          | 807x273x6 (31.8x10.7x0.2)  | 1,3 (2.9)       |
| SW-40145 | 600102E  |            |              |                 |                  |                 |                            |                 |
| SW-20146 | 22115T   | 38 Wp      | 40           | 12 V            | 1.81 A           | 1.92 A          | 1154x273x6 (45.4x10.7x0.2) | 2,2 (4.8)       |
| SW-40146 | 600103G  |            |              |                 |                  |                 |                            |                 |
| SW-20163 | 21010X   | 25 Wp      | 38           | 12 V            | 1.36 A           | 1.44 A          | 426x481x6 (16.7x18.9x0.2)  | 1,3 (2.9)       |
| SW-40163 | 600104J  |            |              |                 |                  |                 |                            |                 |
| SW-20164 | 21735V   | 38 Wp      | 39           | 12 V            | 1.8 A            | 1.92 A          | 599x481x6 (23.6x18.9x0.2)  | 1,8 (4)         |
| SW-40164 | 600105L  |            |              |                 |                  |                 |                            |                 |
| SW-20165 | 21296V   | 50 Wp      | 39           | 12 V            | 2.4 A            | 2.54 A          | 772x481x6 (30.4x18.9x0.2)  | 2,3 (5.1)       |
| SW-40165 | 600106N  |            |              |                 |                  |                 |                            |                 |
| SW-20166 | 22116V   | 75 Wp      | 39           | 12 V            | 3.62 A           | 3.84 A          | 1119x481x6 (44x18.9x0.2)   | 3,6 (8)         |
| SW-40166 | 600107R  |            |              |                 |                  |                 |                            |                 |
| SW-20185 | 21364K   | 100 Wp     | 35           | 12 V            | 5.43 A           | 5.75 A          | 1012x689x6 (39.8x27.1x0.2) | 4,7 (10.4)      |
| SW-40185 | 600109V  |            |              |                 |                  |                 |                            |                 |

## ACCESSORIES



### MID CLIPS AND SIDE CLIPS

- Part No. 64098H (2 clips)
- Part No. 64099K (4 clips)



### PLUGS, SOCKETS AND CONNECTORS

- Male Socket: Part No. - 64100R
- Female Socket: Part No. - 64101T
- Plug: Part No. - 64102V
- Bulkhead kit: Part No. - 64104Z
- Bulkhead Connector: Part No. - 64103X



WLW-50W

**WLW-50W FEATURES**

- Ultra-Light weight
- Easy and quick to install. Simple peel and stick
- Improves electrical redundancy and continuity
- Reduce reflectivity and increased light trapping
- Providing excellent wind and seismic resistance
- Module size, shape and colour customizable
- Superior low light & low sun angle performance

| MODEL                             | WLW-50W                  |
|-----------------------------------|--------------------------|
| Part No.                          | 23005R                   |
| Rated Power (P max) in Watt       | 50                       |
| Number of cell in series          | 36                       |
| Max peak voltage (Vmp) (Volt)     | 18.6                     |
| Max peak current (Imp) (Amp)      | 2.70                     |
| Open circuit voltage (Voc) (Volt) | 22.3                     |
| Short circuit current (Isc) (Amp) | 2.90                     |
| Max system voltage (V DC)         | 600                      |
| Max series fuse rating (Amp)      | 10                       |
| Power tolerance (%)               | +3                       |
| Operating temperature             | -40°C to 85°C            |
| Dimensions mm HxWxD (")           | 610x690x20 (24x27.2x0.8) |
| Weight kg (lbs)                   | 1.5±0.5 (3.3±1.1)        |

The Xunzel™ solar panels are very thin (3 mm – 0,12”), light and bendable up to 30°. Thanks to the innovative All-Back-Contact Technology, these solar panels supply higher power than conventional PV modules of same size. By adopting the Back-Contact technique, the wafer can be coated with flexible materials and finally forms the high efficiency flexible solar panel.

These panels offer high performances also early in the morning, late in the evening and even on cloudy days. They effectively absorb different wavelengths of light to generate more electricity. Furthermore, the hotter it gets, the better is their performance compared to competitor efficiency. Designed for boat and RVs applications, for off-grid solutions (telecom, ups-backup energy, street lighting, etc.)



## FEATURES

- Easy to install. Reasy to connect. Stainless steel rings (dia. 10 mm)
- Secure and easy wiring. Includes 3 m pre-assembled solar cable
- Completely waterproof and weatherproof junction box (IP65)
- Design: high quality, reliability and performance. Crystalline silicon cell panels wuth patented All-Back-Contact Technology. Very thin, light and bendable up to 30°
- Endurance: High quality UV resistant materials ensure a long life
- Electrical Connection: Junction box mounted at the front side for protection against corrosion. The Xunzel™ solar panels are delivered with pre-assembled cables for a quick and safe installation

| Model   | Part No. | Pmax Watt | Vmp Volt | Imp Amp | Voc Volt | Isc Amp | Dimensions mm (“)           | Weight kg (lbs) |
|---------|----------|-----------|----------|---------|----------|---------|-----------------------------|-----------------|
| HD 50W  | 23364W   | 50W       | 17.36    | 2.88    | 20.8     | 3.11    | 600x500x3 (23.6x19.7x0.12)  | 1 (2.2)         |
| HD 120W | 25289V   | 120W      | 18.56    | 5.97    | 21.9     | 6.32    | 1100x560x3 (43.3x22.1x0.12) | 2,5 (5.51)      |

Uflex® uses top quality materials to factory build reliable and long lasting poly-crystalline PV Modules.

Uflex® prime quality main components are: high efficiency cells, reflection-free and power transmitting glasses, anodized aluminium frames. Back positioned mounting holes for easy of installation.

The Quality Management System is certified in compliance with **ISO 9001:2008 standards**.

Solar Modules manufactured by Uflex® are certified in accordance with **IEC61215** and **CE** standards  
Standards: **EN 61730-1:2007+A1:2012+A2:2013+A11:2014; EN 61730-2:2007+A1:2012**

**Product warranty: 12 years**

**Performance warranty: 30 years linear**



### MONO-CRYSTALLINE PV MODULES

| Model    | Part No. | P. max Watt | Vmp Volt | Imp Amp | Voc Volt | Isc Amp | Dimensions mm (")           | Weight Kg (lbs) |
|----------|----------|-------------|----------|---------|----------|---------|-----------------------------|-----------------|
| UFX005MM | 21387Y   | 5           | 18.31    | 0.28    | 22.43    | 0.30    | 245x190x17 (9.6x7.5x0.7)    | 0,7 (1.5)       |
| UFX100MM | 69578AB  | 100         | 18.30    | 5.47    | 22.42    | 5.76    | 1015x668x30 (40x26.3x1.2)   | 7,7 (17)        |
| UFX140MM | 21865J   | 140         | 19.00    | 7.37    | 23.28    | 7.76    | 1250x668x30 (49.2x26.3x1.2) | 9,5 (20.9)      |
| UFX180MM | 22908FA  | 180         | 19.47    | 9.25    | 23.85    | 9.74    | 1485x668x30 (58.5x26.3x1.2) | 11 (24.2)       |

### POLY-CRYSTALLINE PV MODULES

| Model    | Part No. | P. max Watt | Vmp Volt | Imp Amp | Voc Volt | Isc Amp | Dimensions mm (")           | WeightKg (lbs) |
|----------|----------|-------------|----------|---------|----------|---------|-----------------------------|----------------|
| UFX010PM | 69572MA  | 10          | 18.37    | 0.55    | 22.50    | 0.58    | 245x350x17 (9.6x13.8x0.7)   | 1,2 (2.6)      |
| UFX020PM | 69573PA  | 20          | 18.87    | 1.09    | 22.55    | 1.23    | 440x350x25 (17.3x13.8x1)    | 2 (4.4)        |
| UFX040PM | 69574SA  | 40          | 18.33    | 2.19    | 22.45    | 2.31    | 425x668x25 (16.7x26.3x1)    | 3,1 (6.8)      |
| UFX060PM | 69576WA  | 60          | 19.25    | 3.12    | 23.58    | 3.29    | 545x668x25 (21.4x26.3x1)    | 4 (8.8)        |
| UFX080PM | 69577YA  | 80          | 18.30    | 4.38    | 22.42    | 4.61    | 780x668x30 (30.7x26.3x1.2)  | 6,1 (13.4)     |
| UFX100PM | 69578AA  | 100         | 18.20    | 5.50    | 22.30    | 5.79    | 1015x668x30 (40x26.3x1.2)   | 8 (17.6)       |
| UFX160PM | 21742SA  | 160         | 18.34    | 8.73    | 22.47    | 9.19    | 1485x668x30 (58.5x26.3x1.2) | 11 (24.2)      |
| UFX285PM | 23532RA  | 285         | 32.03    | 8.90    | 39.24    | 9.37    | 1650x992x35 (65x39x1.4)     | 18,4 (40.6)    |

# MONO-CRYSTALLINE PV MODULES

- Electroluminescence tested (EL-Test)
- IP67 + 1 m cable
- High transmissivity and high resistance glass
- Frame with high mechanical resistance and inner tube
- Recyclable and environmentally friendly materials
- **Certified:** IEC 61215:2005; IEC 61730-1:2004 / IEC 61730-2:2004; Front load (snow) 5.400 Pa; Rear load (wind) 2.400 Pa; Fire Resistance Certified / Class 1 (UNI 9177); MCS (R.U); EEE016-20130528-001 (France); WEEE conformity in Germany; ETL Listed Mark (USA-Canada); PID Resistance (only poly-crystalline pv modules)



**MEPV410**



**MEPV400UP**



**MEPV500**

| MODEL                           | MEPV410                         | MEPV400UP                     | MEPV500                         |
|---------------------------------|---------------------------------|-------------------------------|---------------------------------|
| Part No.                        | 25266G                          | 24950R                        | 25267J                          |
| Nominal power, P <sub>mpp</sub> | 410 WP                          | 400W                          | 450W                            |
| Tolerance, P <sub>mpp</sub>     | 0/+5W                           | 0/+5W                         | ±1W                             |
| Module area                     | 1,82 m <sup>2</sup>             | 1,79 m <sup>2</sup>           | 2,2 m <sup>2</sup>              |
| Module efficiency               | 20,97%                          | 22,30%                        | 20,45%                          |
| I <sub>sc</sub>                 | 13,95A                          | 12,05A                        | 11,6A                           |
| V <sub>oc</sub>                 | 37,32V                          | 42,10V                        | 49,44V                          |
| I <sub>mpp</sub>                | 13,04A                          | 11,09A                        | 10,85A                          |
| V <sub>mpp</sub>                | 31,45V                          | 36,10V                        | 41,47V                          |
| Maximum voltage                 | 1000 - 1500V                    | 1500V                         | 1000-1500V                      |
| α I <sub>sc</sub>               | 0,045% / °C                     | 0,046% / °C                   | 0,046% / °C                     |
| β V <sub>oc</sub>               | -0,275% / °C                    | -0,246% / °C                  | -0,276% / °C                    |
| γ P <sub>max</sub>              | -0,35% / °C                     | -0,290% / °C                  | -0,381% / °C                    |
| Temperature range               | -40°C / +85°C                   | -40°C / +85°C                 | -40°C / +85°C                   |
| NOCT                            | 45°C ± 2°C                      | 43°C ± 2°C                    | 42°C ± 2°C                      |
| Dimensions mm (") HxWxD         | 1724x1134x30<br>(67.9x44.6x1.2) | 1727x1039x30<br>(68x40.9x1.2) | 2094x1134x35<br>(82.4x44.6x1.4) |
| Weight kg (lbs)                 | 21,5 (47.4)                     | 20 (44.1)                     | 26.3 (58)                       |



## PROSTAR™ SERIES FEATURES

- 3 digits LCD display reading in sequence: Battery Current, PV Current, Loads Current
- Automatic voltage select for either 12 or 24V DC systems
- Automatic voltage select for either a sealed or flooded battery
- Full electronic protection against any consequence of reversed wire connection
- Instant disconnection/connection of all PV modules and loads by a button



## SUNSAVER™ SERIES FEATURES

- Multi-colour status LED
- 3 LED's for battery state of charge with self-diagnostic
- Full electronic protection against reversed PV, battery or load wire connections
- Either a flooded or sealed battery can be selected with a simple jumper
- Encapsulated in epoxy compound for service in harsh environment
- Dead battery recovery



## PROSTAR™ SERIES TECHNICAL SPECIFICATIONS

| MODEL                         | PS15M          | PS30M          | PS15M-48V      |
|-------------------------------|----------------|----------------|----------------|
| Part No.                      | 62643W         | 61737A         | 63072H         |
| Nominal Voltage               | 12V DC         | 24V DC         | 48V DC         |
| Rated solar current           | 15 Amp         | 30 Amp         | 15 Amp         |
| Rated load current            | 15 Amp         | 30 Amp         | 15 Amp         |
| Load disconnect/LVD reconnect | 11,5 V/12,6V   | 11,5 V/12,6V   | 11,5 V/12,6V   |
| Self consumption              | 22 mA          | 22 mA          | 28 mA          |
| Dimensions mm                 | 153 x 105 x 55 | 153 x 105 x 55 | 153 x 105 x 55 |
| Weight                        | 0,34 kg        | 0,34 kg        | 0,34 kg        |

## SUNSAVER™ SERIES TECHNICAL SPECIFICATIONS

| MODEL                         | SS 6 L      | SS 10       | SS 10 L     | SS 20 L     | SS10 L-24 |
|-------------------------------|-------------|-------------|-------------|-------------|-----------|
| Part No.                      | 61213E      | 61415B      | 61192X      | 61734U      | 61938L    |
| Nominal Voltage               | 12V DC      | 12V DC      | 12V DC      | 12V DC      | 24V DC    |
| Rated solar current           | 6 A         | 10 A        | 10 A        | 20 A        | 10 A      |
| Rated load current            | 6 A         | 10 A        | 10 A        | 20 A        | 10 A      |
| Load disconnect/LVD reconnect | 11,5 /12,6V | 11,5 /12,6V | 11,5 /12,6V | 11,5 /12,6V | 23/25,2V  |
| LVD reconnect                 | Yes         | No          | Yes         | Yes         | Yes       |
| Dimensions mm                 | 152x55x34   | 152x55x34   | 152x55x34   | 152x55x34   | 152x55x34 |
| Weight                        | 0,23 kg     | 0,23 kg     | 0,23 kg     | 0,23 kg     | 0,23 kg   |

SunSaver DUO™ is a two battery solar controller with remote adjustable meter

## FEATURES

- Will charge two separate and isolated batteries at the same time based on user selectable priorities
- Includes a backlit remote meter with LED display which may be mounted in or on a wall and displays information about the solar power system
- User adjustable via DIP switch or connection to a PC
- Two battery charging eliminates the added cost of two separate solar charging systems and the need for isolation between the batteries
- Will not be damaged by wiring mistakes during installation
- Epoxy encapsulated for environmental protection
- Options: Remote Temperature Sensor



## TECHNICAL SPECIFICATIONS

| MODEL                         | SunSaver DUO™                |
|-------------------------------|------------------------------|
| Part No.                      | 66129C                       |
| Battery Voltage               | 12 Volt                      |
| Rated Solar Input             | 25 Amp                       |
| Max Solar Voltage             | 30 Volt                      |
| Max battery Voltage           | 15 Volt                      |
| Self Consumption              | 25 mA (controller and meter) |
| Operating Ambient Temperature | -40°C a +40°C                |
| Dimensions                    | 170 x 56 x 41 mm             |
| Meter Hole size               | 76 mm                        |
| Largest wire                  | 16 mm <sup>2</sup>           |
| Weight                        | 0,26 kg                      |

## ELECTRONIC PROTECTION

- PV: Over Current, Short Circuit
- Reverse polarity
- Lightning
- High Temperature
- Reverse Current at Night

## CERTIFICATIONS

- CE

The EcoBoost MPPT™ solar charge controller brings Morningstar's proprietary TrakStarTechnology™ to our new line of Essentials controllers and accessories. The EcoBoost controllers automatically detect 12 or 24 V system configuration. They are highly efficient and accurate controllers designed to ensure that batteries attain a complete state of charge. They are also sophisticated load controllers. Using this feature to manage DC power consumption protects the batteries from over discharge and helps ensure long term system reliability.

- **7 battery types:** with the possibility of customization
- **2 USB input:** to charge smartphones and tablets - 3A at 5V
- **Solar input electronic protection:** overload, short-circuit, high voltage, reverse polarity, high temperature, nighttime reverse current.
- **Load output electronic protection:** overload, short-circuit, high temperature, reverse polarity.
- **Battery electronic protection:** reverse polarity.
- **Load control:** Low Voltage Disconnect and Low Voltage Reconnect settings.
- **Lighting control:** dusk and dawn settings
- **Optional Meter:** provides access to system operational information including current and historical performance data. All EcoBoost "M" controllers include the meter
- **Operating temperature:** -40°C to +60°C
- **Tropicalization:** conformal coating, marine-rated terminals
- **Power terminals:** 2,5-16 mm<sup>2</sup> / 14-2AWG
- **Enclosure:** IP20
- **Dimensions:** 19,6x17,3x7,1 cm (7.7x6.8x2.8 in)
- **Weight:** 1,4 kg (3.1 lbs)
- **Certifications:** CE, TUV Listed, IEC 62109, EN 62109-1, Emissions 55014-1, Immunity 55014-2
- **WARRANTY: 2 years**
- **Accessories:** Remote Temperature Sensor (RTS), mobile phone holder (included)



| Model                                 | EB-MPPT-20                           | EB-MPPT-20-M | EB-MPPT-30 | EB-MPPT-30-M | EB-MPPT-40  | EB-MPPT-40-M |
|---------------------------------------|--------------------------------------|--------------|------------|--------------|-------------|--------------|
| Par No.                               | 22296A                               | 22264L       | 22297C     | 22265N       | 22298E      | 22266R       |
| Max battery current                   | 20 A                                 | 20 A         | 30 A       | 30 A         | 40 A        | 40 A         |
| Load current rating                   | 20 A                                 | 20 A         | 30 A       | 30 A         | 40 A        | 40 A         |
| Maximum PV Open Circuit Voltage (VOC) | 120 V                                |              |            |              |             |              |
| Nominal battery voltage               | 12 or 24 V automatic sensing setting |              |            |              |             |              |
| Max nominal operation power*          |                                      |              |            |              |             |              |
| 12 V battery                          | 300W @ 40C                           | 300W @ 40C   | 400W @ 40C | 400W @ 40C   | 560W @ 40C  | 560W @ 40C   |
| 24 V battery                          | 600W @ 40C                           | 600W @ 40C   | 800W @ 40C | 800W @ 40C   | 1120W @ 40C | 1120W @ 40C  |
| Battery voltage range                 | 10/35 V                              |              |            |              |             |              |
| Self-consumption                      | <1.2 Watts                           |              |            |              |             |              |
| Maximum combined USB charging output  | 3 at 5 V                             |              |            |              |             |              |

\*Input power can exceed nominal maximum operating power, but controller will limit and provide its rated continuous maximum output current into batteries. This will not harm the controller.

EcoPulse™ is a pulse width modulation (PWM) solar charge controller within Morningstar's Essential Series™ of products which provides essential off-grid battery regulation functions. Metered and non-metered versions of this product are available at 10, 20, and 30 amp charge ratings for 12 and 24 volt battery systems

- **4-Stage charging:** Bulk, Absorption, Float, Equalize.
- **PV electronic protection:** overload, short-circuit, high voltage, reverse polarity, high temperature, nighttime reverse current.
- **Load electronic protection:** overload, short-circuit, high temperature, reverse polarity.
- **Battery electronic protection:** reverse polarity.
- **Load control:** Low Voltage Disconnect and Low Voltage Reconnect.
- **Lighting control:** Dusk to Down.
- **Operating temperature:** -40°C a +45°C
- **Tropicalization:** conformal coating, marine-rated terminals
- **Terminals:** 2,5-16 mm<sup>2</sup> / 14-6AWG
- **Enclosure:** IP20
- **Dimensions:** 15,3 x 10,5 x 5,5 cm
- **Weight:** 0,4 kg
- **Certifications:** CE
- **WARRANTY:** 2 years
- **Accessories:** Remote temperature sensor (RTS)



| MODEL                       | EC-10     | EC-10M    | EC-20     | EC-20M    | EC-30     | EC-30M    |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Part No.                    | 21419J    | 21420T    | 21421V    | 21422X    | 21423Z    | 21424B    |
| Display                     | No        | Yes       | No        | Yes       | No        | Yes       |
| Max PV open circuit voltage | 60 V      | 60 V      | 60 V      | 60 V      | 60 V      | 60 V      |
| Load current rating         | 10 A      | 10 A      | 20 A      | 20 A      | 30 A      | 30 A      |
| Nominal battery voltage     | 12/24 VDC | 12/24 VDC | 12/24 VDC | 12/24 VDC | 12/24 VDC | 12/24 VDC |
| Battery voltage range       | 10/35 VDC | 10/35 VDC | 10/35 VDC | 10/35 VDC | 10/35 VDC | 10/35 VDC |
| Self-consumption            | <22mA     | <40mA     | <22mA     | <40mA     | <22mA     | <40mA     |

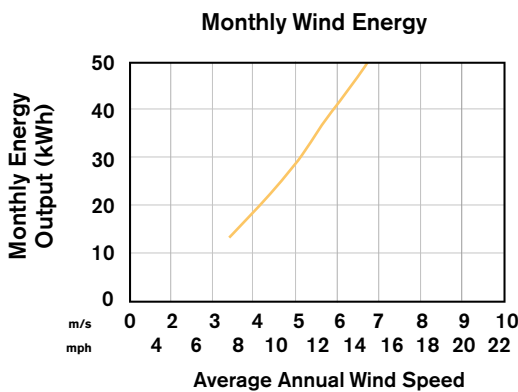
**Quiet, reliable energy for sea and shore**

AirBreeze/Airx Marine is trusted by sailors around the world and recommended as the best high-energy output turbine by Yachting Monthly. Its optimized electronic controls deliver energy quietly and efficiently. Extensive third party testing and certification shows more consistent output than the competition. AirBreeze/Airx Marine is part of the latest generation of AIR products – the world’s best-selling wind turbines – with more than 135,000 units sold in more than 120 countries.

**High performance in marine environments**

We recommend AirBreeze for all small battery-charging applications in coastal areas or offshore: boats, docks and other marine uses. The AirBreeze is an ideal wind turbine for hybrid systems with solar to offset those cloudy or stormy periods. AirBreeze is built and backed by the worldwide leader in small wind.

- Improved reliability backed by a lifetime warranty
- Quiet operation
- Energy in light winds
- Lightweight; unique design is simple and easy to install
- Stop switch included
- Corrosion resistant paint tested to SAE J2334 standard
- Marine grade O-ring seal
- Stainless steel external fasteners
- Anodized blade hub
- Ultrasilent replacement blade kit available - Also fits AirX™ series generators - **68485M**



| AIR BREEZE           | Air Breeze M1 12V                             | Air Breeze M2 24V | AirX Marine 12V              | AirX Marine 24V |
|----------------------|---|-------------------|------------------------------|-----------------|
| Part No.             | 68070F  | 68071H            | 63034Z                       | 63035B          |
| Energy               | app. 3200 Ah/month at 5,8 m/s (11.3 knots)    |                   | 30kW h/m at 5,8 m/s (13 mph) |                 |
| Rotor Diameter       | 1.17 m (6 in)                                 |                   |                              |                 |
| Weight               | 5.9 kg (13 lb)                                |                   |                              |                 |
| Shipping dimensions  | 686 x 318 x 229 mm (27 x 12.5 x 9 in)         |                   |                              |                 |
| Mount                | 48 mm (1.9 in) outer diameter                 |                   |                              |                 |
| Startup Wind Speed   | 3.13 m/s (7 mph)                              |                   | 3.58 m/s (8 mph)             |                 |
| Voltage              | 12 or 24 V DC                                 |                   |                              |                 |
| Turbine Controller   | Microprocessor-based smart internal regulator |                   |                              |                 |
| Overspeed protection | Electronic torque control                     |                   |                              |                 |
| Survival Wind Speed  | 49.2 m/s (110 mph)                            |                   |                              |                 |

# 3 BLADE WIND GENERATORS



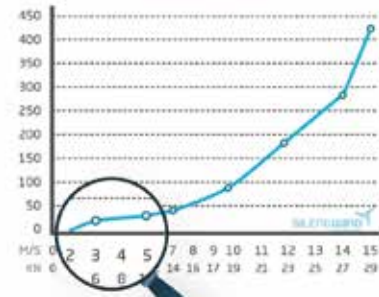
- Generator type: permanent magnet generator, 3 phase
- Integrated electronic/manual stop switch
- Very light: 6,8 kg only
- Hand laminated, UV-resistant carbon blades, successfully tested according to DIN EN 61400-2 at hurricane speed 122km/h.
- Low noise
- Very good start-up performance due to low cogging torque at 2,2 m/s wind speed
- Supplied with external hybrid controller for wind and solar energy with multi-function LCD display (for 12V and 24V models). It can be connected to photovoltaic modules.

- **Applications:** universal application for marine, land and professional systems with low, middle and high wind
- **Warranty:** 3 years
- **Certification:** DIN VDE protection class II; CE; RohS

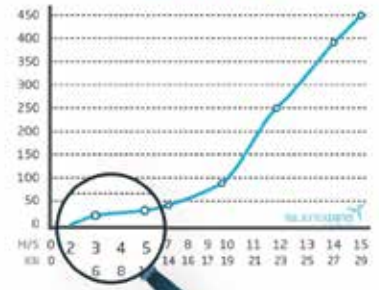
| Model                     | SLW-420-12                             | SLW-450-24                             | SLW-500-48                             |
|---------------------------|--|--|--|
| Part No.                  | 20381EA                                | 20382GA                                | 20383JA                                |
| Rated voltage             | 12 VDC                                 | 24 VDC                                 | 48 VDC                                 |
| Rated power               | 420 W                                  | 450 W                                  | 500 W                                  |
| Rated wind speed          | 14,5 m/s                               | 14,5 m/s                               | 14,5 m/s                               |
| Start-up wind speed       | 2,2 m/s                                | 2,2 m/s                                | 2,2 m/s                                |
| Start-up charging         | 2,8 m/s                                | 2,8 m/s                                | 2,8 m/s                                |
| Rotor diameter            | 1,15 m                                 | 1,15 m                                 | 1,15 m                                 |
| Rotor speed range         | 550-1700 rpm                           | 550-1700 rpm                           | 550-1700 rpm                           |
| Packing dimensions mm (") | 780 x 400 x 210<br>(30.7 x 15.8 x 8.3) | 780 x 400 x 210<br>(30.7 x 15.8 x 8.3) | 780 x 400 x 210<br>(30.7 x 15.8 x 8.3) |
| Dry weight kg (lbs)       | 6,8 (15)                               | 6,8 (15)                               | 6,8 (15)                               |



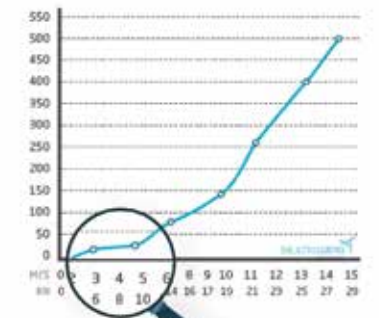
**POWERCURVE 12V BOOSTER 2V**



**POWERCURVE 24V BOOSTER 4V**



**POWERCURVE 48V BOOSTER 8V**



## WIND/SOLAR HYBRID CHARGE CONTROLLER

The LCD multifunction display shows all main operating values (W, A, V/ Ah, kWh, Ah).

Battery system voltage automatically detected. Maximum power input of the solar panel: 550 Wp.

- **Bluetooth connection with dedicated App**

|                            |   |
|----------------------------|---|
| Part No.                   | 20384L (12 V) - 20385N (24 V) - 20386R (48 V)       |
| Rated battery voltage      | 12, 24 or 48 VDC                                    |
| Max wind gen. power input  | 600 W /40 A (12 V) /30 A (24 V) /15 A (48 V)        |
| Max solar mod. power input | 300 W /50 VOC /20 A (12 V) /10 A (24 V) /5 A (48 V) |
| Display data               | V, A, V/Ah, kWh, Ah                                 |
| Battery type               | Flooded / GEL / AGM                                 |
| Dimensions mm (")          | 220 x 150 x 82 (8.7 x 5.9 x 3.2)                    |
| Dry weight kg (lbs)        | 2,8 (6.2)   |

## 3 BLADE SPARE KIT

68485M - Three blade kit for AirBreeze™ and AirX™

## POLE AND MOUNTING KIT (OPTIONAL)

68689E - Reinforced pole for high wind speed

68690N - Mounting kit



The Superwind 350 is a small wind turbine for professional use, which even under extreme conditions works autonomously and automatically.

- **Features:**
  - Adjust the speed and power by varying the pitch of the blades
  - Carbon fiber reinforced blades
  - Alternator with permanent magnet, three-phase rectifier
  - Stop: Short circuit of the generator
  - Superwind 350 is often used in mixed wind / photovoltaic systems
- **Applications:**

Ideal fields of application for example are navigational aids, traffic control systems, environmental monitoring stations or transmitters, but also sailing yachts, campers, summer cottages and mountain shelters.

| SUPERWIND                         | Superwind 350 12V | Superwind 350 24V |
|-----------------------------------|-------------------|-------------------|
| Part No.                          | 65726S            | 65727U            |
| Max power at 12,5 m/s             | 350 W             | 350 W             |
| Voltage                           | 12 V DC           | 24 V DC           |
| Cut-in wind speed                 | 3,5 m/s           | 3,5 m/s           |
| Cut-off wind speed                | none              | none              |
| Rotor diameter                    | 1,20 m            | 1,20 m            |
| Rotor speed                       | 500-1300 rpm      | 500-1300 rpm      |
| Rotor thrust (operation)          | 70 N              | 70 N              |
| Rotor thrust (extreme wind speed) | 220 N             | 220 N             |
| Dry weight kg (lbs)               | 11,5 (25.3)       | 11,5 (25.3)       |

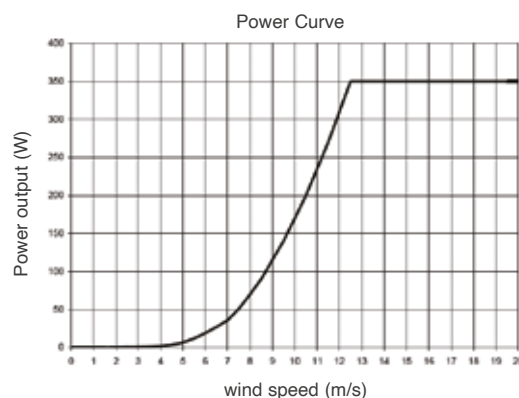
## ACCESSORIES

CRM 12V Charge controller - 65728W

CRM 24V Charge controller - 65729Y

Stop switch - 65730G

Installation Kit - 65731J



- 3 phase brushless wind turbines. The cross-ventilated 'savoynius' vertical axis rotor coupled with the well proven axial flux alternator.
- Quiet; reliable.
- Robust design, almost indestructible: these vertical axis wind turbine are designed & proven to survive 120mph Antarctic winds.
- Compact and lightweight, can be installed in a variety of positions with ease
- Marine quality finish, high quality components and lasting performance
- High efficiency due to anticipated start-up charge
- Charge controller included (only LE-v150™ model)

• **Applications:**

Trickle charging for batteries installed on boats and land.  
 Polar stations for monitoring air pollution.  
 Buoys and marine lights. Telecom systems.  
 Signaling systems that require low energy.

• **Warranty:** 2 years

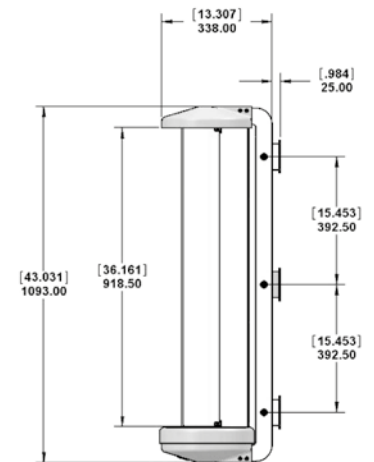


LE-v50™

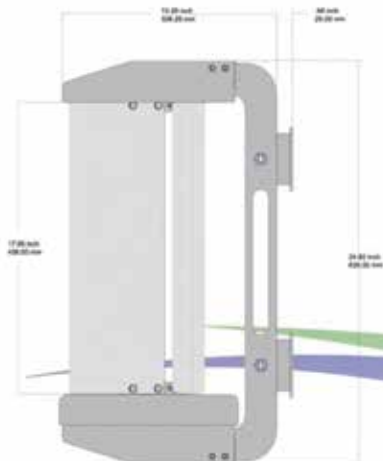
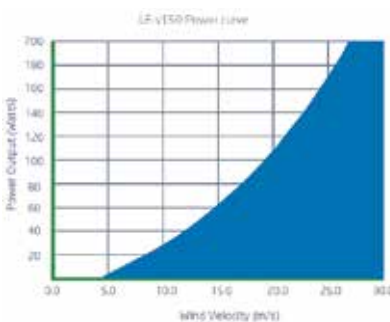
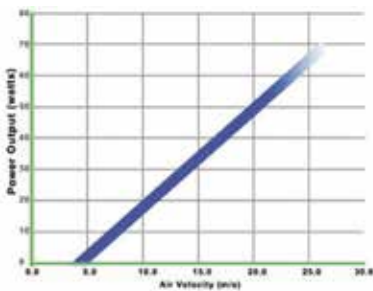
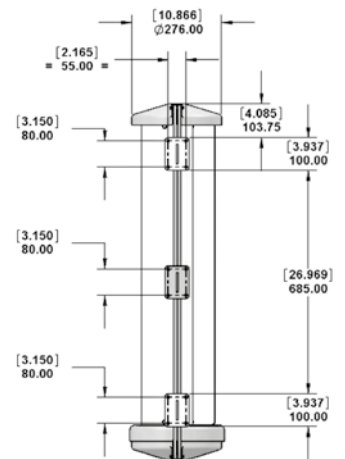


LE-v150™

| Model               | LE-v50                         | LE-v150                        |
|---------------------|--------------------------------|--------------------------------|
| Part No.            | 68641Z (12 V)<br>68642B (24 V) | 69771U (12 V)<br>69772W (24 V) |
| Voltage             | 12 or 24 V                     | 12 or 24 V                     |
| Nominal power       | 11 W @ 8 m/s<br>(15,5 knots)   | 24 W @ 8 m/s<br>(17,8 knots)   |
| Peak power          | 70 W                           | 200 W                          |
| Cut-in wind speed   | 4 m/s (7,7 knots)              | 3 m/s (9 knots)                |
| Rotor diameter      | 200 mm (7.92)                  | 270 mm (10.6")                 |
| Dry weight kg (lbs) | 9 (19.9)                       | 13 (28.7)                      |



LE-v150™



LE-v50™



# EneOn®

ENERGY ON BOARD



### Your energy

Whether you sail for leisure or for work, Eneon® is able to provide all the energy you need, ensuring safety, comfort and maximum performance. The variety of Eneon® product range offers tailor-made solutions to meet every need.

Eneon® means innovation, reliability, safety and sustainability. With Eneon® the advanced technologies meet the experience of those working in the industry for many years.

### A safe choice

Wherever you are sailing and in any weather condition, Eneon® is a safe choice. Eneon's reliability is also expressed in its international warranty: a network of official distributors and workshop around the world ensures parts and immediate assistance.

## POWER RANGE

Eneon compact, silent and reliable Generating Sets from 3 to 47 kVA are designed to improve the comfort both on board sailing and engine powered boats and to satisfy even the most demanding shipowners.



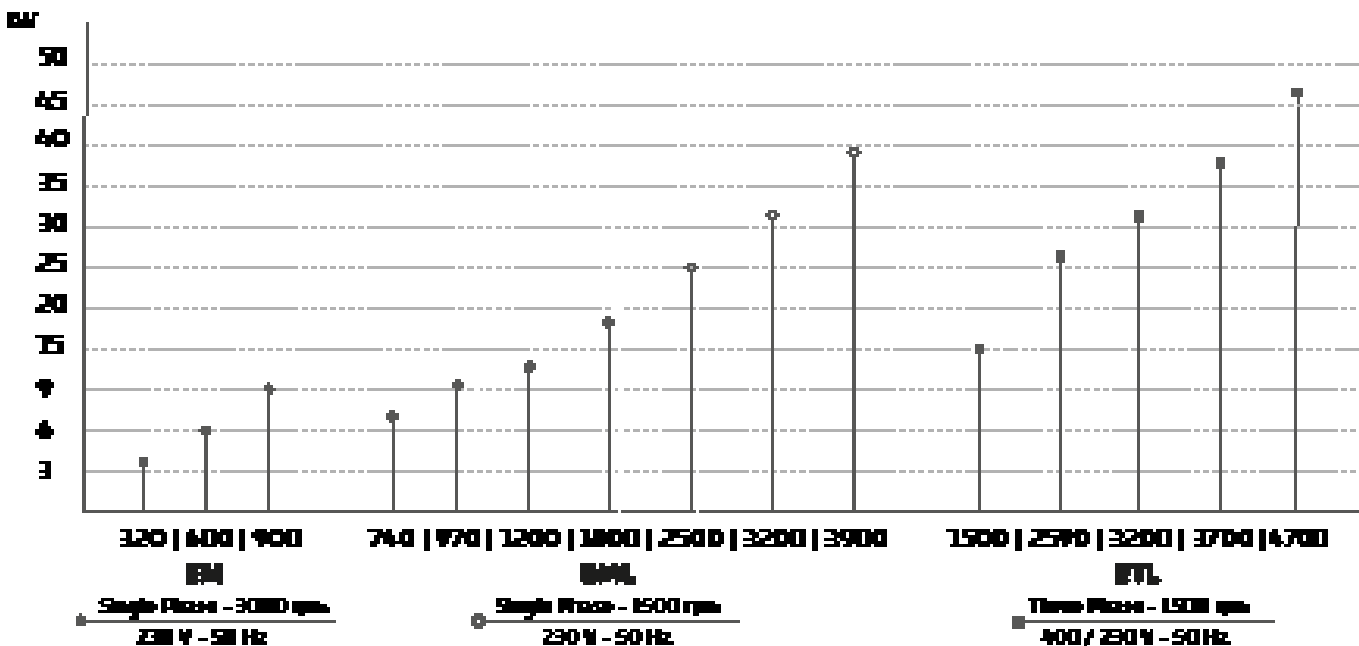
EM SERIES: 3,2 - 9 KVA



EML SERIES: 7,4 - 39 KVA



ETL SERIES: 15 - 47 KVA



**Features**

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

**Standards applied**

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
- Acoustic emission: 2005/88/CE - 2000/14/CE (sound proof version only)

**Standard equipment**

- **Sound proof canopy:** Made entirely from marine grade aluminum (LEGA 5754 H111) powder coated,.
- **EOB-3000<sup>®</sup> control panel:** Waterproof control panels for engine protection with LCD display.  
Supplied separately for all the generators.  
On board the generators there is a selector for manual start bypassing the control panel.
- **Generating set anchor brackets:** 4 steel brackets to attach the generator to the floor of the boat.
- **Emergency button:** Emergency button positioned on the Generating Set to allow for the immediate shutdown in case of danger or damage.
- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

**Optional equipment**

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Diesel water separator
- Manual oil extraction pump



**EM600**

| MODEL                                | EM320                        | EM600                        | EM900                        |
|--------------------------------------|------------------------------|------------------------------|------------------------------|
| Part No.                             | 24705B                       | 24706D                       | 24707F                       |
| Max power kVA (kW)                   | 3.2 (3.2)                    | 6.0 (6.0)                    | 9.0 (9.0)                    |
| Phase                                | Single phase                 | Single phase                 | Single phase                 |
| Current (A)                          | 14.00                        | 26.00                        | 40.00                        |
| Voltage                              | 230 V*                       | 230 V*                       | 230 V*                       |
| Frequency                            | 50 Hz*                       | 50 Hz*                       | 50 Hz*                       |
| Engine cooling system                | Sea water/air                | Heat exchanger               | Heat exchanger               |
| Noise level db(A) @ 7 meters         | 54                           | 54                           | 54                           |
| Engine model                         | YANMAR L70N                  | KUBOTA Z482                  | KUBOTA D722                  |
| Rpm                                  | 3000                         | 3000                         | 3000                         |
| No. of cylinders                     | 1                            | 2                            | 3                            |
| Dimensions soundproof version mm (") | 580x425x525 (22.8x16.7x20.7) | 650x480x540 (25.6x18.9x21.3) | 800x500x565 (31.5x19.7x22.2) |
| Weight soundproof version kg (lbs)   | 99 (218.3)                   | 152 (335.1)                  | 216 (476.2)                  |

\* 240/120V - 60Hz models are available on request

# EML SERIES: SINGLE PHASE 1500 RPM MARINE GENERATORS

## Features

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

## Standards applied

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
- Acoustic emission: 2005/88/CE - 2000/14/CE (sound proof version only)

## Standard equipment

- **Sound proof canopy:** Made entirely from marine grade aluminum (LEGA 5754 H111) powder coated,.
- **EOB-1500<sup>®</sup> control panel:** Waterproof control panel for engine protection with LCD display, installed onboard the generators.
- **Generating set anchor brackets:** 4 steel brackets to attach the generator to the floor of the boat.
- **Emergency button:** Emergency button positioned on the Generating Set to allow for the immediate shutdown in case of danger or damage.
- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

## Optional equipment

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Diesel water separator
- Manual oil extraction pump



**EML1200**

| MODEL                                | EML740                          | EML970                           | EML1200                          |
|--------------------------------------|---------------------------------|----------------------------------|----------------------------------|
| Part No.                             | 24708H                          | 24709K                           | 25421S                           |
| Max power kVA (kW)                   | 7.4 (7.4)                       | 9.7 (9.7)                        | 12.0 (12.0)                      |
| Phase                                | Single phase                    | Single phase                     | Single phase                     |
| Current (A)                          | 32.00                           | 42.00                            | 52.00                            |
| Voltage                              | 230 V*                          | 230 V*                           | 230 V*                           |
| Frequency                            | 50 Hz*                          | 50 Hz*                           | 50 Hz*                           |
| Engine cooling system                | Heat exchanger                  | Heat exchanger                   | Heat exchanger                   |
| Noise level db(A) @7m                | 54                              | 54                               | 54                               |
| Engine model                         | KUBOTA<br>D1105-BG              | KUBOTA<br>V1505-BG               | KUBOTA<br>D1703-BG               |
| Rpm                                  | 1500                            | 1500                             | 1500                             |
| No. of cylinders                     | 3                               | 4                                | 3                                |
| Dimensions soundproof version mm (") | 910x540x670<br>(35.8x21.3x26.4) | 1040x540x680<br>(40.9x21.3x26.8) | 1020x600x730<br>(40.2x23.6x28.7) |
| Weight soundproof version kg (lbs)   | 276<br>(608.5)                  | 305<br>(672.4)                   | 372<br>(820.1)                   |

\* 240/120V - 60Hz models are available on request

**Features**

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

**Standards applied**

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
- Acoustic emission: 2005/88/CE - 2000/14/CE (sound proof version only)

**Standard equipment**

- **Sound proof canopy:** Made entirely from marine grade aluminum (LEGA 5754 H111) powder coated,.
- **EOB-1500<sup>®</sup> control panel:** Waterproof control panel for engine protection with LCD display, installed onboard the generators.
- **Generating set anchor brackets:** 4 steel brackets to attach the generator to the floor of the boat.
- **Emergency button:** Emergency button positioned on the Generating Set to allow for the immediate shutdown in case of danger or damage.
- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

**Optional equipment**

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Diesel water separator
- Manual oil extraction pump



**EML1800**

| MODEL                                | EML1800                          | EML2500                        |
|--------------------------------------|----------------------------------|--------------------------------|
| Part No.                             | 25422U                           | 25423W                         |
| Max power kVA (kW)                   | 18.0 (18.0)                      | 25.0 (25.0)                    |
| Phase                                | Single phase                     | Single phase                   |
| Current (A)                          | 83.00                            | 109.00                         |
| Voltage                              | 230 V*                           | 230 V*                         |
| Frequency                            | 50 Hz*                           | 50 Hz*                         |
| Engine cooling system                | Heat exchanger                   | Heat exchanger                 |
| Noise level db(A) @7m                | 54                               | 54                             |
| Engine model                         | KUBOTA<br>V2403-BG               | KUBOTA<br>V3300-BG             |
| Rpm                                  | 1500                             | 1500                           |
| No. of cylinders                     | 4                                | 4                              |
| Dimensions soundproof version mm (") | 1130x600x730<br>(44.5x23.6x28.7) | 1600x710x910<br>(63x27.9x35.8) |
| Weight soundproof version kg (lbs)   | 430<br>(948)                     | 670<br>(1477.1)                |

\* 240/120V - 60Hz models are available on request

# EML SERIES: SINGLE PHASE 1500 RPM MARINE GENERATORS

## Features

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

## Standards applied

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
- Acoustic emission: 2005/88/CE - 2000/14/CE (sound proof version only)

## Standard equipment

- **Sound proof canopy:** Made entirely from marine grade aluminum (LEGA 5754 H111) powder coated,.
- **EOB-1500<sup>®</sup> control panel:** Waterproof control panel for engine protection with LCD display, installed onboard the generators.
- **Generating set anchor brackets:** 4 steel brackets to attach the generator to the floor of the boat.
- **Emergency button:** Emergency button positioned on the Generating Set to allow for the immediate shutdown in case of danger or damage.
- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

## Optional equipment

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Diesel water separator
- Manual oil extraction pump



**EML3200**

| MODEL                                | EML3200 <b>new</b>             | EML3900 <b>new</b>             |
|--------------------------------------|--------------------------------|--------------------------------|
| Part No.                             | 25424Y                         | 25425A                         |
| Max power kVA (kW)                   | 32.0 (32.0)                    | 39.0 (39.0)                    |
| Phase                                | Single phase                   | Single phase                   |
| Current (A)                          | 139.00                         | 170.00                         |
| Voltage                              | 230 V*                         | 230 V*                         |
| Frequency                            | 50 Hz*                         | 50 Hz*                         |
| Engine cooling system                | Heat exchanger                 | Heat exchanger                 |
| Noise level db(A) @7m                | 54                             | 54                             |
| Engine model                         | KUBOTA<br>V3800-BG             | KUBOTA<br>V3800-BG             |
| Rpm                                  | 1500                           | 1500                           |
| No. of cylinders                     | 4                              | 4                              |
| Dimensions soundproof version mm (") | 1600x710x960<br>(63x27.9x37.8) | 1600x710x960<br>(63x27.9x37.8) |
| Weight soundproof version kg (lbs)   | 680<br>(1499.1)                | 700<br>(1543.2)                |

\* 240/120V - 60Hz models are available on request

**Features**

- Connection on one side
- Electronic management
- Easy maintenance
- Local and remote control
- Reduced dimensions and noise level

**Standards applied**

- CE certified
- Power: ISO 8528
- Directive Machinery: 2006/42/CE - 89/392CEE - 98/37/CE
- Electromagnetic compatibility: 2004/108/CE - 89/336/CEE - 93/68/CEE
- Acoustic emission: 2005/88/CE - 2000/14/CE (sound proof version only)

**Standard equipment**

- **Sound proof canopy:** Made entirely from marine grade aluminum (LEGA 5754 H111) powder coated,.
- **EOB-1500<sup>®</sup> control panel:** Waterproof control panel for engine protection with LCD display, installed onboard the generators.
- **Generating set anchor brackets:** 4 steel brackets to attach the generator to the floor of the boat.
- **Emergency button:** Emergency button positioned on the Generating Set to allow for the immediate shutdown in case of danger or damage.
- **Manuals:** User and installation manuals of the generating set along with relative engine and alternator user manuals.

**Optional equipment**

- Silenced muffler kit
- Sea water intake kit
- Siphon breaker
- Water gas separator
- Electrical fuel pump
- Diesel prefilter with water separator
- Diesel water separator
- Manual oil extraction pump



**ETL3700**

| MODEL                                | <b>new</b><br>ETL1500            | ETL2590                          | ETL3200                          | ETL3700                        | <b>new</b><br>ETL4700          |
|--------------------------------------|----------------------------------|----------------------------------|----------------------------------|--------------------------------|--------------------------------|
| Part No.                             | 25426C                           | 24713A                           | 24714C                           | 25427E                         | 25428G                         |
| Max power kVA                        | 15.0                             | 25.9                             | 32.0                             | 37.0                           | 47.0                           |
| Phase                                | Three phase                      | Three phase                      | Three phase                      | Three phase                    | Three phase                    |
| Current (A)                          | 22.00                            | 34.00                            | 45.00                            | 50.00                          | 65.00                          |
| Voltage                              | 400/230 V + N*                   | 400/230 V + N*                   | 400/230 V + N*                   | 400/230 V + N*                 | 400/230 V + N*                 |
| Frequency                            | 50 Hz*                           | 50 Hz*                           | 50 Hz*                           | 50 Hz*                         | 50 Hz*                         |
| Engine cooling system                | Heat exchanger                   | Heat exchanger                   | Heat exchanger                   | Heat exchanger                 | Heat exchanger                 |
| Noise level db(A) @7m                | 54                               | 54                               | 54                               | 54                             | 54                             |
| Engine model                         | KUBOTA<br>D1703-BG               | KUBOTA<br>V2403-BG               | KUBOTA<br>V3300-BG               | KUBOTA<br>V3800-BG             | KUBOTA<br>V3800-BG             |
| Rpm                                  | 1500                             | 1500                             | 1500                             | 1500                           | 1500                           |
| No. of cylinders                     | 3                                | 4                                | 4                                | 4                              | 4                              |
| Dimensions soundproof version mm (") | 1020x600x730<br>(40.2x23.6x28.7) | 1130x600x730<br>(44.5x23.6x28.7) | 1590x700x900<br>(62.6x27.6x35.4) | 1600x710x960<br>(63x27.9x37.8) | 1600x710x960<br>(63x27.9x37.8) |
| Weight soundproof version kg (lbs)   | 372<br>(820.1)                   | 448<br>(987.7)                   | 670<br>(1477.1)                  | 700<br>(1543.2)                | 700<br>(1543.2)                |

\* 440/254V - 60Hz models are available on request

| MODEL                 | DESCRIPTION                 | GEN    | S/W Kit | Exhaust Kit | Separator | Siphon breaker |
|-----------------------|-----------------------------|--------|---------|-------------|-----------|----------------|
| <b>EM320 - 3,2 kW</b> | 3,2 kW, 230 V, soundproofed | 24705B | 22662Z  | 22630K      | 22631M    | 22657G         |
| <b>EM600 - 6,0 kW</b> | 6,0 kW, 230 V, soundproofed | 24706D | 22629B  | 22630K      | 22631M    | 22657G         |
| <b>EM900 - 9,0 kW</b> | 9,0 kW, 230 V, soundproofed | 24707F | 22629B  | 22630K      | 22631M    | 22657G         |

|                          |                              |        |        |        |        |        |
|--------------------------|------------------------------|--------|--------|--------|--------|--------|
| <b>EML740 - 7,4 kW</b>   | 7,4 kW, 230 V, soundproofed  | 24708H | 22663B | 22665F | 22668M | 22657G |
| <b>EML970 - 9,7 kW</b>   | 9,7 kW, 230 V, soundproofed  | 24709K | 22663B | 22665F | 22668M | 22657G |
| <b>EML1200 - 12,0 kW</b> | 12,0 kW, 230 V, soundproofed | 25421S | 22663B | 22666H | 22669P | 22657G |
| <b>EML1800 - 18,0 kW</b> | 18,0 kW, 230 V, soundproofed | 25422U | 22663B | 22666H | 22669P | 22657G |
| <b>EML2500 - 25,0 kW</b> | 25,0 kW, 230 V, soundproofed | 25423W | 22664D | 22667K | 22670Y | 22657G |
| <b>EML3200 - 32,0 kW</b> | 32,0 kW, 230 V, soundproofed | 25424Y | 22664D | 22667K | 22670Y | 22657G |
| <b>EML3900 - 39,0 kW</b> | 39,0 kW, 230 V, soundproofed | 25425A | 22664D | 22667K | 22670Y | 22657G |

|                           |                                     |        |        |        |        |        |
|---------------------------|-------------------------------------|--------|--------|--------|--------|--------|
| <b>ETL1500 - 15,0 kVA</b> | 15,0 kVA, 400/230 V+N, soundproofed | 25426C | 22663B | 22666H | 22669P | 22657G |
| <b>ETL2590 - 25,9 kVA</b> | 25,9 kVA, 400/230 V+N, soundproofed | 24713A | 22663B | 22666H | 22669P | 22657G |
| <b>ETL3200 - 32,0 kVA</b> | 32,0 kVA, 400/230 V+N, soundproofed | 24714C | 22664D | 22667K | 22670Y | 22657G |
| <b>ETL3700 - 37,0 kVA</b> | 37,0 kVA, 400/230 V+N, soundproofed | 25427E | 22664D | 22667K | 22670Y | 22657G |
| <b>ETL4700 - 47,0 kVA</b> | 47,0 kVA, 400/230 V+N, soundproofed | 25428G | 22664D | 22667K | 22670Y | 22657G |

**Kit A/M** (Sea water kit): include hose holder, nipples, ball valve, through hull and water filter

**Exhaust Kit:** include silenced muffler, reinforced ss clamps and exhaust hose

Maintenance kits also available for all the genset models: include air filter, fuel filter and s.w pump impeller for EM320 model, Oil filter, fuel filter, belt, s.w. pump impeller and zinc anodes for all the other models



Silencers



Siphon breaker



Water/gas separator



- **The absorption layer**

A thick layer of fire zero rated foam which soaks up noise and stops it bouncing around the engine space.

- **The transmission layer**

A high density barrier provides the highest possible mass and gives the best noise reduction. The damping layer weighs 5kgs per square meter – more than the lead sheet used in older materials.

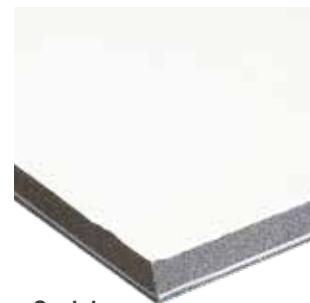
- **The isolation layer**

This thin layer of foam has a crucial function: It acts like the gap in double glazing and stops the noise which hits the transmission layer being carried through to the bulkhead – just like the gap in double glazing.

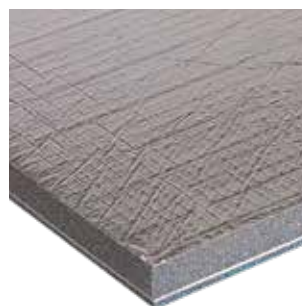
The multi-layer construction used in Halyard<sup>®</sup> materials offers the best possible acoustic result in a thicknesses which can be accommodated in the tightest engine space, beating simpler materials many times as thick.



Maritex



Sealglass



Re-inforced Silver Polyester

### PROTECTIVE SKIN

- **Maritex**

An immensely tough fibreglass cloth with a sealed metallised skin so it cannot absorb oil. It won't tear or fray. It looks heavy duty, and it is fire zero rated. Maritex is simply the best facing in the Halyard<sup>®</sup> range.

Maritex is fire zero rated to BS 476 parts 6 and 7.

- **Sealglass**

A tough off-white glass cloth, sealed against oil. The cloth is extremely tough and will not tear. The material meets the ISO 9094 fire requirements of the EU Recreational Craft Directive.

- **Re-inforced Silver Polyester**

This facing meets the requirements of the Recreational Craft Directive. It provides a seal to keep oil out. You can pierce it, but it has a reinforcing layer behind it. It will burn, but once laminated in place it meets the ISO 9094 fire requirements of the EU Recreational Craft Directive. In a fire the facing will burn, but not the foam behind it.

**NOTE:** for more specifications and application indications, see the Halyard<sup>®</sup> section of the catalog

### SCAMO EXHAUST HOSE

**Hardwall corrugated (CAJ) and smooth cover (NAJ) rubber hose.**

Extremely flexible. Marine exhaust hose suitable also for cooling the heat exchangers on pleasure boats up to 24 m.

Standards **SAE J 2006:2003 R2 - ISO 13363:2004 Type 2 Class B.**

Approved: **LLOYD'S REGISTER N. 96/00126 - R.I.NA N. DIP 075110CS**

- **TEMPERATURE RANGE:** -30°C +100°C

Hoses available with internal diameter 40/50/60/90 mm, in 20 m coil (in case of different lengths requested please contact our sales department)



CAJ



NAJ

## EOB-3000® CONTROL PANEL



EOB-3000® Control panel - 25127S

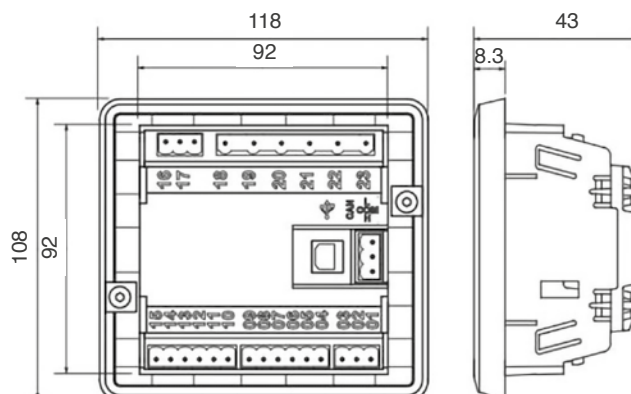
EOB-3000® is the most advanced and complete command and control board for Eneon® Generators, EOB-3000® is available as standard across the EM 3000 rpm range . It allows to monitor all the major electrical and mechanical parameters of the generator, to have it constantly under control. EOB-3000® control panel is installed remotely, and cable connected to the EM series generators. EOB-3000® control panel is not expandable

### Alarms

- Low oil pressure
- High water temperature
- High exhaust riser temperature
- Battery Charger fault
- Starting fault
- Mechanical fault
- Low frequency
- High frequency
- Low battery voltage
- Low alternator voltage
- High alternator voltage
- Maintenance request
- Overload

### Measurements

- Gen voltage (Vac)
- Current (A)
- Frequency (Hz)
- Battery voltage (Vcc)
- Oil pressure (bar)
- Engine temperature (°C)
- Counter



EOB-3000® Dimensions

**EOB-1500**<sup>®</sup> CONTROL PANEL



**EOB-1500**<sup>®</sup> Control panel - 25126P

EOB-1500<sup>®</sup> control panel is available as standard across the 1500 rpm EML/ETL Eneon<sup>®</sup> generators.

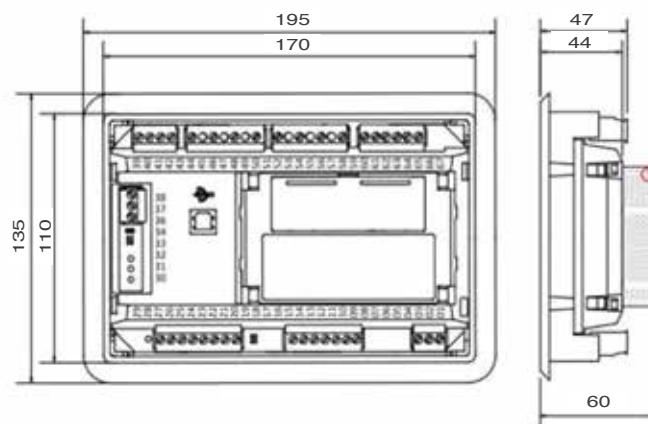
It allows to monitor all the major electrical and mechanical parameters of the generator, to have it constantly under control and it is equipped with a J1939 communication bus to connect external devices that extend the functionalities of the control unit. The EOB-1500 control is standard installed onboard the generators, by ordering an optional panel + cable kit (Cod. 24811A) it is possible to install a second remote panel.

**Alarms**

- Low oil pressure
- High water temperature
- High exhaust riser temperature
- Battery Charger fault
- Starting fault
- Mechanical fault
- Low frequency
- High frequency
- Low battery voltage
- Low alternator voltage
- High alternator voltage
- Maintenance request
- Overload

**Measurements**

- Gen voltage (Vac)
- Current (A)
- Frequency (Hz)
- Battery voltage (Vcc)
- Oil pressure (bar)
- Engine temperature (°C)
- Counter



**EOB-1500**<sup>®</sup> Dimensions

ACCESSORIES FOR THE INSTALLATION



Seawater filtering kit



Diesel prefilter  
with water separator



Oil extraction pump



VTR Halyard Silencers,  
available on request



Halyard thermoplastic water/  
gas separator, available on  
request



Diesel water separator



Electrical fuel pump



Siphon breaker

# **WESTERBEKE™**



Westerbeke's Multiport EFI gasoline-fueled generators represent the benchmark for quiet, reliable, high performance marine gasoline generators. Westerbeke's innovative engineering and electronic fuel injection make this possible. Westerbeke Multiport EFI generators deliver the affordable, compact, lightweight, quiet, and efficient marine generator qualities that have made Westerbeke the preferred choice among seasoned boat manufacturers and boat owners. Make a smart decision today and choose an NMMA (National Marine Manufacturers Association) Innovation Award Winning Westerbeke Multiport EFI genset!

**new**



3.5 MCGA



6.2 MCGA

## STANDARD FEATURES

- Simple "one touch" start/stop control panel with running hour meter and warning annunciation
- Multiport EFI
- Water-cooled, returnless fuel system
- Electronic governing
- Safety warnings and shut downs for: over speed, under speed, low oil pressure, high exhaust and more
- Fresh water cooling and coolant recovery tank
- AC circuit breaker
- Water injected exhaust elbow
- Belt-driven raw water pump
- Vibration isolators
- Belt guard
- Operators' manual and parts list
- Meets CARB & U.S. EPA requirements
- Meets U.S.C.G. regulation 33CFR-183
- CE certified

## OPTIONAL

- Remote start/stop panel with warning annunciation light strip
- 15' or 30' remote start/stop panel extension harness
- Ship-shore transfer switch
- Ventilated Enclosure ( 6.2 – 7.6 MCGA Only )
- Anti-siphon valve
- "A" on board spare parts kit
- "B" extended cruising spare parts kit
- Hydro-hush muffler

| MODEL                                 | PART No. | OUTPUT kW | VOLTS | No. OF CYLINDERS | BORE RPM | DIMENSIONS LxHxW mm (")               | WEIGHT kg (lbs) |
|---------------------------------------|----------|-----------|-------|------------------|----------|---------------------------------------|-----------------|
| 3.5 MCGA-512<br>Multiport EFI - 50 Hz | 25464L   | 3.5       | 230   | 2                | 2.500    | 688,3x401,3x381<br>(27.1x15.8x15)     | 102,5 (226)     |
| 6.2 MCGA-514<br>Multiport EFI - 50 Hz | 25465N   | 6.2       | 230   | 3                | 1.500    | 703,6x467,4x454,7<br>(27.7x18.4x17.9) | 174,6 (385)     |
| 7.6 MCGA-514<br>Multiport EFI - 50 Hz | 25466R   | 7.6       | 230   | 4                | 1.500    | 800,1x470x459,7<br>(31.5x18.5x18.1)   | 201,8 (445)     |

# **BALMAR**<sup>®</sup>

[WWW.BALMAR.NET](http://WWW.BALMAR.NET)

## **DC CHARGING SOLUTIONS**



# ALTERNATORS



Balmar® supply high efficiency DC charging systems and battery monitors.

Balmar® alternators performances:

- Less generator use
- More charging Amps at low RPM
- 30% faster, more complete charging
- Longer battery bank life
- Less fuel consumption

## HOW TO SELECT THE CORRECT CHARGING SYSTEM

- **Determine your electrical load:** all your device loads and expected duty cycles will clarify your expected daily battery discharge requirements. Add a safety factor
- **Identify your battery bank technology and capacity:** how many batteries are in your bank and what is the total storage capacity? What type of batteries are employed? (Different technologies require different charging programs)
- **Select your alternator output:** the correct charging load depends on the battery technology and capacity. For example, an AGM battery can accept a 50% charge loads so a 300 Ah bank of AGMs can accept 150 A of charging for the alternator. Therefore you could support at least a 150 A alternator to charge your bank as quickly as possible
- **Select the alternator mounting style present on your engine:** most mounting styles are either 1" - 2" single foot, 3.15" - 4" saddle
- **Determine your belt and pulley requirements:** a belt/pulley conversion kit may be required to handle your alternator PTO load
- **Select additional charging systems options:** kit greatly simplify belt tensioning. The smartgauge battery monitor provides accurate state of charge information
- Balmar high-efficiency alternators can replace standard alternators on engines or be installed as additional alternators.

## 6-SERIES CHARGING SYSTEM

- Best-selling alternator series
- Available in outputs ranging from 70 A to 150 A
- 12 V and 24 V configurations with four popular mounts
- Max RPM 12000
- Dual fan cooling
- Gas or diesel engines
- Patented SmartReady voltage regulation
- Multi-stage external regulation provides seven selectable programs tailored to your battery technology
- Pulley conversion kits for your engine as required
- USCG Title 33, CE, ISO 8846 and SAE J1171 Certified
- Available with insulated terminals (IG)



6-SERIES

| 6-SERIES   | REGULATOR         | MOUNTING             | ALTERNATOR PART No. |             |         |          |
|------------|-------------------|----------------------|---------------------|-------------|---------|----------|
|            |                   |                      | Single pulley       | Dual pulley | Poly-K6 | Poly-J10 |
| 100 A 12 V | ARS-5H            | 1-2" Single foot     | 20554K              | 20552F      | 20553H  | -        |
|            | part No. - 20596C | 3.15" Saddle mount   | 20557S              | 20555M      | 20556P  |          |
| 120 A 12 V | ARS-5H            | 1-2" Single foot     | -                   | 20558U      | 20560E  | 20559W   |
|            | part No. - 20596C | 3.15-4" Saddle mount | -                   | 20561G      | 20563L  | 20562J   |
| 70 A 24 V  | MC-624-H          | 1-2" Single foot     | -                   | 20564N      | 20566T  | 20565R   |
|            | part No - 20480G  | 3.15-4" Saddle mount | -                   | 20567V      | 20569Z  | 20568X   |



## XT SERIES ADVANCED TECHNOLOGY CHARGING SYSTEMS

New XT-Series Alternators from Balmar bring together the latest innovations in alternator design to deliver incredible charging power in a compact, Marine-friendly package.

### Designed for Recreational Applications

- 170A and 250A in a Small Case Package
- Up to 180A at Idle Speeds
- Patented Smart Ready® Technology
- Dual Fan Cooling, High Airflow Frame
- Ideal for Lithium Battery Banks
- USCG Title 33, ISO 8846 and SAE J1171 Certified



170A XT Series

| XT-SERIES  | REGULATOR                     | MOUNTING  | ALTERNATOR PART No. |         |          |
|------------|-------------------------------|---|---------------------|---------|----------|
|            |                               |   | Dual pulley         | Poly-K6 | Poly-J10 |
| 170 A 12 V | MC-618-H<br>part No. - 21931V | 1-2" Single foot<br>3.15" Saddle mount                  | 20570H              | 20572M  | 20571K   |
|            |                               |   | 20573P              | 20576W  | 20575U   |
| 250 A 12 V | MC-618-H<br>part No. - 21931V | 1-2" Single foot<br>3.15" Saddle mount                  | 24934T              | 24936X  | 24935V   |
|            |                               |   | 24932N              | 24933R  | 24844S   |
| 250 A 12 V | MC-618-H<br>part No. - 21931V | 2" Saddle mount   |                     | 25356H  |          |
| 90 A 24 V  | MC-624-H<br>part No. - 20480G | Available in the different configurations installations |                     |         |          |

Available the following Kits, Including Alternator with K6 pulley, MC-618 Regulator, Alternator- Battery Temperature Sensors & Mounting Hardware

|           |                    |        |   |
|-----------|--------------------|--------|---|
| 170 A 12V | XT-SF-170-K6-Kit   | 25284J | ½" Single foot, MC regulator, temperature sensors     |
| 170 A 12V | XT-DF-170-K6-Kit   | 25277M | 3.15" Saddle mount, MC regulator, temperature sensors |
| 250 A 12V | XT-SF-250-K6-Kit   | 25286N | ½" Single foot, MC regulator, temperature sensors     |
| 250 A 12V | XT-DF-250-K6-Kit   | 25282E | 3.15" Saddle mount, MC regulator, temperature sensors |
| 250 A 12V | XT-DF4-250-K6-Kit  | 25283G | 4" Saddle mount, MC regulator, temperature sensors    |
| 90 A 24V  | XT-SF-24-90-K6-Kit | 25285L | ½" Single foot, MC regulator, temperature sensors     |
| 90 A 24V  | XT-DF-24-90-K6-Kit | 25210C | 3.15" Saddle mount, MC regulator, temperature sensors |

## 94LY-SERIES LARGE CASE ALTERNATORS

94LY-Series Alternators feature extra-large gauge custom wound stators and high amperage diode packs to ensure optimal charging performance. Built to meet USCG Title 33 ignition protection standards, 94-Series alternators deliver excellent low RPM output and terrific response throughout the power band.

- Extra heavy duty windings, diodes & brushes
- Isolated ground termination
- Corrosion resistant powder coated finish
- Maximum RPM:6000
- USCG title 33 ignition protection Compliant
- IG (Insulated terminals)
- External regulation required MC-618-H (12V), MC-624-H (24V)



94LY Series

| MODEL          | PART No. | VOLT | AMPS | MOUNTING                        | MINIMUM PULLEY   |
|----------------|----------|------|------|---------------------------------|------------------|
| 94LY-12-210-IG | 20584V   | 12   | 210  | Dual Foot 3.15" (Hitachi-style) | 1/2" Dual pulley |
| 94LY-24-140-IG | 20585X   | 24   | 140  | Dual Foot 3.15" (Hitachi-style) | 1/2" Dual pulley |

## 97XD-97EHD-SERIES EXTRA LARGE CASE ALTERNATORS

Extra-Large Case 97XD-Series and 97EHD-Series Alternators are appropriate for large diesel applications such as Caterpillar, Cummins, MTU and John Deere engines to service extensive house battery loads. The new 97XD-Series utilizes braided-stator technology to deliver exceptional power at low RPM.

- Designed for extended duty operation
- Bi-directional cooling fan
- Maximum RPM: 7000
- External regulation required MC-618-H (12V), MC-624-H (24V)
- USCG Title 33 Compliant
- IG (Insulated terminals)
- For large diesel applications like Caterpillar, Cummins, MTU and John Deere to service extensive house battery loads



97XD Series 190 A, 24V model

| MODEL           | PART No. | VOLT | AMPS | MOUNTING STYLE            | MINIMUM PULLEY   |
|-----------------|----------|------|------|---------------------------|------------------|
| 97XD-12-240-IG  | 25495Y   | 12   | 240  | Dual Foot 4" (J180-style) | 1/2" Dual pulley |
| 97XD-24-120-IG  | 25496A   | 24   | 120  | Dual Foot 4" (J180-style) | 1/2" Dual pulley |
| 97XD-24-190     | 25497C   | 24   | 190  | Dual Foot 4" (J180-style) | 1/2" Dual pulley |
| 97EHD-190-24-IG | 20593W   | 24   | 190  | Dual Foot 4" (J180-style) | 1/2" Dual pulley |

## 98-SERIES EXTRA LARGE CASE ALTERNATORS

The Extra-Large Case 98-Series Alternator offers the capacity to produce nearly 5kW of DC output – on par with many small gensets. The 98-Series Alternator is currently used on USCG 43' Lifeboats.

- 98 series can produce up to 5kw DC output (as a small generator)
- Highly efficient brushless design
- Isolated ground termination
- Dual cooling fans, oversized bearings
- High amperage diodes
- Maximum RPM: 7000
- External regulation required MC-618-H (12V), MC-624-H (24V)
- USCG Title 33, CE, ISO 8846 and SAE J1171 Compliant
- IG (Insulated terminals)
- High amperage diodes



98 Series

| MODEL           | PART No. | VOLT | AMPS | MOUNTING STYLE            | MINIMUM PULLEY   |
|-----------------|----------|------|------|---------------------------|------------------|
| 98-12-310-IG-BL | 20594Y   | 12   | 310  | Dual Foot 4" (J180-style) | 1/2" Dual pulley |
| 98-24-220-IG-BL | 20595A   | 24   | 220  | Dual Foot 4" (J180-style) | 1/2" Dual pulley |

## 96-SERIES 48V ALTERNATORS

### MID-DUTY CYCLE, large case

- 60A (2.9 kW) or 100A (4.8 kW) at 48 Volts
- Low Turn-On Thresholds
- Low Power Take Off at Idle Speed
- Designed for External Regulation using the Balmar MC-620-H Regulator
- Ideal for 48V Lithium Battery Banks
- Max RPM: 12000

New 96-Series Alternators from Balmar establish a new standard for emerging 48V battery banks and inverter systems.

Paired with the New MC-620 Regulator, now you can combine the advantages of Balmar's legendary multi-stage regulation capability in a 48V charging system. Offered in two power packages of 60A and 100A, these high power alternators provide 2.9 kW and 4.8 kW of charging power, respectively.

48V systems fill the need for ever-increasing power needs from DC battery systems. DC air-conditioning and cooking, for example, can stretch 12V and 24V systems beyond practical application. The benefits of a 48V system include much more efficient components, such as chargers and inverters, manageable cable sizes, and of course higher output alternators in reasonable package sizes. Lithium batteries can be charged at very high rates – a 48V system can accomplish this in a cost effective way. With a lower (1325 RPM for 60A and 2200 RPM for 100A) cut-in speed than the competition, the 96-Series starts making power earlier at low RPM, limiting the need for complex pulley schemes or over-throttling the engine at idle.

**Note:** MC-620-H charge controller requires 12V power supply, cannot be powered by 48V



96-48-60-K6



96-48-100-K8



MC-620-H - 21952D

| MODEL           | PART No. | VOLT | AMPS | GROUNDING | POWER TAKE OFF | MOUNTING STYLE            | STANDARD PULLEY |
|-----------------|----------|------|------|-----------|----------------|---------------------------|-----------------|
| 96-48-60-K6     | 21948N   | 48   | 60   | Case      | Up to 8 HP     | Dual Foot 4" (J180-style) | K6 (2.7" dia.)  |
| 96-48-60-K6-IG  | 21949R   | 48   | 60   | Isolated  | Up to 8 HP     | Dual Foot 4" (J180-style) | K6 (2.7" dia.)  |
| 96-48-100-K8    | 21950Z   | 48   | 100  | Case      | Up to 11 HP    | Dual Foot 4" (J180-style) | K8 (2.5" dia.)  |
| 96-48-100-K8-IG | 21951B   | 48   | 100  | Isolated  | Up to 11 HP    | Dual Foot 4" (J180-style) | K8 (2.5" dia.)  |

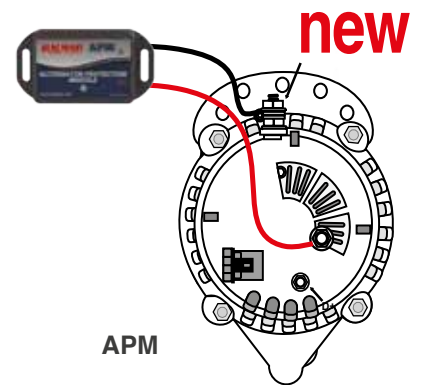
| CHARGE CONTROLLER | PART No. | VOLTAGE INPUT | BATTERY PROFILES  |
|-------------------|----------|---------------|---|
| MC-620-H          | 21952D   | 12V           | Universal, Deep Cycle Flooded, Gell Cell, AGM, Spiral Wound Flooded, Standard Flooded, Halogen, Lithium |

## APM Series - Alternator Protection Module

The Balmar APM provides best-in-class surge protection using the latest technology developed for the automotive industry. It can protect alternators from damaging effects:

- Battery switch disconnects
  - Lithium battery BMS disconnects
  - Surges from solenoids, combiners, starters and other motors.
- The Balmar APM excels in both short duration and longer duration spikes, where other products fail.

- APM-12** - 24845U - Alternator protection module, 12V
- APM-24** - 24874B - Alternator protection module, 24V
- APM-48** - 25486X - Alternator protection module, 48V



## MAX CHARGE MC-618-H AND MC-624-H REGULATORS

- 8 selectable programs for marine batteries (also Lithium LiFePO batteries)
- Exclusive belt load manager function
- Alternator and battery temperature sensing and control
- Maximum field current: 15A (MC-618-H) and 10A (MC-624-H)
- Can be used in twin engine applications with Centerfielder II
- Provided with 54" cable harness
- Integrate with SG200 for programming and Data Display

- MC-618-H -12V** - 21931V
- MC-624-H -24V** - 20480G



## MAX CHARGE MC-612-H DUAL VOLTAGE REGULATOR

- To control two alternators on a single engine
- Dual alternator and battery temperature sensors
- Provided with twin 54" (1,4 m) cable harness
- Same programming functions as the MC-618-H model

- MC-612-H DUAL VOLTAGE** - 21957P



## ARS-5-H VOLTAGE REGULATOR

- Smooth start for alternator to reduce belt stress
- 5 selectable programs for marine batteries
- Appropriate for 6-series alternators (120 A and below)
- Easy installation and programming mode
- Single engine, single alternator applications only
- 9 A maximum field current
- Provided with 54" cable harness

- ARS-5** - 20596C



**DDC -12/24 DIGITAL DUO CHARGE**

The DDC is a solid state battery combiner

- Controls voltage and current between house and start batteries
- Eliminates the need for an isolator, relay or manually operated battery switch
- Used in concert with Max Charge or ARS-5 regulator or any other regulator
- Works in both 12 and 24 V applications
- House and start batteries can be different technologies
- Start battery temperature sensing available with the MC-TS-B sensor cable



**DDC-12/24** - 20791A

**CFII-12/24 CENTERFIELDER II: TWIN ENGINE CHARGING BALANCER**

- Balances charging in twin engine applications
- Eliminates alternator chatter by unifying field current
- For use with Max Charge Regulators only
- Works in both 12V and 24V applications
- Can be used with the DDC to charge a second battery
- Isolates the alternator and regulator when only one engine is running



**CFII-12/24** - 20792C

**TEMPERATURE SENSORS**

- For use with either Max Charge or ARS-5-H voltage regulators
- Interchangeable for 12 and 24 V systems
- Battery sensor can be used with the Digital Duo Charge (DDC)

**MC-TS-A** - 20481J - Alternator temperature sensor - Cable length 54" (1,4 m)

**MC-TS-B** - 20482L - Battery temperature sensor - Cable length 240" (6 m)

**MC-TS-B30** - 21958S - Battery temperature sensor - Cable length 354" (9 m)



**MC-TS-A**



**MC-TS-B**

**ALTERNATOR ACCESSORIES**

**UBB** - 20793E - Universal adjustment arm and belt buddy combination



**Learns & Displays All Critical Battery Parameters:**

- State of Charge (SoC%)
- State of Health (SoH%)
- Charge/Discharge Current Flow
- Time Remaining
- History, Faults & Alerts

**Support for All Common Battery Chemistries & Voltages:**

- Including Lead Acid, Lithium (LiFePO4), Standard AGM, TPPL AGM, Carbon Foam AGM, and GEL Batteries
- Supports 12V-48V Battery Banks

**Intelligent, Self-Calibrating Accuracy:**

- Typically 97% Accurate
- Auto-Calibrating
- Does not Lose Accuracy with Age

**Large, Bright Color Display:**

- Sunlight Readable, Configurable & Dimmable
- 60 Degree Viewing Angle
- Fits in Standard 2 1/16" (54 mm) Gauge Socket

**Expandable Architecture:**

- Support Multiple Displays (Optional)
- Supports Multiple Battery Banks (Optional)
- Standard Support for 2 Start Batteries (Voltage Only)
- Simple, easy-to-install Point-to-Point Network
- Connection between SG200 and MC-618 via SG2-0403 (5m) and SG2-0400 (10m) cables/adapters

**Optional Smartphone/Bluetooth® Gateway:**

- Free iOS and Android Apps (Requires Bluetooth® Gateway PN SG2-0300)
- View All Parameters on your Phone
- Download Product Updates

**SG2-0403** - comm cable SG200, 5 m, includes SG2-0404 3-way adapter for MC-618

**SG2-0400** - comm cable SG200, 10 m, includes SG2-0404 3-way adapter for MC-618



**SG200 - 23070C**

- Includes:
- Color display
  - Smart shunt
  - Smart link comm cable



**SG205 - 21953F**

- Includes:
- Smart shunt
  - Bluetooth Gateway (no display)



**SMART SHUNT**



**SG2-0403 - 21955K**



**SG2-0400 - 24924P**



**SG210 - 21954H**

- Includes:
- Color display
  - Smart shunt
  - Smart link comm cable
  - Bluetooth Gateway

# Halyard



A marine engine exhaust system ejects the cooling water as well as silencing the engine's combustion noise and removing the exhaust gasses. The system must create minimal restriction to the flow of exhaust gasses, known as back pressure, or the engine may be damaged.

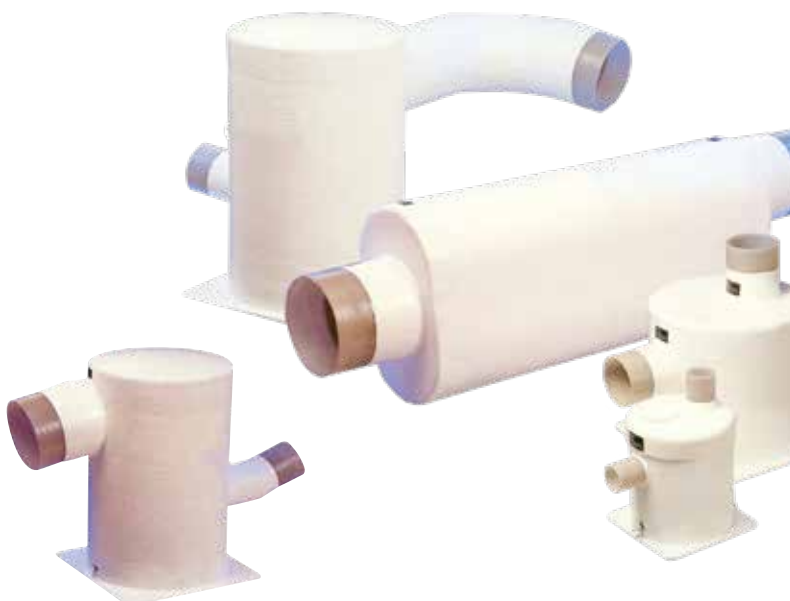
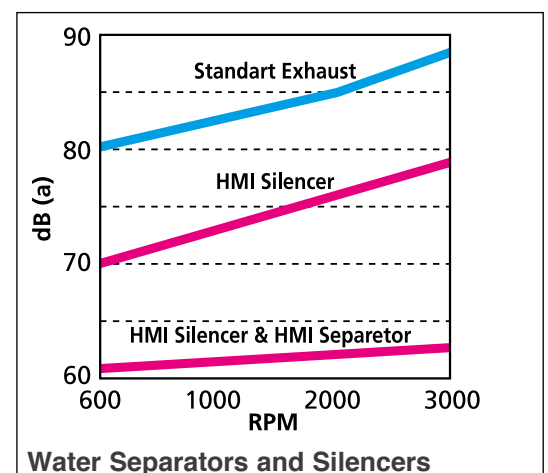
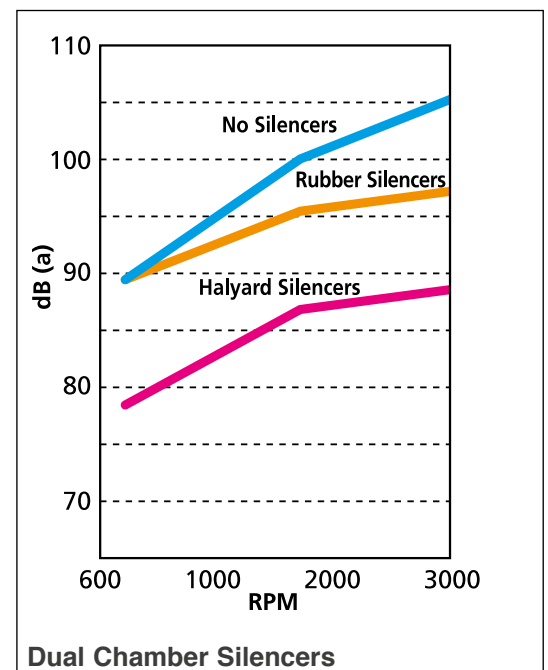
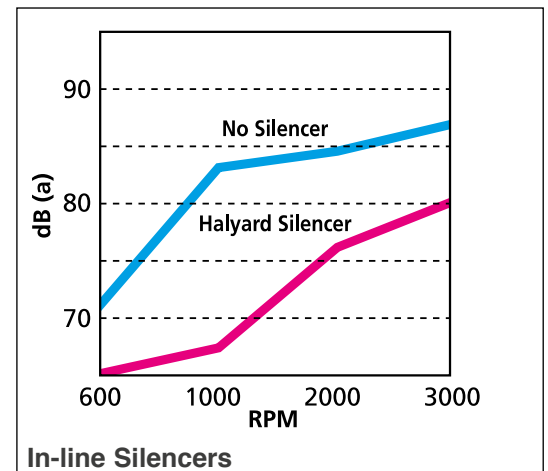
Halyard® produces GRP silencers using specialist resins, allowing Halyard® silencers to survive remarkably high temperatures if the cooling water supply blocks for short periods. Halyard® silencers are usually made from filament wound GRP tube, manufactured in our own plant, which is hand-laminated with flat sheet GRP bases. Every single silencer produced is pressure tested individually to guard against leaks.

GRP is used as the base material to avoid the corrosion and acoustic problems of welded stainless units, and to avoid the low melting points of plastic silencers. Although normal marine exhausts run at between 40°C and 60°C, Halyard® silencers will remain operational after exposure to 300°C or more, while a plastic unit will melt at around 150°C.

Halyard® GRP silencers are approved by Lloyds Register.

Here are four main objectives achieved by Halyard®:

1. To reduce noise by between 40% and 90%.
2. To cool the exhaust, and eject the engine cooling water through the exhaust without excessive back pressure.
3. To minimise the risk of water running back up the exhaust and into the engine cylinders, causing serious engine damage.
4. To site the outlets at the stern of the boat to minimise exhaust fumes on board.



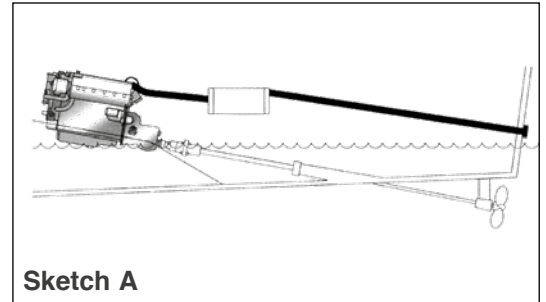


## WHERE'S THE WATERLINE?

Marine exhausts are cooled by sea water, so it's essential that the water cannot run back up the exhaust and into the engine's cylinders. The resulting damage can be catastrophic. A few simple rules need to be followed, and engine installers should seek expert advice if in any doubt.

## ENGINE WELL ABOVE WATERLINE

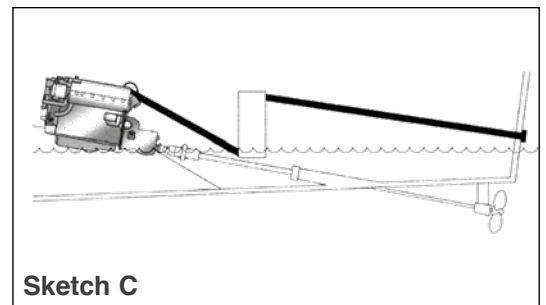
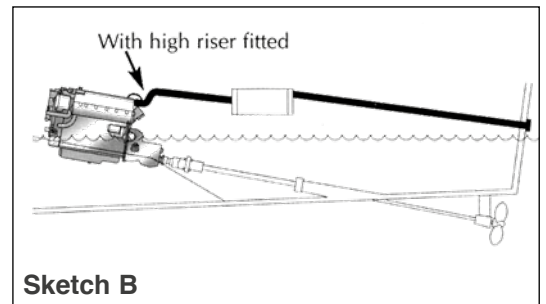
This engine is sited well above the waterline, and the exhaust system has a downhill gradient of 1 in 8, or steeper, as it scope to the stern. The water will naturally run down the slope and away from the engine. A standard in-line silencer will achieve a noise reduction of approximately 40%. A dual chamber silencer will achieve up to 80%. (Sketch A)



## ENGINE JUST ABOVE WATERLINE

Water could run back into the engine if the vessel pitches on its mooring – or a wave could do the same. There are two solutions:

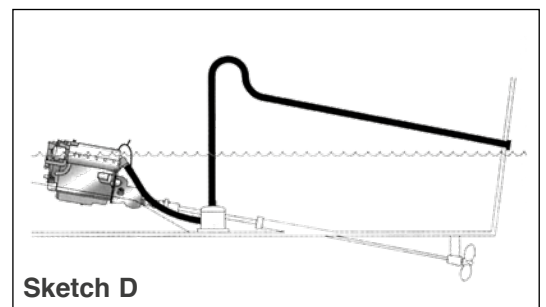
1. Fit a "high riser". This is an extension to the exhaust outlet on the engine taking it well above water-line to create a 1 in 8 gradient from the water injection on the engine down to the stern. An in-line silencer can then be used with a noise reduction of around 40%. Alternatively you might get the necessary height by using a Dual Chamber silencer, with a noise reduction of around 80%. (Sketch B)
2. Fit a dual chamber silencer. The dual chamber silencer means the hose scope steeply down from engine to silencer, and again from silencer to stern. The geometry needs careful checking, but it can solve the problem and it offers a noise reduction up to 80%. (Sketch C)



## ENGINE NEAR OR BELOW WATERLINE

Most displacement craft have their engines low down. The sketch shows a typical water-trap silencer positioned below and behind the engine. The hose from this silencer runs gradually down to the stern. Water in the system drains into the silencer when the engine is stopped. A wave coming up the stern is unlikely to climb over the gooseneck. (Sketch D)

Siphon breakers should always be used in the cooling water supply to installations of this type. Normal lift silencers reduce noise by 45% or so. You can add a water separator to increase this around 90%.



Halyard® Lift silencers are designed for use with engines positioned on, or below waterline. Halyard® Lift Silencers are as popular with generators as they are with propulsion engines.

## SIDE IN, TOP OUT LIFT SILENCERS

The side in, top out lift silencer is the best selling small lift silencer in the Halyard® range.

Every unit is pressure tested and gel-coated for a durable and smart appearance.

Lengths available in the following pages

## TOP IN, TOP OUT LIFT SILENCERS

In many applications a top inlet unit will be easier to use. The noise result and cost are the same as the side inlet units, and the same rigorous quality tests apply.

Lengths available in the following pages

## LIFT SILENCERS END TO END

These low lying units can be very useful in sailing yachts, where the silencer needs to be secured alongside the propeller shaft. The moulded ends are used on smaller units.

Lengths available in the following pages



SIDE IN - TOP OUT



END TO END



TOP IN - TOP OUT

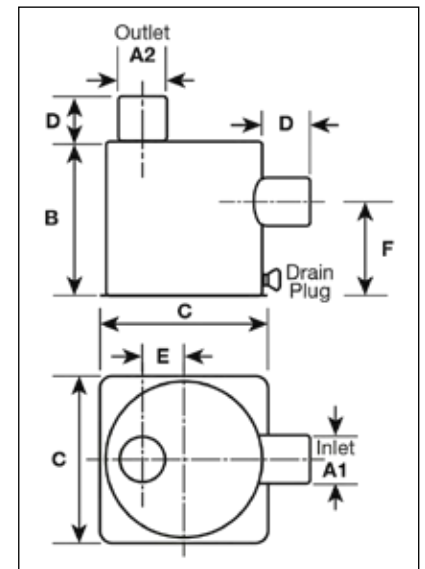
New Halyard® moulded lift silencers, available both side in, top out and top in, top out.

NOT Lloyds Register Type Approved.



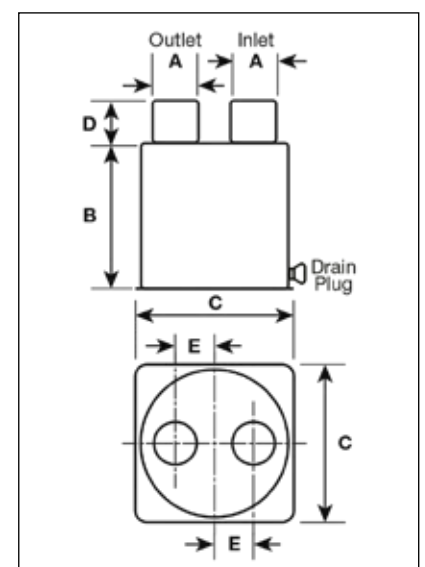
## SIDE IN, TOP OUT MOULDED LIFT SILENCERS

| PART No. | HALYARD REF. | A1 mm | A2 mm | B mm | C mm | D mm | E mm | F mm |
|----------|--------------|-------|-------|------|------|------|------|------|
| 25405U   | HST025M      | 41    | 41    | 260  | 277  | 90   | 68   | 165  |
| 25406W   | HST110M      | 51    | 51    | 260  | 277  | 90   | 68   | 165  |
| 25407X   | HST150M      | 60    | 60    | 266  | 277  | 90   | 68   | 165  |
| 25408A   | HST200M      | 76    | 76    | 260  | 277  | 90   | 68   | 165  |



## TOP IN, TOP OUT MOULDED LIFT SILENCERS

| PART No. | HALYARD REF. | A mm | B mm | C mm | D mm | E mm |
|----------|--------------|------|------|------|------|------|
| 25409C   | HTT065M      | 51   | 260  | 277  | 90   | 68   |
| 25410L   | HTT085M      | 60   | 265  | 277  | 90   | 68   |
| 25411N   | HTT110M      | 76   | 260  | 277  | 90   | 68   |



Halyard® in-line silencers are used where the engine is well above the water-line, or where a high-riser has been fitted to achieve a 1 in 8 gradient from the engine to the transom outlet. They are simple to specify and fit, and ideally need to be 0,5m to 1m behind the engine. The internal design requires the exhaust gasses and water to bubble through a layer of water on the bottom of the silencer to reduce noise. They offer excellent noise reduction and are widely used on both pleasure and commercial engines.

### ROUND IN-LINE SILENCERS

These silencers are made from enormously strong filament wound tube, giving the maximum possible protection if the exhaust back-fires. Every unit is pressure tested before being gel-coated. They must be installed within 5 degrees of horizontal.

Lengths available in the following pages



### OVAL IN-LINE SILENCERS

Our oval silencers are hand-moulded for use where the round body unit cannot be accommodated. They give the same excellent results and every single unit is pressure tested and gel-coated. The inlets can be angled to ease the connection to the engine and positioned on the end or the side.

Lengths available in the following pages



## DUAL CHAMBER SILENCERS - LLOYDS APPROVED

Halyard® Dual Chamber silencers is the best wet-exhaust silencer on the market today.

Exhaust noise reductions of up to 80% can be achieved and the back pressure created by the unit is minimal.

Most units are hand-built with inlet and outlet positioned to suit the particular craft.

The quality standards applied are designed to give a life in excess of ten years on a privately owned craft.

Lengths available in the following pages



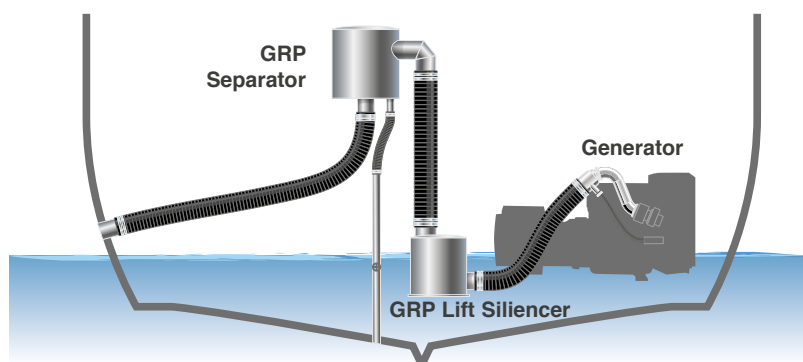


Halyard developed the concept of water separation and now designs and produces systems for engines ranging from small diesel generators through to mighty power providers on super-yachts and commercial craft.

Fitting a water separator into the exhaust to replace the gooseneck removes water once it has done its cooling job, draining this quietly away below waterline. Back pressure is reduced dramatically. The separator removes the principal cause of back pressure and stops the splashing noise which accompanies every marine engine ticking over in a harbour – or on a generator splashing away in a quiet haven somewhere, to the fury of nearby boats.

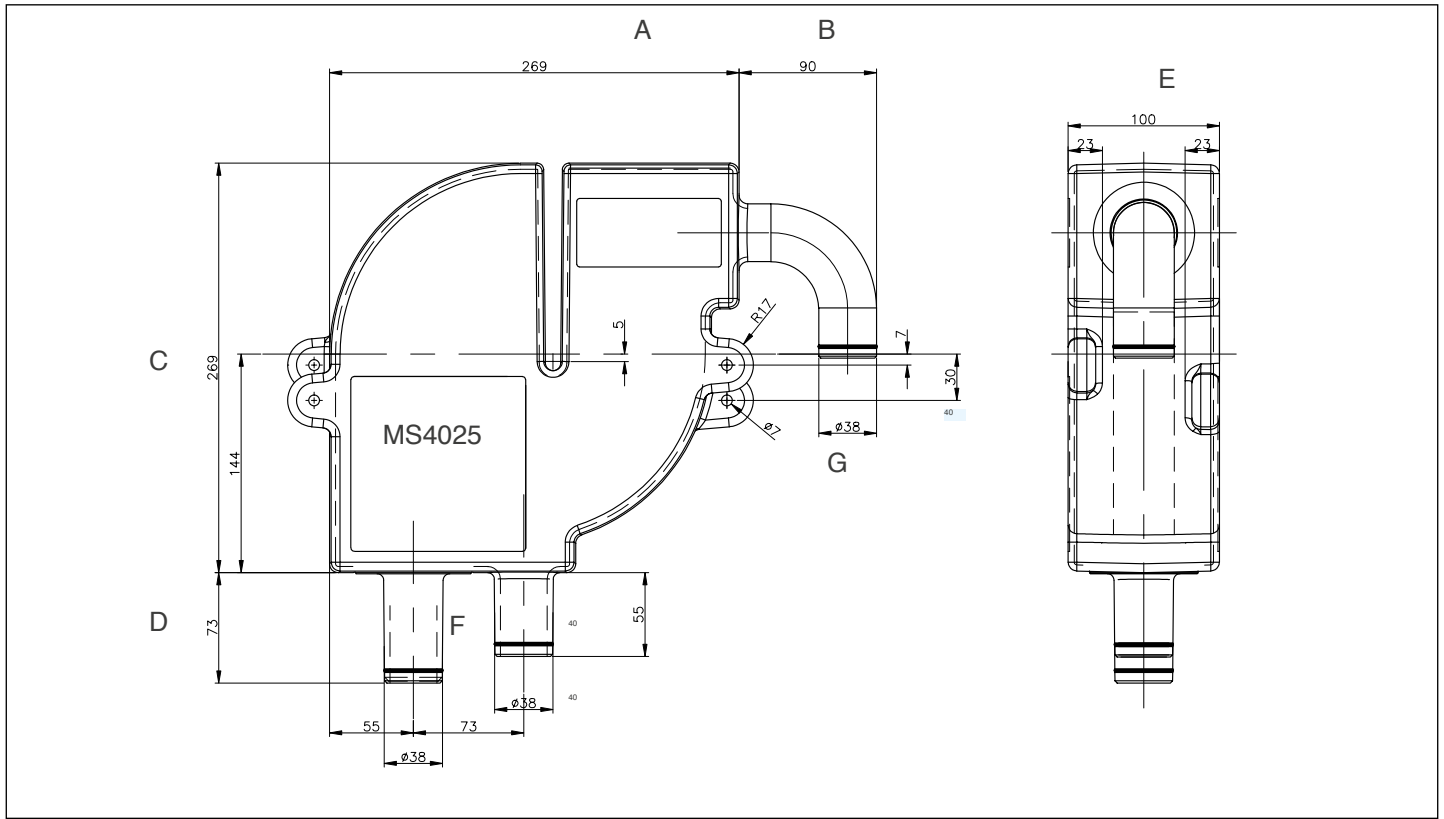
## EXHAUST WATER SEPARATORS MS SERIES

Lift silencer and separator with discharge above waterline



The MS Series of exhaust water separators covers a wide range of exhaust diameters, for generators and propulsion engines with cooling water flow rates of up to 65 liters per minute. The MS unit will remove all but a tiny trickle of water.

## HIGH TEMPERATURE POLYOLEFIN MS 4000 SERIES



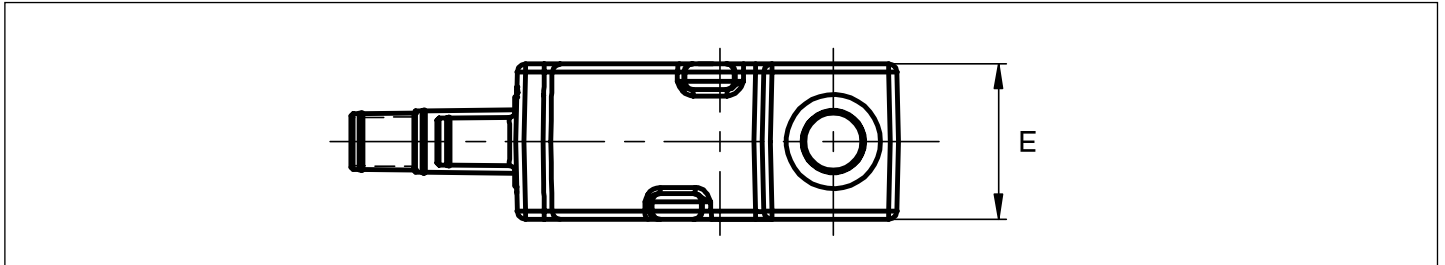
- Application: exhaust diameters of 40 mm (1.6")
- Maximum water flow rate: 18 litres per minute

| PART No. | HALYARD REF. | HALYARD PART No. | A mm | B mm | C mm | D mm | E mm | F mm | G mm |
|----------|--------------|------------------|------|------|------|------|------|------|------|
| 66902R   | MS4025       | H012752          | 269  | 90   | 269  | 73   | 100  | 40   | 40   |

HALYARD® CAN SUPPLY ON REQUEST EXHAUST SEPARATORS COMPLETE WITH STANDARD HOSES (UP TO 160°C) OR SILICON HOSES (UP TO 270°C), AND COMPLETE WITH SILICON FITTINGS AND BRONZE SIPHON BREAK. For any further information, please contact our Technical Service.

## HIGH TEMPERATURE POLYOLEFIN MS 5000 SERIES

- Three sizes cover exhaust diameters of 45 mm, 50 mm, 63 mm (1 3/4", 2", 2 1/2")
- Maximum water flow rate: 42 litres per minute



| PART No. | HALYARD REF. | HALYARD PART No. | A mm | B mm | C mm | D mm | E mm | F mm | G mm | FIG. |
|----------|--------------|------------------|------|------|------|------|------|------|------|------|
| 66710F   | MS5005       | H010257          | 306  | 89   | 306  | 133  | 125  | 50   | 45   | 1    |
| 66812P   | MS5010       | H010258          | 306  | 89   | 306  | 83   | 125  | 50   | 50   | 2    |
| 66711H   | MS5015       | H010261          | 306  | 89   | 306  | 164  | 125  | 63   | 60   | 1    |
| 66708V   | MS5020       | H010259          | 306  | 112  | 306  | 133  | 125  | 50   | 45   | 4    |
| 66882M   | MS5025       | H010260          | 306  | 112  | 306  | 83   | 125  | 50   | 50   | 3    |
| 66709X   | MS5030       | H010262          | 306  | 112  | 306  | 164  | 125  | 63   | 60   | 4    |

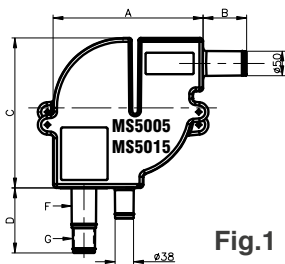


Fig.1

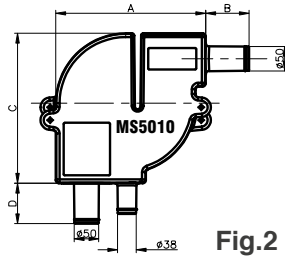


Fig.2

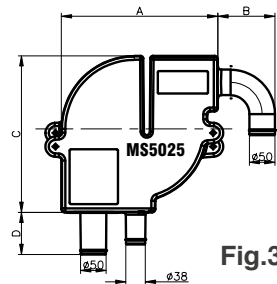


Fig.3

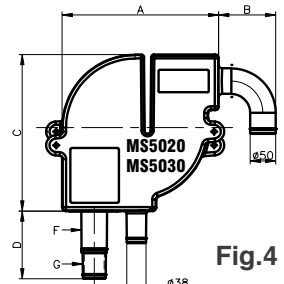
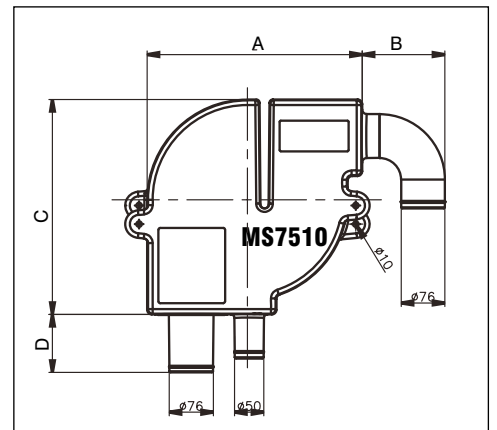
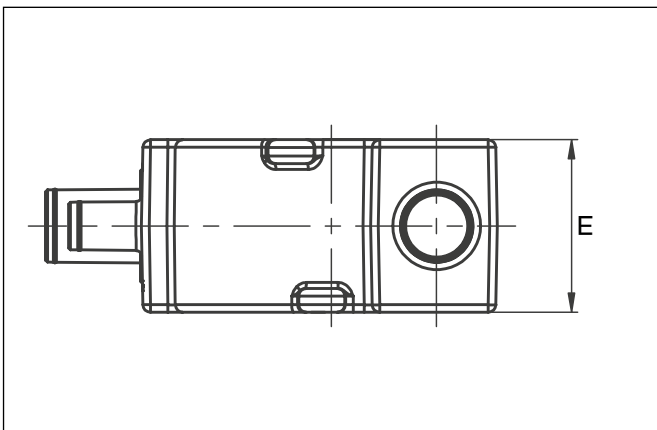


Fig.4

## MS 7000 SERIES

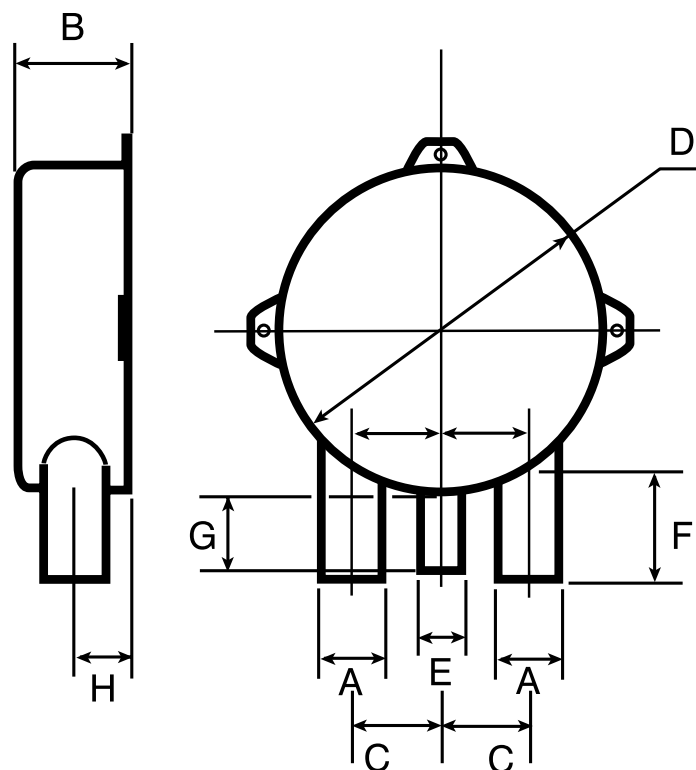
- Size covers exhaust diameter: 75 mm (3")
- Maximum water flow rate: 65 litres per minute



| PART No. | HALYARD REF. | HALYARD PART No. | OUTLET     | A mm | B mm | C mm | D mm | E mm |
|----------|--------------|------------------|------------|------|------|------|------|------|
| 65842U   | MS7505       | H007889          | straight   | 371  | 100  | 371  | 100  | 180  |
| 66884S   | MS7510       | H008363          | 90 degrees | 371  | 143  | 371  | 100  | 180  |

## GRP MID-GEN EXHAUST WATER SEPARATORS - LLOYDS APPROVED

| PART No.          | HALYARD REF. | HALYARD PART No. | A mm (")    | B mm | C mm | D mm | E mm (")   | F mm | G mm | H mm |
|-------------------|--------------|------------------|-------------|------|------|------|------------|------|------|------|
| <b>new</b> 22905Z | HFS020       | H014054          | 51 - (2)    | 125  | 75   | 305  | 38 - (1.5) | 96   | 76   | 65   |
| 65843W            | HFS025       | H001511          | 63 - (2.5)  | 140  | 100  | 346  | 38 - (1.5) | 144  | 100  | 70   |
| 65844Y            | HFS030       | H001514          | 76 - (3)    | 140  | 110  | 398  | 51 - (2.0) | 144  | 100  | 70   |
| 65845A            | HFS035       | H001515          | 89 - (3.5)  | 140  | 110  | 398  | 51 - (2.0) | 144  | 107  | 70   |
| 65568A            | HFS040       | H001516          | 102 - (4.0) | 170  | 110  | 398  | 51 - (2.0) | 144  | 107  | 85   |
| 69724J            | HFS050       | H007116          | 127 - (5.0) | 175  | 125  | 494  | 63 - (2.5) | 140  | 107  | 88   |
| 22777T            | HFS060       | H010304          | 152 - (6.0) | 215  | 151  | 594  | 63 - (2.5) | 175  | 107  | 105  |



LOW PROFILE SEPARATOR

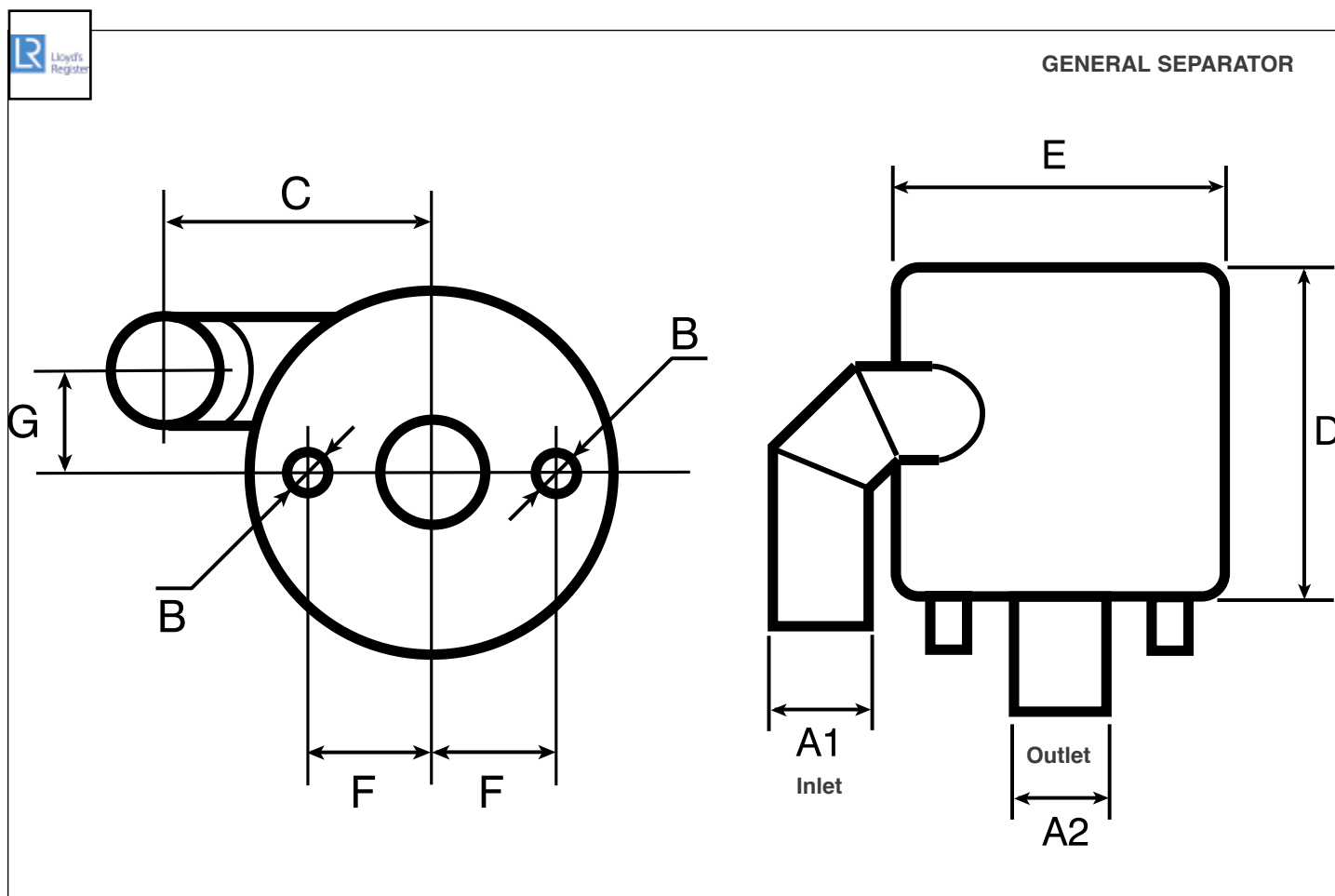
**Universal separators:**

"A" hoses can be used both as inlet or outlet



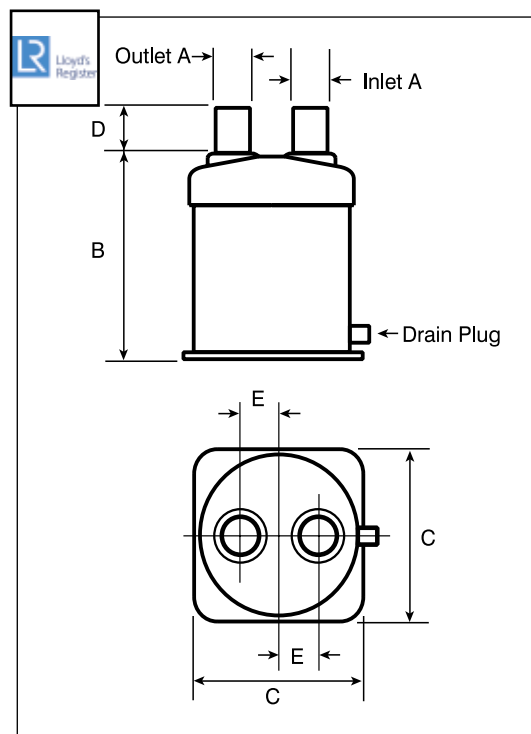
## GRP GENERAL SEPARATOR - LLOYDS APPROVED

| PART No.          | HALYARD REF. | HALYARD PART No. | A1 mm | A2 mm | B mm | C mm | D mm | E mm | F mm | G mm |
|-------------------|--------------|------------------|-------|-------|------|------|------|------|------|------|
| <b>new</b> 25412R | HWS030       | H001687          | 76    | 76    | 38   | 240  | 356  | 346  | 120  | 110  |
| 65846C            | HWS035       | H001688          | 89    | 89    | 38   | 264  | 356  | 346  | 120  | 110  |
| 65847E            | HWS040       | H001689          | 102   | 102   | 38   | 283  | 356  | 346  | 120  | 100  |
| 65848G            | HWS050       | H001690          | 127   | 127   | 51   | 310  | 406  | 398  | 150  | 110  |
| 65849J            | HWS060       | H001691          | 152   | 152   | 51   | 335  | 406  | 398  | 158  | 100  |



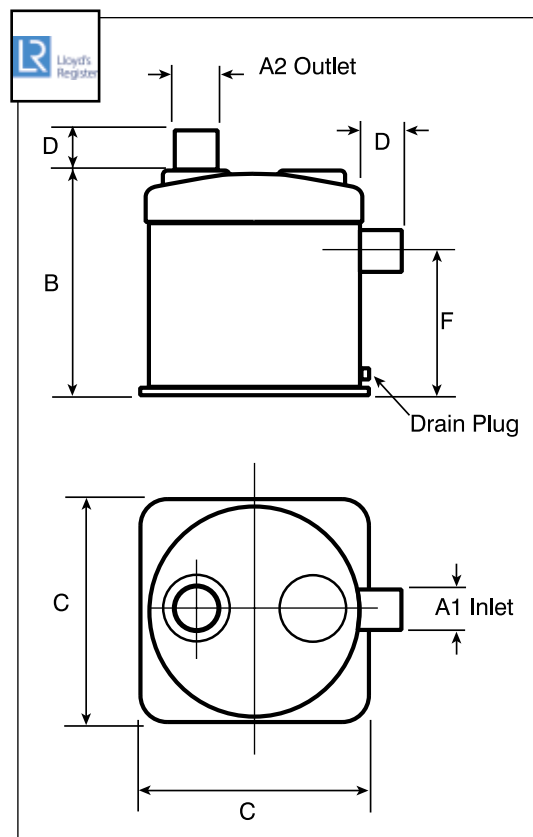
## LIFT SILENCERS - TOP IN TOP OUT

| PART No. | HALYARD REF. | A mm (")     | B mm | C mm | D mm | E mm | WEIGHT Kg |
|----------|--------------|--------------|------|------|------|------|-----------|
| 65850T   | HTT005       | 38 - (1.50)  | 158  | 200  | 50   | 44   | 1,4       |
| 65852X   | HTT025       | 40 - (1.62)  | 158  | 200  | 50   | 44   | 1,5       |
| 65853Z   | HTT030       | 40 - (1.62)  | 230  | 200  | 50   | 44   | 1,9       |
| 65854B   | HTT040       | 45 - (1.77)  | 158  | 200  | 50   | 44   | 1,5       |
| 65855D   | HTT045       | 45 - (1.77)  | 230  | 200  | 50   | 44   | 1,9       |
| 65856F   | HTT055       | 51 - (2.00)  | 158  | 200  | 72   | 44   | 1,6       |
| 65857H   | HTT065       | 51 - (2.00)  | 255  | 275  | 51   | 68   | 3,3       |
| 65858K   | HTT070       | 51 - (2.00)  | 305  | 324  | 80   | 84   | 4,9       |
| 65896U   | HTT085       | 60 - (2.36)  | 255  | 275  | 73   | 68   | 3,5       |
| 65897W   | HTT090       | 63 - (2.50)  | 255  | 275  | 64   | 68   | 3,6       |
| 65898Y   | HTT110       | 76 - (3.00)  | 255  | 275  | 76   | 68   | 3,7       |
| 65899A   | HTT115       | 89 - (3.50)  | 305  | 324  | 90   | 84   | 5,6       |
| 65900F   | HTT120       | 102 - (4.00) | 305  | 324  | 102  | 70   | 5,6       |
| 65901H   | HTT125       | 125 - (5.00) | 370  | 446  | 128  | 83   | 10,4      |
| 65902K   | HTT130       | 152 - (6.00) | 370  | 446  | 127  | 102  | 10,7      |



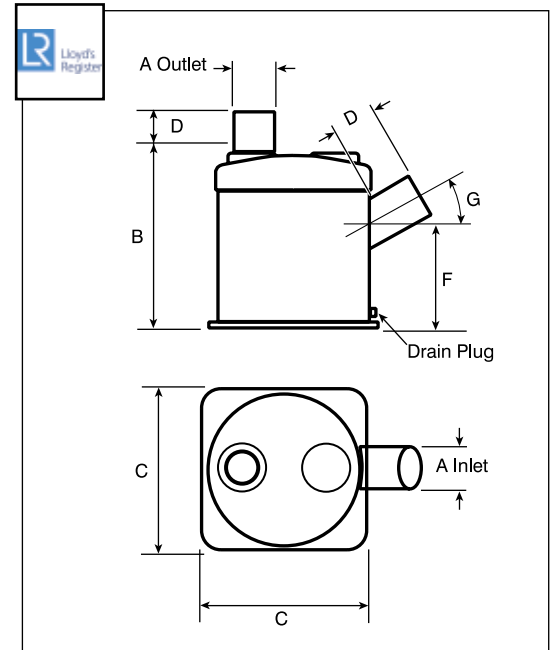
## LIFT SILENCERS - SIDE IN TOP OUT

| PART No. | HALYARD REF. | A1 mm (")    | A2 mm (")    | B mm | C mm | D mm | F mm | WEIGHT Kg |
|----------|--------------|--------------|--------------|------|------|------|------|-----------|
| 65903M   | HST005       | 38 - (1.50)  | 38 - (1.50)  | 169  | 200  | 38   | 95   | 1,5       |
| 65904P   | HST010       | 38 - (1.50)  | 38 - (1.50)  | 230  | 200  | 38   | 139  | 1,8       |
| 65905S   | HST025       | 40 - (1.62)  | 40 - (1.62)  | 169  | 200  | 38   | 95   | 2,2       |
| 65906U   | HST035       | 40 - (1.62)  | 40 - (1.62)  | 255  | 275  | 55   | 165  | 3,3       |
| 65907W   | HST055       | 45 - (1.77)  | 45 - (1.77)  | 230  | 200  | 50   | 139  | 1,9       |
| 65908Y   | HST105       | 51 - (2.00)  | 51 - (2.00)  | 230  | 200  | 51   | 139  | 1,9       |
| 65769L   | HST110       | 51 - (2.00)  | 51 - (2.00)  | 255  | 275  | 51   | 165  | 3,3       |
| 65909A   | HST115       | 51 - (2.00)  | 51 - (2.00)  | 305  | 324  | 81   | 200  | 4,9       |
| 65910J   | HST145       | 60 - (2.36)  | 60 - (2.36)  | 305  | 324  | 75   | 200  | 5,1       |
| 65911L   | HST150       | 60 - (2.36)  | 60 - (2.36)  | 255  | 275  | 74   | 165  | 3,5       |
| 65912N   | HST165       | 63 - (2.50)  | 63 - (2.50)  | 255  | 275  | 64   | 165  | 3,5       |
| 65913R   | HST200       | 76 - (3.00)  | 76 - (3.00)  | 255  | 275  | 76   | 165  | 4,4       |
| 65914T   | HST205       | 76 - (3.00)  | 76 - (3.00)  | 305  | 324  | 100  | 184  | 6,0       |
| 65793H   | HST210       | 89 - (3.50)  | 89 - (3.50)  | 305  | 324  | 90   | 184  | 5,6       |
| 65770V   | HST215       | 102 - (4.00) | 102 - (4.00) | 305  | 324  | 102  | 184  | 5,6       |
| 65915V   | HST220       | 127 - (5.00) | 127 - (5.00) | 370  | 446  | 102  | 222  | 10,0      |
| 65916X   | HST225       | 127 - (5.00) | 127 - (5.00) | 343  | 342  | 114  | 219  | 6,6       |
| 65917Z   | HST230       | 152 - (6.00) | 152 - (6.00) | 370  | 446  | 127  | 254  | 11,4      |
| 65918B   | HST235       | 152 - (6.00) | 203 - (8.00) | 370  | 446  | 152  | 222  | 12,4      |
| 65919D   | HST240       | 203 - (8.00) | 203 - (8.00) | 585  | 500  | 200  | 392  | 15,6      |



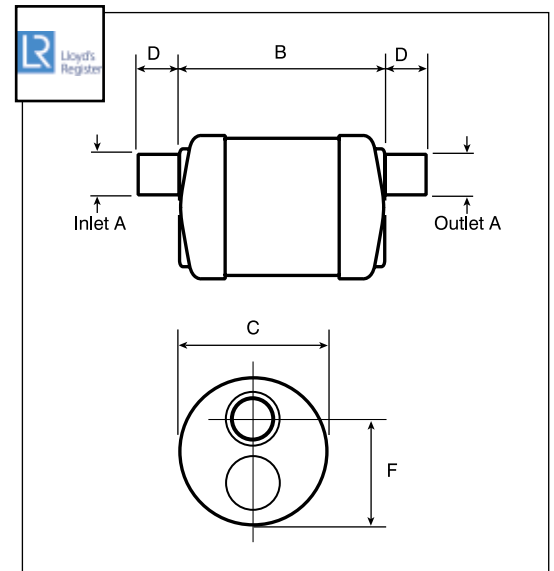
## LIFT SILENCERS - SIDE ANGLE IN TOP OUT

| PART No. | HALYARD REF. | A mm (")     | B mm | C mm | D mm | F mm | G ° | WEIGHT Kg |
|----------|--------------|--------------|------|------|------|------|-----|-----------|
| 65920M   | HAT015       | 60 - (2.36)  | 270  | 275  | 60   | 175  | 30  | 3,6       |
| 65921P   | HAT020       | 76 - (3.00)  | 270  | 275  | 76   | 175  | 30  | 3,9       |
| 65922S   | HAT025       | 89 - (3.50)  | 305  | 324  | 91   | 184  | 30  | 5,5       |
| 65923U   | HAT030       | 89 - (3.50)  | 266  | 275  | 89   | 152  | 30  | 4,4       |
| 65924W   | HAT035       | 102 - (4.00) | 480  | 324  | 130  | 300  | 35  | 7,8       |
| 65925Y   | HAT040       | 102 - (4.00) | 305  | 324  | 85   | 184  | 35  | 5,7       |
| 65926A   | HAT043       | 114 - (4.50) | 480  | 324  | 135  | 300  | 35  | 7,9       |
| 65927C   | HAT045       | 127 - (5.00) | 480  | 324  | 140  | 300  | 35  | 8,7       |
| 65928E   | HAT050       | 152 - (6.00) | 370  | 446  | 200  | 222  | 35  | 11,2      |



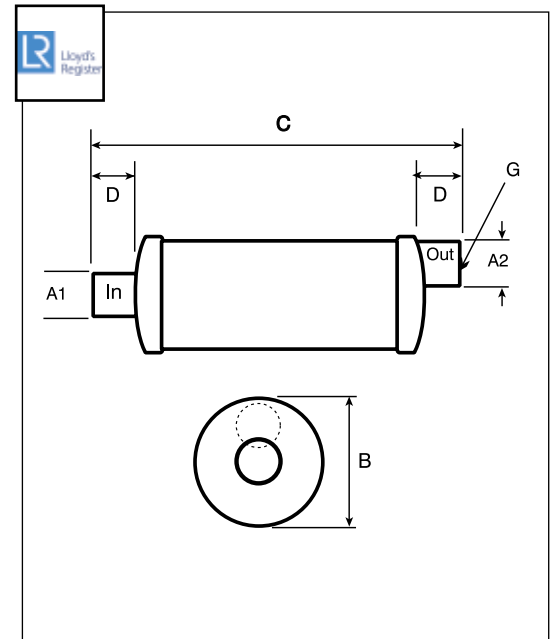
## LIFT SILENCERS - END IN END OUT

| PART No. | HALYARD REF.. | A mm (")     | B mm | C mm | D mm | F mm | WEIGHT Kg |
|----------|---------------|--------------|------|------|------|------|-----------|
| 65929G   | HEE005        | 38 - (1.50)  | 250  | 178  | 55   | 141  | 1,7       |
| 65930R   | HEE010        | 40 - (1.62)  | 250  | 178  | 65   | 133  | 1,8       |
| 65931T   | HEE020        | 45 - (1.77)  | 250  | 178  | 65   | 133  | 1,8       |
| 65932V   | HEE035        | 51 - (2.00)  | 310  | 178  | 65   | 133  | 2,1       |
| 65933X   | HEE040        | 51 - (2.00)  | 420  | 254  | 65   | 195  | 4,2       |
| 65934Z   | HEE045        | 51 - (2.00)  | 250  | 178  | 65   | 133  | 1,8       |
| 65935B   | HEE060        | 60 - (2.36)  | 310  | 254  | 75   | 195  | 3,7       |
| 65936D   | HEE065        | 60 - (2.36)  | 420  | 254  | 75   | 195  | 4,4       |
| 65937F   | HEE070        | 63 - (2.50)  | 420  | 254  | 75   | 195  | 4,4       |
| 65938H   | HEE080        | 76 - (3.00)  | 420  | 254  | 80   | 195  | 4,7       |
| 65939K   | HEE090        | 89 - (3.50)  | 465  | 254  | 89   | 188  | 5,2       |
| 65940U   | HEE095        | 102 - (4.00) | 462  | 305  | 102  | 222  | 6,8       |
| 65941W   | HEE100        | 114 - (4.50) | 462  | 305  | 114  | 220  | 7,0       |
| 65942Y   | HEE105        | 127 - (5.00) | 599  | 305  | 126  | 220  | 8,8       |



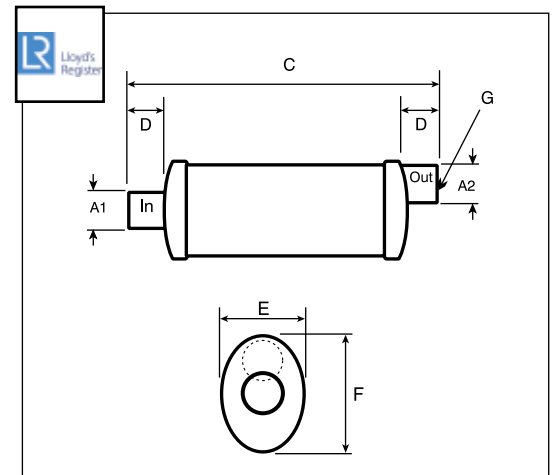
## IN-LINE SILENCERS - ROUND BODY

| PART No. | HALYARD REF. | A1 mm (")     | A2 mm (")     | B mm | C mm | D mm | G mm | WEIGHT Kg |
|----------|--------------|---------------|---------------|------|------|------|------|-----------|
| 65943A   | HILR003      | 60 - (2.36)   | 60 - (2.36)   | 152  | 212  | 70   | 40   | 1,8       |
| 65944C   | HILR005      | 76 - (3.00)   | 76 - (3.00)   | 203  | 335  | 75   | 59   | 3,5       |
| 65945E   | HILR010      | 89 - (3.50)   | 89 - (3.50)   | 203  | 390  | 100  | 53   | 4,2       |
| 65946G   | HILR015      | 102 - (4.00)  | 102 - (4.00)  | 254  | 465  | 102  | 68   | 6,4       |
| 65947J   | HILR020      | 114 - (4.50)  | 114 - (4.50)  | 254  | 502  | 114  | 61   | 6,8       |
| 65948L   | HILR025      | 127 - (5.00)  | 127 - (5.00)  | 254  | 546  | 127  | 55   | 7,9       |
| 65949N   | HILR030      | 127 - (5.00)  | 152 - (6.00)  | 305  | 762  | 127  | 65   | 12,1      |
| 65950X   | HILR035      | 152 - (6.00)  | 152 - (6.00)  | 305  | 661  | 152  | 65   | 11,4      |
| 65951Z   | HILR040      | 152 - (6.00)  | 203 - (8.00)  | 398  | 880  | 200  | 91   | 22,0      |
| 65952B   | HILR045      | 203 - (8.00)  | 203 - (8.00)  | 395  | 880  | 201  | 88   | 23,0      |
| 65954F   | HILR050      | 254 - (10.00) | 254 - (10.00) | 446  | 1092 | 254  | 87   | 32,0      |
| 65955H   | HILR055      | 305 - (12.00) | 305 - (12.00) | 489  | 1308 | 305  | 87   | 41,0      |



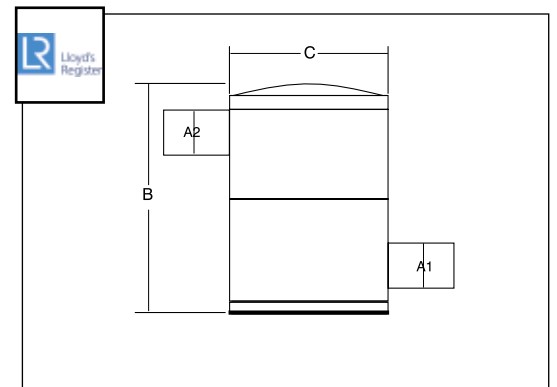
## IN-LINE SILENCERS - OVAL BODY

| PART No. | HALYARD REF. | A1 mm (")     | A2 mm (")     | C mm | D mm | E mm | F mm | G mm | WEIGHT Kg |
|----------|--------------|---------------|---------------|------|------|------|------|------|-----------|
| 65956K   | HILO005      | 127 - (5.00)  | 127 - (5.00)  | 520  | 140  | 225  | 385  | 118  | 10,8      |
| 65957M   | HILO006      | 127 - (5.00)  | 152 - (6.00)  | 640  | 150  | 225  | 385  | 105  | 10,6      |
| 65958P   | HILO010      | 152 - (6.00)  | 152 - (6.00)  | 640  | 150  | 225  | 385  | 105  | 9,5       |
| 65959S   | HILO012      | 152 - (6.00)  | 203 - (8.00)  | 928  | 203  | 270  | 420  | 93   | 12,2      |
| 65960A   | HILO015      | 203 - (8.00)  | 203 - (8.00)  | 876  | 203  | 270  | 420  | 93   | 16,3      |
| 65961C   | HILO016      | 203 - (8.00)  | 254 - (10.00) | 758  | 203  | 295  | 465  | 87   | 21,6      |
| 65962E   | HILO020      | 254 - (10.00) | 254 - (10.00) | 1092 | 254  | 365  | 630  | 164  | 39,0      |



## DUAL CHAMBER SILENCER

| PART No. | HALYARD REF. | A1 mm (")     | A2 mm (")     | B mm | C mm |
|----------|--------------|---------------|---------------|------|------|
| 65964J   | HDC025       | 102 - (4.00)  | 102 - (4.00)  | 600  | 446  |
| 65965L   | HDC035       | 127 - (5.00)  | 127 - (5.00)  | 700  | 446  |
| 65966N   | HDC040       | 127 - (5.00)  | 152 - (6.00)  | 800  | 446  |
| 65967R   | HDC045       | 152 - (6.00)  | 152 - (6.00)  | 800  | 446  |
| 65968T   | HDC050       | 152 - (6.00)  | 203 - (8.00)  | 800  | 446  |
| 65969V   | HDC055       | 203 - (8.00)  | 203 - (8.00)  | 900  | 648  |
| 65970D   | HDC060       | 203 - (8.00)  | 254 - (10.00) | 900  | 650  |
| 65971F   | HDC065       | 254 - (10.00) | 254 - (10.00) | 1000 | 650  |
| 65972H   | HDC070       | 305 - (12.00) | 305 - (12.00) | 1000 | 630  |



## HIGH TEMPERATURE EXHAUST HOSE

Halyard® produces a wide range of standard exhaust hoses, some of which are reinforced to reach high temperatures up to 100°C.

## SILICON EXHAUST HOSES

For really high temperatures Halyard® can provide silicone exhaust hose, in two grades, handling temperatures of 180°C and 260°C (on request).

**NOTE:** Exhaust hoses have to be ordered in length, minimum length 1m, max length see charts page 283, increment 1m.



## STAINLESS STEEL EXHAUST HOSE CLAMPS

Exhaust hoses should be fitted using tough “T” Bar clamps like these illustrated in figure, doubled wherever possible. Halyard® stocks clamps to suit hoses up to 406 mm (16”) external diameter, in stainless steel.

| PART No. | HALYARD PART No. | Ø HOSE CLAMP mm (“) | MATERIAL |
|----------|------------------|---------------------|----------|
| 21829E   | H000507          | 47-51 (1.8-2)       | W4 S/S   |
| 24937Z   | H000509          | 55-59 (2.1-2.3)     | W4 S/S   |
| 24938B   | H000512          | 68-73 (2.7-2.9)     | W4 S/S   |
| 23291V   | H000514          | 79-85 (3.1-3.3)     | W4 S/S   |
| 68207G   | H000517          | 97-104 (3.8-4.1)    | W4 S/S   |
| 24939D   | H024248          | 126-134 (5-5.2)     | 300SS    |
| 24940M   | H024250          | 159-167 (6.2-6.6)   | 300SS    |
| 24904H   | H024252          | 211-227 (8.3-8.9)   | 300SS    |
| 24922K   | H024253          | 262-278 (10.3-10.9) | 300SS    |
| 24941P   | H024254          | 316-332 (12.4-13)   | 300SS    |



## SILICONE BELLOWS

Flexible exhaust bellows are important to isolate engine vibration from the exhaust system, particularly where a silencer or rigid section is close to the engine. Our bellows cover a wide range of sizes up to 356 mm (14”) exhaust systems, and they will take temperatures up to 180°C (260°C on special order).



### WIRE REINFORCED STANDARD RANGE EXHAUST HOSE – TEMPERATURE RATING: CONTINUOUS 100°C

| PART No. | HALYARD PART No. | INT. DIA. Ø mm (") | BEND RADIUS mm (") | MAX LENGTH m |
|----------|------------------|--------------------|--------------------|--------------|
| 21959U   | HS32             | 32 - (1.25)        | 130                | 60           |
| 66342C   | HS38             | 38 - (1.50)        | 150                | 60           |
| 66343E   | HS41             | 41 - (1.61)        | 160                | 60           |
| 66344G   | HS44             | 45 - (1.77)        | 170                | 60           |
| 66239K   | HS51             | 51 - (2.01)        | 180                | 60           |
| 66345J   | HS60             | 60 - (2.36)        | 190                | 60           |
| 66346L   | HS63             | 63.5 - (2.50)      | 200                | 60           |
| 66347N   | HS76             | 76 - (3.00)        | 250                | 60           |
| 66348R   | HS89             | 89 - (3.50)        | 330                | 60           |
| 66349T   | HS102            | 102 - (4.00)       | 410                | 60           |
| 66240U   | HS127            | 127 - (5.00)       | 560                | 60           |
| 66351D   | HS152            | 152 - (6.00)       | 680                | 12           |



### SILICONE EXHAUST HOSE - TEMPERATURE RATING: CONTINUOUS 180°C

| PART No. | HALYARD PART No. | INT. DIA. Ø mm (") | MAX. LENGTH m (') | HOSE CLAMP |
|----------|------------------|--------------------|-------------------|------------|
| 24978P   | SS38             | 38 (1.5)           | 11 (36)           | H000508    |
| 24979S   | SS41             | 41 (1.6)           | 6 (19)            | H000508    |
| 24980A   | SS45             | 45 (1.8)           | 12 (39)           | H000509    |
| 24981C   | SS51             | 51 (2)             | 12 (39)           | H000511    |
| 24982E   | SS60             | 60 (2.3)           | 12 (39)           | H000513    |
| 66665D   | SS63             | 63,5 (2.5)         | 6 (19)            | H000513    |
| 24984J   | SS76             | 76 (3)             | 12 (39)           | H000515    |
| 24985L   | SS89             | 89 (3.5)           | 12 (39)           | H000517    |
| 24986N   | SS102            | 102 (4)            | 12 (39)           | H24247     |
| 69418B   | SS127            | 127 (5)            | 12 (39)           | H000487    |
| 21809Y   | SS152            | 152 (6)            | 12 (39)           | H024248    |
| 24889R   | SS203            | 203 (8)            | 6 (19)            | H024252    |
| 24890Z   | SS254            | 254 (10)           | 6 (19)            | H024252    |



### FLEXIBLE SILICONE BELLOWS - TEMPERATURE RATING: CONTINUOUS 180°C

| PART No. | HALYARD PART NO. | INT. DIA. Ø mm (") |                              | LENGTH mm      |
|----------|------------------|--------------------|------------------------------|----------------|
| 25413T   | CB1051           | 51 (2)             | Silicon bellow 51 mm         | 170 <b>new</b> |
| 67515N   | CB1076           | 76 (3)             | Silicon bellow 76 mm         | 170            |
| 67516R   | CB1090           | 89 (3.5)           | Silicon bellow 90 mm         | 220            |
| 67336N   | CB1102           | 102 (4)            | Silicon bellow 102 mm        | 220            |
| 67075L   | CB1127           | 127 (5)            | Silicon bellow 127 mm        | 220            |
| 67076N   | CB1152           | 152 (6)            | Silicon bellow 152 mm        | 220            |
| 67517T   | CB1203           | 203 (8)            | Silicon bellow 203 mm        | 220            |
| 67518V   | CB1254           | 254 (10)           | Silicon bellow 254 mm        | 250            |
| 67520F   | CB2305           | 305 (12)           | Double silicon bellow 305 mm | 350            |



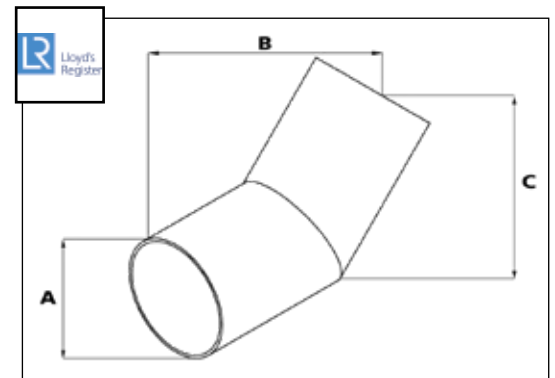
Halyard® makes a full range of GRP bends and adaptors, all fabricated from our special high temperature GRP tube and designed to get you round 45, 90 and 180 degrees bends, or to couple hoses of differing diameters.



## GRP 45 DEGREES BENDS

| PART No. | HALYARD PART No. | A mm | B mm | C mm | WEIGHT kg |
|----------|------------------|------|------|------|-----------|
| 21172A   | H45050           | 76   | 213  | 142  | 0,6       |
| 21696M   | H45060           | 102  | 243  | 173  | 0,7       |
| 21697P   | H45070           | 127  | 339  | 230  | 1,2       |
| 65711C   | H45075           | 152  | 376  | 263  | 2         |
| 21352C   | H45080           | 203  | 710  | 438  | 4,5       |

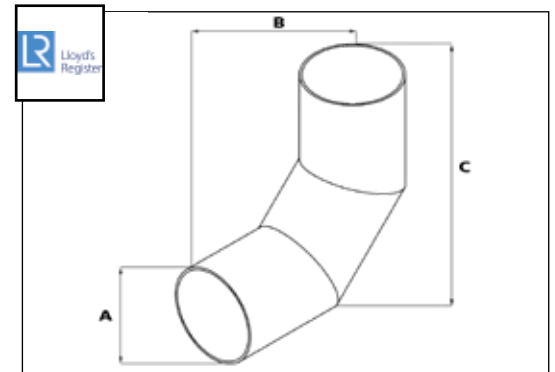
Diameters available from 2" to 10"



## GRP 90 DEGREES BENDS

| PART No. | HALYARD PART No. | A mm | B mm | C mm | WEIGHT kg |
|----------|------------------|------|------|------|-----------|
| 67210P   | H90050           | 76   | 197  | 197  | 0,8       |
| 68450S   | H90055           | 89   | 229  | 229  | 1         |
| 21698S   | H90060           | 102  | 242  | 242  | 1,2       |
| 66624N   | H90070           | 127  | 308  | 308  | 1,8       |
| 66123P   | H90075           | 152  | 358  | 358  | 2,5       |

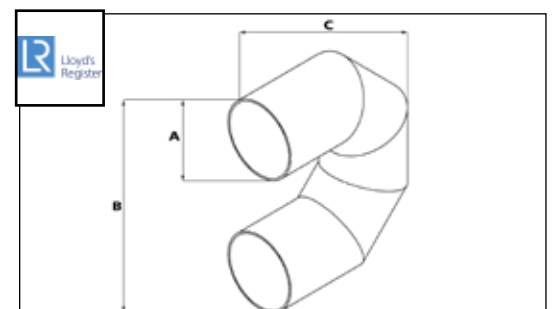
Diameters available from 1,5" to 12"



## GRP 180 DEGREES BENDS

| PART No. | HALYARD PART No. | A mm | B mm | C mm | WEIGHT kg |
|----------|------------------|------|------|------|-----------|
| 21173C   | H180050          | 76   | 187  | 214  | 1,1       |
| 21699U   | H180060          | 102  | 228  | 293  | 1,8       |
| 21700Z   | H180075          | 152  | 327  | 427  | 3,6       |

Diameters available from 1,75" to 8"





Halyard® exhaust units are infinitely stronger than the plastic and GRP units on the market. Halyard® uses 3 mm thick 316 stainless to ensure that the risks of damage when manoeuvring a craft are reduced to the absolute minimum. All units are designed so that the flap, at rest, is shrouded by the stainless rim to prevent damage if the vessel nudges a harbour wall.

## BULKHEAD EXHAUST UNITS - NEOPRENE FLAP VALVE

Units to accept exhaust hose up to and including 100 mm (4") hose have neoprene flaps. Each has a really generous tail allowing "T" bar exhaust hose clamps to be used to secure the hose. Smaller sizes have 3 countersunk fixing holes. The 90 mm and 100 mm (3.5" and 4") units have 4 bolt holes and a bolting flange which fits right around the unit inside the hull.

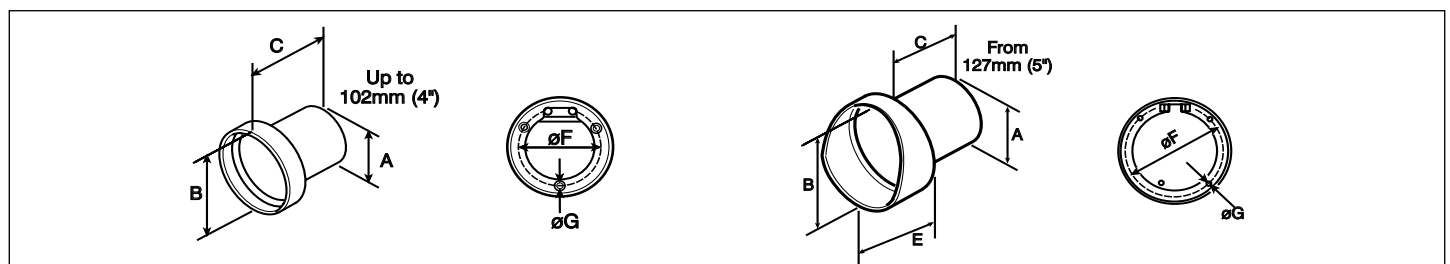
## BULKHEAD EXHAUST UNITS - STAINLESS FLAP VALVE

Units from 125 mm (5") upwards all have stainless flaps lined with neoprene. All have tails with plenty of space to use proper "T" bar clamps to secure the hose. Between 4 and 8 bolt holes are provided and all units have bolting flanges to fit around the unit inside the hull.



| PART No. | HALYARD PART No. | A mm/inch   | B mm | C mm | E mm | FIXING PCD F | G mm | N° FIXING HOLE | FLAP MATERIAL | FLANGE |
|----------|------------------|-------------|------|------|------|--------------|------|----------------|---------------|--------|
| 66885U   | HF004            | 45 - (1.75) | 89   | 80   | 25   | 65           | 5,5  | 3              | NBR           | N      |
| 66886W   | HF005            | 51 - (2.00) | 102  | 80   | 25   | 80           | 5,5  | 3              | NBR           | N      |
| 66887Y   | HF006            | 60 - (2.38) | 114  | 87   | 25   | 90           | 5,5  | 3              | NBR           | N      |
| 66890L   | HF010            | 76 - (3.00) | 127  | 95   | 30   | 102          | 6,5  | 3              | NBR           | N      |
| 66891N   | HF015            | 90 - (3.5)  | 140  | 110  | 35   | 118          | 6,5  | 4              | NBR           | Y      |
| 66892R   | HF020            | 102 - (4.0) | 152  | 123  | 35   | 130          | 6,5  | 4              | NBR           | Y      |
| 66685K   | HF025            | 127 - (5.0) | 195  | 145  | 78   | 165          | 9    | 4              | SS            | Y      |
| 66684H   | HF030            | 152 - (6.0) | 220  | 175  | 90   | 190          | 9    | 4              | SS            | Y      |
| 66893T   | HF035            | 203 - (8.0) | 273  | 220  | 100  | 240          | 11   | 4              | SS            | Y      |

NBR = Nitrile SS = Stainless Steel



## HALYARD® QUALITY



**Maritex**

Marine diesels create very high noise levels – often well over 100 decibels. Engines are always located close to the boat user, generally in engine spaces made from GRP, timber, or steel. Noise insulation changes all this. It adds a soft facing to hard bulkheads to absorb noise and stop it bouncing around and growing. It features a clever multi-layer construction to make a thin material more effective than simple insulations many times thicker.

- **The absorption layer** - A thick layer of fire zero rated foam which soaks up noise and stops it bouncing around the engine space.
- **The transmission layer** - A high density barrier provides the highest possible mass and gives the best noise reduction. The damping layer weighs 5kgs per square meter – more than the lead sheet used in older materials.
- **The isolation layer** - This thin layer of foam has a crucial function: It acts like the gap in double glazing and stops the noise which hits the transmission layer being carried through to the bulkhead – just like the gap in double glazing.

The multi-layer construction used in Halyard® materials offers the best possible acoustic result in a thicknesses which can be accommodated in the tightest engine space, beating simpler materials many times as thick.

## PROTECTIVE SKIN



**Sealglass**

- **Maritex**

An immensely tough fibreglass cloth with a sealed metallised skin so it cannot absorb oil. It won't tear or fray. It looks heavy duty, and it is fire zero rated. Maritex is simply the best facing in the Halyard® range. Maritex is fire zero rated to BS 476 parts 6 and 7.

- **Sealglass**

A tough off-white glass cloth, sealed against oil. The cloth is extremely tough and will not tear. The material meets the ISO 9094 fire requirements of the EU Recreational Craft Directive.

- **Re-inforced Silver Polyester**

This facing meets the requirements of the Recreational Craft Directive. It provides a seal to keep oil out. You can pierce it, but it has a reinforcing layer behind it. It will burn, but once laminated in place it meets the ISO 9094 fire requirements of the EU Recreational Craft Directive. In a fire the facing will burn, but not the foam behind it.

**HOW TO CHOOSE THE PROPER THICKNESS**

**Re-inforced Silver Polyester**
**45mm (1.75") e 60 mm (2.36")**

This unique double damper material was invented by Halyard® and is designed to give the best possible result for the minimum thickness and weight. It is used where big turbo-charged engines are involved, or for vessels where noise is a particular problem. Supplied with 2 sheets 1000 mm x 600 mm (39" x 24") per box.

**32mm (1.25")**

The standard thickness used throughout the industry. Today's fire zero rated foams have increased the weight and made this material even more effective. 32 mm is the choice for any installation where the builder wants an excellent result at a sensible cost. Remember, you can always double layer it in critical areas.

Supplied with 4 sheets 1000 mm x 600 mm (39" x 24") per box

**25mm (1")**

Available only as halcoustic material

Supplied in 4 sheets 990 mm x 590 mm (2.3 mq) per box

**12mm (0.5")**

The budget material when thickness or cost are crucial. Although it is only 12mm or half an inch thick, this material is highly effective and will reduce noise by 50% if used properly. You can also double layer it in places.

Supplied with 4 sheets 1000 mm x 600 mm (39" x 24") per box

12 mm (1/2") Materials - All are supplied with 4 sheets 1000 x 600mm (39" x 24") per box: tot 2,3 m<sup>2</sup>

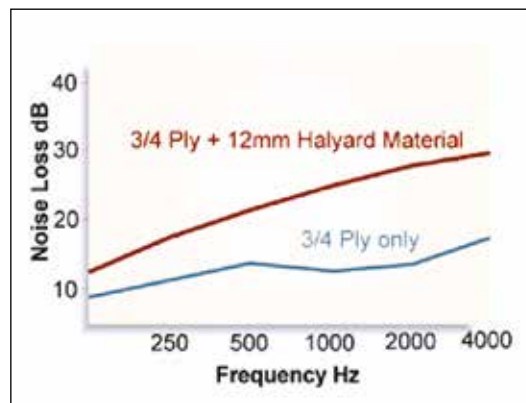
|        |       |  |
|--------|-------|--|
| 66383T | S3002 | Maritex faced material                     |
| 66384V | S3004 | Sealglass faced material                   |
| 66385X | S3003 | Reinforced silver polyester faced material |

12 mm (1/2") Self-adhesive materials - All are supplied with 4 sheets 1000 x 600mm (39" x 24") per box: tot 2,4 m<sup>2</sup>

|        |       |  |
|--------|-------|--|
| 66386Z | S5002 | Maritex faced material                     |
| 66387B | S5004 | Sealglass faced material                   |
| 66388D | S5003 | Reinforced silver polyester faced material |

25mm (1.") Halcoustic - All are supplied with 4 sheets 990 x 590mm (39" x 23") per box: tot 2,4 m<sup>2</sup>

|        |       |   |
|--------|-------|---|
| 25414V | S3019 | Halcoustic 25 mm material               |
| 25445X | S5019 | Halcoustic 25 mm material self adhesive |



## 12 MM (1/2") MATERIALS

These material offers around 12dB reduction at 1000Hz and above, but its efficiency reduces with the heavier noises of lower frequencies. The overall reduction will give excellent results with smaller, lighter engines.



Halcoustic material

| 32mm (1.25") Materials - All are supplied with 4 sheets 1000mm x 600mm (39" x 24") per box: tot 2,4 m <sup>2</sup> |       |  |
|--|-------|--|
| 66007M   | S3017 | Maritex faced material                     |
| 66389F   | S3015 | Sealglass faced material                   |
| 66390P   | S3016 | Reinforced silver polyester faced material |

| 32mm (1.25") Self-adhesive materials - All are supplied with 4 sheets 1000mm x 600mm (39" x 24") per box: tot 2,4 m <sup>2</sup> |       |  |
|--|-------|--|
| 66391S   | S5017 | Maritex faced material                     |
| 66392U   | S5015 | Sealglass faced material                   |
| 66393W   | S5016 | Reinforced silver polyester faced material |

| 45mm (1.75") Materials - All are supplied with 2 sheets 1000mm x 600mm (39" x 24") per box: tot 1,2 m <sup>2</sup> |       |  |
|--|-------|--|
| 66394Y   | S3039 | Maritex faced material                     |
| 66395A   | S3037 | Sealglass faced material                   |
| 66396C   | S3038 | Reinforced silver polyester faced material |

| 45mm (1.75") Self-adhesive materials* - All are supplied with 2 sheets 1000mm x 600mm (39" x 24") per box: tot 1,2 m <sup>2</sup> |       |  |
|---|-------|--|
| 66397E  | S5039 | Maritex faced material                     |
| 66398G  | S5037 | Sealglass faced material                   |
| 66399J  | S5038 | Reinforced silver polyester faced material |

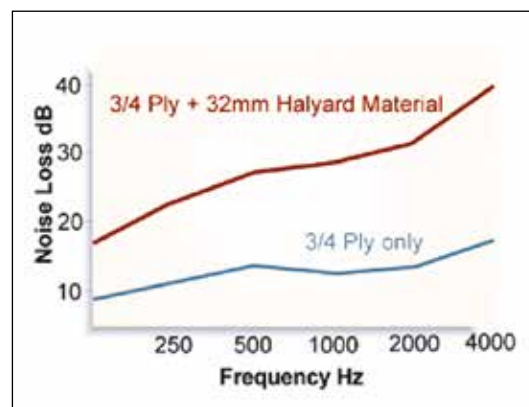
\*Self-adhesive materials have to be fixed when ceiling mounted

| 60mm (2.36") SilentWave (1.2 sq metre packs) |       |            |
|--|-------|------------|
| 21963J                                       | S3018 | Foil faced |

| JOINING TAPES |       |   |
|---------------|-------|---|
| 66400P        | S4021 | 20m x 50mm (65'x2") Sealglass tapes                     |
| 66008P        | S4025 | 5m x 50mm (16'x2") Maritex tapes                        |
| 21964L        | S4026 | 20m x 50mm (65'x2") Maritex tapes                       |
| 66402U        | S4036 | 50m x 50mm (164'x2") Re-inforced silver polyester tapes |

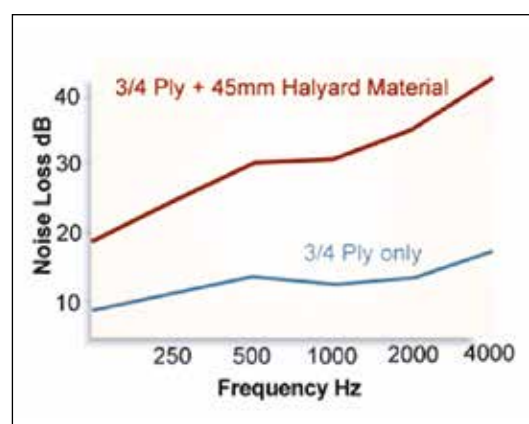
### TECHNICAL SPECIFICATION

- Fire Safety - Compliant with European Recreational Craft Directive (RCD)
- Class 0 fire rated (BS476-7) on selected products
- Lowest possible weight
- All materials tested to ISO 4589-3 (oxygen index – elevated temperature)
- Compliant to ISO 9094-2 Fire Protection for craft with a hull over 15m
- Bulkhead performance up to Rw 54dB (EN ISO 717-1)
- Fuel & oil resistant facing



### 32 MM (1.25") MATERIALS

The 32 mm materials offer a startling 15dB reduction at 1000Hz. Noise doubles every three decibels, so this is nearly three times as good as the 12mm. It also holds a good performance at lower frequencies, making it excellent with larger engines.



### 45 MM (1.75") MATERIALS

These materials offer more noise reduction than other. They are suggested when noise is a serious problem.

Marine diesel water cooled exhaust systems are designed to take temperatures of only 120°C. The uncooled exhaust gasses may reach more than 500°C. To cool the gasses, the exhaust depends on a free flow of cooling raw water from the engine. This flow can be cut off by a plastic bag, seaweed being sucked into the raw water intake or by damage to the raw water impeller. The exhaust gas temperature will rise immediately and the exhaust system will overheat and may be seriously damaged. In most situations the exhaust alert alarm will sound before any damage occurs. An exhaust temperature alarm must measure the temperature inside the exhaust system to be effective, external mounted sensors will not respond quickly enough as they must wait for the heat to penetrate the hose or GRP. The Halyard Exhaust Alert is designed to protect the exhaust system and should not be regarded as an engine protection device, although it will beat the engine temperature sensors to react.



Helm display

Halyard's new Exhaust Alert provides a class leading exhaust overheat alert system housed in a stylish new standard 52mm diameter, IP67 waterproof gauge. The new system incorporates self test functionality and is supplied as a 12 / 24 Volt dual voltage unit to suit either supply. Available with a choice of chrome or black bezel and black or white gauge faces to compliment your existing gauges.



Sensor



Removable sensor

| HALYARD PART No. | PART No. | SYSTEM DESCRIPTION  |
|------------------|----------|---|
| H021247          | 23963V   | Single engine single station gauge with through hose sensor with 16 m cable           |
| H021248          | 23964X   | Single engine single station gauge with removable through hose sensor with 16 m cable |
| H021249          | 23965Z   | Single engine dual station gauges with through hose sensors with 16 m cable           |
| H021250          | 23966B   | Single engine dual station gauges with removable through hose sensors with 16 m cable |
| H021251          | 23967D   | Twin engine single station gauge with through hose sensor with 16 m cable             |
| H021252          | 23968F   | Twin engine single station gauge with removable through hose sensor with 16 m cable   |
| H021253          | 23969H   | Twin engine dual station gauges with through hose sensors with 16 m cable             |
| H021254          | 23970S   | Twin engine dual station gauges with removable through hose sensors with 16 m cable   |

# VELAIR



## COMPACT 7 - SUPER COMPACT UNIT

In order to have a solution even when spaces are minimal, VELAIR introduces the Compact 7, the super-compact air conditioning self contained unit that in just 43cm in length and 26cm in width develops 7000 BTU/h of cooling power. 7000 BTU model is built with a stainless steel tray and fan body, with possibility to have up to 3 air outlets.

### Advantages:

- Unit extremely compact in dimensions and light weight
- Brushless fan with high efficiency and low noise
- Max electrical power consumption 660 W (in cooling)
- New wall touch display included
- Heat pump reverse cycle operation to heat the environment in winter

### Easy to install:

With its compact dimensions and low weight, the Compact 7 can be installed on all types of boats.

The Compact 7 can be installed with 2 or 3 air outputs, 100 mm diameter, without the need to use any T or Y additional dividers.



Ø 100 mm three air outputs application example



## WIFI: REMOTE CONTROL VIA SMARTPHONE



A Wi-Fi module has been introduced into the panel. This function allows to reach, monitor and set-up your unit through a dedicated app. When you are on board, the smartphone will speak directly with the unit. When away from the boat, the communication will take place through internet, therefore a wi-fi network in the marina or a router on board is required. This allows to turn on the air conditioning or heat pump in advance, in order to arrive on board finding the cabins at a comfortable temperature and humidity level.

A free app is available for IOS and Android Store





## ON-OFF COMPACT SERIES TECHNICAL SPECIFICATIONS

|  |                               |
|--|-------------------------------|
| <b>MODEL</b>                                       | <b>Compact 7</b>              |
| <b>Part No.</b>                                    | 20379UW                       |
| <b>Cooling capacity</b>                            | 7000 BTU/h                    |
| <b>Power supply voltage</b>                        | 230 V - 50 Hz                 |
| <b>Cooling power consumption</b>                   | 3,0 A                         |
| <b>Protection</b>                                  | 10 A                          |
| <b>Wire size (minimum)</b>                         | 2,5 mm <sup>2</sup>           |
| <b>Maximum air flow</b>                            | 350 m <sup>3</sup> /h         |
| <b>Flange diameter</b>                             | 2x 100 mm                     |
| <b>Minimum opening for return air grill</b>        | 360 cm <sup>2</sup>           |
| <b>Minimum opening for supply air grill (rec.)</b> | 150 cm <sup>2</sup>           |
| <b>Seawater minimum flow rate</b>                  | 8 l/min                       |
| <b>Dimimensions mm (" ) WxHxD</b>                  | 433x280x260<br>(17.1x11x10.2) |
| <b>Weight kg (lbs)</b>                             | 23 (50.7)                     |

## CONTROL PANEL

The units are supplied with a wall-mounted touch control digital panel, easy to install as, being very thin, it can be applied on the wall itself, without the classic rectangular cut. A simple round hole is enough to pass the data cable.



## ELECTRIC CONTROL BOX

The units are extremely easy to install thanks to the prewired electrical box with a cable bundle that allows the optimal positioning around the machine itself. Unlocking the four screws, it's possible to access directly to the terminal block to connect the power supply and the sea water pump.

# VSD INVERTER DRIVEN SELF-CONTAINED AIR CONDITIONING SYSTEMS REVERSE CYCLE FUNCTION

VELAIR



VARIABLE SPEED DRIVE



VELAIR APP



Self-contained-VSD air conditioners provides the best of the existing technology: Twin Rotary compressor with brushless DC motor and inverter that constantly controls speed and delivered cooling power (Variable Speed Drive); Constant Flow brushless fan (only i10 and i16); electronic expansion valve; R32 refrigerant..

Available in three sizes: 10.000, 16.000 and 21.000 BTU/h max output.

The inverter technology, already used in residential air-conditioning, offers the following **benefits** in marine applications:

- No current peaks during start-up
- Highest energy efficiency: overall reduction of electricity consumption (-40%)
- Perfectly running with small generators or battery powered (through inverter)
- Compressor noise and vibrations almost zero
- Constant temperature of the air flow
- Wi-fi connection for smartphone available through a dedicated app
- Heat pump reverse cycle operation to heat the environment in winter
- Constant Flow technology fan (only i10 and i16)



Compact i10 VSD SMART

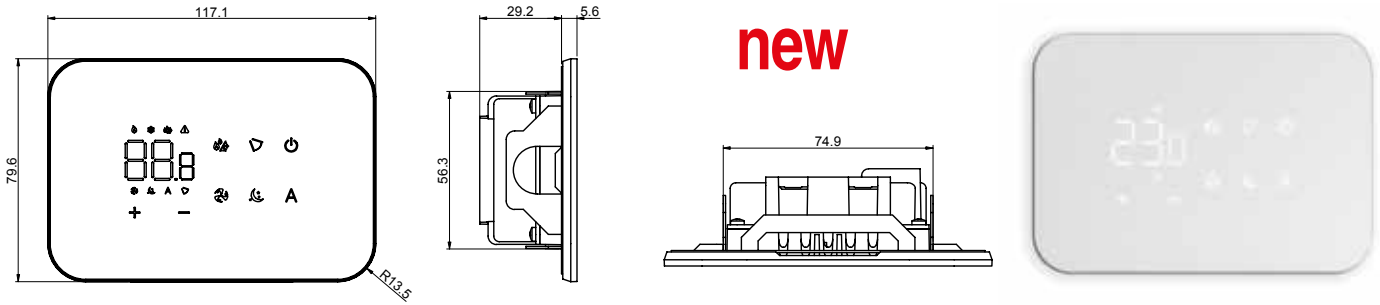
The compressor continuously changes its running speed depending from ambient and set temperature. The compressor operates at maximum power to cool rapidly the cabins, but reaching the set temperature, it reduces the power and electric consumption. In this way it maintains the optimal comfort level with the minimum consumption. The inverter works between 20 and 100 Hz.

Self-contained-VSD VELAIR units meet EMC 2004/108/EC directives.

## TECHNICAL SPECIFICATIONS

| MODEL   | Compact i10 VSD SMART                                 | Compact i16 VSD SMART                                 | Compact i21 VSD                  |
|---|---|---|----------------------------------|
| 230V - 50/60 Hz Part No.                        | 24831GW   | 24832JW   | 24765WW                          |
| 115V - 50/60 Hz Part No.                        | 24831GU   | 24832JU   | -                                |
| Cooling capacity range                          | 4000 - 10000 BTU/h                                    | 6500 - 16000 BTU/h                                    | 7000 - 21000 BTU/h               |
| Power supply voltage                            | 1 PH 230V - 50/60 Hz<br>1 PH 115V - 50/60 Hz          | 1 PH 230V - 50/60 Hz<br>1 PH 115V - 50/60 Hz          | 1 PH 230V - 50/60 Hz             |
| Power consumption cooling (max)                 | 2.9 A @230 V<br>6.0 A @115 V                          | 4.1 A @230 V<br>8.5 A @115 V                          | 6.1 A @230 V                     |
| Protection                                      | 10 A (230/115V)                                       | 10 A (230/115V)                                       | 10 A                             |
| Cable size (min)                                | 2,5 mm <sup>2</sup> (230V) - 4 mm <sup>2</sup> (115V) | 2,5 mm <sup>2</sup> (230V) - 4 mm <sup>2</sup> (115V) | 4 mm <sup>2</sup> (230V)         |
| Max air flow                                    | 400 m <sup>3</sup> /h                                 | 550 m <sup>3</sup> /h                                 | 800 m <sup>3</sup> /h            |
| Air exit duct (for max capacity)                | 1 x Ø 100 mm - 1 x Ø 3.9"                             | 1 x Ø 125 mm - 1 x Ø 4.9"                             | 3 x Ø 152 mm - 3 x Ø 6"          |
| Min. opening for return air grill               | 400 cm <sup>2</sup>                                   | 600 cm <sup>2</sup>                                   | 800 cm <sup>2</sup>              |
| Min. opening for supply air grill (recommended) | 250 cm <sup>2</sup>                                   | 300 cm <sup>2</sup>                                   | 400 cm <sup>2</sup>              |
| Min. seawater flow rate                         | 12 l/min  | 15 l/min  | 20 l/min                         |
| Dimensions WxHxD mm (")                         | 571x320x323*<br>(22.5x12.6x12.7)                      | 650x330x355*<br>(25.6x13x14)                          | 730x445x323*<br>(28.7x17.5x12.7) |
| Weight kg (lbs)                                 | 25 (55.1)   | 28 (61.7)   | 40 (88.2)                        |

\*Measures including electric panel



- New SMART M-Touch control panel, available as an Optional for VSD Smart i10/i16, and VSD i21 compact air conditioners
- Can be installed as a refit on already assembled units, or on new installation as an alternative to the standard control panel supplied
  - Led electronic control with Touch interface
  - Elegant Design / Ultrathin
  - Magnetic installation frame on 503 box template, no connection screws to the panel
  - Available beginning 2024

## INVERTER DRIVEN CHILLERS VARIABLE SPEED DRIVE – REVERSE CYCLE FUNCTION

This inverter driven chiller range provides the best of the existing technology: brushless DC motor with inverter that constantly control speed and delivered power by the compressor (Variable Speed Drive). They also use R410A eco-friendly refrigerant.

Two sizes available: 42.000 e 62.000 BTU/h with modular combination to obtain systems with higher cooling power

**Benefits** in marine applications:

- No current peaks during start-up phase
- Highest energy efficiency: Overall reduction of electricity consumption (-45%)
- It can operates with small generators
- Compressor noise and vibrations almost zero
- Small dimensions and weights compared to the cooling capacity
- Stable water outlet temperature

**Comfort:** The compressor continuously changes the running speed and consequently its cooling power. In this way, the chiller water loop temperature remains constant, regardless of power drawn by the fancoils. This guarantees the maximum comfort - thanks to the temperature stability of air- and the best efficiency, adapting continuously the cooling power to the real need. As result, the compressor will operate at maximum power to cool rapidly the cabins, but coming closer to the set temperature, it will reduce the power and, as well, the electricity consumption.

**Reliability:** “Brushless DC” compressors, together with variable capacity operation, eliminate the typical ON/OFF function of the traditional systems. This allows a much longer lifetime to all the electrical and mechanical components.

**Silence:** Thanks to its function and its sound proofing cover, the compressor has minimal sound levels. This is appreciated especially during night operation.

**NIGHT mode:** It is possible to limit the maximum output power to a preselected value (factory 40%) simply pressing a button. This means the possibility to limit the max current requested, with no risk to break down the shore power if weak and, in double genset applications, it is possible to use the small and quiet generator during the night.

**Modular:** A number of units can be combined together in order to obtain the desired max. cooling power: for example, to get 250.000 BTU/h as max power, it is enough to install 4 units of 62.000 BTU/h in parallel. The units will regulate automatically in order to guarantee always the pre-determined value temperature with the lowest energy consumption.

**Inverter-VSD Uflex VELAIR chillers units meet EMC 2004/108/EC directives.**



VARIABLE SPEED DRIVE



i42 - VSD

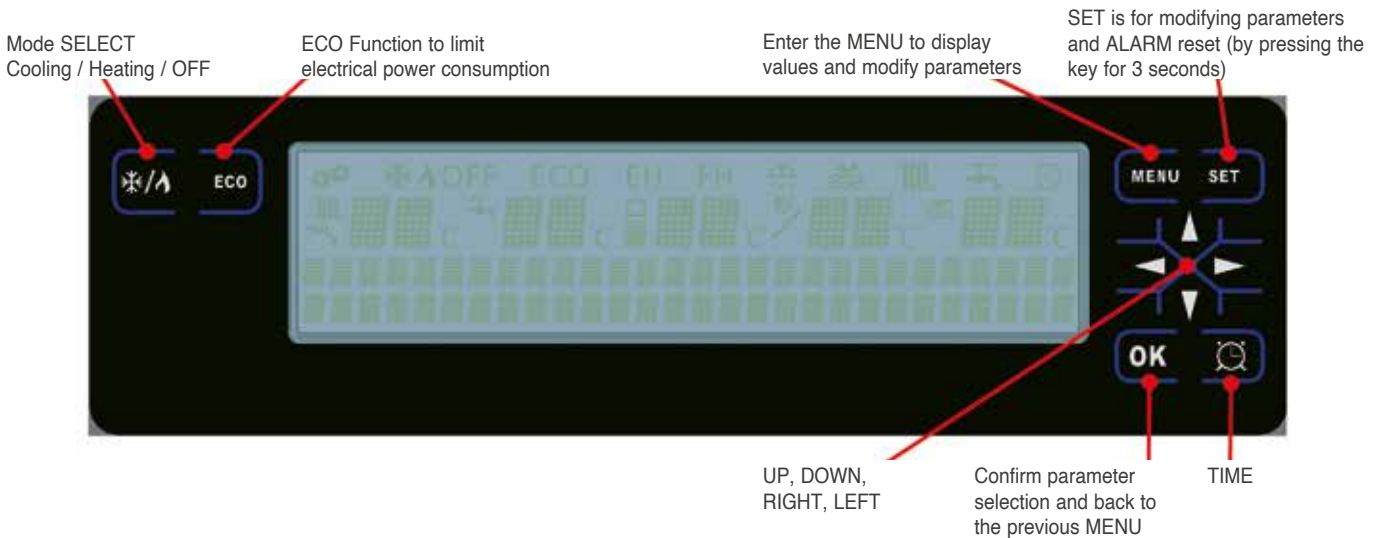
# INVERTER DRIVEN CHILLERS VARIABLE SPEED DRIVE – REVERSE CYCLE FUNCTION



| MODEL  | Chiller i42 VSD            | Chiller i62 VSD            |
|--|----------------------------|----------------------------|
| Part No.   | 69338D                     | 69339F                     |
| Cooling capacity range                                     | 18000 - 42000 BTU/h        | 30000 - 62000 BTU/h        |
| Power supply voltage                                       | 1PH - 230V – 50/60 Hz      | 1PH - 230V – 50/60 Hz      |
| Power consumption cooling (max)                            | 10,5 A                     | 16 A                       |
| Power consumption cooling (max) with “NIGHT MODE”activated | 4,5 A                      | 6,1 A                      |
| Min water flow rate chiller circuit                        | 35 l/min                   | 45 l/min                   |
| Chiller loop pipe diameter                                 | 25 mm                      | 25 mm                      |
| Min seawater flow rate                                     | 30 l/min                   | 40 l/min                   |
| Seawater loop pipe diameter                                | 20 mm                      | 25 mm                      |
| Dimensions WxHxD mm (“)                                    | 473x436x331 (18.6x17.2x13) | 473x436x431 (18.6x17.2x17) |
| Weight kg (lbs)  | 48 (105.8)                 | 64 (141.1)                 |

The digital control panel can be placed on the chiller or remoted in a control room.

The main functions can be controlled from any centralised on-board control system by three simple switches.

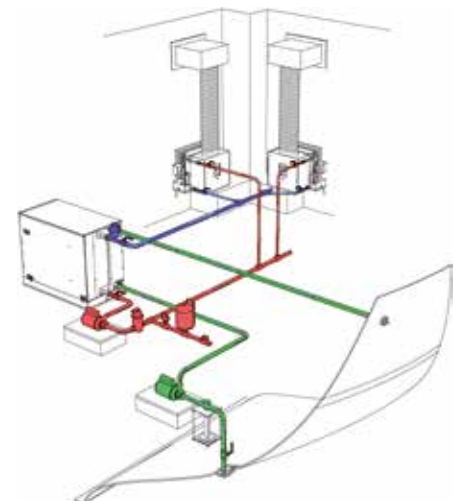


## SYSTEM COMPONENTS

For a complete installation the following components are needed:

- Fancoils
- Seawater pump
- Water pump for chilled loop
- Seawater loop components (sea water intake, water outlet, strainer, safety valve and pipeline)
- Chilled water loop components (insulated pipes, fittings, valves, bleeders, accumulator tank and glycols)
- Air ducting parts (insulated pipe, dividers, transition box, air grills)

Please contact our Technical Service for a correct choice of required accessories.





V5



V20



V12

## FEATURES

- Three versions, 5000, 12000, 20000 Btu/h
- Fan with permanent magnet motor
- Three fan speeds with constant flow rate

- Wall mounted control panel
- Wi-Fi control of the units via dedicated Velair App

| MODEL                        | V5                  | V12                 | V20                 |
|------------------------------|---------------------|---------------------|---------------------|
| Part No.                     | 23398P              | 23399S              | 23729L              |
| Cooling capacity (BTU/h)     | 5000                | 12000               | 20000               |
| Power supply                 | 1PH / 230 V / 50 Hz | 1PH / 230 V / 50 Hz | 1PH / 230 V / 50 Hz |
| Fan absorption (W)           | 90                  | 170                 | 340                 |
| Width (mm)                   | 390 (15.3)          | 540 (21.3)          | 697 (27.4)          |
| Depth (mm)                   | 275 (10.8)          | 315 (12.4)          | 318 (12.5)          |
| Height (mm)                  | 265 (10.4)          | 300 (11.8)          | 295 (11.6)          |
| Weight (kg)                  | 5,5 (12.1)          | 9,0 (19.8)          | 13,5 (29.7)         |
| N° Fan speed                 | 3                   | 3                   | 3                   |
| Air flow (m <sup>3</sup> /h) | 250                 | 500                 | 1100                |
| Air outlet diameter          | 1x100               | 1x125               | 2x125               |

## VFC-DSP

VFC-DSP - 24600L - Digital control panel

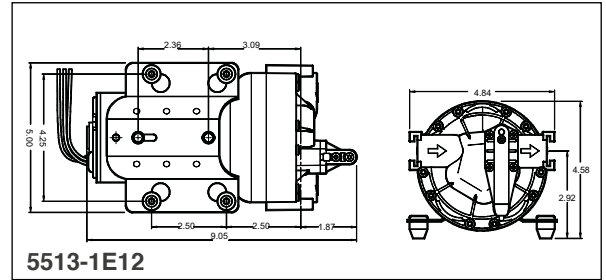
- Illuminated touch screen display with embedded temperature sensor and WI-FI connectivity.
- Constant flow fan with 3 adjustable speeds.
- Summer and winter operation mode.
- Chiller call ready
- Predisposition for the addition of optional solenoid valve (Cod. 24602R)
- Possibility to control multiple units from a single display



## 5513-1E12 – 63799K

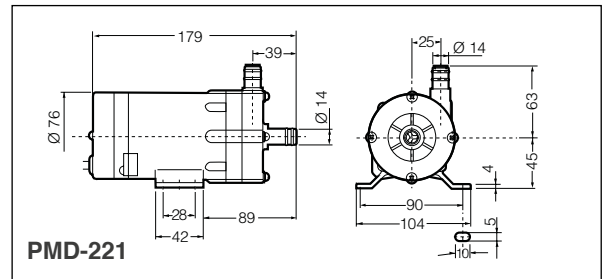
Self priming diaphragm seawater Pump

- Max flow rate: 18 l/min (5.0 GPM)
- Input power: 200 W
- Self priming up to 3,0 m (9.8')
- F1/2" connection
- Weight: 3,6 kg (7.9 lbs)



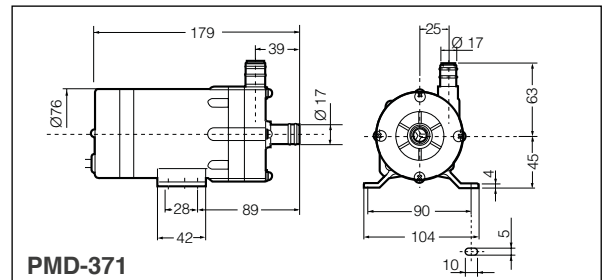
## PMD-221 – 69886M

- Magnetic drive seawater centrifugal Pump
- Max flow rate: 15 l/min (4.0 GPM)
- Input power: 31 W
- Max Head: 2,6 m (8.5')
- M3/4" (19 mm) connection
- Weight: 1,7 kg (3.75 lbs)



## PMD-371 – 63570A

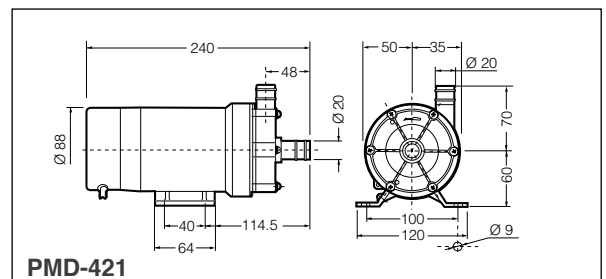
- Magnetic drive seawater centrifugal Pump
- Max flow rate: 25 l/min (6.5 GPM)
- Input power: 43 W
- Max Head: 3,1 m (10.2')
- (17 mm) hoses connection
- Weight: 1,7 kg (3.75 lbs)



## PMD-421 – 69696G

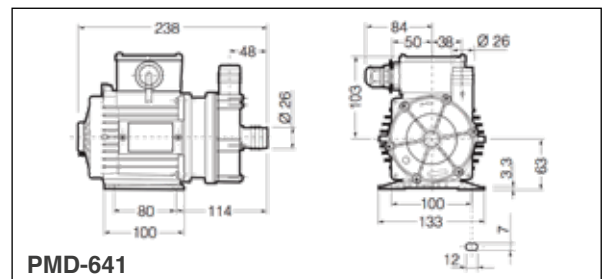
Magnetic drive seawater Centrifugal Pump

- Max flow rate: 35 l/min (9.2 GPM)
- Input power: 75 W
- Max Head: 4,0 m (13.1')
- M3/4" (19 mm) connection
- Weight: 3,4 kg (7.5 lbs)



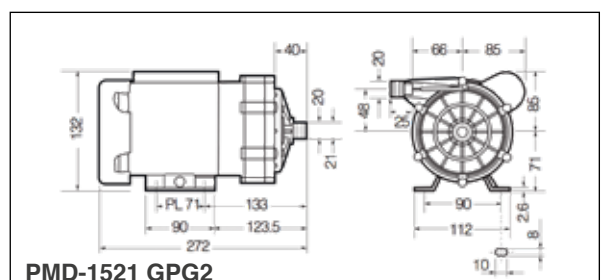
## PMD 641 – 20349J

- Magnetic drive seawater centrifugal Pump
- Flow rate: 55 l/min @2m (20 l/min @8m)
- Input power: 155 W
- Max Head: 5,0 m (16.4')
- M1" (25 mm) connection
- Weight: 4,8 kg (10.6 lbs)



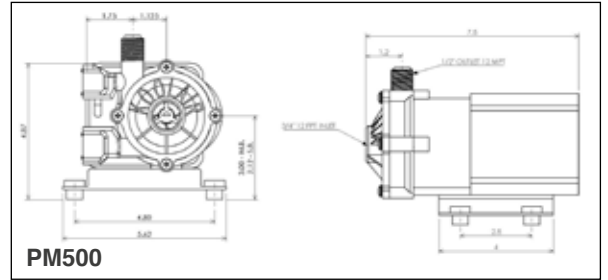
## PMD 1521 GPG2 – 20345A

- Magnetic drive seawater centrifugal Pump
- Flow rate: 60 l/min @2m (35 l/min @8m)
- Input power: 230 W
- Max Head: 13,0 m (42.6')
- M1" (25 mm) connection
- Weight: 7,5 kg (16.5 lbs)



## PM500 – 22746F

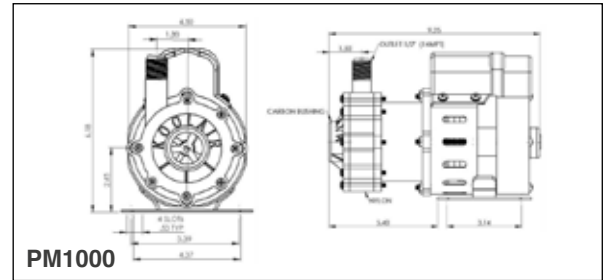
- Seawater centrifugal Pump
- Max flow rate: 32 l/min (8.5 GPM)
- Input power: 120 W
- Max Head: 6 m (20')
- Connection: in F3/4" / out MPT 1/2"
- Weight: 3,85 kg (8.5 lbs)



PM500

## PM1000 – 23042X

- Seawater centrifugal Pump
- Max flow rate: 64 l/min (17 GPM)
- Input power: 220 W
- Max Head: 8 m (27')
- Connection: in F1" / out MPT 1/2"
- Weight: 4,5 kg (10 lbs)

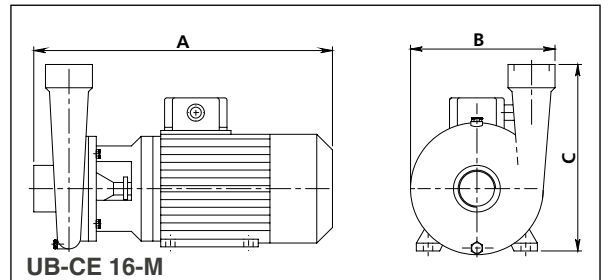


PM1000

# 230 V – 50 HZ CENTRIFUGAL PUMPS FOR SEAWATER/CHILLED WATER APPLICATIONS

## UB-CE 16-M – 67960L

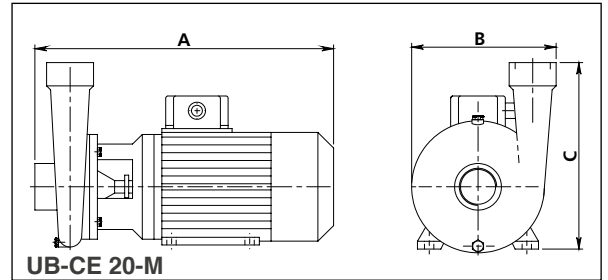
- Seawater centrifugal Pump
- Flow rate: 40 l/min
- Input power: 390 W
- Max Head: 7,0 m (23.0')
- F1/2" in/out connection
- Dimensions: A=266 mm, B=122 mm, C= 138 mm
- Weight: 5,6 kg (12.3 lbs)



UB-CE 16-M

## UB-CE 20-M – 67964V

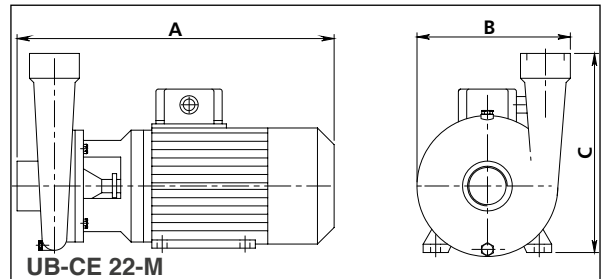
- Seawater centrifugal Pump
- Flow rate: 80 l/min
- Input power: 600 W
- Max Head: 14,0 m (46.0')
- F1" in/out connection
- Dimensions: A=303 mm, B=154 mm, C= 161 mm
- Weight: 9,1 kg (20 lbs)



UB-CE 20-M

## UB-CE 22-M – 67967B

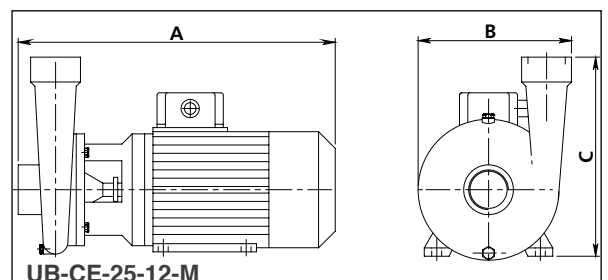
- Seawater centrifugal Pump
- Flow rate: 120 l/min
- Input power: 1000 W
- Max Head: 21 m (68.9')
- F1" in/out connection
- Dimensions: A=303 mm, B=174 mm, C= 181 mm
- Weight: 10,3 kg (22.7 lbs)



UB-CE 22-M

## UB-CE-25-12-M – 20848D

- Seawater centrifugal Pump
- Flow rate: 200 l/min
- Input power: 1300 W
- Max Head: 24 m (78.7')
- F1" in/out connection
- Dimensions: A=313 mm, B=173 mm, C= 230 mm
- Weight: 14,5 kg (31.9 lbs)



UB-CE-25-12-M

## MULTI-UNITS RELAY BOX

Relay to control a a unique seawater pump by different AC units

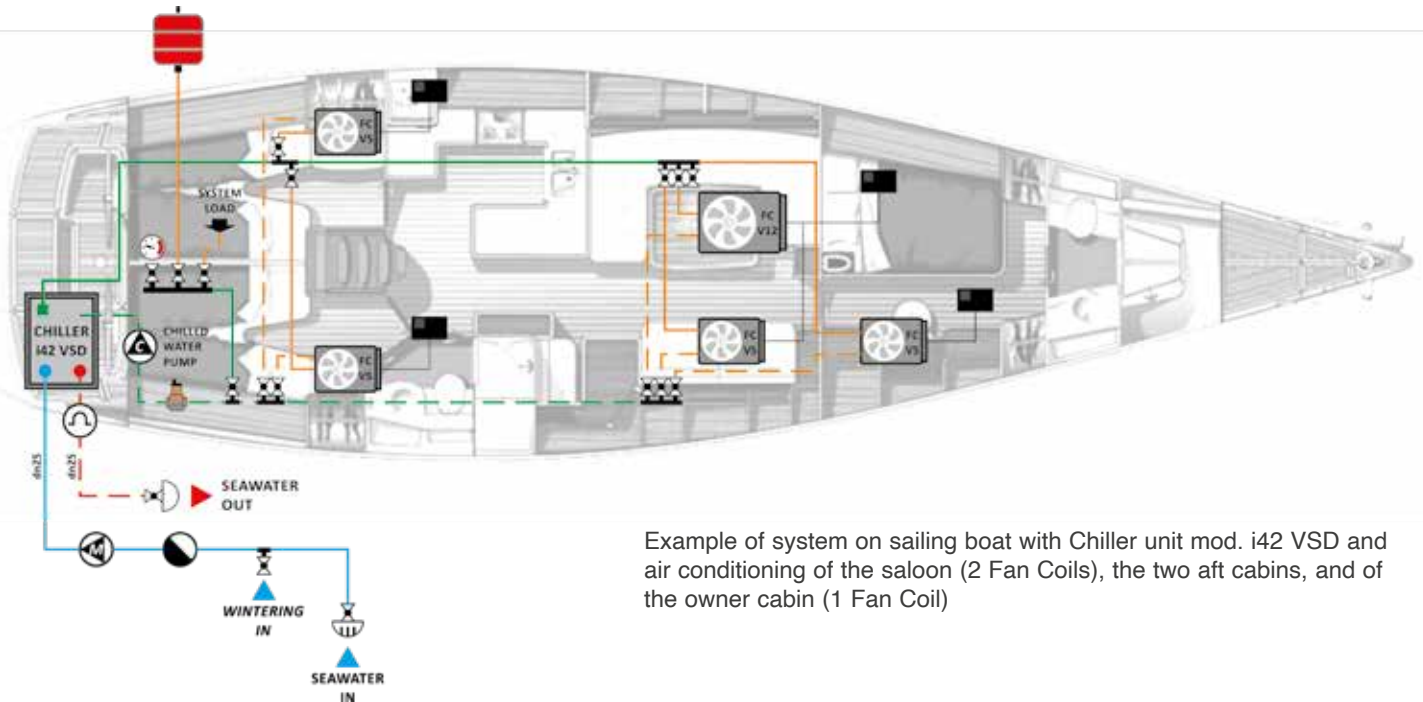
- 23391ZV - Relay Box 1 pump/2 units 230V (30A max)
- 23392BV - Relay Box 1 pump/3-6 units 230V (30A max)
- 23415LV - Relay Box 1 pump/2 units 115V (30A max)
- 23416NV - Relay Box 1 pump/3-6 units 115V (30A max)

## 23988M

VELAIR compact air conditioner retrofit kit with condensator temperature sensor + remotable room temperature sensor with 10 m cable



## SEAWATER CIRCUIT / FRESHWATER-GLYCOL CIRCUIT COMPONENTS CHILLER SYSTEMS



Example of system on sailing boat with Chiller unit mod. i42 VSD and air conditioning of the saloon (2 Fan Coils), the two aft cabins, and of the owner cabin (1 Fan Coil)

### Seawater circuit kit (nickel plated brass)



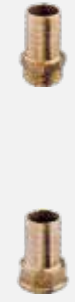





Seacock, on/off valve, water strainer, hose fittings, through hull included

|        |  |
|--------|--|
| 69475P | 1/2" through hull kit  |
| 24684W | 3/4" through hull kit  |
| 69488Z | 1" through hull kit  |
| 69532Z | Ø int. 16 mm transparent reinforced hose - per meter                         |
| 69645N | Ø int. 20 mm transparent reinforced hose - per meter                         |
| 20346C | 3 outlet manifold 3/4"M x 3/4"F with valve - 1/2"M connectors - Ø int. 16 mm |

## HYDRAULIC COMPONENTS FOR CHILLER SYSTEMS

|   |   |      |        |
|---|---|------|--------|
|  <b>SEA WATER INTAKE</b> | M | 1"   | 69469V |
|   | M | 3/4" | 24646M |
|   | M | 1/2" | 69431T |
|  <b>SCUPPERS</b>         | M | 1"   | 24647P |
|   | M | 3/4" | 69646R |



|  |                                       |                         |              |         |
|--|---------------------------------------|-------------------------|--------------|---------|
|    | VALVES                                | F/F                     | 1"           | 69471F  |
|  |                                       | F/F                     | 3/4"         | 24648S  |
|  |                                       | F/F                     | 1/2"         | 21354G  |
|    | FILTERS                               | F/F                     | 1"           | 69470D  |
|  |                                       | F/F                     | 3/4"         | 24649U  |
|  |                                       | F/F                     | 1/2"         | 69433X  |
|    | TEE                                   | F/F/F                   | 1"           | 24650C  |
|  |                                       | F/F/F                   | 3/4"         | 24651E  |
|    | HOSE ADAPTOR                          | M                       | 1" 25 mm     | 69638S  |
|  |                                       | M                       | 1" 20 mm     | 69468T  |
|  |                                       | M                       | 3/4" 25 mm   | 24653J  |
|  |                                       | M                       | 3/4" 20 mm   | 24654L  |
|  |                                       | M                       | 3/4" 16 mm   | 24655N  |
|  |                                       | M                       | 1/2" 16 mm   | 69430R  |
|  |                                       | M                       | 1/2" 20 mm   | 21355J  |
|  |                                       | F                       | 1" 25 mm     | 20473K  |
|  |                                       | F                       | 3/4" 20 mm   | 69474M  |
|  |                                       | F                       | 3/4" 16 mm   | 24658V  |
|  |                                       | F                       | 1/2" 20 mm   | 24659X  |
|  |                                       | F                       | 1/2" 16 mm   | 24660F  |
|  | DUAL NIPLES                           | M/M                     | 1"           | 69472H  |
|  |                                       | M/M                     | 3/4"         | 24661H  |
|  |                                       | M/M                     | 1/2"         | 24662K  |
|  | REDUCED DUAL NIPLES                   | M/F                     | 1 1/4" to 1" | 24663M  |
|  |                                       | M/F                     | 1" to 3/4"   | 24664P  |
|  |                                       | M/F                     | 1" to 1/2"   | 24665S  |
|  |                                       | M/F                     | 1" to 1/2"   | 69733K  |
|  | MANIFOLDS                             | M/F                     | 1" 2 vie     | 24668Y  |
|  |                                       | M/F                     | 1" 3 vie     | 24669A  |
|  | CAPS                                  | F                       | 1"           | 24670J  |
|  |                                       | F                       | 3/4"         | 21304R  |
|  |                                       | M                       | 1"           | 24671L  |
|  |                                       | M                       | 3/4"         | 20348G  |
|  | EXPANSION CHAMBERS                    | Max. press 8 bar - 3/4" | 5 lt         | 24667W  |
|  |                                       | Max. press 8 bar - 3/4" | 8 lt         | 24007A  |
|  | PRESSURE GAUGES                       | 0-4 Bar                 | 1/4"         | 20450X  |
|  | DEAERATOR                             | M                       | 1"           | 24674T  |
|  | INSULATED HOSES<br>FRESH WATER-GLYCOL | -                       | DNi 16       | 24681PM |
|  |                                       | -                       | DNi 20       | 24693XM |
|  |                                       | -                       | DNi 25       | 24682SM |

## T ADAPTER (CONNECTION: IN CONDITIONER/OUT HOSE)

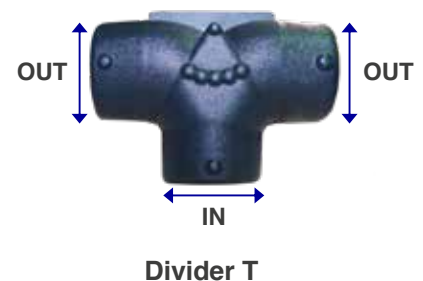
| PART No. | DESCRIPTION                     |
|----------|---------------------------------|
| 62419R   | T ADAPT. 100IN 100/100OUT AT444 |
| 62420Z   | T ADAPT. 125IN 100/100OUT AT544 |
| 62421B   | T ADAPT. 125IN 125/100OUT AT554 |
| 62422D   | T ADAPT. 125IN 125/125OUT AT555 |
| 62423F   | T ADAPT. 150IN 125/100OUT AT654 |
| 63899P   | T ADAPT. 150IN 100/100OUT AT644 |

## Y ADAPTER (CONNECTION: IN CONDITIONER/OUT HOSE)

| PART No. | DESCRIPTION                     |
|----------|---------------------------------|
| 62424H   | Y ADAPT. 100IN 100/100OUT AY444 |
| 62425K   | Y ADAPT. 125IN 100/100OUT AY544 |
| 62426M   | Y ADAPT. 125IN 125/100OUT AY554 |
| 62427P   | Y ADAPT. 125IN 125/125OUT AY555 |
| 62428S   | Y ADAPT. 150IN 125/100OUT AY654 |
| 62875U   | Y ADAPT. 150IN 100/100OUT AY644 |
| 63546D   | Y ADAPT. 150IN 125/125OUT AY655 |

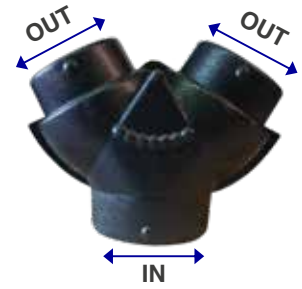
## AIR DIVIDERS T (HOSE TO HOSE CONNECTION)

| Ø IN mm (") | Ø OUT/OUT mm (") | PART No. |
|-------------|------------------|----------|
| 100 (4)     | 80/80 (3/3)      | 63902Z   |
| 100 (4)     | 100/100 (4/4)    | 62225B   |
| 125 (5)     | 100/100 (4/4)    | 62226D   |
| 125 (5)     | 125/100 (5/4)    | 63904D   |
| 125 (5)     | 125/125 (5/5)    | 63905F   |
| 150 (6)     | 100/100 (4/4)    | 63107A   |
| 150 (6)     | 125/100 (5/4)    | 63906H   |
| 150 (6)     | 125/125 (5/5)    | 62227F   |
| 150 (6)     | 150/125 (6/5)    | 63907K   |
| 150 (6)     | 150/150 (6/6)    | 63908M   |



## AIR DIVIDERS Y (HOSE TO HOSE CONNECTION)

| Ø IN mm (") | Ø OUT/OUT mm (") | PART No. |
|-------------|------------------|----------|
| 100 (4)     | 100/100 (4/4)    | 62876W   |
| 125 (5)     | 100/100 (4/4)    | 62220R   |
| 125 (5)     | 125/100 (5/4)    | 62221T   |
| 125 (5)     | 125/125 (5/5)    | 63910Y   |
| 150 (6)     | 100/100 (4/4)    | 62222V   |
| 150 (6)     | 125/100 (5/4)    | 62223X   |
| 150 (6)     | 125/125 (5/5)    | 62224Z   |
| 150 (6)     | 150/100 (6/4)    | 61344O   |



Divider Y

## FITTINGS FOR TRANSITION BOXES

| Ø HOSE mm (") | ROUND HOSE RING | OVAL HOSE RING |
|---------------|-----------------|----------------|
| 80 (3)        | 61651P          | -              |
| 100 (4)       | 62204T          | 62206X         |
| 125 (5)       | 62205V          | 62207Z         |
| 150 (6)       | 63912C          | 62208B         |



## TRANSITION BOXES (WITHOUT FITTINGS)

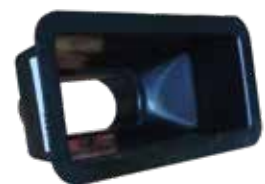
| Plenum diffusori d'aria (da raccordare) |                     |
|---|---------------------|
| 69534D                                  | TB-04x04 mm 100x100 |
| 62216A                                  | TB-06x04 mm 150x100 |
| 62217C                                  | TB-08x04 mm 200x100 |
| 62531J                                  | TB-08x06 mm 200x150 |
| 62555Z                                  | TB-08x08 mm 200x200 |
| 62218E                                  | TB-10x04 mm 250x100 |
| 62576H                                  | TB-10x06 mm 250x150 |
| 61331J                                  | TB-12x04 mm 300x100 |
| 63918R                                  | TB-16x04 mm 400x100 |



20645N - Bend 90° outlet - 125 mm

## TRANSITION BOXES (WITH HOSE CONNECTIONS)

| Ring back (straight) |   |
|----------------------|---|
| 64252R               | TB-04x04-04OB mm 100x100 c/ racc. back mm 100 |
| 64253T               | TB-06x04-04OB mm 150x100 c/ racc. back mm 100 |
| 64254V               | TB-08x04-04OB mm 200x100 c/ racc. back mm 100 |
| 64255X               | TB-08x04-05OB mm 200x100 c/ racc. back mm 125 |
| 64256Z               | TB-10x04-05OB mm 250x100 c/ racc. back mm 125 |



## TRANSITION BOXES (WITH HOSE CONNECTIONS)

### Ring side (long side)

|        |  |
|--------|--|
| 64257B | TB-08x04-04OS mm 200x100 c/ racc. long side mm 100 |
| 64258D | TB-08x04-05OS mm 200x100 c/ racc. long side mm 125 |
| 64259F | TB-10x04-04OS mm 250x100 c/ racc. long side mm 100 |
| 64260P | TB-10x04-05OS mm 250x100 c/ racc. long side mm 125 |
| 61336O | TB-12x04-06OS mm 300x100 c/ racc. long side mm 150 |



### Ring end (short side)

|        |   |
|--------|---|
| 64261S | TB-04x04-04RE mm 100x100 c/ racc. short side mm 100 |
| 64262U | TB-06x04-04RE mm 150x100 c/ racc. short side mm 100 |
| 64263W | TB-08x04-04RE mm 200x100 c/ racc. short side mm 100 |
| 64264Y | TB-10x04-04RE mm 250x100 c/ racc. short side mm 100 |
| 64265A | TB-10x06-05RE mm 250x150 c/ racc. short side mm 125 |



### Insulated, flexible duct (aluminum/insulation) \*

|        |                                |
|--------|--------------------------------|
| 67112P | Air hose Ø int. mm 100         |
| 69139X | Air hose Ø int. mm 125         |
| 67113S | Air hose Ø int. mm 150         |
| 20471F | mm 50 reinforced aluminum tape |



### Insulated, flexible duct (aluminum/insulation) \*

|         |   |
|---------|---|
| 600116S | Ø int 80 mm air duct for 75 mm round grill applications |
|---------|---|

## SUPPLY ROUND GRILLS (NO PLENUM REQUIRED)

### Round plastic supply grills

|        |  |
|--------|--|
| 25467T | mm 100 (4") round damper vent, black           |
| 25468V | mm 100 (4") round damper vent, white           |
| 21213M | mm 75 (3") round damper vent, black            |
| 69615D | mm 75 (3") round damper vent, white            |
| 69428E | mm 100 (4") round grill, white (not closeable) |
| 69616F | mm 100/75 (4"/3") round adapter                |
| 20648V | mm 125/100 (5"/4") round adapter               |



\* air distributions hoses are supplied in 10m length boxes

## RETURN / SUPPLY AIR GRILLS

### Anodized aluminum return air grills

|        |            |
|--------|------------|
| 69490K | mm 250x150 |
| 69422S | mm 300x200 |
| 61380Z | mm 300x300 |
| 69423U | mm 400x250 |
| 61381A | mm 400x400 |
| 66706R | mm 600x150 |



### Teak return air grills (with air filter)

|        |            |
|--------|------------|
| 69494U | mm 250x150 |
| 69497A | mm 300x200 |
| 69498C | mm 400x250 |



### White aluminum return air grills (with air filter)\*

|        |            |
|--------|------------|
| 20864B | mm 250x150 |
| 69605A | mm 300x200 |
| 20865D | mm 400x250 |



\*Black aluminum models are also available

### Anodized aluminum supply air grills

|        |            |
|--------|------------|
| 20652K | mm 297x53  |
| 20651H | mm 475x55  |
| 69466N | mm 100x100 |
| 69022Z | mm 150x100 |
| 69023B | mm 200x100 |
| 62532L | mm 200x150 |
| 63074M | mm 200x200 |
| 69021X | mm 250x100 |
| 69421P | mm 250x150 |
| 21319E | mm 300x100 |



### Teak supply air grills

|        |            |
|--------|------------|
| 64195F | mm 100x100 |
| 64534B | mm 150x100 |
| 64535D | mm 200x100 |
| 64536F | mm 200x150 |
| 61652S | mm 250x100 |
| 61653U | mm 250x150 |
| 64361W | mm 250x250 |
| 22187V | mm 300x100 |



## SUPPLY AIR GRILLS

### Teak supply damper vents (closeable)

|        |            |
|--------|------------|
| 69492P | mm 100x100 |
| 69493S | mm 200x100 |
| 69910F | mm 250x100 |
| 69506Y | mm 250x150 |



### White aluminum supply air grills

|        |            |
|--------|------------|
| 69914P | mm 100x100 |
| 69915S | mm 200x100 |
| 62539B | mm 200x150 |
| 69916U | mm 250x100 |
| 22791L | mm 300x100 |



### Black aluminum supply air grills

|        |            |
|--------|------------|
| 20881B | mm 200x100 |
| 69630Z | mm 250x100 |
| 69631B | mm 400x100 |



### White aluminum supply grills (closeable)

|        |            |
|--------|------------|
| 69533B | mm 100x100 |
| 69917W | mm 200x100 |
| 69918Y | mm 250x100 |







**22GB**



**30GB**

Wallas® diesel heaters are a good system, extremely easy to install, to heat boats up to 15 m (50 ft). The sound level equals to the level of whispering in the library, thanks to the laminar burning combustion.

The sound of burning cannot be heard from the exhaust pipe and the boat next to yours can enjoy the silence as well.

The power consumption is the lowest compared to its competitors and enable you to keep your boat warm, even with small battery capacity. To ensure the highest quality, every single Wallas® product is manually tested before delivery.

**Warranty:** 3 years.



**50 Spartan Air**

## TECHNICAL SPECIFICATIONS

| MODEL                        | 22GB                           | 30GB                           | 50 Spartan Air                 |
|------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Part No                      | 22750W                         | 22095P                         | 22751Y                         |
| Fuel                         | Diesel                         | Diesel                         | Diesel                         |
| Power (W)                    | 1100-2500 (7000-8500 BTU)      | 1500-3000 (5100-10200 BTU)     | 1400-4500 (4700-15300 BTU)     |
| Operating voltage (V)        | 12                             | 12                             | 12                             |
| Fuel consumption (l/h)       | 0,1-0,25                       | 0,1-0,33                       | 0,16-0,46                      |
| Electricity consumption (A)  | 0,7-1,2                        | 1,0-2,0                        | 0,7-4,5                        |
| Heat min-max air flow (m³/h) | 51-79                          | 61-103                         | 102-227                        |
| Dimensions W x D x H mm (")  | 424x140x278<br>(16.7x5.5x10.9) | 424x140x278<br>(16.7x5.5x10.9) | 424x165x307<br>(16.7x6.5x12.1) |
| Weight kg (lbs)              | 10 (22)                        | 10 (22)                        | 15 (33.1)                      |



**Elegant control panel features:**

- Smooth PI-controlled thermostat adjustment
- Manual temperature adjusting
- Two-step air boost function
- Automatic shutdown in case of temperature increase
- Protection of accidental start and stop
- Recessed mounting

The **Wallas® Remote Control** allows you to turn on and shut down the heater remotely, so you may heat up your boat from your home, at the desired temperature. You may use a Smartphone, a tablet or a pc to manage the heating of your boat.

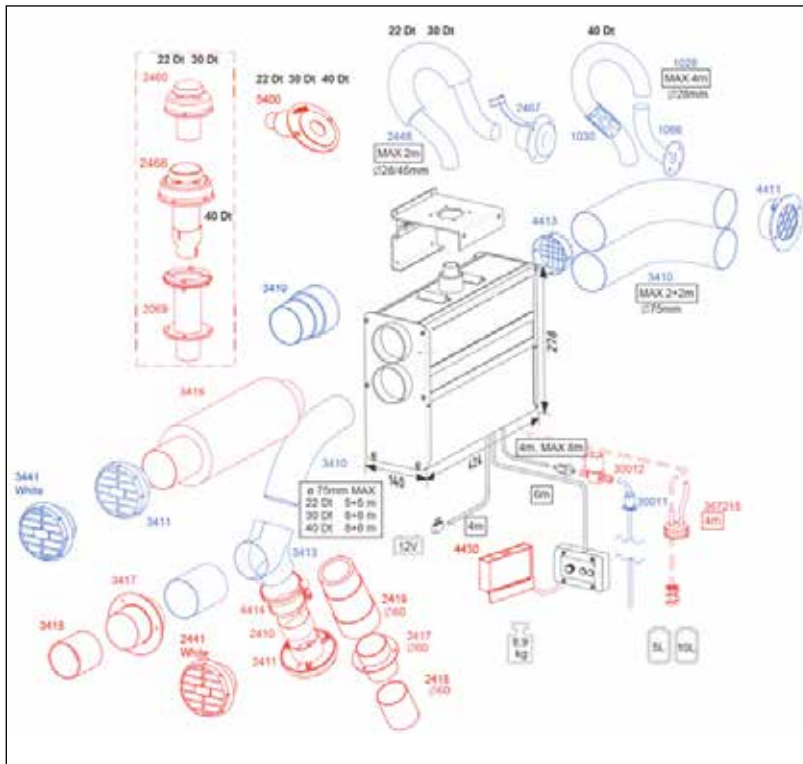
The Remote Control displays temperature in C° and F° and shows battery voltage in order to know, in real-time, the battery charge status.



**CONTROL PANEL PI THERMO CONTROL**



**REMOTE CONTROL - 69238Z**



## ACCESSORIES

A wide range of accessories are available for the installation. The heater box includes: heater, control panel, mounting bracket, 4 m of the fuel hose, fuel filter, 4 m power cable and the fuse box with fuse. You need to order separately drainpipe and air ducting components.



**HULL LEAD-THROUGH - 69228W**



**DECK LEAD-THROUGH - 69227U**



**WARM AIR VENTILATION GRILL  
ø 75 mm - 21213M**



## NOTES

## NOTES

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