

# BEP

■ TRUSTED QUALITY



MARINE  
EMERGENCY VEHICLE  
INDUSTRIAL  
RV

**2022**



## Your most trusted partner

Whether on water or on the road, delivering an optimal user experience is at the heart of ASG's business. It's why we are proud to be the world's leading supplier of products and integrated systems to the marine, RV, and Specialty Vehicle industries. Our broad portfolio of market leading brands in power management, digital control & monitoring, and networked devices are distributed globally to a diverse aftermarket and OEM customer base. ASG is driven, every day, to be the world's most trusted partner to the marine and mobile industries.

**ANCOR**

Wire  
Wire Management  
[ancorproducts.com](http://ancorproducts.com)

**attwood**

Lighting  
Marine Accessories  
Water and Fuel Systems  
[attwoodmarine.com](http://attwoodmarine.com)

**BEP**  
TRUSTED QUALITY

Battery Management  
Power Distribution  
[bepmarine.com](http://bepmarine.com)

**BLUE SEA**  
SYSTEMS

Battery Management  
Circuit Protection  
Power Distribution  
[blueseasystems.com](http://blueseasystems.com)

**CZONE**

Digital Control  
& Monitoring  
Onboard  
Offboard UX  
[czone.net](http://czone.net)

**GARELICK**

Metal Fabricated  
Hardware  
[garelick.com](http://garelick.com)

**MotorGuide**

Trolling Motors  
[motorguide.com](http://motorguide.com)

**ProMariner**

Battery Chargers  
[promariner.com](http://promariner.com)

**Whale**

Heating Systems  
Pumps  
[whalepumps.com](http://whalepumps.com)

**MARINCO**

AC Shore Power  
Marine Accessories  
[marinco.com](http://marinco.com)

**MASTERVOLT**

Batteries  
Power Conversion  
[mastervolt.us](http://mastervolt.us)

**LENCO**

Actuators  
Trim Tab System  
[lencomarine.com](http://lencomarine.com)





# What makes BEP different:

## I Founder's Vision

BEP offers a range of high quality electrical solutions designed for the harsh Marine and RV environments. Every product meets exacting performance specifications and is designed to withstand extreme conditions, both at sea, and on land.

## I Solutions Focused

The BEP team is intimate with the marine environment and develops solutions that improve the installation and use of the products they design. The new products developed reduce assembly time, save space and improve the user experience.

## I Innovation & Engineering

BEP's innovative culture and engineering excellence is focused on simplifying the installation and optimizing the user experience with thoroughly tested products that will thrive in the harsh marine environment.

## I Worldwide Support

BEP customers have global support in APAC, EMEA and the Americas. The network of support will resolve any issues that come up in supply, technical support and installation questions. BEP is committed to provide the products and support needed to make your installation and experience the best in the industry.

## I Trusted Quality

BEP products are designed in New Zealand to withstand prolonged exposure in the harshest environments. Our products have stood the test of time in marine and automotive installations around the world and remain the product of choice by world leading recreational and commercial manufacturers. We stand behind our products and proudly offer a "Trusted Quality" 5-year warranty on all parts.



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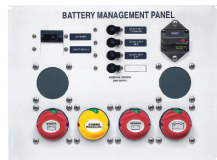
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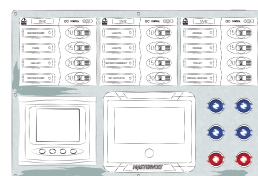
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# BATTERY MANAGEMENT

## Pro Installer Battery Switches

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The Pro Installer range of premium quality battery switches offer ease and flexibility of installation, and optimal performance in the harsh marine environment.

## Battery Switches

16



BEP has pioneered development of battery switches for marine use. Ongoing R&D has further optimized these products to offer a range of high quality but cost effective manual switching solutions.

## Remote Operated Battery Switches

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The MD range of battery switches allow you to install the battery switch very close to the battery, to remotely manage the increased electrical loads found on today's boats. They are ideal for remote isolation of bow and stern thrusters.

## Voltage Sensing Switches

20



These switches automatically sense connected battery bank voltages and provide optimal, efficient charging of the second bank. The VSS allows for independent battery banks to be combined or isolated based on the presence of a charging source while also offering remotely activated, high current, emergency parallel connection.





# BATTERY MANAGEMENT

## Digital Voltage Sensing Relay (DVSR)



21

The Digital Voltage Sensing Relay (DVSR) provides a highly efficient but inexpensive solution for automatic charging of a second battery bank. It ensures correct charging while removing the risk of flat start batteries.

## Battery Distribution Clusters



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With the successful release of the BEP battery distribution system, BEP saw the need for ready assembled clusters for different applications to make the installation within the battery area even easier.

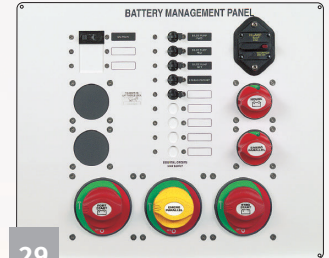
## Battery Distribution Panels



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The fastest and easiest way to panel mount a battery switch cluster, contour connect panels provide low profile panel mounting plus flexibility in layout.

## Battery Management Panels



29

We've integrated our battery switches, circuit protection and secondary charging accessories into one convenient to install panel. In addition to our standard range, we can build custom panels to suit your requirements.





**Power  
Management  
Redefined**

## **NEW** Smart Battery Hub

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 NMEA 2000 for integration with multi-function displays.

Options for two to six engine configurations available.

### **Features & Benefits**

- Monitors and transmits all battery voltages, including house bank state of charge via NMEA 2000
- 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



**5 YEAR  
WARRANTY**



|                |                                     |
|----------------|-------------------------------------|
| 80-716-0030-00 | Smart Battery Hub Twin Engine       |
| 80-716-0031-00 | Smart Battery Hub Triple Engine     |
| 80-716-0032-00 | Smart Battery Hub Temp Sensor (15m) |





### Additional Features

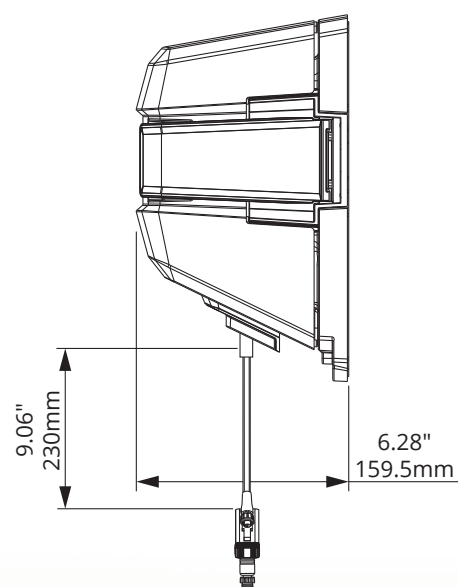
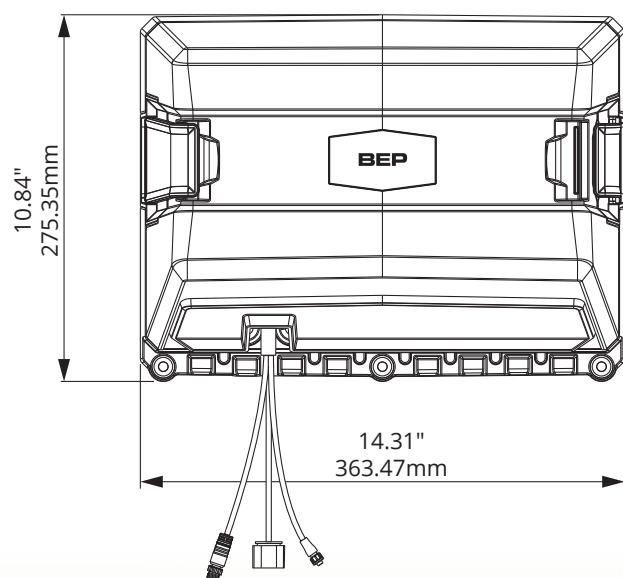
- Remotely operated emergency parallel switches
- Bi-directional voltage sensitive switching with configurable cut in and out voltage thresholds
- Monitor up to 2 tank levels, additional battery voltage, temperature or pressure using industry standard sensors
- Status LED's for all switch outputs and fault indication
- Equipped with advanced core CZone® feature set like load shedding, NMEA 2000 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 NMEA 2000 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®

### Specifications

|                             |  |
|-----------------------------|--|
| Weight                      | 18.5lb (8.4kg)   |
| Power consumption max       | 92mA   |
| Power consumption sleep     | <5A  |
| NMEA 2000 connectivity      | 1 x NMEA 2000 Micro-C port, 1 LEN  |
| Warranty period             | 5 years  |
| Operating temperature range | -5°F to +131°F (-15°C to +55°C)  |
| Storage temperature range   | -40°F to +185°F (-40°C to +85°C)   |
| Dimensions W x H x D        | 14.310" x 10.841" x 6.280" (363.5 x 275.4 x 159.5 mm)  |
| 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             | 12V or 24V, power harvested from all batteries   |
| Continuous rating:          | 300A   |
| Intermittent rating:        | 700A   |
| Cranking rating:            | 1450A  |
| Additional Inputs           | 3 x Master switch inputs<br>2 x Analogue Inputs: Positive or Negative Switching, 0-30 Volt, 0-1000 Ohm Resistance and 4-20mA Current<br>1 x Battery temperature sensor |

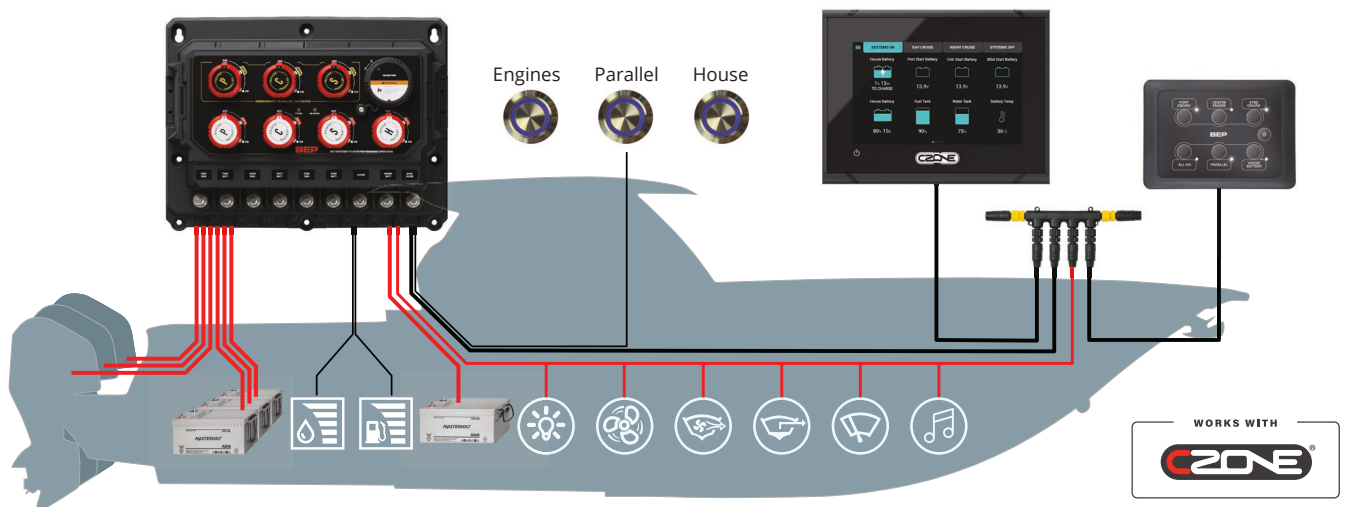


## Dimensions





## System Example





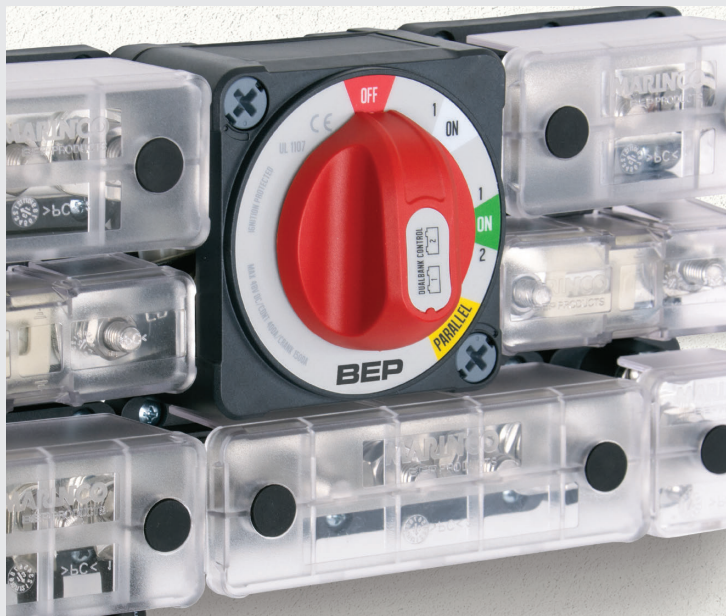
## Pro Installer Battery Switches

The Pro Installer range of premium quality battery switches offer ease and flexibility of installation, and optimal performance in the harsh marine environment. With models that offer on/off, selector and dual bank control functionalities, the switches feature improved contactor design, ergonomics that provide clear intuitive operation, an industry standard mounting footprint and all switches meet global industry standards. The innovative dual bank control switch offers the functionality of three switches in one. The patented EZ-Mount switch range allows wiring from the front simplifying installation and saving labor. All Pro Installer EZ-Mount switches feature a common interconnection height with the full line of Pro Installer power management products, which allow them to “cluster” with other products utilizing solid link bars. Attention to all aspects of switch function and use has created superior installation options, high power capacity and improved reliability.

### All Pro Installer Switches:

- Meet global industry standards UL1107, CE and ABYC
- Ignition protected
- IP66 rated (*see inside back cover*)
- Removable side plates
- Ergonomic removable switch knobs

See page 32 for more Pro Installer products to complete your cluster.



## Pro Installer Standard Mount Switches

This powerful generation of battery switches have a 400A rating with outstanding performance and features for both the installer and end user. Three mounting options: surface, rear panel and front panel mounting, plus optimized cable access makes installation a breeze. Pro Installer switches set the new benchmark with outstanding ergonomics, intuitive look/feel, and are engineered from the finest materials to withstand the harsh marine environment.

- Switch studs face back of switch (when viewed from front)
- Panel mounting allows direct access to the switch studs from rear of panel
- Does not share Pro Installer interconnection height due to different mount options
- Accepts metric or imperial fasteners with innovative nut retention



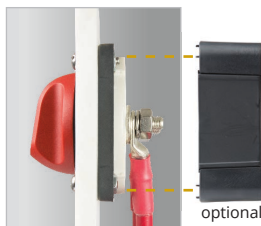
### Standard Mounting Options



Surface Mount



Front Panel Mount

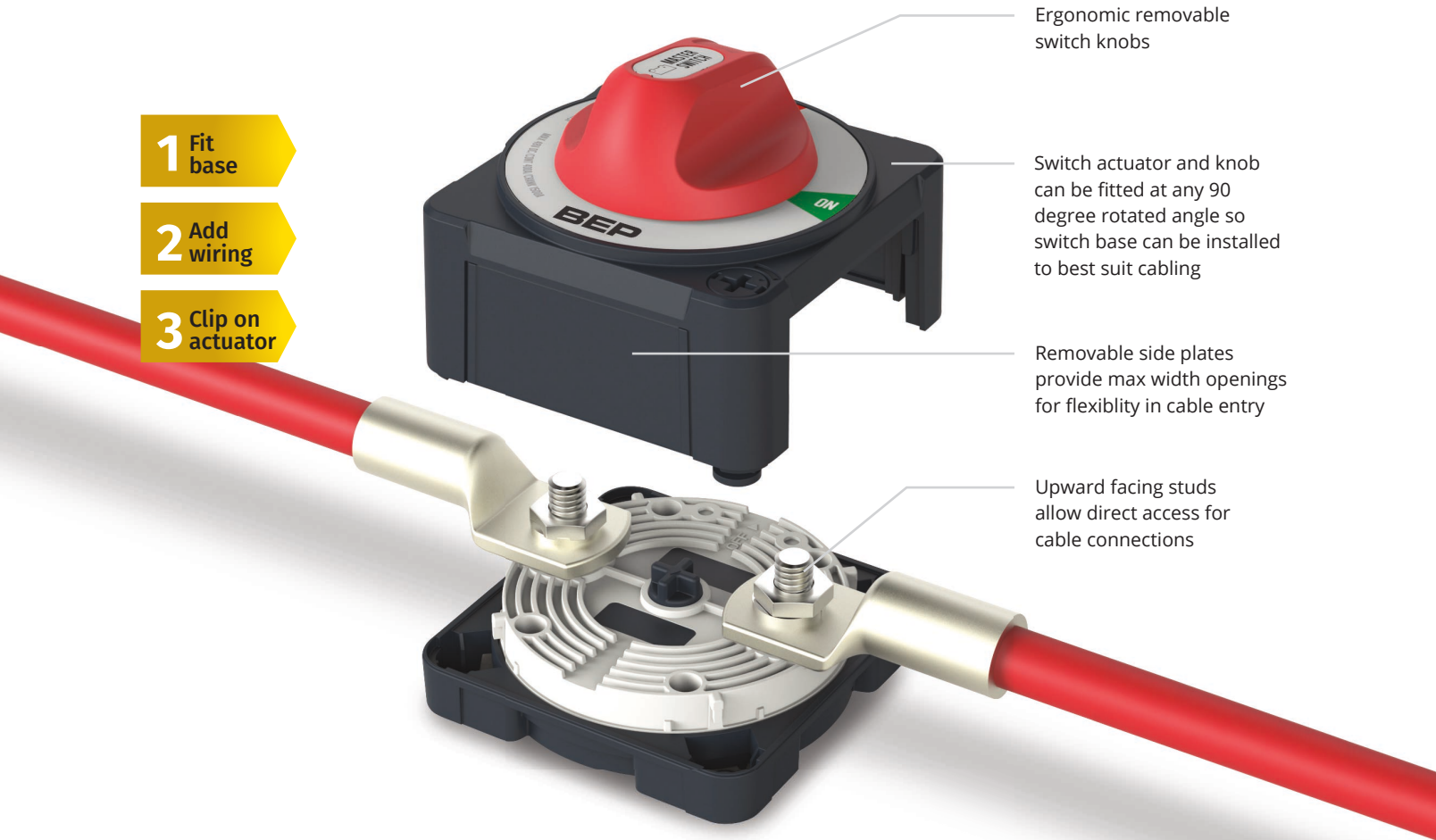


Rear Panel Mount

optional



## Check out our Award Winning Pro Installer EZ-Mount Switches



## Pro Installer EZ-Mount Switches

### Why Pro Installer EZ-Mount?

As easy as 1, 2, 3, these revolutionary, patented battery switches from BEP allow you to wire from the front. Simply remove the back, wire, and then clip the actuator and cover in place. Never has installation been so easy. These durable switches accept large cables or multiple lugs and feature intuitive, ergonomic switch positioning and clear graphics. The EZ-Mount switches have a compact, industry standard footprint, the ability to cluster with other Pro Installer products saving valuable onboard space, and are rated 400A continuous, 600A intermittent. Constructed for longevity in the marine environment, they meet rigorous global standards.



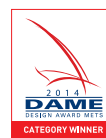
Surface Mount Only



Miami Boatshow



IBEX



Multi award winning including the prestigious METS DAME award.

Pro Installer Battery Switches

On/Off Battery Switches

For isolation of a single positive supply e.g. as a main House or Start battery switch

Double Pole On/Off Battery Switches

Used where positive and negative supplies must be isolated at the same time.

Selectors (771-S-EZ & 771-S) & Selector with Field Disconnect (771-SFD) Battery Switches

Power requirements on boats have increased, and these Selector switches offer high power capacity (400A continuous), the ability to easily fit doubled cables, and conform to the industry standard mounting footprint (Guest, Perko, Blue Sea Systems).

Please note selector switches will not separate electronics from harmful engine starting spikes.

Related Products

START  
Label Sets  
page 84



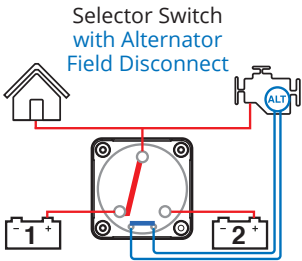
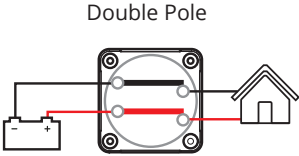
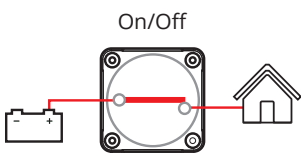
770-DP-EZ



771-S

|           | On/Off Switch                           |                        | Double Pole Switch |                        | Selector Switch                         |                        | Selector w/ Field Disconnect |
|-----------|---|------------------------|--------------------|------------------------|---|------------------------|------------------------------|
|           | EZ-Mount                                | Standard               | EZ-Mount           | Standard               | EZ-Mount                                | Standard               | Standard                     |
| Part #    | 770-EZ                                  | 770*                   | 770-DP-EZ          | 770-DP                 | 771-S-EZ                                | 771-S                  | 771-SFD                      |
| OEM #     | 770-EZ-B                                | 770-B                  | 770-DP-EZ-B        | 770-DP-B               | 771-S-EZ-B                              | 771-S-B                | —                            |
| Mounting  | Surface ONLY                            | Surface, Rear or Front | Surface ONLY       | Surface, Rear or Front | Surface ONLY                            | Surface, Rear or Front | Surface, Rear or Front       |
| Voltage   | 48V DC (for 12–48V systems)             |                        |                    |                        | 48V DC (for 12–48V systems)             |                        |                              |
| Rating‡   | 400A Cont / 600A Inter / 1500A Crank    |                        |                    |                        | 400A Cont / 600A Inter / 1500A Crank    |                        |                              |
| Dims      | 3.85" x 3.85" x 3.62" (98 x 98 x 92 mm) |                        |                    |                        | 3.85" x 3.85" x 3.62" (98 x 98 x 92 mm) |                        |                              |
| Operation | On/Off                                  |                        |                    |                        | 1-2-Both-Off                            |                        |                              |
| Stud      | 2x 10 mm (3/8")                         |                        | 4x 10 mm (3/8")    |                        | 3x 10 mm (3/8")                         |                        |                              |

\*Emergency Parallel option Part # 770-KEY-EP.  
‡120mm2 or 4/0 cable required to meet rating.



**SAFETY NOTE 770-DP & 770-DP-EZ:** These switches are not recommended for switching house and start battery systems at the same time, for safety reasons. You may need to isolate your engine battery in an emergency, but not your house battery which typically powers the communications. For this application please use the new Dual Bank Control Switch (772-DBC or 772-DBC-EZ) or one of our battery switch clusters.



## Dual Bank Control Battery Switches

These innovative (patented) switches combine the functions of 3 battery switches into one to intuitively manage 2 battery banks and 2 loads. A unique safety position isolates one load e.g. House "On", Start "Off" in case of engine malfunction, so an emergency radio call can still be made. Significant savings in both space and installation cost can be made, without compromising functionality or safety.



772-DBC-EZ

### Dual Bank Control Switch

| EZ-Mount     | Standard               |
|--------------|------------------------|
| 772-DBC-EZ   | 772-DBC                |
| 772-DBC-EZ-B | 772-DBC-B              |
| Surface ONLY | Surface, Rear or Front |

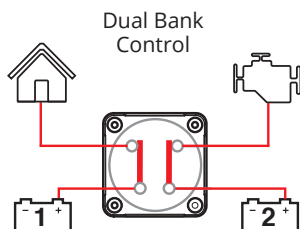
48V DC (for 12–48V systems, both banks must be same voltage)

400A Cont / 600A Inter / 1500A Crank

3.85" x 3.85" x 3.62" (98 x 98 x 92 mm)

1, 1/2, Parallel, Off

4x 10 mm (3/8")



## Battery Knob Options for 770 Series

- For applications where emergency parallel switch needs to be highlighted
- Order separately - replaces existing knob

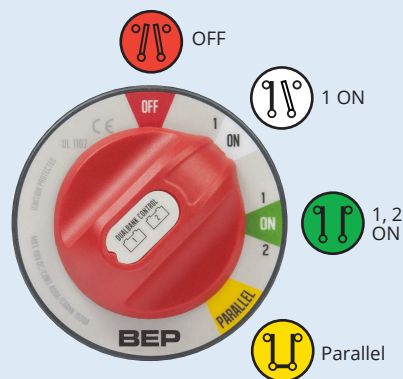
770-KEY-EP



## POWER TIP

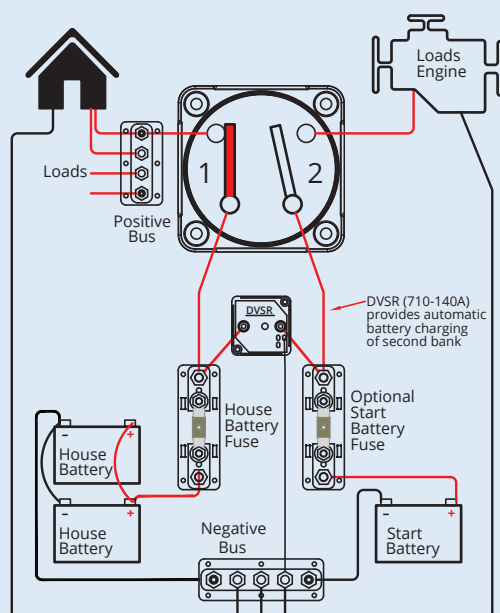
### Dual Bank Control—3 Battery Switches in 1

The Dual Bank Control Battery Switches are an ideal all-in-one solution for a boat or RV with one engine, and two battery banks. This switch combines functionality of 3 switches in 1—House, Start, and Emergency Parallel. The unique, patented safety "1 On" position provides isolation of the Start circuits while leaving the House circuits powered. This allows the user to make an emergency radio call following engine malfunction, or to safely service the engine while House circuits are operational. Intuitive switch operation with ergonomically shaped knob allow for easy operation. Unsurpassed cable access, switch studs placed to allow doubled, back-to-back cable lugs provide for tidy installations.



### System Example and the Isolated 1-ON Position

In the example below charging is automated by the Digital VSR, so normal control of the system is accomplished by simply turning the Dual Bank Control switch Off/On. Battery banks have been optimized to suit their respective loads, and the load groups are completely isolated during normal operation. The Isolated 1-ON and Emergency Parallel functions are available as additionally required by the user.



## Battery Switches



701



701S



700

### Contour Battery Master Switch

- Patented Contour Locking System allows switch to be a stand alone unit, or locked together with other switches.
- Control knob can be removed by switching to counter-clockwise 45° position
- Three removable side plates for access of up to 1/0 cables plus a rear cover insulating the rear terminals against any short circuits. This ensures the switch meets ABYC requirements
- 2.1" (52 mm) hole for mounting

### Battery Selector Switch

The 701S 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 ensuring that it meets ABYC requirements.

- While BEP recommends isolated battery systems as outlined with our distribution clusters, the 701S offers a simple economical way of separating two batteries

**Please note selector switches will not separate electronics from harmful engine starting spikes.**

### Easyfit™ Battery Switch

Created primarily for installations where switches need to be recessed through varying thicknesses of panels.

- Easily removable threaded ring allows for panel thicknesses up to 3/4" (19 mm)
- Same features as the 701 with the removable knob 45° past the off position
- Includes removable back cover ensuring that it meets ABYC requirements
- Surface mount option offers a unique style compared to other switches available on the market
- Can easily be retro-fitted in place of most European post and lever type switches



720



721

### Heavy-Duty Battery Switch

The 720 is well suited to larger vessels, being capable of handling the high electrical loads found on today's boats and RV's plus starting large diesel engines.

- Rated at 600A continuous and 2500A cranking
- Can be rear panel, or surface mounted
- Uses the same proven style of self cleaning sliding copper contact used inside the 701
- Can be locked with padlock for safely isolating circuits

### Heavy-Duty Battery Selector Switch

The 721 is our heavy-duty selector switch. Housed in the same module as the 720, it includes the same removable plates and back cover.

**Please note selector switches will not separate electronics from harmful engine starting spikes.**

## POWER TIP

### BEP Battery Switch Construction

All BEP battery switches are molded in a high strength, fiber reinforced plastic which provides excellent high temperature performance, and the greatest resistance to chemicals that damage other plastic types.

### Related Products



Label Sets  
page 84

Interchangeable labeling system available  
(Part # 713 or 715)

**Specifications** - All recessed or surface mount, tin-plated copper studs & nuts, ignition-protected

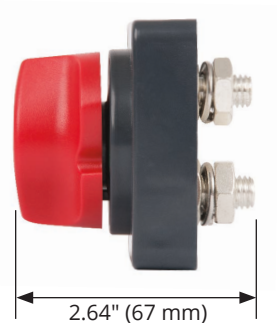
| Part # | OEM #  | LxWxH in           | LxWxH mm          | Cont. | Inter.<br>(5 min) | Crank.<br>(10 sec) | Voltage | Operation    | Studs          | Cable to meet rating<br>(AWG/mm <sup>2</sup> ) |
|--------|--------|--------------------|-------------------|-------|-------------------|--------------------|---------|--------------|----------------|--|
| 700    | 700B   | 2.7" x 2.7" x 4.3" | 68 x 68 x 110 mm  | 275A  | 455A              | 1250A              | 48V DC  | On/Off       | 2x 3/8" (10mm) | 3/0 / 95mm <sup>2</sup>                        |
| 701    | 701B   | 2.75" x 2.75" x 3" | 69 x 69 x 75 mm   | 275A  | 455A              | 1250A              | 48V DC  | On/Off       | 2x 3/8" (10mm) | 3/0 / 95mm <sup>2</sup>                        |
| 701S   | 701S-B | 2.75" x 2.75" x 3" | 69 x 69 x 75 mm   | 200A  | 300A              | 1000A              | 48V DC  | 1-2-Both-Off | 3x 5/16" (8mm) | 1/0 / 50mm <sup>2</sup>                        |
| 720    | 720B   | 4" x 4" x 3.5"     | 102 x 102 x 90 mm | 600A  | 800A              | 2500A              | 48V DC  | On/Off       | 2x 1/2" (12mm) | 2x 3/0 / 2x 95mm <sup>2</sup>                  |
| 721    | 721B   | 4" x 4" x 3.5"     | 102 x 102 x 90 mm | 600A  | 800A              | 2500A              | 48V DC  | 1-2-Both-Off | 2x 1/2" (12mm) | 2x 2/0 / 2x 95mm <sup>2</sup>                  |

## Panel Mounted Battery Switches

### Panel Mounted Switches

Designed specifically for panel mount applications. This range gives a very compact, versatile solution.

- Compact, lightweight
- Removable knob on 701-PM
- Countersunk recesses for surface mount application
- Standard 2-1/16" (52 mm) hole cut out (same as standard gauge hole)
- Inside: captive inserts for 3/16" (4.8 mm) nuts; full access for cables - no restrictions
- Standard interchange label system (page 84)
- 701-PM provides On/Off operation for one battery bank
- 701S-PM offers Selector functionality (1/2/1&2) to select between two battery banks



### Mounting Plates

Single recessed. Supplied with all the mounting hardware and come in a matching grey finish.

| For | Part # | LxW           | LxW        |
|-----|--------|---------------|------------|
| 701 | BSP-1  | 3.75" x 3.75" | 95 x 95 mm |

### Specifications

| Part #  | OEM #     | LxWxH in           | LxWxH mm        | Cont. | Inter.<br>(5 min) | Crank.<br>(10 sec) | Voltage | Operation    | Stud size<br>Studs x (in/mm) | Cable to meet<br>rating (AWG/mm <sup>2</sup> ) |
|---------|-----------|--------------------|-----------------|-------|-------------------|--------------------|---------|--------------|------------------------------|--|
| 701-PM  | 701B-PM   | 2.75" x 2.75" x 3" | 69 x 69 x 67 mm | 275A  | 455A              | 1250A              | 48V DC  | On/Off       | 2x 3/8" / 10mm               | 3/0 / 95mm <sup>2</sup>                        |
| 701S-PM | 701S-B-PM | 2.75" x 2.75" x 3" | 69 x 69 x 67 mm | 200A  | 300A              | 1000A              | 48V DC  | 1-2-Both-Off | 3x 5/16" / 8mm               | 1/0 / 50mm <sup>2</sup>                        |

### Related Products



Label Sets  
page 84

### Battery Knob Options for 701 Series

- For applications where emergency parallel switch needs to be highlighted
- Order separately - replaces existing knob

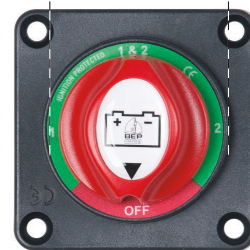
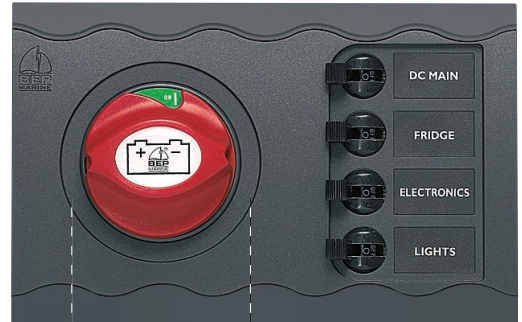


701-KEY-EP

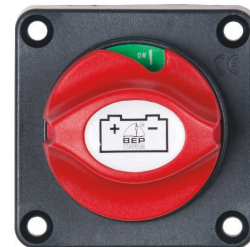
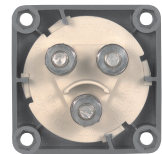


701-KEY

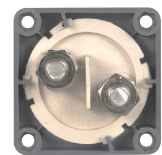
As shown in Contour Connect panels



701S-PM



701-PM





Remote Operated Battery Switches

The motor driven range of battery switches allow you to install the battery switch very close to the battery, allowing remote operation to manage the increased electrical loads found on today's boats. This reduces cable lengths and sizes, providing significant savings in expense and weight of copper battery cable. They are ideal for remote isolation of bow and stern thrusters. The 720-MDO has been enhanced to offer easy standard installation, or advanced options capable of switching different voltage circuits from the main supply.

- Motor driven by remote operation
- Battery switch can be mounted alongside battery, reducing cable lengths and cable sizes (large cost and weight saving in copper cables)
- Reduced installation labor, due to shorter battery cable runs
- Manual override option to meet CE/ABYC requirements
- Power draw with switch off for 701-MD @ 15mA and 701-MDCZ @ 12mA
- LED status identification for remote control switch
- Can be either surface, or rear panel mounted
- Uses interchangeable labelling system (Part # 713 or 715 on page 84)

Optical sensor benefits (720-MDO only)

- Same easy connection for standard installation
- Ability to control different voltage circuits
- Can be used to switch positive or negative lines
- Main contacts can be isolated from control circuit allowing operation via another battery source
- Low stand by current draw (<5mA)



701-MD &  
701-MDCZ

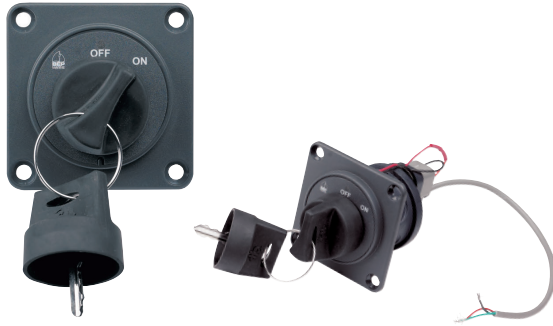


720-MDO

Specifications - All recessed or surface mount, tin-plated copper studs & nuts, ignition-protected UL1107

| Part #   | LxWxH in  | LxWxH mm           | Cont. | Inter.<br>(5 min) | Crank.<br>(10 min) | Voltage    | Function | Studs           | Cable to meet rating |
|----------|---|--------------------|-------|-------------------|--------------------|------------|----------|-----------------|----------------------|
| 701-MD   | 2.7" x 2.7" x 4"                                    | 69 x 69 x 101 mm   | 275A  | 455A              | 1250A              | 9.5-32V DC | On/Off   | 2x 3/8" (10 mm) | 3/0 AWG (95mm²)      |
| 701-MD-D | (Deutsch Plug) Same dimensions and ratings as above |                    |       |                   |                    |            |          |                 |                      |
| 720-MDO  | 4" x 4" x 4.33"                                     | 102 x 102 x 110 mm | 500A  | 700A              | 2500A              | 9.5-32V DC | On/Off   | 2x 1/2" (12 mm) | 3/0 AWG (95mm²)      |



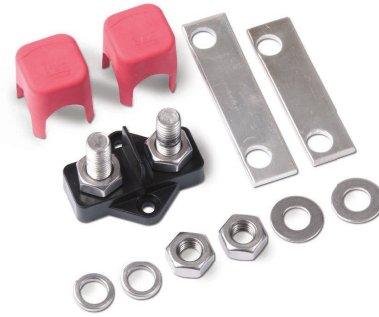


### Remote On/Off Key Switch

For the remote operation of the 701-MD and 720-MDO battery switches (page 18).

Can be mounted standalone or within the Contour Connect panel range.

Part # 80-724-0006-00



### Terminal Link Kits (TLK's)

Now 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.

Part # 80-708-0017-00 701-MD

Part # 80-708-0013-00 720-MDO



### Wireless Remote Control

You can now wirelessly operate your BEP motorized battery switches from a distance of up to 250 ft (80 m) away.

- Control up to four separate 5A circuits; eg, 701-MD/720-MDO battery switches, anchor light, navigation lights, and courtesy lights
- No more lifting hatches to turn on battery switches — it's now all controlled from the remote key fob
- Control battery switches easily (On/Off) from the dock
- Remote has a rolling code, for security
- Requires 12V supply for operation, relay channels are fully isolated and are rated 0-32V, 5A
- Activation of the four circuits may be either latching (all four the same), or momentary

Part # 80-911-0045-00



701-KEY-EP



701-KEY

### Battery Knob Options for 701 Series

For applications where emergency parallel switch needs to be highlighted.

Order separately - replaces existing knob.

## Dual Operation VSS (Voltage Sensitive Switch) and Emergency Parallel

These Voltage Sensitive Switches automatically sense connected battery bank voltages and provide optimal, efficient charging of the second bank. The VSS allows for independent battery banks to be combined or isolated based on the presence of a charging source (such as an engine alternator or battery charger), while also offering remotely activated, high current, emergency parallel connection. Designed and constructed for longevity in the marine environment with tinned copper conductors, stainless steel nuts, and high temperature, fiber reinforced plastics. The units are ignition protected, provide On/Off switching operation, and may be recessed or surface mounted.

- Dual battery sensing
- Remote emergency parallel function: can be operated through a momentary button on the dash which will parallel the batteries for 10 minutes. Once this 10 minutes has passed, if the voltage is up high enough, the voltage sensitive switch will stay engaged. If not, it will disengage. If not, it will disengage.
- Manual override option

### 720-MDVSO benefits

- Dual 12V/24V operation (both banks must be same voltage)
- Low power consumption (<6mA)
- Lowered cut in voltage (13.3V/26.6V) suits low output alternators and high temperature environments

### 80-701-0018-00, and 720-MDO-EP: Emergency Parallel Only

- 10 minute remotely activated emergency parallel function (no voltage sensitive function)
- 12V/24V operation (both banks must be same voltage)

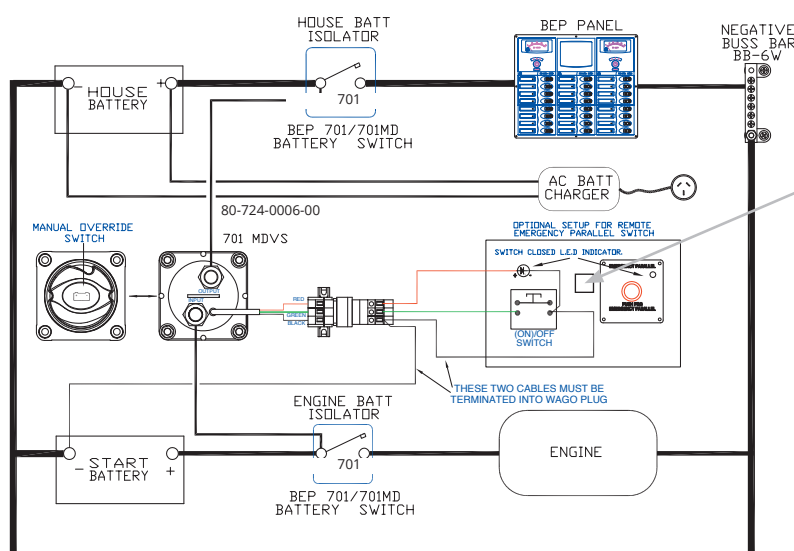


80-701-0018-00



720-MDO-EP

| Part #         | LxWxH in         | LxWxH mm           | Voltage | Rating | Engages                 | Disengages     | Cable to meet rating           |
|----------------|------------------|--------------------|---------|--------|-------------------------|----------------|--------------------------------|
| 701-MDVS       | 2.7" x 2.7" x 4" | 69 x 69 x 101 mm   | 12V     | 275A   | 13.7V DC                | 12.2-13.00V DC | 3/0AWG (95mm <sup>2</sup> )    |
| 720-MDVSO      | 4" x 4" x 4.3"   | 102 x 102 x 110 mm | 12/24V  | 500A   | 13.3/26.6V DC           | 12.7/25.4V DC  | 2x 3/0AWG (95mm <sup>2</sup> ) |
| 701-MDVS-24V   | 2.7" x 2.7" x 4" | 69 x 69 x 101 mm   | 24V     | 275A   | 27.4V DC                | 24.4-26.00V DC | 3/0AWG (95mm <sup>2</sup> )    |
| 80-701-0018-00 | 2.7" x 2.7" x 4" | 69 x 69 x 101 mm   | 12/24V  | 275A   | Emergency Parallel Only |                | 3/0AWG (95mm <sup>2</sup> )    |
| 720-MDO-EP     | 4" x 4" x 4.3"   | 102 x 102 x 110 mm | 12/24V  | 500A   | Emergency Parallel Only |                | 2x 3/0AWG (95mm <sup>2</sup> ) |



### Remote Emergency Parallel Switch

Used for convenient remote activation of the 10 minute emergency parallel function on these motorized Voltage Sensitive and Emergency Parallel switches. It can be mounted standalone or within the Contour Connect panel range.

Part # 80-724-0007-00



## DVSR: Dual Battery Charging Made Easy

The Digital Voltage Sensing Relay (DVSR) provides a highly efficient but inexpensive solution for automatic charging of a second battery bank. It ensures correct charging while removing the risk of flat start batteries. When the voltage on the first bank rises sufficiently, the DVSR engages allowing the second battery bank to charge. When charging stops and voltage falls, the DVSR automatically isolates the battery banks, ensuring that engine start batteries are kept fully charged. Digital circuitry provides superior reliability and extremely low power consumption.

- Safely charge two or more independent battery banks from one charge source (alternator, battery charger...)
- Charges engine starting batteries before combining auxiliary bank for charging
- Protects start batteries from becoming flattened by domestic loads
- Isolates electronics from harmful electrical surges from starter motors
- Simple to install 3-wire connection, leaves alternator wiring intact
- No volt drop vs. diode isolators
- Ignition protected
- Surface or panel mountable

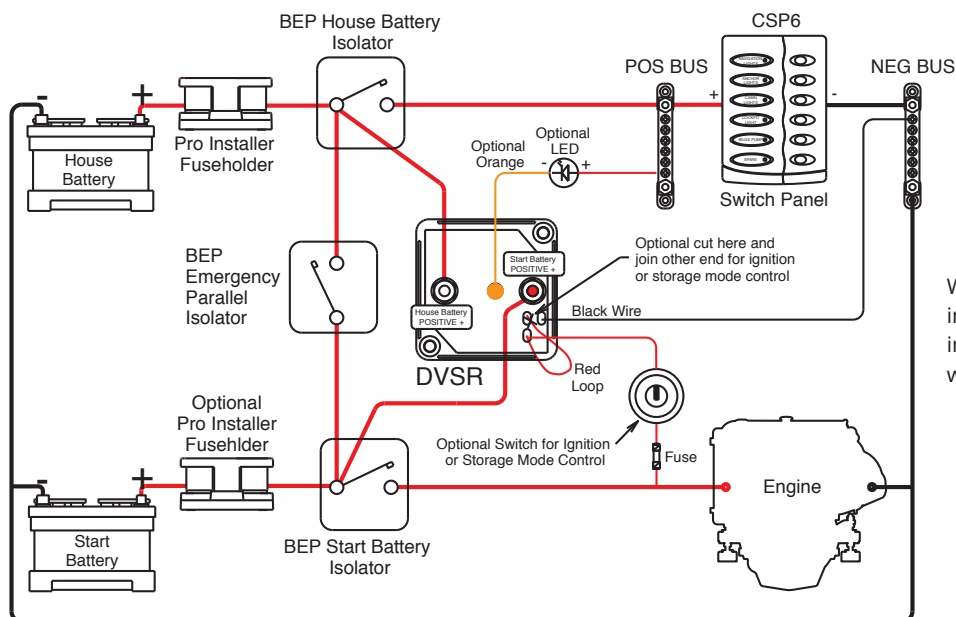
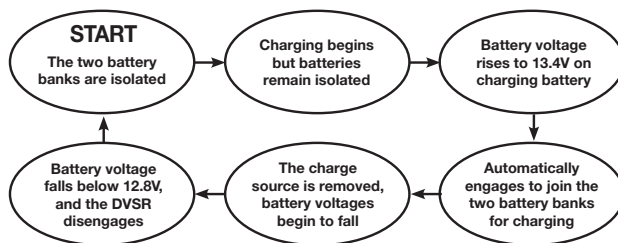
### Digital Technology Provides:

- Multi voltage, auto selects between 12V and 24V DC operation
- Digital circuits provide very low power consumption (<2mA in standby, up to 8x more efficient than analog models) and enhanced performance
- Remote sensing circuitry allows optional connection from ignition switch, provides same functionality as single sense VSR and zero power consumption when engine is off
- Zero stand by current draw when remote sensing circuit utilized with storage mode switch fitted (switch in open position)
- Remote status LED output option



| Part #   | OEM #      | LxWxH in           | LxWxH mm        | Voltage | Continuous | Engages       | Disengages    | Cable to meet rating     |
|----------|------------|--------------------|-----------------|---------|------------|---------------|---------------|--------------------------|
| 710-140A | 710-140A-B | 2.75" x 2.75" x 2" | 69 x 69 x 50 mm | 12/24V  | 140A       | 13.4/26.8V DC | 12.8/25.6V DC | 8AWG (8mm <sup>2</sup> ) |

### DVSR Operation (shown for 12V system)



Wiring diagrams indicative of installation only, for full instructions see the BEP website: [bepmarine.com](http://bepmarine.com)

## Battery Distribution Clusters

With the successful release of the BEP battery distribution system, BEP saw the need for ready assembled clusters for different applications to make the installation within the battery area even easier. Following is the range as outlined in each diagram, which are overviews only.

All clusters are completely bused and pre-wired internally for easy installation. These include all connecting points clearly marked with ABC labels as shown in all illustrations.



See page 27  
for panel versions

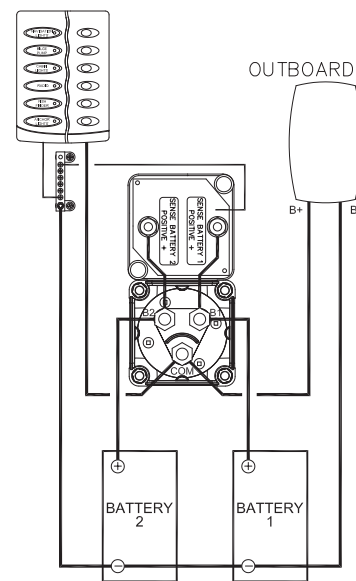
### Single Engine, Two Battery Banks

The 714-140A-DVSR uses a dual sensing DVSR (710-140A). This system ensures you will always have a fully charged reserve battery. When the switch is in position one, it becomes the sensing battery for the DVSR. Battery two, which is in isolation, will be charged via the DVSR when the engine is running, ensuring it is always fully charged. When the switch is in battery two position, this becomes the sensing battery and battery one is charged via the VSR. The fact that there is always a fully charged battery in reserve is a huge safety factor.

**Please note: With the 714-140A-DVSR the electronic loads are run off the same battery as the engine starting battery.**

Part # 714-140A-DVSR  
OEM # 714-140A-DVSR-B

See table on page 24 for specifications



### Single Engine, Two Dedicated Battery Banks

Available as horizontal or vertical units.

To be used in the following systems:

- 1) Single outboard dual battery bank
- 2) Single alternator dual battery bank
- 3) Twin alternator dual battery bank

Part # 715-H horizontal  
Part # 715-V vertical

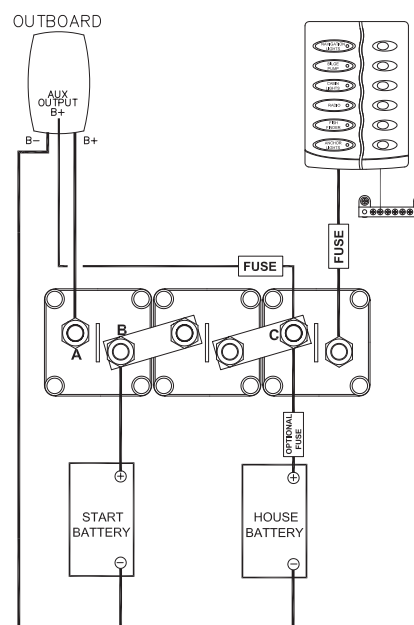
See table on page 24 for specifications



715-V



715-H



See page 27  
for panel versions

## Single Engine, Two Battery Banks

An ideal replacement for a Battery Selector Switch. Just remove selector switch and connect existing wires to a 716 cluster, no extra wires are required for a fully automatic battery management system.

No more flat start batteries.

The 716 cluster is for use on charging systems up to 150A.

To be used in the following systems:

1. Single outboard dual battery bank.
2. Single alternator inboard engine dual battery bank.

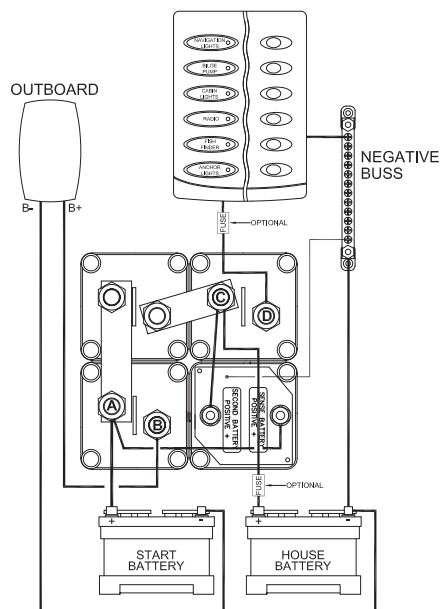
The 716 cluster replaces battery isolator systems.

For DVSR operation, see page 20.

Part # 716-H-140A-DVSR horizontal

Part # 716-V-140A-DVSR vertical

Part # 716-SQ-140A-DVSR square



716-SQ-140A-DVSR



716-H-140A-DVSR



See page 27  
for panel versions



## Twin Engine, Two Banks

The 715-S allows the house loads to be switched between port and starboard batteries. The selector switch can also be used to parallel the batteries when in both positions.

See table on following page for specifications.

Part # 715-S



## Twin Engine, Three Banks

The 718-140A-DVSR is designed for twin inboard systems when it is not practical to have both engine alternators in parallel because of the types of regulators used on these alternators. The house battery is charged from the port engine when the DVSR is engaged. For DVSR operation read, see page 21.

See table on following page for specifications.

Part # 718-140A-DVSR



Twin Engine, Three Banks

This system is designed for twin engine installations. It will allow the port engine to charge the port start battery and the house battery when the DVSR is engaged. It will also allow the starboard engine to charge the starboard start battery and the house battery when the starboard DVSR is engaged, giving a combined charge from two engines 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.

See table below for specifications.

Part # 717-140A-DVSR



Triple Engine, Four Banks

This system is designed for triple engine installations. Once again using multiple DVSRs off each start battery giving combined charge from all three engines into the house battery via DVSRs.

See table below for specifications.

Part # 719-140A-DVSR



See page 27  
for panel versions

Dimension guide

Clusters are made from uniformly square switches, each side 2.7" (69 mm)



Specifications

| Engine Type                | Battery (banks) | DVSR | Orientation | Part #           | LxWxH in            | LxWxH mm         |
|----------------------------|-----------------|------|-------------|------------------|---------------------|------------------|
| Single inboard or outboard | 2               | yes  | vertical    | 714-140A-DVSR    | 5.4" x 2.75" x 3"   | 138 x 69 x 75mm  |
|                            |                 | yes  | horizontal  | 716-H-140A-DVSR  | 10.85" x 2.75" x 3" | 276 x 69 x 75mm  |
|                            |                 | yes  | vertical    | 716-V-140A-DVSR  | 10.9" x 2.7" x 3"   | 276 x 69 x 75mm  |
|                            |                 | yes  | square      | 716-SQ-140A-DVSR | 5.4" x 5.4" x 3"    | 138 x 138 x 75mm |
|                            |                 | no   | horizontal  | 715-H            | 8.1" x 2.75" x 3"   | 207 x 69 x 75mm  |
|                            |                 | no   | vertical    | 715-V            | 2.75" x 8.1" x 3"   | 69 x 207 x 75mm  |
| Twin inboard or outboard   | 2               | no   | horizontal  | 715-S            | 8.1" x 2.75" x 3"   | 210 x 69 x 75mm  |
| Twin inboard               | 3               | yes  | horizontal  | 718-140A-DVSR    | 8.1" x 5.4" x 3"    | 207 x 138 x 75mm |
| Twin outboard              | 3               | yes  | horizontal  | 717-140A-DVSR    | 5.4" x 8.1" x 3"    | 138 x 207 x 75mm |
| Triple outboard            | 4               | yes  | square      | 719-140A-DVSR    | 8.1" x 8.1" x 3"    | 207 x 207 x 75mm |

DVSR Charging Current: 125A continuous Battery Switch Rating: 275A continuous

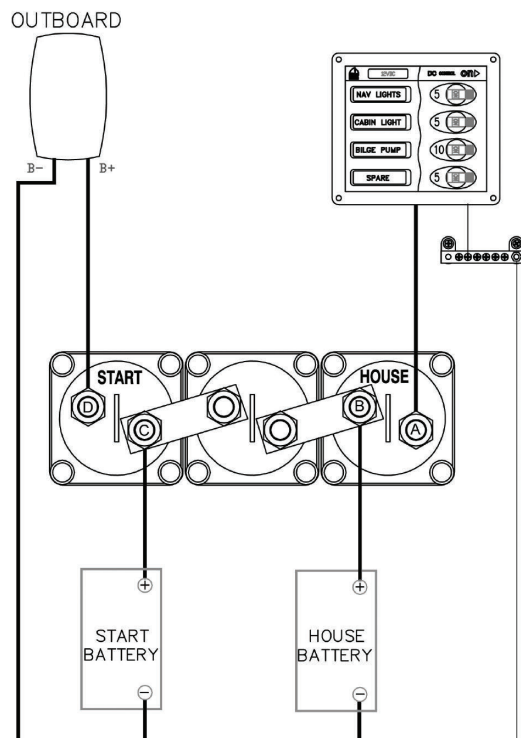




### Single Engine, Two Battery Banks with Motorized VSR

Offers the same features as the 716-SQ-140A-DVSR (page 23), with two important differences. The VSR and Emergency Parallel switches are combined into one voltage-sensitive switch, and that switch is able to be remote-operated. For features of the motorized VSR, see page 21. The layout allows all cables to be attached from the bottom of the cluster.

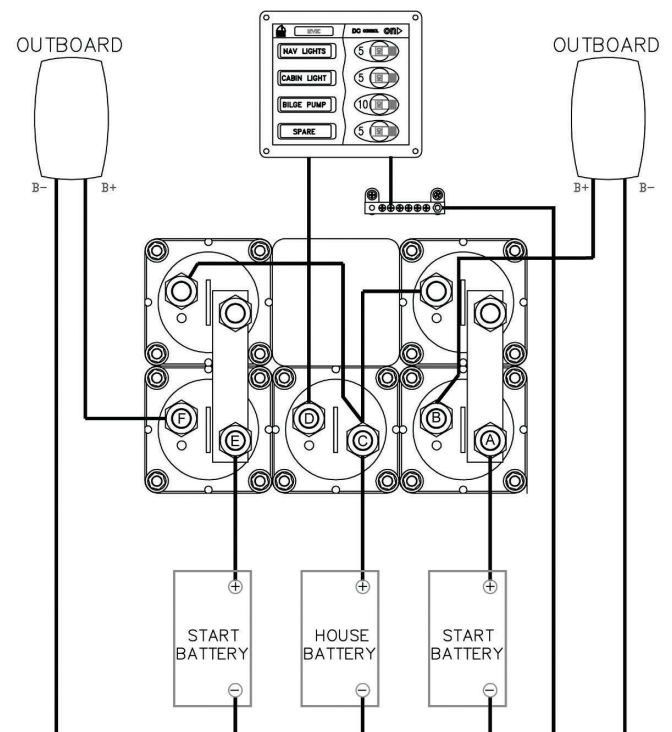
Part # 80-716-0017-00



### Twin Engine, Three Banks with Motorized VSR

Offers the same features as the 717-140A-DVSR (page 24). The VSR and Emergency Parallel switches are combined into one voltage-sensitive switch, and that switch is able to be remote-operated. For features of the motorized VSR, see page 21. The layout allows all cables to be attached from the bottom of the cluster.

Part # 80-716-0018-00



See page 27  
for panel versions

## Remote Battery Management Clusters

- Complete system including all cable links (Battery Control Center ordered separately—see below)
- Offers all features of motorized battery switches and Motorized VSRs in one kit. Makes ordering easy!
- Clusters are surface mount, and can be rearranged to meet specific needs, such as port and starboard configurations and can be combined with other battery distribution products
- Available in single, dual and triple engine configurations

### Single Engine



80-716-0014-00

### Dual Engine



80-716-0015-00

### Triple Engine



80-716-0016-00

## Battery Control Center

**Sophisticated electrical systems need reliable automation. That's key. Centralize power handling with the BEP Battery Control Center.**

Cluster or Contour Connect mounted, delivers hard-handling, good-looking power management where it's needed. The Battery Control Center (BCC) is equipped with locks on each battery switch position. This ensures group operation at the turn of the key. Any switch can be isolated by disengaging its lock and toggling the switch off.

| Description          | Part #         |
|----------------------|----------------|
| Single engine remote | 80-700-0050-00 |
| Twin engine remote   | 80-700-0051-00 |
| Triple engine remote | 80-700-0052-00 |



80-700-0051-00



## Battery Distribution Panels

Fast fit, flush mounting battery distribution panels

1. Use template to mark rectangular hole in fascia
2. Cut hole
3. Fit panel and screw into place
4. Add trim pieces
5. Connect cables



### Single Engine, Two Battery Banks

This panel incorporates a version of our very successful 714-140A-DVSR cluster (page 22).

Supplied pre-wired with back cover and CC-J joiner to allow it to be combined with other modules.

Supplied standard in charcoal with grey wave strip. Other trim colors are available for volume OEM orders.

Part # CC-801

## Dimensions for Contour Connect Panels

| Part #  | LxWxH (Module)     | Cut-out       | LxWxH (Module)    | Cut-out      |
|---------|--------------------|---------------|-------------------|--------------|
| CC-801  | 6.5" x 4.2" x 2.2" | 5.75" x 3.4"  | 166 x 106 x 55 mm | 146 x 86 mm  |
| CC-810  | 9.2" x 4.2" x 2.2" | 8.5" x 3.4"   | 233 x 106 x 55 mm | 213 x 86 mm  |
| CC-802  | 6.5" x 8.3" x 2.2" | 5.75" x 7.5"* | 166 x 212 x 55 mm | 88 x 148 mm* |
| CC-803N | 9.2" x 8.3" x 2.2" | 8.5" x 3.4"*  | 223 x 212 x 55 mm | 213 x 86 mm* |

\*Single hole only.



### Single Engine, Two Battery Banks

The CC-810 is supplied standard with 3 x 701-PM battery switches pre-assembled.

Ideal for installing alongside any other Contour Connect Modules.

Part # CC-810



### Single Engine, Two Battery Banks

The CC-802 incorporates a version of our very successful single engine battery switch cluster (page 23).

The CC-802 is supplied loosely assembled with links and joiners to allow it to be assembled in either the vertical or horizontal orientation as shown in illustrations.

Full wiring instructions are supplied to allow pre assembly for both orientations.

Part # CC-802



### Twin Engine, Three Battery Banks

The CC-803N incorporates a version of our very successful dual engine battery switch cluster (page 24).

The CC-803N is supplied with cables to allow for horizontal or vertical configurations.

The components can also be easily removed and reconfigured if the factory layout does not suit your application.

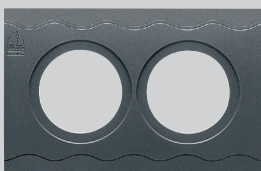
Part # CC-803N



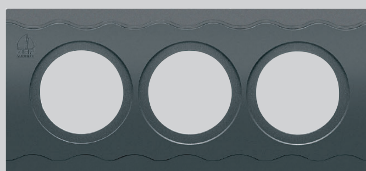


The below panels are designed for applications where the OEM or panel builder wishes to construct a custom system. They're supplied as empty panels with all necessary mounting hardware, including one CC-joiner.

CC-1



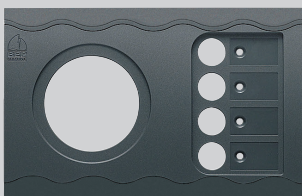
CC-5



### CC-1 & CC-5 Modules

**Will house the following components:**

- 701-PM Panel mount battery on/off (page 17).
- 701S-PM Panel mount battery selector switch (page 17).
- 185 Series Heavy-duty circuit breakers (page 49). (CC-HDBM must be ordered with 185 series circuit breakers, one per breaker).
- 710-140A Voltage Sensitive Relay (see page 21).



### CC-2 Module

**Will house the following components:**

- CLB series (push reset) Carling circuit breakers (page 50).
- Toggle Magnetic Hydraulic Carling circuit breakers (page 51).



CC-HDBM

### BEP CB Panel Mount

The CC-HDBM module must be ordered separately if ordering BEP 184 & 185 series circuit breakers. Mounting hardware for CB and panel attachment is supplied with module.

### 5-way CB Panel

- 1x Heavy-Duty CB, 1x Toggle, 3x Push Reset
- Equipped to cover essential circuits requirements (bilge, pumps etc)
- 50A CB for DC mains or treatment systems
- 135A 185 Series CB for anchor windlass
- Compliments the other modules for either single or dual engine installations
- 3 x 10A push to reset thermal breakers
- Custom configurations can be supplied to order*

Part # CC-804



### Blanking Plate

The CC-BLANK will cover an unused hole in CC-1 and CC-2. Attached from the rear of the panel, it allows for expanding with other options at a later date.

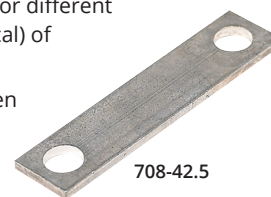
Part # CC-BLANK



### Solid Links

708-42.5 Solid terminal links supplied pre-connected with spare links for different orientations (horizontal or vertical) of Contour Connect panels.

Must be ordered separately when ordering CC Kitset panels.



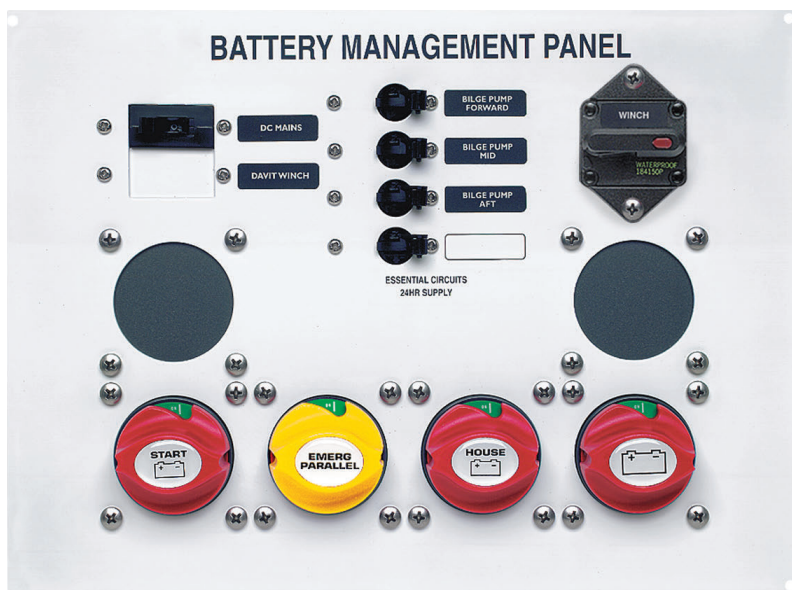
708-42.5

| Part #     | Application  |
|------------|--|
| 708-42.5   | For horizontal linking of battery switches in the same panel                 |
| 708-70.0   | For horizontal linking of battery switches studs between two separate panels |
| 708-107-V3 | For vertical linking of battery switches between panels                      |



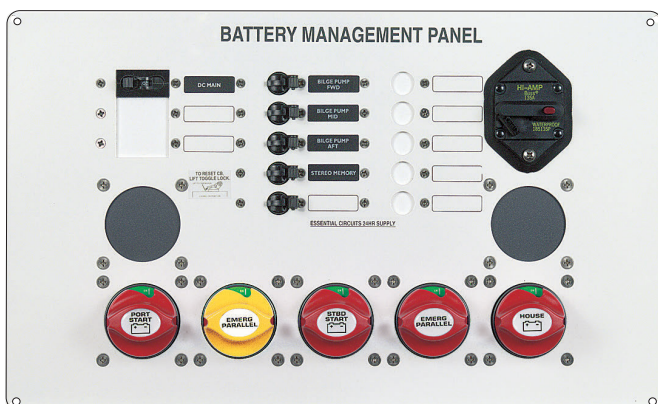
## Battery Management Panels

- Essential circuits, 24-hour supply
- Mains breakers for control panels, davit winches, or treatment systems
- Panels are supplied with a BEP 703-300A/B heavy-duty negative bus, to accommodate all the negative connections at the battery (Please note: 800-MS4\* is supplied with 702B negative stud)
- Heavy-duty breakers for anchor winches
- Powder coated aluminum panel
- Supplied with a full label set for panel circuit breakers—Part # SET-MSP; additional label sets available (page 83)
- Spare positions for additional battery switches and circuit breakers for extras such as radio batteries and genset batteries
- NOTE: Custom panels made on request



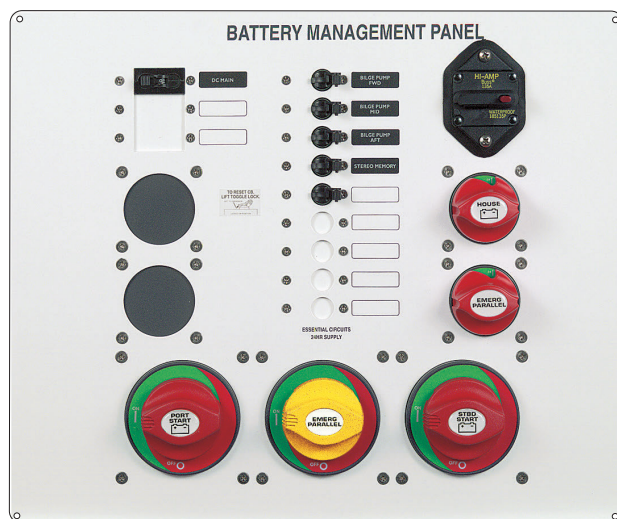
800-MS1

The 800-MS1 panel is designed for power or sail boats between 32.9–39.5 ft (10–12m) with single engines. 10.25" x 13.8" x 2.9" (260 x 351 x 75 mm)



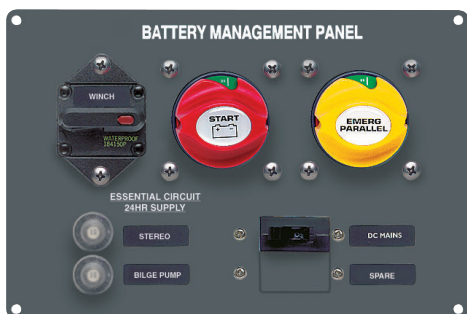
800-MS2

The 800-MS2 panel is designed for power boats between 32.9–39.5 ft (10–12m) with twin engines. 11.1" x 18.25" x 2.9" (281 x 463 x 75 mm)



800-MS3

The 800-MS3 panel is designed for power boats between 39.5 – 52.5 ft (12–16m) with larger diesels. 15" x 18.25" x 3.75" (380 x 463 x 95 mm)



800-MS4

The 800-MS4\* panel is designed for sail boats up to 46 ft (14m) and power boats up to 32.9 ft (10m) with single engine. 6.3" x 9.4" x 2.9" (160 x 239 x 75 mm)

Enquire about our custom battery management panels!

\*Special Order Only

## Auxiliary Parts (ordered separately)

- Part # 701** Battery switches to fit panel cutouts  
**Part # 713** Battery switch label sheet

## Circuit Breakers

For treatment systems, davit winches and sub-mains.

- Part # CBL-50A-SP** 50A  
**Part # CBL-75A-SP** 75A  
**Part # CBL-100A-SP** 100AW



# CONNECTORS & INSULATORS

## Pro Installer Bus Bars



34

Pro Installer Busbars are the ultimate solution for compact termination of small cables.

## Pro Installer Fuse Holders



35

Pro Installer fuse holders offer flexibility to cover fusing requirements from 30-750 amps.

## Pro Installer Insulated Studs



36

Pro Installer Insulated Studs are available in single and twin stud versions.

## Pro Installer Link Bars



38

The Pro Installer range features modular products which can be linked together in order to provide space saving, fast installation clusters. These tinned copper link bars provide the means to join battery switches, bus bars, fuse holders and insulated studs.





# CONNECTORS & INSULATORS

## Insulated Studs



40

An economical range of connection studs for smaller electrical loads.

## Bus Bars



41

Bus bar range for smaller connections and loads under 150A.

## Distribution Studs



42

For connections where a robust, mechanically fastened cover is required for protection.

## Circuit Breakers



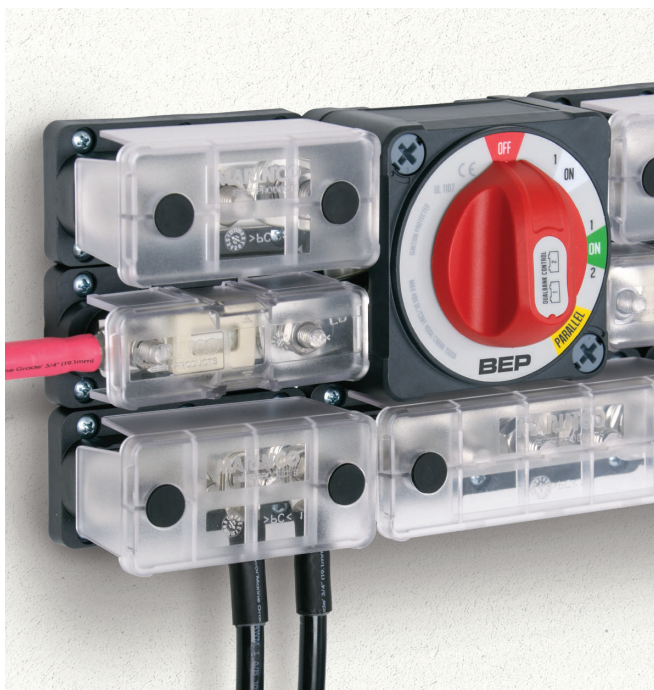
43

Convenient surface mounting circuit breaker modules for main, secondary, or 24-hour circuit protection.



Australia's Riviera Boats specifies BEP products aboard their line of yachts, including the Riviera 545 SUV.





## Pro Installer Series

Onboard power demands continue to increase as boaters request the comforts of home on their boats. BEP looked at the common products used by electrical installers every day and made significant improvements to their design and construction. The result is a robust product line with greater capacity and extended product life.

The valuable space saved onboard gives builders or installers greater flexibility when designing power systems. Since Pro Installer modular assemblies are designed for fast, flexible installation in tight spaces, it's easy to "cluster" products and reduce their mounting footprint. The common interconnection height enables solid link bars to connect multiple Pro Installer products — a smart design feature for watercraft. Like all BEP products, you can be assured of durable construction engineered specifically to handle the challenging marine environment. High-temperature, fiber-reinforced base material provides strength and chemical resistance.

All Pro Installer products include a common interconnection height, label recess on the cover, ability to "cluster" and a compact footprint. All studs, washers and nuts are made of stainless steel.

**See page 14 for Pro Installer Battery Switches to complete your cluster.**

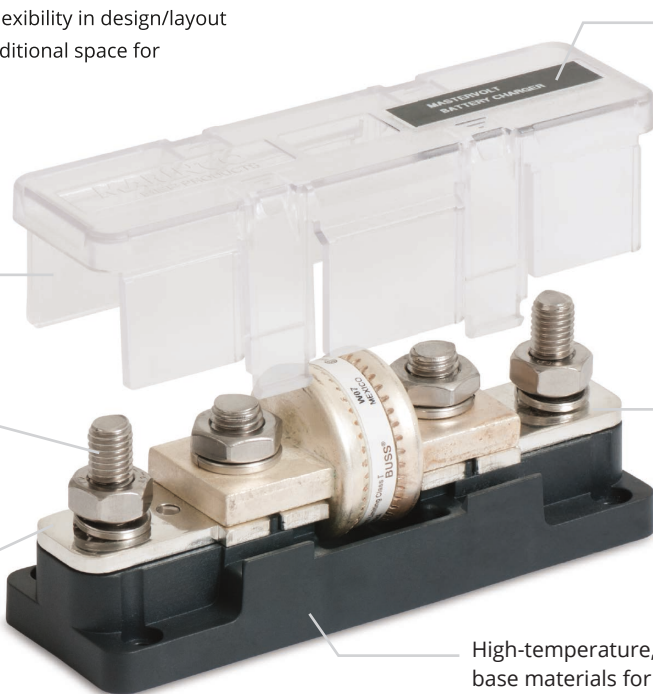
### Features and Benefits:

- Common interconnection height makes it easy to 'cluster' products
- Modular assemblies offer unrivalled flexibility in design/layout
- Reduced individual footprints save additional space for the most compact installations
- Robust construction for the harshest of marine environments

Covers feature snap-out side skirts for additional cable entry as required

Stainless steel studs, washers and nuts

Radiused bar ends and generous stud lengths improve cable routing options for large cables



Innovative clear covers insulate/protect on three sides, and include recesses for convenient labeling\*

Use any label maker with 1/2" stock to create your label



Tin-plated copper conductors

High-temperature, fiber reinforced base materials for strength and chemical resistance

\*Does not come with label fitted



### Typical Cluster example



### Product Footprints

| .5x | 1x | 1.5x | 2.5x |
|-----|----|------|------|
|     |    |      |      |

| Heavy-duty Bus Bars  |  |   |   |   |   |
|----------------------|--|---|---|---|---|
| 777-BB4S-500         | 4 Stud                                   |   | ✓ |   |   |
| 777-BB3S-650         | 3 Stud                                   |   | ✓ |   |   |
| 777-BB5S-650         | 5 Stud                                   |   |   | ✓ |   |
| 777-BB8S-650         | 8 Stud                                   |   |   |   | ✓ |
| Z Bus Bars           |  |   |   |   |   |
| 777-Z10W-200         | 10-way                                   |   | ✓ |   |   |
| 777-Z18W-200         | 18-way                                   |   |   | ✓ |   |
| ANL Fuse Holders     |  |   |   |   |   |
| 778-ANL              | ANL                                      |   | ✓ |   |   |
| 778-ANL2S            | ANL with additional cable clamping studs |   |   | ✓ |   |
| 778-ANLTP            | ANL Through Panel                        |   | ✓ |   |   |
| Class-T Fuse Holders |  |   |   |   |   |
| 778-T2S-400          | 225-400A                                 |   |   | ✓ |   |
| 778-T2S-600          | 450-600A                                 |   |   | ✓ |   |
| Insulated Studs      |  |   |   |   |   |
| IST-8MM-1S           | Single 8 mm                              | ✓ |   |   |   |
| IST-8MM-2S           | Double 8 mm                              | ✓ |   |   |   |
| IST-10MM-8MM         | Double 10 mm / 8 mm                      | ✓ |   |   |   |
| IST-10MM-1S          | Single 10 mm                             | ✓ |   |   |   |
| IST-10MM-2S          | Double 10 mm                             | ✓ |   |   |   |
| IST-8MM-1SPT         | Single 8 mm with power tapping plate     | ✓ |   |   |   |
| IST-10MM-1SPT        | Single 10 mm with power tapping plate    | ✓ |   |   |   |

## Pro Installer Heavy-duty Bus Bars

Pro Installer Heavy-duty Bus Bars provide a robust means to connect (bus) 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.

### Specifications:

- 4 Stud-500A bus bar: 8 mm (5/16") stainless steel studs
- 3, 5, and 8 stud-650A bus bars: 10 mm (3/8") stainless steel studs
- Studs treated with anti-seize lubricant
- 50V DC
- Tinned CDA102 Copper conductors
- Stainless steel studs, washers, nuts for longevity in the marine environment
- Generous stud lengths, metric threads

| Description    | Part #       | OEM #          | Footprint* |
|----------------|--------------|----------------|------------|
| 3 Stud Bus Bar | 777-BB3S-650 | 777-BB3S-650-B | 1 x        |
| 4 Stud Bus Bar | 777-BB4S-500 | 777-BB4S-500-B | 1 x        |
| 5 Stud Bus Bar | 777-BB5S-650 | 777-BB5S-650-B | 1.5 x      |
| 8 Stud Bus Bar | 777-BB8S-650 | 777-BB8S-650-B | 2.5 x      |

\* See page 33 for Footprint details



### Related Products



Pro Installer  
Link Bars  
page 37

## Pro Installer Z Bus Bars

BEP products 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.

### Specifications:

- 10-way and 18-way versions
- 4x 6 mm (1/4") studs with anti-seize lubricant
- 4 mm (5/32") terminals with captive lock washers
- 200A maximum per bar (2x 200A)
- 50V DC
- Tinned CDA102 Copper conductors
- Stainless steel studs, washers, nuts for longevity in the marine environment
- Metric threads

| Description       | Part #       | OEM #          | Footprint* |
|-------------------|--------------|----------------|------------|
| 10-way, Z Bus Bar | 777-Z10W-200 | 777-Z10W-200-B | 1 x        |
| 18-way, Z Bus Bar | 777-Z18W-200 | 777-Z18W-200-B | 1.5 x      |

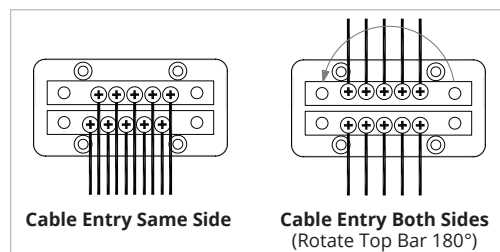
\* See page 33 for Footprint details



### Related Products



Pro Installer  
Link Bars  
page 37



## Pro Installer ANL Fuse Holders

These ANL fuse holders offer unparalleled circuit protection choice for both the installer and end-user. 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 of cables.

### Specifications:

- Cable connection studs: 8 mm (5/16") studs on 778-ANL, 10 mm (3/8") studs 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 without removal of fastening nuts
- Amperage: determined by fuse sizing, 778-ANL: 35-300A, 778-ANL2S: 35-750A, 778-ANLTP, 35-500A
- 50V DC
- Tinned CDA102 copper conductors 778-ANL-2S
- Tinned CDA260 high conductivity brass conductors 778-ANLTP

| Description   | Part #    | OEM #       | Footprint* |
|---|-----------|-------------|------------|
| Fuse Holder, ANL                                      | 778-ANL   | 778-ANL-B   | 1 x        |
| Fuse Holder, ANL with additional cable clamping studs | 778-ANL2S | 778-ANL2S-B | 1.5 x      |
| ANL Through Panel                                     | 778-ANLTP | 778-ANLTP-B | 1 x        |

\* See page 33 for Footprint details



### Related Products



Pro Installer  
Link Bars  
page 37



ANL Fuses  
page 46

## Pro Installer Class-T Fuse Holders

Class-T fusing provides the ultimate protection for high power circuits, and where extremely fast fuse blow characteristics are required. Modern battery technologies such as Mastervolt Lithium Ion or AGM are capable of very high short circuit currents which may be beyond the interrupt rating of standard circuit breakers and other types of fuse. Two sizes of Pro Installer Class-T Fuse Holder are available which accommodate fuses from 225-400A, and 450-600A respectively.

### Specifications:

- Cable connection studs: 10 mm (3/8") studs
- Fuse mounting studs: 10 mm (3/8") 225-400A holder, 12 mm (1/2") 450-600A holder
- Fuse type: Class-T (JLLN / TJN / A3T)
- Maximum amperage: Determined by fuse sizing, either 400A or 600A
- 50V DC
- High temperature, fiber reinforced plastic base provides strength and chemical resistance
- Clear polycarbonate cover
- Tinned CDA102 Copper conductors
- Stainless steel studs, washers and nuts for longevity in the marine environment
- Metric threads

| Description                   | Part #      | OEM #         | Footprint* |
|-------------------------------|-------------|---------------|------------|
| Fuse Holder, Class-T 225-400A | 778-T2S-400 | 778-T2S-400-B | 1.5 x      |
| Fuse Holder, Class-T 450-600A | 778-T2S-600 | 778-T2S-600-B | 1.5 x      |

\* See page 33 for Footprint details



### Related Products



Pro Installer  
Link Bars  
page 37



Class T Fuses  
page 46



## Pro Installer Insulated Studs

Pro Installer Insulated studs are available in single and twin stud versions, featuring 8 mm (5/16") and 10 mm (3/8") variants. A double stud version with 10 mm and 8 mm studs is also included for extending outboard motor cables. The Power Tapping Plate single stud models provide convenient termination points for additional small cables. Pro Installer family features are replicated with these insulated studs, generous stud length, modular footprint, insulating covers with label recess, and common interconnection height.

### Specifications:

- Power tapping plate: 4x 4 mm (5/16") terminals
- Maximum current through power tapping plate: 50A per terminal (4x 50A maximum)
- Note: no power passes through the stud so no amp rating is given 50V DC
- High temperature, fiber reinforced plastic base provides strength and chemical resistance
- Clear polycarbonate cover with snap-out extra cable access
- Stainless steel studs, screws and nuts for longevity in the marine environment
- Insert moulded studs with metric threads
- Double studs feature 'snap out' insulating partition, to allow linking of studs

| Description                           | Part #        | OEM #           | Footprint* |
|---------------------------------------|---------------|-----------------|------------|
| Single 8 mm                           | IST-8MM-1S    | IST-8MM-1S-B    | 0.5 x      |
| Double 8 mm                           | IST-8MM-2S    | IST-8MM-2S-B    | 0.5 x      |
| Double 10 mm / 8 mm                   | IST-10MM-8MM  | IST-10MM-8MM-B  | 0.5 x      |
| Single 10 mm                          | IST-10MM-1S   | IST-10MM-1S-B   | 0.5 x      |
| Double 10 mm                          | IST-10MM-2S   | IST-10MM-2S-B   | 0.5 x      |
| Single 8 mm with power Tapping Plate  | IST-8MM-1SPT  | IST-8MM-1SPT-B  | 0.5 x      |
| Single 10 mm with power Tapping Plate | IST-10MM-1SPT | IST-10MM-1SPT-B | 0.5 x      |

\* See page 33 for Footprint details

### Related Products



Pro Installer  
Link Bars  
page 37



IST-8MM-1S



IST-8MM-2S



IST-10MM-8MM



IST-10MM-1S



IST-10MM-2S



IST-8MM-1SPT



IST-10MM-1SPT

## Pro Installer Link Bars

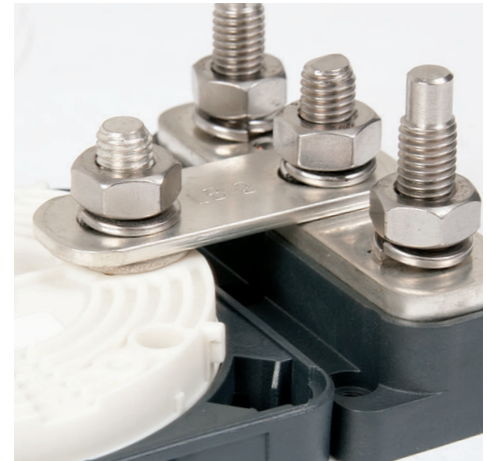
- A range of linking bars to complement the Pro Installer range of products
- High purity copper, tin plated for optimum marine electrical performance
- Fastest, most economic way of connecting products
- Saves space, allows clustering for the most compact installations
- Links can be doubled for higher loads

### Choosing a Link Bar

**Step 1:** Use selection guide below to determine the correct link bar.

**Step 2:** If multiple options exist, see diagrams for layout options on page 39.

**Step 3:** Find the part number in the specifications table on page 38.



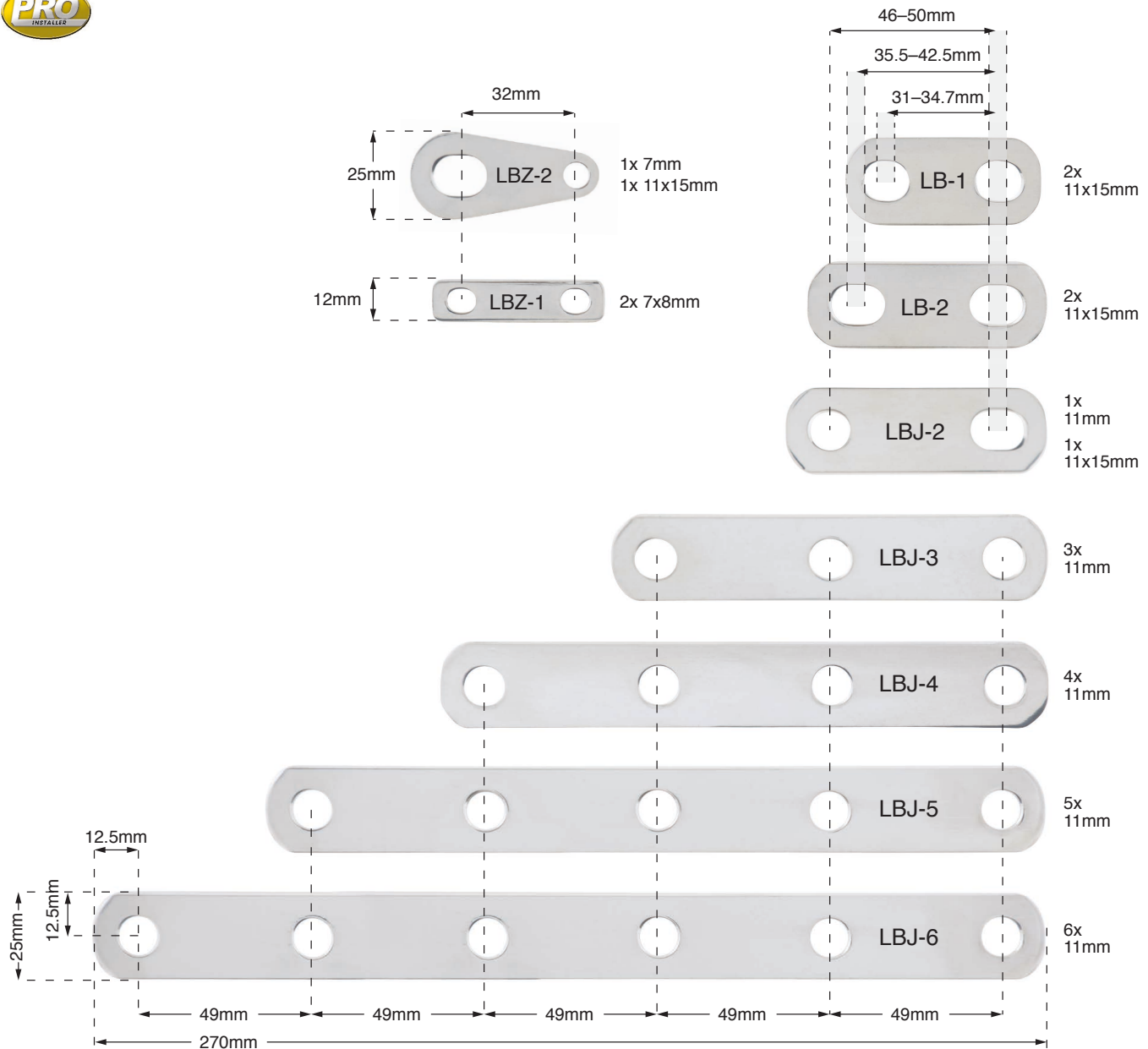
## Linking Selection Guide

|  | 3, 4, 5, & 8 Stud Heavy Duty Bus Bars | 10 & 18 Way Z Bus Bars | 778-ANL Fuse Holder | ANL Through Panel Fuse Holder | ANL & Class T Double Stud Fuse Holders | Single Insulated Studs | Double Insulated Studs | EZ Mount Battery Switch On/Off |
|--|---------------------------------------|------------------------|---------------------|-------------------------------|--|------------------------|------------------------|--------------------------------|
| <b>Bus Bars</b>                                    |                                       |                        |                     |                               |  |                        |                        |                                |
| 3, 4, 5, & 8 Stud Heavy Duty Bus Bars              | LB-1                                  | LBZ-2                  | LB-1                | —                             | LB-1 (4 Stud Gap)                      | LB-2                   | S:E LB-1 Gap LB-1      | O: LB-2 C: LB-1                |
| 10 & 18 Way Z Bus Bars                             | LBZ-2                                 | LBZ-1                  | LBZ-2               | —                             | LBZ-2                                  | —                      | Gap LBZ-2              | LBZ-2                          |
| <b>Fuse Holders</b>                                |                                       |                        |                     |                               |  |                        |                        |                                |
| 778-ANL Fuse Holder                                | LB-1                                  | LBZ-2                  | LB-2                | —                             | LB-1                                   | LB-2                   | S:E LB-1 Gap LB-1      | O: LB-2 C: LB-1                |
| ANL Through Panel Fuse Holder                      | —                                     | —                      | —                   | LB-2                          | —                                      | —                      | —                      | —                              |
| ANL & Class T Double Stud Fuse Holders             | LB-1                                  | LBZ-2                  | LB-1                | —                             | LB-1                                   | LB-2                   | S:E LB-1 Gap LB-1      | O: LB-2 C: LB-1                |
| <b>Insulated Studs</b>                             |                                       |                        |                     |                               |  |                        |                        |                                |
| Single Insulated Studs                             | LB-2                                  | —                      | LB-2                | —                             | LB-2                                   | LBJ-2                  | LB-1                   | LBJ-2 C: LB-2                  |
| Double Insulated Studs                             | S:E LB-1 Gap LB-1                     | Gap LBZ-2              | S:E LB-1 Gap LB-1   | —                             | S:E LB-1 Gap LB-1                      | LB-1                   | S:S LBJ-2 Gap LB-1     | O: LB-1 C: Gap LB-1            |
| <b>EZ Mount Battery Switches</b>                   |                                       |                        |                     |                               |  |                        |                        |                                |
| EZ Mount Battery Switch On/Off                     | O: LB-2 C: LB-1                       | LBZ-2                  | O: LB-2 C: LB-1     | —                             | O: LB-2 C: LB-1                        | O: LBJ-2 C: LB-2       | O: LB-1 C: Gap LB-1    | LB-1                           |
| EZ Mount Selector Battery Switch - "Battery" Studs | LB-2 (4 Stud LB-1)                    | LBZ-2                  | LB-2                | —                             | O: LB-1 C: LB-2                        | LBJ-2                  | LB-1                   | —                              |
| EZ Mount Selector Battery Switch - "Common" Stud   | O: LB-2 C: LB-1                       | LBZ-2                  | O: LB-2 C: LB-1     | —                             | O: LB-2 C: LB-1                        | O: LBJ-2 C: LB-2       | O: LB-1 C: Gap LB-1    | —                              |
| EZ Mount Double Pole/ Dual Bank Control            | O: LB-2 C: LB-1                       | —                      | O: LB-2 C: LB-1     | —                             | O: LB-2 C: LB-1                        | O or C: LB-1           | O: LBJ-2 C: LBJ-2      | LB-2                           |

## Side to Side Joining Selection Guide

|                    | Marking |
|--------------------|---------|
| Joining 2 products | LBJ-2   |
| Joining 3 products | LBJ-3   |
| Joining 4 products | LBJ-4   |
| Joining 5 products | LBJ-5   |
| Joining 6 products | LBJ-6   |

## Pro Installer Link Bars

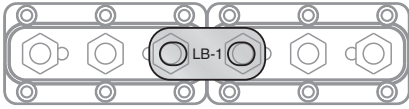


### Specifications

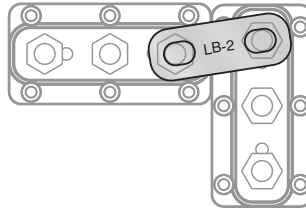
| Marking | OEM #        | Pkg Qty | Description                       | Function                              | Max. Amps | L x W        | L x W       |
|---------|--------------|---------|-----------------------------------|---------------------------------------|-----------|--------------|-------------|
| LB-1    | 779-LB-1-B   | 5       | Link Bar 31-34.7 mm               | Short Link Bar 8 & 10 mm studs        | 650A      | 2.2" x 1.0"  | 56 x 25 mm  |
| LB-2    | 779-LB-2-B   | 5       | Link Bar 35.5-42.5 mm             | Medium Link Bar 8 & 10 mm studs       | 650A      | 2.8" x 1.0"  | 69 x 25 mm  |
| LBJ-2   | 779-LBJ-2-B  | 1       | Joiner 2-way 46-50 mm             | Long Link Bar 8 & 10 mm studs         | 650A      | 3.0" x 1.0"  | 74 x 25 mm  |
|         | 779-LBJ-2-B5 | 5       |                                   |                                       |           |              |             |
| LBZ-1   | 779-LBZ-1-B  | 5       | Link Z Bar to Z Bar               | Joins Z Bars End to End, Back to Back | 250A      | 2.0" x 0.5"  | 49 x 12 mm  |
| LBZ-2   | 779-LBZ-2-B  | 5       | Link Z Bar to Bus Bar or F-holder | Joins Z Bars to Bus Bars or F-holders | 400A      | 2.1" x 1.0"  | 53 x 25 mm  |
| LBJ-3   | 779-LBJ-3-B  | 1       | Joiner 3-way                      | Side to Side joiner 3 products        | 525A      | 4.9" x 1.0"  | 123 x 25 mm |
| LBJ-4   | 779-LBJ-4-B  | 1       | Joiner 4-way                      | Side to Side joiner 4 products        | 450A      | 6.9" x 1.0"  | 172 x 25 mm |
| LBJ-5   | 779-LBJ-5-B  | 1       | Joiner 5-way                      | Side to Side joiner 5 products        | 400A      | 8.8" x 1.0"  | 221 x 25 mm |
| LBJ-6   | 779-LBJ-6-B  | 1       | Joiner 6-way                      | Side to Side joiner 6 products        | 350A      | 10.8" x 1.0" | 270 x 25 mm |



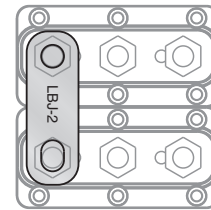
## Diagrams



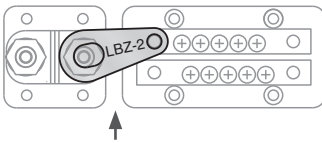
**E:E** End to End linking



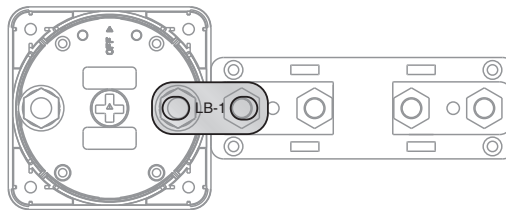
**S:E** Side to End linking



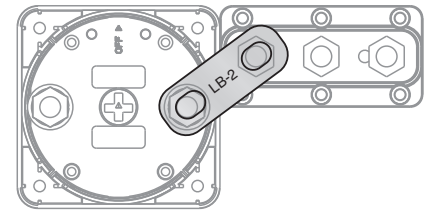
**S:S** Side to Side joining



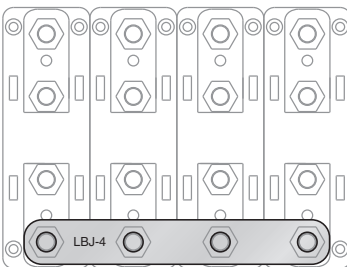
**Gap** For small gaps between products



**C:** Centerline linking



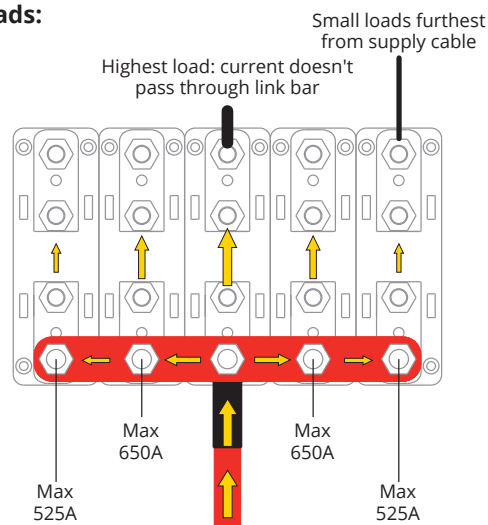
**O:** Offset linking



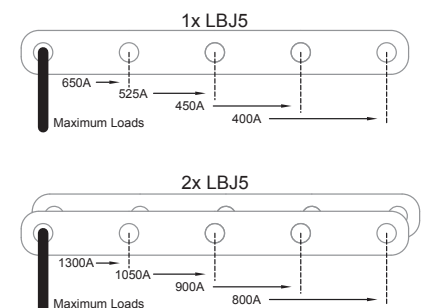
**Joining**

### Best Electrical Practice for High Loads:

- Supply power to the center of link bars or bus bars to balance loads
- Connect highest loads directly/closest to the supply cable



Note: Link bars can be doubled to increase load capacity

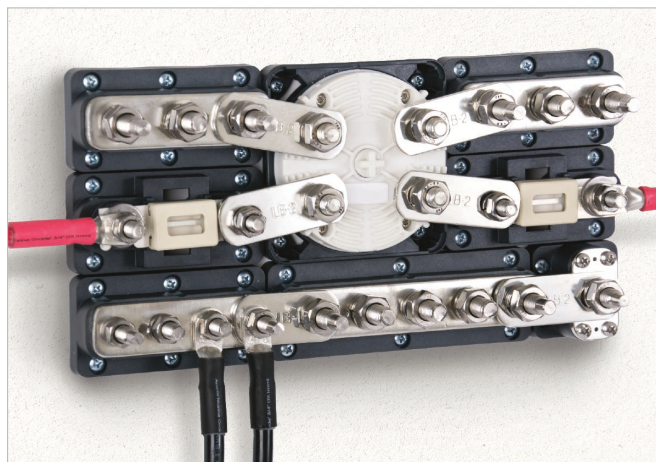
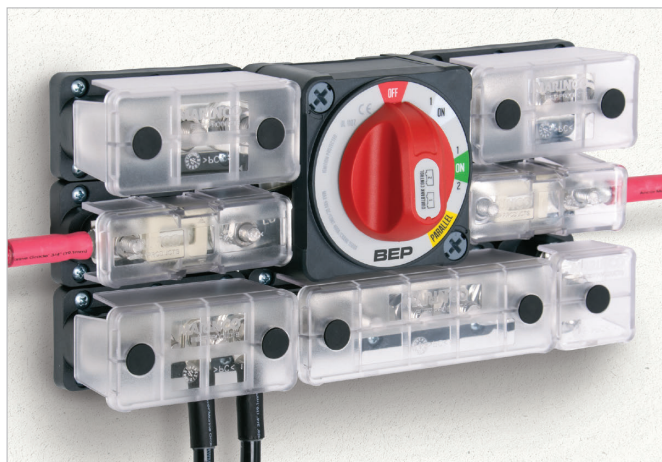


## Pro Installer Clusters

Example shown below using Pro Installer distribution components, link bars and the award winning EZ-Mount Battery Switch (page 14).



- Saves time
- Saves space
- Eliminates the need for jumper wires between products
- Common Interconnection heights allow "clustering" utilizing solid link bars
- Customize clusters for your application



## Insulated Studs & Covers

- Made with high temperature plastic bases
- Dual studs ideal for +ve / -ve connections, branch circuits, windlass or inverter installations.
- Stud covers push securely over the threaded stud covering to ABYC standards
- Covers supplied with display versions.



IS-6MM-1



IS-10MM-1



IS-10MM-1R



IS-6MM-2



IS-10MM-2



IS-10MM-2/L

### Single Studs

| Part #         | OEM #      | Stud Size    | Polarity |
|----------------|------------|--------------|----------|
| IS-6MM-1R/DSP* | IS-6MM-1R  | 1/4" (6 mm)  | Positive |
| IS-6MM-1/DSP*  | IS-6MM-1   | 1/4" (6 mm)  | Negative |
| —              | IS-8MM-1   | 5/16" (8 mm) | Negative |
| —              | IS-10MM-1R | 3/8" (10 mm) | Positive |
| —              | IS-10MM-1  | 3/8" (10 mm) | Negative |

\*Part #'s come with cover, OEM #'s do not.

### Dual Studs

| Part #        | OEM #       | Stud Size                        |
|---------------|-------------|----------------------------------|
| IS-6MM-2/DSP* | IS-6MM-2    | 2x 1/4" (6 mm)                   |
| —             | IS-10MM-2   | 2x 3/8" (10 mm)                  |
| —             | IS-10MM-2/L | 2x 3/8" (10 mm) with link plate  |
| —             | IS-10MM-8MM | 1x 3/8" (10 mm), 1x 5/16" (8 mm) |

\*Part #'s come with cover, OEM #'s do not.

### Covers

| Part #   | Description  | Color |
|----------|--------------|-------|
| ISC-6-2  | Double 6 mm  | black |
| ISC-6-2R | Double 6 mm  | red   |
| ISC-10BK | Single 10 mm | black |
| ISC-10R  | Single 10 mm | red   |



ISC-10BK



ISC-10R



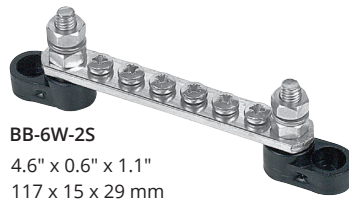
ISC-6-2



ISC-6-2R

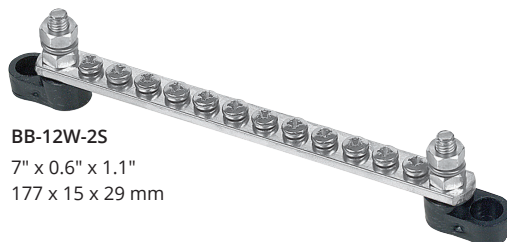
## Bus Bars

- Now with easy-fit covers to ABYC standards, with polarity ID
- 5/32" (4 mm) stainless steel screws with shakeproof washers
- 2 x 1/4" (6 mm) input studs
- Tin-plated, brass-insulated mounting bases with recessed mounting holes to avoid accidental shorts on aluminum surfaces
- Supplied standard with all BEP AC & DC control panels
- Display pack versions supplied with cover



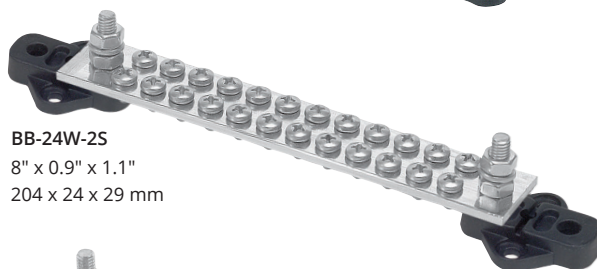
**BB-6W-2S**

4.6" x 0.6" x 1.1"  
117 x 15 x 29 mm



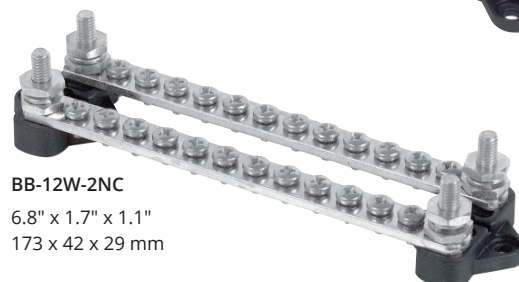
**BB-12W-2S**

7" x 0.6" x 1.1"  
177 x 15 x 29 mm



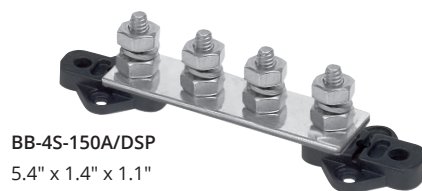
**BB-24W-2S**

8" x 0.9" x 1.1"  
204 x 24 x 29 mm



**BB-12W-2NC**

6.8" x 1.7" x 1.1"  
173 x 42 x 29 mm



**BB-4S-150A/DSP**

5.4" x 1.4" x 1.1"  
138 x 35 x 29 mm

| Part #         | OEM #      | Bus Type | Output screws | Input studs         | Rating |
|----------------|------------|----------|---------------|---------------------|--------|
| BB-6W-2S/DSP   | BB-6W-2S   | Single   | 6             | 2                   | 100A   |
| BB-12W-2S/DSP  | BB-12W-2S  | Single   | 12            | 2                   | 100A   |
| BB-24W-2S/DSP  | BB-24W-2S  | Single   | 24            | 2                   | 150A   |
| BB-12W-2NC/DSP | BB-12W-2NC | Double   | 2 x 12        | 2 x 12-way          | 100A   |
| BB-4S-150A/DSP | BB-4S-150A | 4-way    | 1 x 4         | 4 x 6 mm (1/4 stud) | 150A   |

## Bus Bar Covers

- Flame-resistant flexible plastic
- Color-coded for polarity
- Unique push-on fit
- Supplied standard with bus bars when ordered in display packs (for bulk packaging ordered separately)

### 6 W

BBC-6WR Positive

BBC-6WBK Negative



### 12 W

BBC-12WR Positive

BBC-12WBK Negative



### 24 W

BBC-24WR Positive

BBC-24WBK Negative



## Terminal Blocks

Ideal for isolated connections up to 30A. Suitable for connecting tails from AC and DC panels.

Base material: Phenolic; Current rating 30A; Max. voltage rating: 300V AC/DC; Screw size: 0.25" (6.3 mm)

TB-118-6P 6 connections

TB-118-10P 10 connections







### Distribution Stud

The Heavy Duty Distribution Stud allows terminating of heavy-duty cables for one or more connections. Contour Lock housing has removable side plates which allows for connections from all sides.

OEM # 702B



### Dual Distribution Stud

Designed specifically for transom areas for connecting battery cables from outboards. It also has many other applications where heavy-duty positive and negative connections need to be terminated.

OEM # 702-2S/B



### 4-way Distribution Stud

The 704-4S was designed for multiple heavy-duty connections which need to be isolated from each other. This model completes the range of heavy-duty connectors and meets ABYC standards for exposed terminals.

OEM # 704-4S/B

The patented Contour Locking System is an innovative feature that allows for multiple battery management components to be connected to each other providing for a clean finished installation. These locking tabs can be found on battery switches, heavy-duty buss bars, fuse holders, distribution studs and breaker modules.

| Description                            | Stud Size                          | OEM #      | LxWxH in           | LxWxH mm         |
|--|------------------------------------|------------|--------------------|------------------|
| Distribution Stud                      | 10 mm (3/8")                       | 702B       | 2.75" x 2.75" x 2" | 69 x 69 x 50 mm  |
| Dual Distribution Stud                 | 2x 10 mm (3/8")                    | 702-2S/B   | 2.75" x 2.75" x 2" | 69 x 69 x 50 mm  |
|  | 1x 8 mm (5/16")<br>1x 10 mm (3/8") | 702-8-10-B | 2.75" x 2.75" x 2" | 69 x 69 x 50 mm  |
| Dual Distribution Stud with Link Plate | 2x 10 mm (3/8")                    | 702-2SB/L  | 2.75" x 2.75" x 2" | 69 x 69 x 50 mm  |
| 4-way Distribution Stud                | 4x 10 mm (3/8")                    | 704-4S/B   | 5.3" x 2.75" x 2"  | 138 x 69 x 50 mm |



### Terminal Links

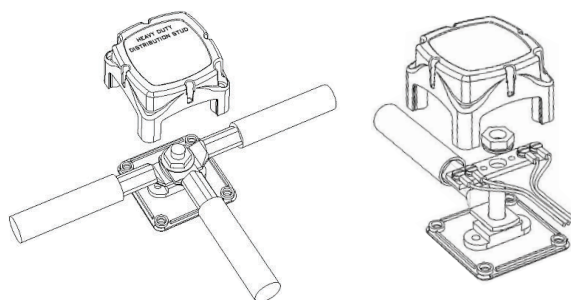
The 708 links are designed for space saving interconnections of terminals when battery distribution modules are linked together. Four standard solid links are available for interconnection of the 701 battery switch with other Battery Distribution products and two larger links which are intended for the heavy-duty battery switch.

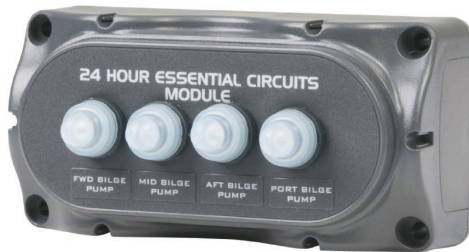
| Part #   | Distance between centers | Hole diameter |
|----------|--------------------------|---------------|
| 708-42.5 | 1.7" (43 mm)             | 3/8" (10 mm)  |
| 708-54.5 | 2.2" (55 mm)             | 3/8" (10 mm)  |
| 708-64.5 | 2.5" (65 mm)             | 3/8" (10 mm)  |
| 708-68.5 | 2.7" (69 mm)             | 3/8" (10 mm)  |
| 708-62.0 | 2.45" (62 mm)            | 1/2" (12 mm)  |

### Secondary Bus

Fitted to Distribution Stud 702 allows for small wire connections without cluttering main stud. Terminal screws 1/8" (4 mm).

Part # 702SB





### 24hr Service Circuit Breaker Module (4W)

Consists of 1 x 5A and 3 x 15A push to reset Carling CLB Series thermal CBs. Suitable for essential circuits such as bilge pump, auto float switch supplies and stereo memory circuits. The push to reset function ensures essential 24-hour circuits cannot be switched off inadvertently. This is contained in the contour lock double module. Labels: SET-714

Part # 706-4WB

OEM # 706-4W/B



### 24hr Essential Circuit Module

Designed for smaller systems where only two circuit breakers are required. Supplied with 2 x 10A Carling CLB Series circuit breakers – push to reset.

Part # 706-2W

OEM # 706-2W/B

### Related Products



CLB Series Push Reset  
Thermal Circuit Breakers  
page 50

### Specifications

| Part #   | OEM #      | Rating         | LxWxD                | LxWxD            | Stud Size    |
|----------|------------|----------------|----------------------|------------------|--------------|
| 707      | —          | 1x 50A, 2x 25A | 5.4" x 2.71" x 3"    | 138 x 69 x 75 mm | 3/16" (5 mm) |
| 705-50A  | 705-50A/B  | 50A            | 5.4" x 2.71" x 3"    | 138 x 69 x 75 mm | 1/4" (6 mm)  |
| 705-80A  | 705-80A/B  | 80A            | 5.4" x 2.71" x 3"    | 138 x 69 x 75 mm | 1/4" (6 mm)  |
| 705-100A | 705-100A/B | 100A           | 5.4" x 2.71" x 3"    | 138 x 69 x 75 mm | 1/4" (6 mm)  |
| 705-135A | 705-135A/B | 135A           | 5.4" x 2.71" x 3"    | 138 x 69 x 75 mm | 1/4" (6 mm)  |
| 705-150A | 705-150A/B | 150A           | 5.4" x 2.71" x 3"    | 138 x 69 x 75 mm | 1/4" (6 mm)  |
| 706-4WB  | 706-4W/B   | 1x 5A, 3x 15A  | 5.4" x 2.71" x 3"    | 138 x 69 x 75 mm | 5/32" (4 mm) |
| 706-2W   | 706-2W/B   | 2x 10A         | 2.71" x 2.71" x 2.75 | 69 x 69 x 70 mm  | 5/32" (4 mm) |



### Contour Circuit Breaker

Allows switchable protection for heavy-duty circuits like Windlasses or Davit winches using Busman Heavy-duty thermal circuit breakers (120). Modular sizing with Contour Lock housing allows easy grouping. LED to indicate circuit is on. Five standard ratings available.

| Part #   | OEM #      | Rating |
|----------|------------|--------|
| 705-50A  | 705-50A/B  | 50A    |
| 705-80A  | 705-80A/B  | 80A    |
| 705-100A | 705-100A/B | 100A   |
| 705-135A | 705-135A/B | 135A   |
| 705-150A | 705-150A/B | 150A   |



### Circuit Breaker Module

Provides three CBs ideal for medium duty loads, like waste treatment systems and electric toilets. Designed to separate these loadings from the main DC panel, avoiding voltage spikes. Supplied standard with 1 x 50A and 2 x 25A B Series CBs in a Contour Lock housing for easy modulation. Extra CBs available (page 51).

Labels ordered separately: SET-714.

Part # 707

### Related Products



IEG Magnetic CB's  
page 51



# CIRCUIT PROTECTION & SWITCHES

## Marine Fuses



46

Fast-acting, corrosion resistant fuses open quickly to protect circuits from overloads and short-circuits.

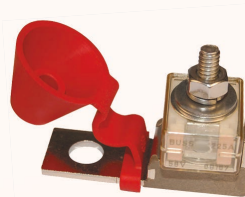
## Fuse Holders



47

For protection of smaller systems and branch circuits, for ATO/ATC and Maxi fuse ranges.

## Marine Rated Battery Fuse



48

Highly compact fuses/holders which are ignition protected and able to protect main supply connections.





# CIRCUIT PROTECTION & SWITCHES

## Thermal Circuit Breakers



49

Thermal Circuit Breakers & RCD's:  
Major DC circuit protection from 30-200A,  
push to reset breakers for 10-40A circuits,  
and RCD/RCBO panels for AC  
Main circuit protection.

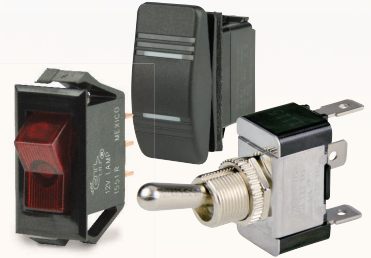
## Magnetic Circuit Breakers



51

Precision operation circuit breakers,  
5-100A, single, double and triple pole.

## Switches



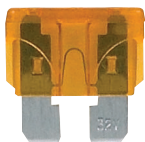
52

BEP Marine now offers a full line of  
manual switches including: toggle, rocker,  
push/pull, push-button, solenoids, and  
relays. The comprehensive selection  
ensures that BEP has the right switch to  
meet your needs.



## Marine Fuses

- Fast-acting, corrosion resistant fuses open quickly to protect circuits from overloads and short-circuits.
- Time-delayed to allow temporary, harmless in-rush currents to pass but open on sustained overloads and short-circuits.



### ATO®/ATC® Fuses

Diameter: 3/4" (19 mm)

Length: 3/4" (19 mm)

Maximum voltage: 32V DC

| Rating (A) | Qty/Pkg | OEM # |
|------------|---------|-------|
| 1          | 1       | J01A  |
| 2          | 1       | J02A  |
| 3          | 1       | J03A  |
| 5          | 1       | J05A  |
| 7.5        | 1       | J7.5A |
| 10         | 1       | J10A  |
| 15         | 1       | J15A  |
| 20         | 1       | J20A  |
| 25         | 1       | J25A  |
| 30         | 1       | J30A  |
| 40         | 1       | J40A  |



### MAXI® Fuses

Fuses available: 30-80A

Interrupt capacity: 1000A DC

Maximum voltage: 32V DC

| Rating (A) | Qty/Pkg | Part #       | OEM #    |
|------------|---------|--------------|----------|
| 30         | 1       | BFHD-30A/DSP | BFHD-30A |
| 40         | 1       | BFHD-40A/DSP | BFHD-40A |
| 50         | 1       | BFHD-50A/DSP | BFHD-50A |
| 60         | 1       | BFHD-60A/DSP | BFHD-60A |
| 70         | 1       | BFHD-70A/DSP | BFHD-70A |
| 80         | 1       | BFHD-80A/DSP | BFHD-80A |



### ANL Fuses

Use with:

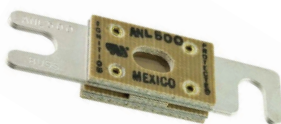
- Pro Installer ANL Fuse Holders (page 35)
- Tin plated
- Visible fuse status window
- 48V DC voltage rating
- Up to 3000A interrupt capacity

Length: 3.23" (82 mm)

Width: 0.88" (22 mm)

Stud clearance: 0.43" (11 mm)

| Rating (A) | Qty/Pkg | Part #     | OEM #    |
|------------|---------|------------|----------|
| 20         | 1       | —          | 77049020 |
| 40         | 1       | —          | IP40     |
| 50         | 1       | IP50P/DSP  | IP50     |
| 63         | 1       | IP63P/DSP  | IP63     |
| 80         | 1       | IP80P/DSP  | IP80     |
| 100        | 1       | IP100P/DSP | IP100    |
| 125        | 1       | —          | IP125    |
| 150        | 1       | IP150P/DSP | IP150    |
| 160        | 1       | —          | 77049160 |
| 175        | 1       | —          | IP175    |
| 200        | 1       | IP200P/DSP | IP200    |
| 250        | 1       | IP250P/DSP | IP250    |
| 300        | 1       | IP300P/DSP | IP300    |
| 355        | 1       | —          | IP355    |
| 400        | 1       | —          | 77049400 |
| 425        | 1       | IP425P/DSP | IP425    |
| 500        | 1       | IP500P/DSP | IP500    |



### Heavy-duty ANL Fuses

Use with:

- 5/16" (8 mm) mounting studs
- Pro Installer ANL Fuse Holders (page 35)

| Rating (A) | Qty/Pkg | OEM #      |
|------------|---------|------------|
| 600        | 5       | FANL-600-B |
| 675        | 5       | FANL-675-B |
| 750        | 5       | FANL-750-B |



### Class T Fuses

Interrupt capacity: 20,000A DC

Maximum voltage: 160V DC

Diameter: 1.34" (34 mm)

Length: 2.77" (70 mm)

Use with:

- Pro Installer Class T Fuse Holders (page 35)

| Rating (A) | Qty/Pkg | OEM #    |
|------------|---------|----------|
| 225        | 1       | FT-225-B |
| 250        | 1       | FT-250-B |
| 300        | 1       | FT-300-B |
| 350        | 1       | FT-350-B |
| 400        | 1       | FT-400-B |

### Heavy-duty Class T Fuses

Interrupt capacity: 20,000A DC

Maximum voltage: 160V DC

Diameter: 1.62" (41 mm)

Length: 3.03" (77 mm)

Use with:

- Pro Installer Class T Fuse Holders (page 35)

| Rating (A) | Qty/Pkg | OEM #    |
|------------|---------|----------|
| 450        | 1       | FT-450-B |
| 500        | 1       | FT-500-B |
| 600        | 1       | FT-600-B |



## Fuse Holders



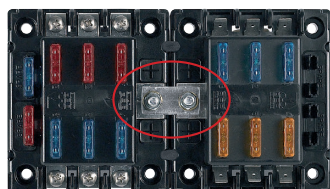
ATC-6W

### ATO®/ATC® Fuse Holders

The BEP ATC Fuse Holder provides compact, easy access to fuses with the design integrity only BEP can offer.

- Allows for multiple fuse holders and bus bars to be joined together, increasing the number of circuits protected
- Fuse holder inputs can be linked together to form a single continuous fuse holder
- Includes patented Contour Lock system, see-thru clip-on cover and label set
- Available with screw terminals or quick connect terminals
- Max. current/circuit: 30A; Max. current/block: 100A; Max. voltage: 32V DC; Base & cover material: polycarbonate
- Positions for spare fuses
- ATC Fuse holder: 3.1" x 3.54" x 1.85" (80 x 90 x 47 mm)
- ATC Bus bar: 1.3" x 3.54" x 1.85" (35 x 90 x 47 mm)

| Description                                       | Pack Qty  | Part #         | OEM #          |
|---|-----------|----------------|----------------|
| 6-way fuse holder screw terminals w/ cover & link | 1/blister | ATC-6W         | —              |
| 6-way fuse holder Quick Connect w/ cover & link   | 1/blister | ATC-6WQC       | —              |
| 6-way negative bus, 5 mm stud, cover, joiners     | 1/blister | 80-712-0039-00 | —              |
| 6-way fuse holder screw terminals w/ cover        | 24/pack   | —              | ATC-6W/B       |
| 6-way negative bus, 5 mm stud, cover, joiners     | 24/pack   | —              | 80-712-0039-01 |



BB-LINK17MM

Allows two 6-way ATC fuse holders to be joined together providing twelve fused positions running off one feed.



80-712-0039-00

### ATO®/ATC® Bus Bar

The expandable ATC negative Bus uses the BEP Contour Lock system to allow it to be joined to the ATC fuse holder. This keeps wiring tidy and conveniently located.

Current rating 100A.

### MAXI® Fuse Holder

An economical way of fusing heavy loads 30–80A. Ideal for battery charger outputs or mains feeds. 1/4" (6 mm) studs accept ring terminals and cables up to 25 mm<sup>2</sup> (4 gauge). Fuse is clamped between tinned brass clamps for positive connection. Covers enclose exposed terminals to meet ABYC standards.

2.8" x 2" x 1.42" (71 x 53 x 36 mm)

Part # 702-MFH

OEM # 702-MFH-B

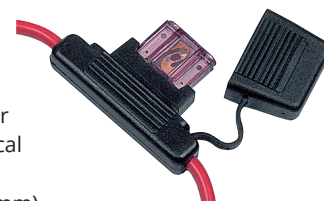


### Inline MAXI® Fuse Holder

For installations where space is tight and fuse needs to be installed inline with the cable. Supplied with 8 mm (8G) tails for inline connections. An economical solution to heavy-duty fusing.

3.15" x 2.15" x .6" (80 x 55 x 15 mm)

OEM # HDBFH



### Inline ATC Fuse Holder

Part # WAFH-14





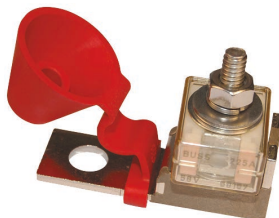
## Marine Rated Battery Fuse

### Features:

- Weatherproof IP66 design (*see inside back cover*)
- Compact heavy duty protection
- Insulated cap to prevent short circuit
- Ignition Protected
- Easy installation
- Suitable for high capacity battery banks

### Specifications:

- **Voltage Rating:** 58V DC Maximum
- **Amperage Rating:** 30A - 300A
- **Ingress Protection:** IP66
- **Ignition Protected:** Per SAEJ1117
- **Interrupt Rating:** 10000A @ 14V DC, 5000A @ 32V DC, 2000A @ 58V DC
- **Torque Rating:** Maximum 12Nm (106 in-lbs)
- **Material:** Body - Ceramic, Housing & Cover: UL-rated 94V0
- Thermoplastic, Ring Terminals - Tin Plated
- **Compliances:** ISO 8820-6
- Available in other sizes upon request, from 30–300A



**MRBF**

Terminal mount heavy-duty fuse holder and cover



| Rating (A) | Qty/<br>Pkg | Part #    | OEM #       |
|------------|-------------|-----------|-------------|
| 50         | 1           | MRBF-50A  | MRBF-50A-B  |
| 80         | 1           | MRBF-80A  | MRBF-80A-B  |
| 100        | 1           | MRBF-100A | MRBF-100A-B |
| 125        | 1           | MRBF-125A | MRBF-125A-B |
| 150        | 1           | MRBF-150A | MRBF-150A-B |
| 200        | 1           | MRBF-200A | MRBF-200A-B |
| 300        | 1           | MRBF-300A | MRBF-300A-B |

## Single Pole Switchable Manual Reset Thermal Circuit Breaker

### Features:

- Weatherproof IP66 design (*see inside back cover*)
- Trip free safety feature
- Switchable circuit protection
- Easy installation/ operation
- Ignition Protected
- CE Approved

### Specifications:

- **Rating:** 25-200A, 48V DC
- **Interrupt Rating:** Main Breaker Protection Interrupt Rating (5,000A@ 14V DC, 3,000A@ 28V DC and 1,500A@ 48V DC)
- **Operating Temperature Rating:** -40°F (-40°C) to 185°F (85°C)
- **Storage Temperature Rating:** -40°F (-40°C) to 260°F (125°C)
- **Materials:** Black UL-rated 94V0 thermoset plastic body
- Cover and lever are UL-rated 94V0 thermoplastic
- **Marking:** Standard marking includes amp/volt ratings
- **Termination:** 5/16-18 threaded studs
- **Torque Rating:** 75 in-lbs (8.5Nm) max
- **Mounting Torque Rating:** Panel or surface-mount options; 50 in-lbs (5.6 Nm) max
- **Ingress Protection Rating:** IP66
- **Compliances:** ABYC E-11; CE; SAE J1171 (ignition protected)
- Available in other sizes upon request, from 25–150A



MRCBF-200A



MRCBP-200A

| Mounting | Rating (A) | Part #     | OEM #        |
|----------|------------|------------|--------------|
| Surface  | 200        | MRCBF-200A | MRCBF-200A-B |
| Panel    | 200        | MRCBP-200A | MRCBP-200A-B |

## Single Pole Thermal Type Breakers

- **Ratings:** 30–150A; 30V DC
- **Interrupt Capacity:** 3000A
- **Operating Temperature:** -25°F (-32°C) to 180°F (82°C)
- **Storage Temperature:** -30°F (-34°C) to 300°F (149°C)
- **Applications:** Auxiliary and accessory circuits – trucks, buses, RVs and marine applications, battery chargers and DC audio systems. Series 184 & 185 are sealed for engine compartment and bilge area applications.
- **Housing:** Thermoset plastic; UL rated 94VO; 311°F (155°C).  
Stud insulators are provided on covered units with F (Surface Mount) bases; tin plated copper studs, brass rivets and stainless steel locking nuts.
- **Mounting:** Panel or surface
- **Terminal Stud Torque:** 50 in-lb (5.6Nm) max.
- **Indicator:** Series 184 & 185 have a unique reset mechanism providing visible indication of tripped condition
- **Ingress Protection Rating:** IP67 (see inside back cover)
- **Approvals:** Complies with SAEJ1625, J1171 and UL1500 (Ignition protected) specifications.

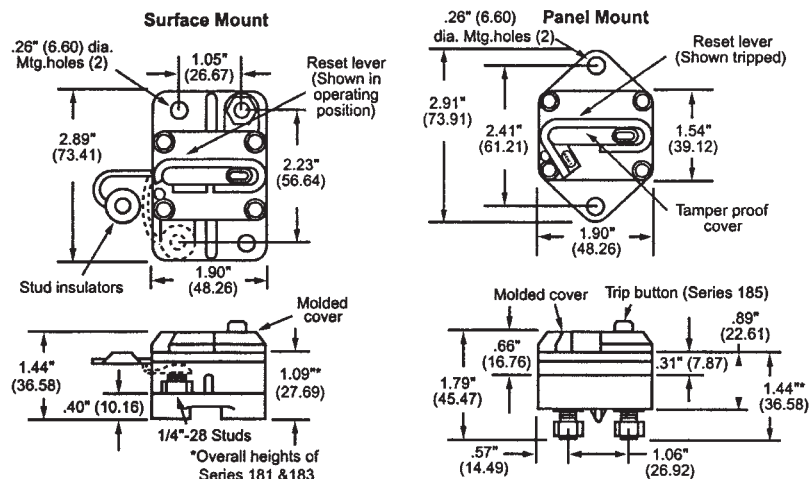


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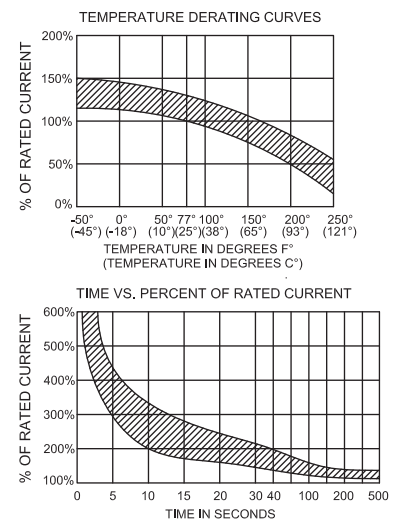
**Switchable reset** versions can be manually switched to isolate the circuit

### Switchable Reset

| Rating (A) | Panel Mount Part # | Panel Mount OEM # | Surface Mount Part # | Surface Mount OEM # |
|------------|--------------------|-------------------|----------------------|---------------------|
| 30         | 185030P/DSP        | 185030P-01-1      | 185030F/DSP          | 185030F-01-1        |
| 40         | 185040P/DSP        | 185040P-01-1      | 185040F/DSP          | 185040F-01-1        |
| 50         | 185050P/DSP        | 185050P-01-1      | 185050F/DSP          | 185050F-01-1        |
| 60         | 185060P/DSP        | 185060P-01-1      | 185060F/DSP          | 185060F-01-1        |
| 70         | 185070P/DSP        | 185070P-01-1      | 185070F/DSP          | 185070F-01-1        |
| 80         | 185080P/DSP        | 185080P-01-1      | 185080F/DSP          | 185080F-01-1        |
| 100        | 185100P/DSP        | 185100P-01-1      | 185100F/DSP          | 185100F-01-1        |
| 120        | 185120P/DSP        | 185120P-01-1      | —                    | 185120F-01-1        |
| 135        | 185135P/DSP        | 185135P-01-1      | —                    | 185135F-01-1        |
| 150        | 185150P/DSP        | 185150P-01-1      | 185150F/DSP          | 185150F-01-1        |



### Temperature and Current Rating



## CLB Series Push Reset Thermal Circuit Breakers

- **Ratings:** 5-40A; 200A @ 250V AC Interrupt Capacity
- **Operating Temperature:** 14-140°F (-10-60°C)
- **Interrupting capacity:** 2500A
- **Resettable overload capacity:** 10 x rated current
- **Approvals:** UL, CUL, TUV, CE, UL1500, ISO8846 for ignition protection/marine

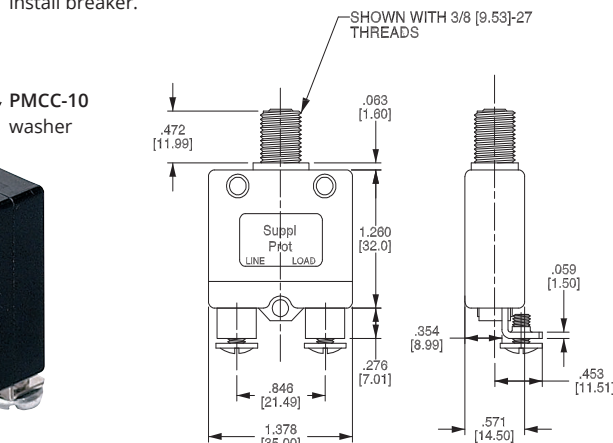
| Rating (A) | Part #*    | OEM #  |
|------------|------------|--------|
| 5          | CLB-05/DSP | CLB-05 |
| 10         | CLB-10/DSP | CLB-10 |
| 15         | CLB-15/DSP | CLB-15 |
| 20         | CLB-20/DSP | CLB-20 |
| 25         | CLB-25/DSP | CLB-25 |
| 30         | CLB-30/DSP | CLB-30 |
| 40         | CLB-40/DSP | CLB-40 |

\*DSP versions include circuit breaker, washer and boot

| Description | OEM #    |
|-------------|----------|
| Boot        | CLB-BOOT |
| Washer      | PMCC-10  |



**CLB-BOOT**  
Boot required to install breaker.



## RCD Panels

We supply two Residual Current Devices (RCD) ratings (16 & 32 A). These also act as a circuit breaker (RCBO type), have an insulation rating of 400V AC, make/brake current of 6000A, a 30mA trip rating against electric shocks, and 300mA trip protection against fire risks. Due to the different mounting dimensions of the RCD's, these panels are made to be mounted separately from the main AC panel.

| Rating (A)   | Part #           | HxWxD            | HxWxD             |
|--------------|------------------|------------------|-------------------|
| 16           | 900-RCD-16A      | 4.5" x 5" x 2.5" | 115 x 127 x 65 mm |
| 32           | 900-RCD-1X16-32A | 4.5" x 5" x 2.5" | 115 x 127 x 65 mm |
| 16x2         | 900-RCD-2X16A    | 4.5" x 5" x 2.5" | 115 x 127 x 65 mm |
| 32x2         | 900-RCD-2X32A    | 4.5" x 5" x 2.5" | 115 x 127 x 65 mm |
| 16x1, + 32x1 | 900-RCD-32A      | 4.5" x 5" x 2.5" | 115 x 127 x 65 mm |

Cutout size - 3/8" (10 mm) inside all external edges



900-RCD-16A



900-RCD-2X16A

## CB Options

- 230V

| Rating (A) | Part #              | Type                 |
|------------|---------------------|----------------------|
| 16         | NHP-RCBO-16A30MA-1D | Residual CB Overload |
| 16         | NHP-RCBO-16A30MA-2D | Residual CB Overload |
| 32         | NHP-RCBO-32A30MA-1D | Residual CB Overload |
| 32         | NHP-RCBO-32A30MA-2D | Residual CB Overload |



**RCBO**  
(see chart)



**MCB-3WENC**  
6.3" x 3.6" x 3.5"  
160 x 92 x 90 mm



**124001000**  
7.87" x 4.33" x 4.53"  
200 x 110 x 115 mm

For installations in Australia and New Zealand to comply with AS/NZ3004 an approved double pole mains circuit breaker must be mounted upstream of the BEP Control Panel. The MCB-3WENC is an enclosure with IP65 rating. The enclosure and CB is ordered separately. The Shore Fix is already assembled, no additional item parts need to be ordered.



## IEG Magnetic Circuit Breakers

IEG magnetic circuit breakers provide reliable circuit protection and accurate circuit control for equipment in the international market place. Designed using the latest in sensitive hydraulic magnetic technology, the IEG line adapts itself to many applications and environments. They are ideal for marine applications, data processing and business machines, as well as medical instrumentation, broadcast equipment, vending and amusement machines, military applications and wherever precision operation is required. Temperature differences which affect fuses and other thermal devices are not a concern. One important feature of this breaker line is a 'trip free' action, which means the circuit will trip in the presence of an overload even though the handle is held in the ON position. The delay mechanism senses the fault and the contacts open.

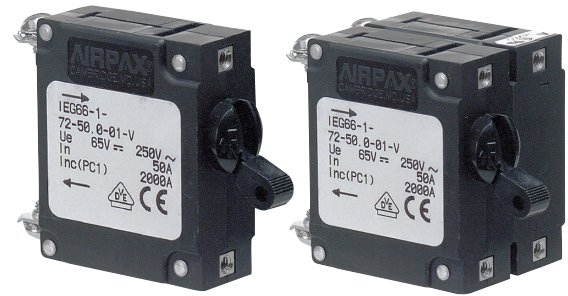
- Spacing compliance: IEC specification 601, 950; VDE 0804, 0805
- UL Recognized UL 1077; CSA certified per CSA C22.2 – No.235; Complies with EN 60947-2 & EN 60934
- Available in single or double pole; triple pole available on special orders

| Single pole     | Rating (A) | Double pole | Rating (A) | Triple pole                              | Rating (A) |
|-----------------|------------|-------------|------------|--|------------|
| CBS-5A-SP       | 5          | CBS-10A-DP  | 10         | CBS-50A-TP                               | 50         |
| CBS-10A-SP      | 10         | CBS-15A-DP  | 15         | Double pole trip coil pole*<br>Volts (V) |            |
| CBS-15A-SP      | 15         | CBS-20A-DP  | 20         |  |            |
| CBS-20A-SP      | 20         | CBS-25A-DP  | 25         |  |            |
| CBS-25A-SP      | 25         | CBS-30A-DP  | 30         |  |            |
| CBS-30A-SP      | 30         | CBS-40A-DP  | 40         |  |            |
| CBS-40A-SP      | 40         | CBS-50A-DP  | 50         |  |            |
| CBS-50A-SP      | 50         |             |            | CBS-15A-DP-TC230                         | 230        |
| CBS-50A-SP-IGP° | 50         |             |            | CBS-20A-DP-TC230                         | 230        |
|                 |            |             |            | CBS-30A-DP-TC230                         | 230        |
|                 |            |             |            | CBS-50A-DP-TC230                         | 230        |

\*Features reverse polarity auto trip.

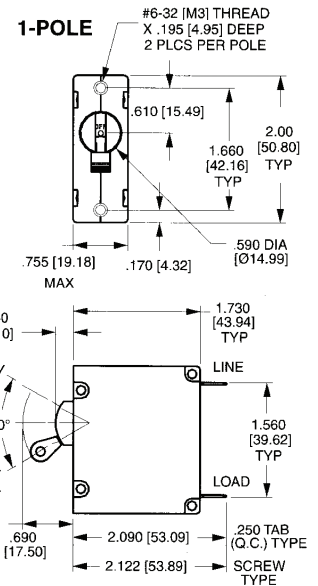
° Ignition Protected

Compatible with BEP panels.



CBS-50A-SP

CBS-50A-DP



### Handle Lock

Image shows "handle lock" as used in all our battery management panels for essential CBs to prevent accidental or unintended actuation of essential circuits CB's from either the "on" or "off" position. (ordered separately)

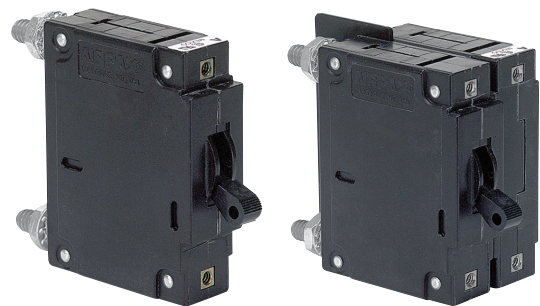
Part # 121-710-1101/1

## IUL Magnetic Circuit Breakers

Provide reliable circuit protection and accurate circuit control for equipment in the international market place. BEP uses the IUL range of circuit breakers where current requirements exceed 50A and are within 100A. Available in single and double pole with triple pole available on special orders.

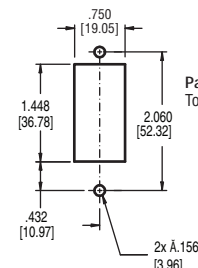
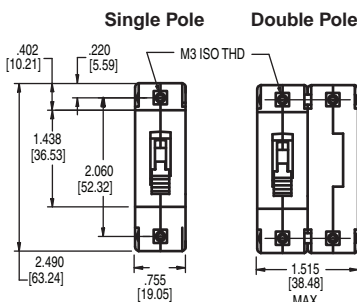
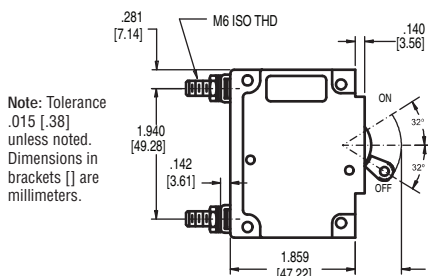
| Single pole | Rating (A) | Double pole | Rating (A) | Triple pole | Rating (A) |
|-------------|------------|-------------|------------|-------------|------------|
| CBL-50A-SP  | 50         | CBL-60A-DP  | 60         | CBL-80A-TP  | 80         |
| CBL-60A-SP  | 60         | CBL-100A-DP | 100        | CBL-100A-TP | 100        |
| CBL-75A-SP  | 75         |             |            |             |            |
| CBL-100A-SP | 100        |             |            |             |            |

Compatible with BEP panels.



CBL-50A-SP

CBL-100A-DP



Panel Mounting Detail:  
Tolerance .013 unless noted.

# Switches

We have expanded our line to cover all of your manual switch needs.

BEP Marine now offers a full line of manual switches including: toggle, rocker, push/pull, push-button, solenoids, and relays. The comprehensive selection ensures that BEP has the right switch to meet your needs. All of our switches are shock and weather resistant and built for harsh marine and industrial environments. In addition, common applications are associated with each style to simplify selection. BEP switches are available in the following classifications:



**SPST**  
**Single Pole, Single Throw:**

- Turns a single circuit on and off
- One input and one output terminals



**DPST**  
**Double Pole, Single Throw:**

- Turns two circuits on simultaneously
- Two input and two output terminals
- Each input terminal has a dedicated output terminal



**SPDT**  
**Single Pole, Double Throw:**

- Turns one of two circuits on and off
- One input and two output terminals

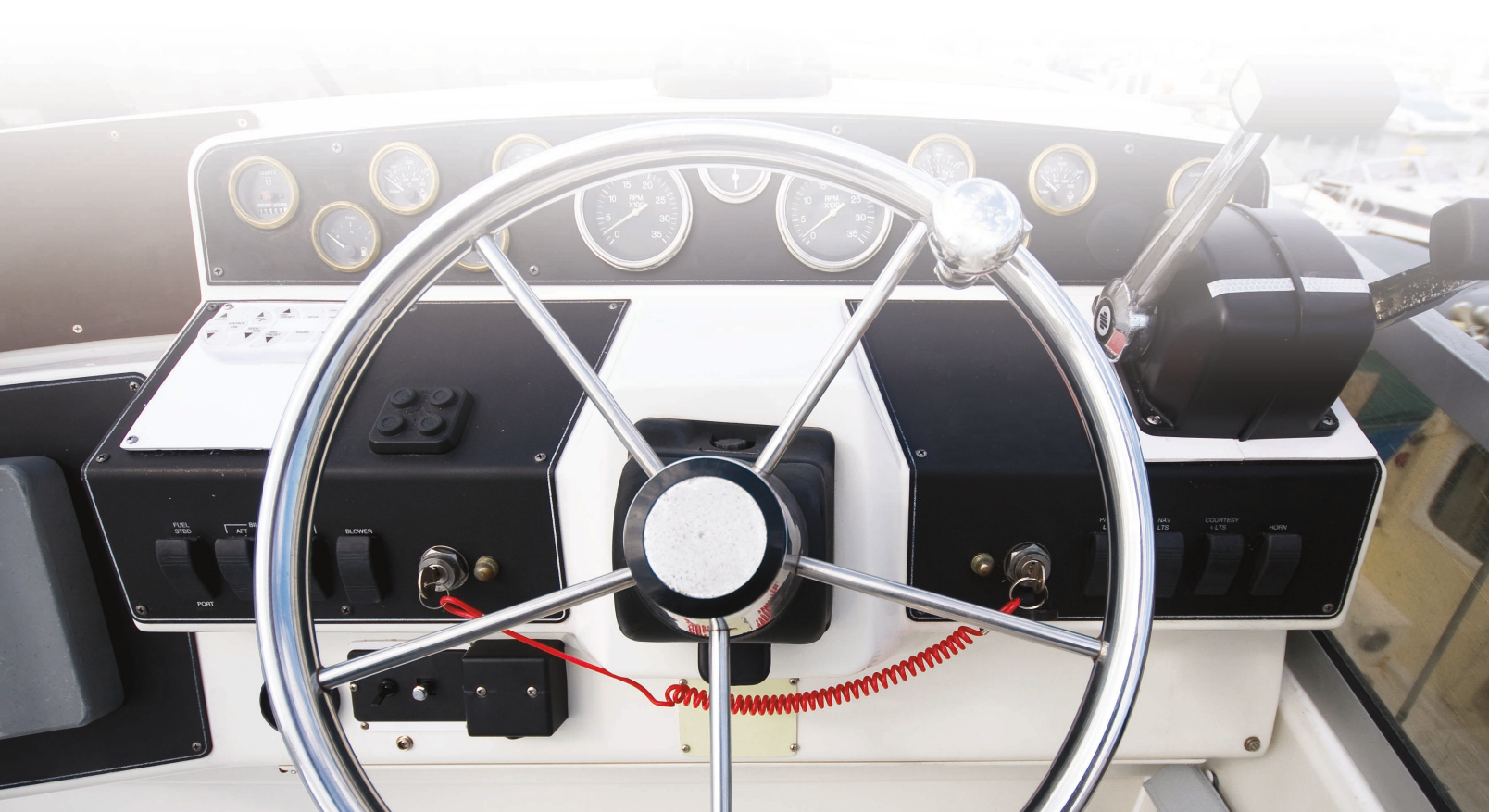


**DPDT**  
**Double Pole, Double Throw:**

- Turns one circuit in each of two pairs of circuits
- Two input and four output terminals
- Enables different modes of operation on a circuit

| Action | Style         | Primary Use    |
|--------|---------------|----------------|
| SPST   | Off-On        | Lights         |
| SPST   | Off-(On)      | Horn           |
| SPDT   | On-Off-On     | Nav Lights     |
| SPDT   | (On)-Off-On   | Bilge Pump     |
| SPDT   | On-Off-(On)   | Bilge Pump     |
| SPDT   | (On)-Off-(On) | Trim Tabs      |
| SPDT   | On-On         | Hallway Lights |

| Action | Style         | Primary Use    |
|--------|---------------|----------------|
| DPST   | Off-On        | Nav Lights     |
| DPST   | Off-(On)      | Dual Horns     |
| DPDT   | On-Off-On     | Nav Lights     |
| DPDT   | (On)-Off-On   | Dual Wipers    |
| DPDT   | On-Off-(On)   | Dual Wipers    |
| DPDT   | (On)-Off-(On) | Hatches        |
| DPDT   | On-On         | Hallway Lights |















## Contura Switches

- Shock and weather resistant for use in harsh marine and industrial environments
- Compatible with 12V and 24V systems, rated for up to 20A (12V)
- Standard or illuminated actuators
- Mount in BEP Rocker/Contura switch brackets

### Ideal for:

Interior and Exterior Lighting  
Trim Tabs  
Power Hatches  
Horns  
Wipers

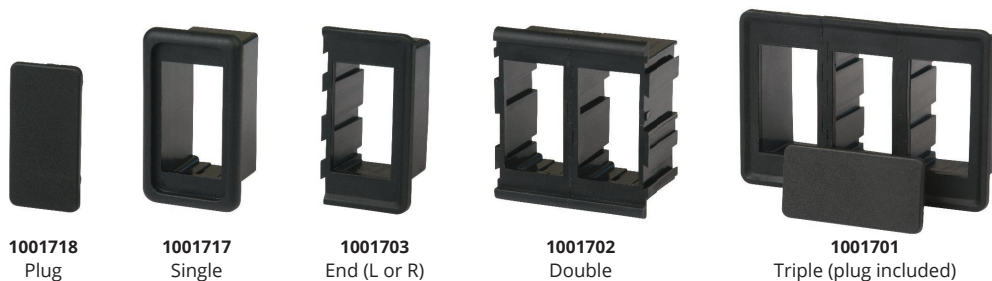
|                  |   |   |   |   |   |   |
|------------------|---|---|---|---|---|---|
|                  |  |  |  |  |  |  |
| Part #           | 1001801   | 1001802   | 1001803   | 1001805   | 1001804   | 1001806   |
| Type             | SPST  |   | SPDT  |   |   |   |
| Action           | Off-On  | Off-(On)  | On-Off-On   | On-Off-(On)   | (On)-Off-(On)   | (On)-Off-(On)   |
| Nominal Voltage  | 12V/24V DC  | 12V/24V DC  | 12V/24V DC  | 12V/24V DC  | 12V/24V DC  | 12V/24V DC  |
| Ratings          | 20A at 12V DC,<br>15A at 24V DC   | 20A at 12V DC,<br>15A at 24V DC   | 20A at 12V DC,<br>15A at 24V DC   | 20A at 12V DC,<br>15A at 24V DC   | 20A at 12V DC,<br>15A at 24V DC   | 20A at 12V DC,<br>15A at 24V DC   |
| Termination Type | 1/4" blades   | 1/4" blades   | 1/4" blades   | 1/4" blades   | 1/4" blades   | 1/4" blades   |
| LED              | ● 1-Amber   | None  | ● 2-Amber   | ● 1-Amber   | None  | None  |

|                  |  |  |  |  |  |  |
|------------------|--|--|--|--|--|--|
|                  |  |  |  |  |  |  |
| Part #           | 1001811  | 1001810  | 1001812  | 1001808  | 1001807  | 1001809  |
| Type             | DPST   |  | DPDT   |  |  |  |
| Action           | Off-On   | Off-(On)   | On-On  | On-Off-On  | On-Off-(On)  | (On)-Off-(On)  |
| Nominal Voltage  | 12V/24V DC   | 12V/24V DC   | 12V/24V DC   | 12V/24V DC   | 12V/24V DC   | 12V/24V DC   |
| Ratings          | 20A at 12V DC,<br>15A at 24V DC  | 20A at 12V DC,<br>15A at 24V DC  | 20A at 12V DC,<br>15A at 24V DC  | 20A at 12V DC,<br>15A at 24V DC  | 20A at 12V DC,<br>15A at 24V DC  | 20A at 12V DC,<br>15A at 24V DC  |
| Termination Type | 1/4" blades  | 1/4" blades  | 1/4" blades  | 1/4" blades  | 1/4" blades  | 1/4" blades  |
| LED              | ● 1-Amber  | None   | ● 2-Amber  | ● 2-Amber  | ● 1-Amber  | None   |

( ) = Momentary

## Contura and Rocker Switch Mounting Brackets

- Mount multiple Contura or Rocker style switches in one opening
- Provides a neat, finished appearance on dash or panel surfaces























## Rocker Switches

- Shock and weather resistant for use in harsh marine and industrial environments
- Available in 12V and 24V system configurations
- 10A, 20A, and heavy-duty 25A (12V) rated options
- Standard and illuminated actuators

### Ideal for:

Interior and Exterior Lighting  
Horns  
Wipers  
Trim Tabs  
Power Hatches

|                  |   |   |   |   |  |   |   |
|------------------|---|---|---|---|--|---|---|
|                  |      |  |      |      |            |  |  |
| Part #           | 1001705   | 1001707   | 1001708   | 1001714   | 1001716  | 1001704   | 1001709   |
| Type             | SPST  |   |   |   |  |   |   |
| Action           | Off-On  | Off-On  | Off-On  | Off-On  | Off-On   | Off-On  | Off-(On)  |
| Nominal Voltage  | 12V DC  | 12/24V DC   | 12V DC  | 12V DC  | 12V DC   | 12/24V DC   | 12V DC  |
| Ratings          | 10A at 12V DC   | 20A at 12V DC,<br>10A at 24V DC   | 25A at 12V DC   | 25A at 12V DC   | 25A at 12V DC  | 20A at 12V DC,<br>15A at 24V DC   | 25A at 12V DC   |
| Termination Type | 1/4" blades   | #8-32 screws  | #8-32 screws  | 1/4" blades   | 1/4" blades  | 1/4" blades   | 1/4" blades   |
| LED              |  Red | None  |  Red |  Red |  Changeable | None  | None  |

|                  |  |  |   |  |   |  |
|------------------|--|--|---|--|---|--|
|                  |  |  |         |  |  |  |
| Part #           | 1001706  | 1001710  | 1001715   | 1001711  | 1001712   | 1001713  |
| Type             | SPDT   |  |   |  | DPDT  |  |
| Action           | On-On  | On-Off-On  | On-Off-On   | (On)-Off-(On)  | On-Off-On   | (On)-Off-(On)  |
| Nominal Voltage  | 12V DC   | 12V DC   | 12V DC  | 12V DC   | 12V DC  | 12V DC   |
| Ratings          | 10A at 12V DC  | 25A at 12V DC  | 25A at 12V DC   | 25A at 12V DC  | 25A at 12V DC   | 25A at 12V DC  |
| Termination Type | 1/4" blades  | 1/4" blades  | 1/4" blades   | 1/4" blades  | 1/4" blades   | 1/4" blades  |
| LED              | None   | None   |  2-Red | None   | None  | None   |

( ) = Momentary

## Contura and Rocker Switch Mounting Brackets

- Mount multiple Contura or Rocker style switches in one opening
- Provides a neat, finished appearance on dash or panel surfaces







## Contact Switches

- Universal applications for marine and industrial environments
- Choose from red or black actuator styles

### Ideal for:

Horns  
Other Momentary  
Applications

|                  |   |   |
|------------------|---|---|
|                  |      |        |
| Part #           | 1001401   | 1001402   |
| Type             | SPST  |   |
| Action           | Off-(On)  | Off-(On)  |
| Nominal Voltage  | 12V DC  | 12V DC  |
| Ratings          | 10A at 12V DC   | 10A at 12V DC   |
| Termination Type | 1/4" blades   | 1/4" blades   |
| Button Color     |  Red |  Black |







( ) = Momentary

## Push Button Switches and Caps

- Offered in a variety of weather resistant options to suit any application environment
- Suitable for 6–36V system configurations with up to 35A ratings (12V)
- Momentary actuation ideal for use with horns
- Optional weather proof rubber caps available with threaded or press-on installation

### Ideal for:

Horns

|                  |   |   |   |  |   |   |
|------------------|---|---|---|--|---|---|
|                  |  |  |  |  |  |  |
| Part #           | 1001503   | 1001504   | 1001505   | 1001506  | 1001507   | 1001508   |
| Type             | SPST  |   |   |  |   |   |
| Action           | Off-(On)  | Off-(On)  | Off-(On)  | Off-(On)   | Off-(On)  | Off-(On)  |
| Nominal Voltage  | 6–36V DC  | 6–36V DC  | 6–36V DC  | 6–36V DC   | 6–36V DC  | 6–36V DC  |
| Ratings          | 10A at 12V DC   | 35A at 12V DC   | 10A at 12V DC   | 10A at 12V DC  | 35A at 12V DC   | 35A at 12V DC   |
| Termination Type | #8–32 screws  | #8–32 screws  | #8–32 screws  | wire leads, 16 AWG, 8"   | #8–32 screws  | #8–32 screws  |

( ) = Momentary

### Push Button Caps

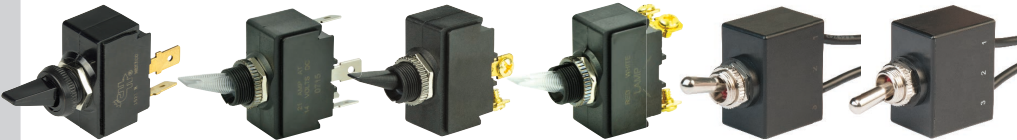


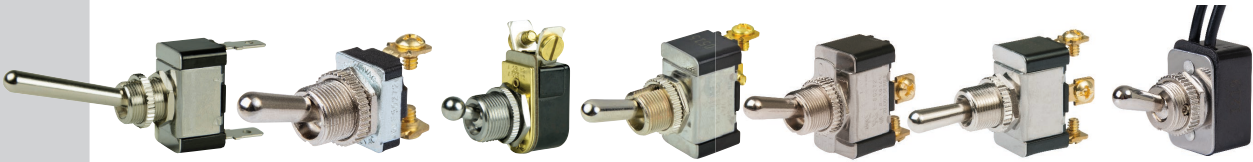
## Toggle Switches

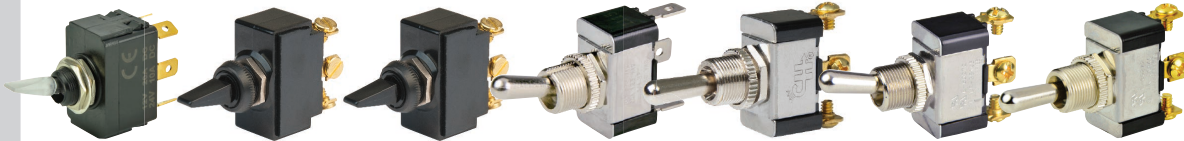
- Shock and weather resistant for use in harsh marine and industrial environments
- Available in 12V and 24V system configurations
- 10A and heavy-duty 25A (12V) rated options
- Standard or illuminated actuators

### Ideal for:

Interior and Exterior Lighting  
Horns  
Wipers  
Trim Tabs  
Power Hatches


|                 |  |               |               |               |                                 |                                 |
|-----------------|--|---------------|---------------|---------------|---------------------------------|---------------------------------|
|                 |  |               |               |               |                                 |                                 |
| Part #          | 1001901  | 1001906       | 1001902       | 1001908       | 1002010                         | 1002006                         |
| Type            | SPST   |               |               |               |                                 |                                 |
| Action          | Off-On   | Off-On        | Off-On        | Off-On        | Off-On                          | Off-(On)                        |
| Nominal Voltage | 12V DC   | 12V DC        | 12V DC        | 12V DC        | 12V/24V DC                      | 12V/24V DC                      |
| Ratings         | 25A at 12V DC  | 25A at 12V DC | 25A at 12V DC | 25A at 12V DC | 25A at 12V DC,<br>15A at 24V DC | 25A at 12V DC,<br>15A at 24V DC |
| Terminal Type   | 1/4" blade   | 1/4" blade    | #6-32 screws  | #6-32 screws  | wire leads, 14<br>AWG, 10"      | wire leads, 14<br>AWG, 10"      |
| LED             | None   | Red           | None          | Red           | None                            | None                            |

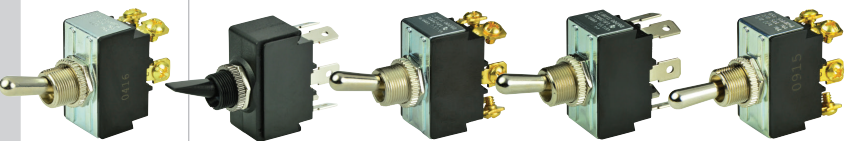
|                 |   |               |               |               |                                 |                                 |                           |
|-----------------|---|---------------|---------------|---------------|---------------------------------|---------------------------------|---------------------------|
|                 |  |               |               |               |                                 |                                 |                           |
| Part #          | 1002013   | 1002021       | 1002022       | 1002002       | 1002024                         | 1002025                         | 1002023                   |
| Type            | SPST  |               |               |               |                                 |                                 |                           |
| Action          | Off-On  | Off-On        | Off-On        | Off-(On)      | On-Off                          | Off-On                          | Off-On                    |
| Nominal Voltage | 12V/24V DC  | 12V DC        | 12V DC        | 12V DC        | 12V/24V DC                      | 12V/24V DC                      | 12V DC                    |
| Ratings         | 25A at 12V DC,<br>15A at 24V DC   | 10A at 12V DC | 10A at 12V DC | 25A at 12V DC | 25A at 12V DC,<br>15A at 24V DC | 25A at 12V DC,<br>15A at 24V DC | 10A at 12V DC             |
| Terminal Type   | 1/4" terminals  | #6-32 screws  | #6-32 screws  | #6-32 screws  | #6-32 screws                    | #6-32 screws                    | wire leads,<br>18 AWG, 6" |
| LED             | None  | None          | None          | None          | None                            | None                            | None                      |

|                 |  |               |               |               |               |                                 |                                 |
|-----------------|--|---------------|---------------|---------------|---------------|---------------------------------|---------------------------------|
|                 |  |               |               |               |               |                                 |                                 |
| Part #          | 1001907  | 1001903       | 1001904       | 1002001       | 1002027       | 1002015                         | 1002004                         |
| Type            | SPDT   |               |               |               |               |                                 |                                 |
| Action          | On-Off-On  | On-Off-On     | (On)-Off-(On) | On-Off-On     | On-Off-On     | On-Off-(On)                     | (On)-Off-(On)                   |
| Nominal Voltage | 12V DC   | 12V DC        | 12V DC        | 12V DC        | 12V DC        | 12V/24V DC                      | 12V/24V DC                      |
| Ratings         | 25A at 12V DC  | 25A at 12V DC | 25A at 12V DC | 25A at 12V DC | 25A at 12V DC | 25A at 12V DC,<br>15A at 24V DC | 25A at 12V DC,<br>15A at 24V DC |
| Terminal Type   | 1/4" blades  | #6-32 screws  | #6-32 screws  | 1/4" blades   | #6-32 screws  | #6-32 screws                    | #6-32 screws                    |
| LED             | Red  | None          | None          | None          | None          | None                            | None                            |


( ) = Momentary



|                 |   |                                 |                                 |
|-----------------|---|---------------------------------|---------------------------------|
|                 |  |                                 |                                 |
| Part #          | 1002008   | 1002007                         | 1002009                         |
| Type            | SPDT  |                                 |                                 |
| Action          | On-On   | On-Off-On                       | (On)-Off-(On)                   |
| Nominal Voltage | 12V/24V DC  | 12V/24V DC                      | 12V/24V DC                      |
| Ratings         | 25A at 12V DC,<br>15A at 24V DC   | 25A at 12V DC,<br>15A at 24V DC | 25A at 12V DC,<br>15A at 24V DC |
| Terminal Type   | wire leads, 14<br>AWG, 10"  | wire leads, 14<br>AWG, 10"      | wire leads, 14<br>AWG, 10"      |
| LED             | None  | None                            | None                            |

|                 |  |               |                                 |               |                                 |
|-----------------|--|---------------|---------------------------------|---------------|---------------------------------|
|                 |  |               |                                 |               |                                 |
| Part #          | 1002017  | 1001905       | 1002018                         | 1002014       | 1002012                         |
| Type            | DPST   | DPDT          |                                 |               |                                 |
| Action          | Off-On   | On-Off-On     | On-Off-On                       | On-Off-(On)   | (On)-Off-(On)                   |
| Nominal Voltage | 12V DC   | 12V DC        | 12V/24V DC                      | 12V DC        | 12V/24V DC                      |
| Ratings         | 25A at 12V DC  | 25A at 12V DC | 25A at 12V DC,<br>15A at 24V DC | 25A at 12V DC | 25A at 12V DC,<br>15A at 24V DC |
| Terminal Type   | #6-32 screws   | 1/4" blades   | #6-32 screws                    | 1/4" blades   | #6-32 screws                    |
| LED             | None   | None          | None                            | None          | None                            |

### Sealed Dipped Switches

|                 |   |                                 |                                 |                                 |
|-----------------|---|---------------------------------|---------------------------------|---------------------------------|
|                 |  |                                 |                                 |                                 |
| Part #          | 1002016   | 1002003                         | 1002011                         | 1002005                         |
| Type            | SPST  |                                 | SPDT                            |                                 |
| Action          | Off-On  | Off-(On)                        | On-Off-On                       | (On)-Off-(On)                   |
| Nominal Voltage | 12V DC  | 12V/24V DC                      | 12V/24V DC                      | 12V/24V DC                      |
| Ratings         | 25A at 12V DC   | 25A at 12V DC,<br>15A at 24V DC | 25A at 12V DC,<br>15A at 24V DC | 25A at 12V DC,<br>15A at 24V DC |
| Terminal Type   | wire leads, 16<br>AWG, 8"   | wire leads, 16<br>AWG, 8"       | wire leads, 16<br>AWG, 8"       | wire leads, 16<br>AWG, 8"       |
| LED             | None  | None                            | None                            | None                            |

( ) = Momentary

### Toggle Switch Boots

- UV resistant, resists cracking and discoloration
- Full boot provides maximum protection. IP67 rated, will withstand saltwater and fresh water immersion up to 30 min.
- Tipless boot provides increase weather resistance while retaining the look of the stainless actuator

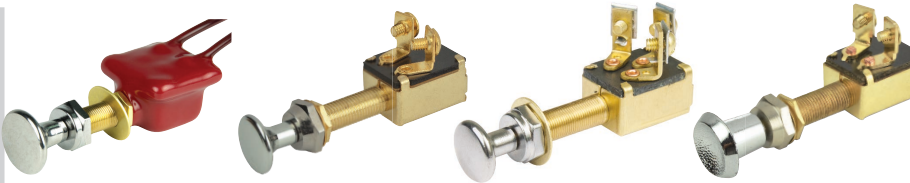


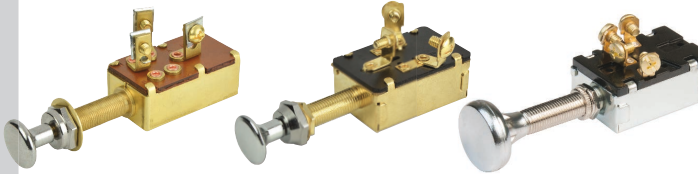
## Push-Pull Switches

- Push-Pull switches are well suited for managing a variety of single or multiple circuit lighting applications
- Shock and weather resistant for use in harsh marine and industrial environments
- Suitable for 6–36V system configurations with up to 10A ratings (12V)

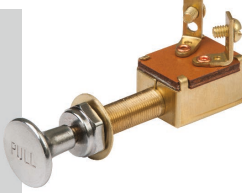
**Ideal for:**

Single or multiple circuit lighting applications

|                  |  |               |                      |               |
|------------------|--|---------------|----------------------|---------------|
|                  |  |               |                      |               |
| Part #           | 1001306  | 1001302       | 1001303              | 1001307       |
| Type             | SPST   |               |                      |               |
| Action           | Off-On   | Off-On        | Off-On (two circuit) | Off-On        |
| Nominal Voltage  | 6–36V DC   | 6–36V DC      | 6–36V DC             | 6–36V DC      |
| Ratings          | 10A at 12V DC  | 10A at 12V DC | 10A at 12V DC        | 10A at 12V DC |
| Termination Type | wire leads, 16 AWG, 8"   | #8–32 screws  | #8–32 screws         | #8–32 screws  |





|                  |  |               |                 |
|------------------|--|---------------|-----------------|
|                  |  |               |                 |
| Part #           | 1001304  | 1001301       | 1001305         |
| Type             | SPDT   |               |                 |
| Action           | Off-On1-On2  | Off-On1-On1&2 | Off-On1&2-On1&3 |
| Nominal Voltage  | 6–36V DC   | 6–36V DC      | 6–36V DC        |
| Ratings          | 10A at 12V DC  | 10A at 12V DC | 10A at 12V DC   |
| Termination Type | #8–32 screws   | #8–32 screws  | #8–32 screws    |





## Pull Switch

|                  |   |
|------------------|---|
|                  |  |
| Part #           | 1001308   |
| Type             | SPST  |
| Action           | Off-(On)  |
| Nominal Voltage  | 6–36V DC  |
| Ratings          | 10A at 12V DC   |
| Termination Type | #8–32 screws  |

## Ignition Switches

- Available in a variety of Off/On/Accessory/Ignition configurations to suit specific applications
- Suitable for 6–36V DC system configurations
- All ignition switches include 2 keys

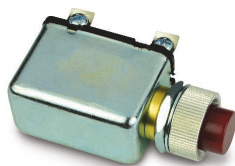
|                  |   |   |  |   |
|------------------|---|---|--|---|
|                  |  |  |  |  |
| Part #           | 1001605   | 1001608   | 1001606  | 1001607   |
| Action           | Off-On  | Off-On  | Off-Ignition-Start   | Off-Ignition & Accessory-Start  |
| Nominal Voltage  | 12V DC  | 12V DC  | 12V DC   | 12V DC  |
| Ratings          | Ignition 10A at 12V DC  | 5A at 12V DC  | Ignition 10A, Start 5A at 12V DC   | Ignition 10A, Start 5A at 12V DC  |
| Termination Type | #8–32 screws  | #8–32 screws  | #8–32 screws   | #8–32 screws  |

|                  |   |   |  |   |
|------------------|---|---|--|---|
|                  |  |  |  |  |
| Part #           | 1001610   | 1001604   | 1001603  | 1001609   |
| Action           | Off-Ignition-Start  | Off-Ignition & Accessory-Start  | Accessory-Off-Ignition & Accessory-Start   | Accessory-Off-Ignition & Accessory-Start  |
| Nominal Voltage  | 6–36V DC  | 12–48V DC   | 12/12V DC  | 12V DC  |
| Ratings          | 15A Ignition, 5A Start  | 10A at 12V DC, 5A at 24V DC, 3A at 36V DC, 2A at 48V DC                           | 10A at 12V DC, 5A at 24V DC  | Accessory 10A, Ignition 5A, Start 5A at 12V DC                                      |
| Termination Type | #8–32 screws  | Deutsch Connector (included)  | Deutsch Connector (included)   | #8–32 screws  |



## Alarm

- A convenient way to add alarm functionality to your dash or panel
- Buzzer sounds and bright red light illuminates when voltage is present
- For use with temperature, oil pressure, and engine warning alarm kits



|                  |              |
|------------------|--------------|
| Part #           | 1002301      |
| Family           | 12V          |
| Nominal Voltage  | 12V DC       |
| Termination Type | #8-32 screws |
| LED              | ● Red        |

## Master Disconnect

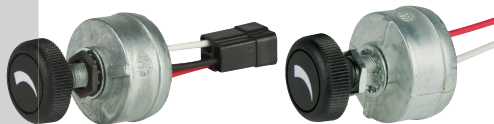
- Compact lever-operated battery disconnect switch
- Rated for 175A for use in 12V DC systems
- Suitable for 6–36V DC system configurations
- Includes face plate



|                  |                        |                        |
|------------------|------------------------|------------------------|
| Part #           | 1001001                | 1001002                |
| Action           | Off-On                 | Off-On                 |
| Family           | 175A                   | 125A                   |
| Nominal Voltage  | 6–36V DC               | 6–36V DC               |
| Ratings          | 175A at 12V continuous | 175A at 12V continuous |
| Termination Type | 3/8" Brass Nut         | 3/8" Brass Nut         |

## Dimmer Switches

- Easily control the brightness of incandescent bulbs from dim to bright
- Not intended for use with LED lights



|                  |                 |                        |
|------------------|-----------------|------------------------|
| Part #           | 1002101         | 1002102                |
| Family           | 12V - 4A        | 12V - 7A               |
| Nominal Voltage  | 12V DC          | 12V DC                 |
| Ratings          | 4A at 12V DC    | 7A at 12V DC           |
| Termination Type | 3-way connector | wire leads, 16 AWG, 2" |

## Kill Switch


- Ideal for adding engine-stop safety to older boats
- Available as a switch & lanyard combo, or replacement lanyard only



|                  |                  |              |
|------------------|------------------|--------------|
| Part #           | 1001601          | 1001602      |
| Family           | Switch & Lanyard | Lanyard Only |
| Nominal Voltage  | 12–24V DC        | —            |
| Ratings          | 10A at 12–24V DC | —            |
| Termination Type | 1/4" blades      | —            |


## LED Pilot Indicator


- This 12V solid-state LED never needs replacement
- Feature bright chrome-plated body, washer and hex nut
- Polarized quick connect terminals for ease of wiring
- Available in Amber, Red, Green, and Blue

|                  |  |             |             |             |
|------------------|--|-------------|-------------|-------------|
|                  |  |             |             |             |
| Part #           | 1001101  | 1001102     | 1001103     | 1001104     |
| Family           | 12V  | 12V         | 12V         | 12V         |
| Nominal Voltage  | 12V DC   | 12V DC      | 12V DC      | 12V DC      |
| Termination Type | 1/4" blades  | 1/4" blades | 1/4" blades | 1/4" blades |
| LED              | Amber  | Blue        | Green       | Red         |

## Solenoids

- Remotely switch high amperage loads with a low amperage on-off switch
- Rated from 65A up to 100A for use in 12V DC systems
- Available with steel and PVC coated housings

|                  |   |                                 |                                 |
|------------------|---|---------------------------------|---------------------------------|
|                  |  |                                 |                                 |
| Part #           | 1002203   | 1002205                         | 1002204                         |
| Family           | Remote Switching  | PVC Coated                      | Remote Switching                |
| Nominal Voltage  | 12V DC  | 12V DC                          | 12V DC                          |
| Ratings          | 65A at 12V DC   | 85A at 12V DC                   | 85A at 12V DC                   |
| Termination Type | 10-32 thread and 5/16-24 thread   | 10-32 thread and 5/16-24 thread | 10-32 thread and 5/16-24 thread |
| Amperage         | 65A   | 85A                             | 85A                             |

|                  |   |                            |   |
|------------------|---|----------------------------|---|
|                  |  |                            |   |
| Part #           | 1002206   | 1002201                    | 1002202                                 |
| Family           | Engine Starting   | Motor Reversing            | Solid State                             |
| Nominal Voltage  | 12V DC  | 12V DC                     | 9-31V DC                                |
| Ratings          | 100A at 12V DC  | 75A at 12V DC              | 85A at 12V DC                           |
| Termination Type | 5/16"-24 thread   | 5/16-24 thread & 1/4 blade | 5/16-18 thread & wire leads, 16 AWG, 8" |
| Amperage         | 100A  | 75A                        | 85A                                     |

# POWER DISTRIBUTION PANELS

## Switch Panels



64

A range of switch panels for interior and exterior use, choices with and without in-built circuit protection.

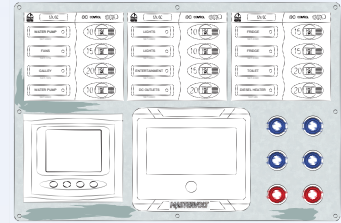
## Switches



67

Switch options for interior and exterior including high quality waterproof stainless steel push buttons with LED status.

## Custom Panel & Design Services



69

Custom Panels can be made to fit the needs of custom and production boat builders. 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.





# POWER DISTRIBUTION PANELS

## DC Circuit Breaker Panels



72

Off-the-shelf solution for controlling your vessel or vehicle's DC system with quality panels which include backlighting and circuit on status. Monitoring options range from basic analog metering, through to full systems in operation and tank monitoring.

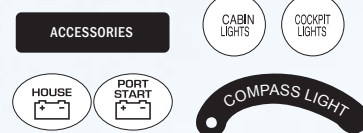
## AC Circuit Breaker Panels



78

Complimentary to the standard DC Panels, these AC circuit break panels cover systems ranging from four outputs through to multiple inputs and 16 output circuits. Monitoring options range from analog through to comprehensive digital meters.

## Circuit Breaker Panel Labels



81

Standard labels sets for circuit breaker panels, switch panels and for battery.



## Contour Generation II Switch Panels

The Contour Generation II Spray Proof Range offers unique styling using the latest techniques in injection molding. The switch tray is molded plastic with a rubber gasket and seal molded into the plastic. The cover is molded in a clear plastic with a rubber over-mold allowing the flexibility to operate the switches through the front of the panel while providing a clear window for label backlighting. The contour wave strip is interchangeable allowing for custom colors for OEM applications. Standard color supplied is black panel with charcoal strip.

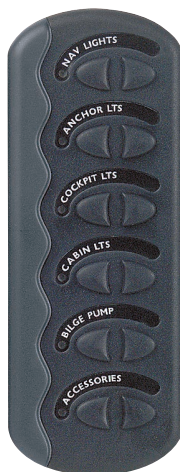
G2 can be mounted vertically or horizontally and is available in 2-, 4- and 6-way configurations.

A joiner (CG2-JB) is available for multiple panel installations. Supplied complete with on/off switches, these can be interchanged with a variety of different switch options.

- Replaceable clip-on contour wave (customized colors available for OEMs)
- Mounting screws covered by switch cover
- Backlit LEDs
- Flexible overshoot cover allows for easy switch operation
- Ribbed gasket provides watertight seal with switch cover
- Molded gasket on panel base creates watertight seal against mounting surface
- Unique design allows labels to be read whether mounted vertically or horizontally
- Switches rated at 16A DC
- Panel supplied standard with label SET-G2-1 (labels SET-G2-2 ordered separately, page 85)



| Switches | Color    | Fuses | Label Set # | Part #   |
|----------|----------|-------|-------------|----------|
| 2        | Charcoal | No    | SET-G2-1    | CG2-2W   |
| 2        | Charcoal | 1     | SET-G2-1    | CG2-2W-F |
| 4        | Charcoal | No    | SET-G2-1    | CG2-4W   |
| 4        | Charcoal | 2     | SET-G2-1    | CG2-4W-F |
| 6        | Charcoal | No    | SET-G2-1    | CG2-6W   |
| 6        | Charcoal | 3     | SET-G2-1    | CG2-6W-F |



### Spare Switches for Contour Generation II

| Part # | Switch type                       |
|--------|-----------------------------------|
| SW-CG1 | On/Off                            |
| SW-CG2 | On/Off Momentary                  |
| SW-CG3 | On/Off/On                         |
| SW-CG4 | Momentary On/Off/<br>Momentary On |
| SW-CG5 | On/On                             |

## Related Products



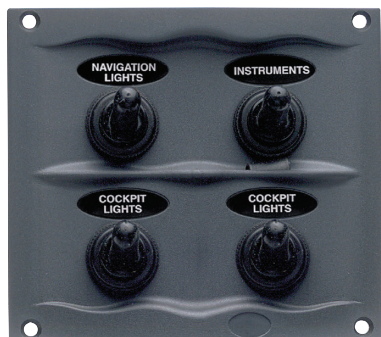
Label Sets  
page 85



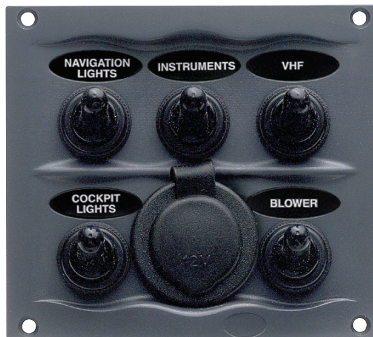
## Waterproof Series Panels

- Compact panel size
- Sprayproof inline fuse holders with fuses included
- Waterproof power receptacles (16A) in 3- and 5-way models
- Waterproof to IP56 (*see inside back cover*)
- Switches rated at 20A DC
- LxWxH is 3.75" x 4.25" x 2.9" (95 x 107 x 75 mm)
- Panel supplied with label LBL-WP

| Part #     | Color    | Description                    |
|------------|----------|--------------------------------|
| 900-3WPS   | charcoal | 3 switches plus 12V receptacle |
| 900-4WP    | charcoal | 4 switches                     |
| 900-5WPUSB | charcoal | 5 switches plus USB            |
| 900-5WPS   | charcoal | 5 switches plus 12V receptacle |
| 900-6WP    | charcoal | 6 switches                     |



900-4WP



900-5WPS



900-5WPUSB

### Related Products

NAVIGATION  
LIGHTS

Label Sets  
page 83

## Micro Series Panels

- Green LED backlit labels; red when on
- Full range of text or graphic labels available; mix n' match labels and panels to suit
- Switches rated 20A DC
- 3.4" x 2.3" x 1.2" (86 x 58 x 28 mm)
- Waterproof to IP56 (*see inside back cover*)
- Label see LBL-MIC included; additional label sets available



900-2WPOFO


900-2WP  
2 x 2-way switches


900-2WPMOM


900-SOP  
2 x 10 mm LEDs showing  
systems in operation

900-BA  
Bilge alarm and bilge pump  
control panel includes: 1 on/  
off/on switch for auto manual  
control; 1 warning light and  
alarm for high water level  
alarm. (Float switch ordered  
separately - Part # SB1-FS)

### Related Products



Label Sets  
page 85



## Contour Switch Panels

- CSP6-PTC uses the latest in overload protection technology—Positive Temperature Coefficient
- Green LED backlit labels; red systems on indicator
- Switches rated 20A DC
- Removable cover plates conceal screws & water drain
- Label set SET-1SP included
- **CSP6** Includes six switches unfused for installation where separate fused supply is available.
- **CSP6-F** Includes six switches and three inline fuse holders with fuses behind panel.
- **CSP6-PTC** fuses are solid state resettable fuses which change to a high resistance device on over-current. The panel is supplied with 6 x 9A PTC fuses mounted internally. No more changing fuses!

| Part # charcoal | Fuses | PTC | LxWxH                                    | Label Set # |
|-----------------|-------|-----|--|-------------|
| CSP6            | No    | No  |  |             |
| CSP6-F          | 3     | No  | 6.25" x 4.4" x 2.5"<br>158 x 112 x 64 mm | SET-1SP     |
| CSP6-PTC        | No    | 6   |  |             |



CSP6

## Related Products

### ACCESSORIES

Label Sets  
page 83

## Spare Parts for Waterproof, Micro and Contour Switch Panels



### Toggle Switches

| Part #   | Operation             |
|----------|-----------------------|
| SW-32111 | on/off                |
| SW-32113 | on/on                 |
| SW-32114 | on/off/on             |
| SW-32115 | (on)off/momentary     |
| SW-32120 | (on)off(on) momentary |
| SW-32123 | on/off/on double pole |



**Splash Proof Boot**  
SW-M331



12VUSB

12VUSBW-B

### SeaLink® Deluxe Dual USB Charger Receptacles

- 12V to 24V DC input
- 5V, 2.1 amp total output
- LED power indicator light for USB
- Water resistant cover protects against dust and water

|        |            |                                  |
|--------|------------|----------------------------------|
| Part # | 12VUSB     | black (with insulated terminals) |
| OEM #  | 12VDUSB-B  | black                            |
| OEM #  | 12VDUSBN-B | black no LED                     |
| OEM #  | 12VDUSBW-B | white                            |



12VRC

12VPG

### Deluxe 12V Plug & Receptacle

### Inline ATC Fuse Holder



WAFH-14

## Contour Interior 1000 Series Switch Panels

The smart, economical interior option for smaller vessels. Fully modular and built with ease of access in mind.

- Removable frame conceals mounting screws
- Concealed ATC fuses accessible from front of panel; ATC fuses supplied
- 16A rocker switches
- Panels are modular and square for vertical or horizontal stacking
- LED Systems On light
- Supplied with: Spacer for accurate mounting placement, label set sheet # SET-1000
- Maximum panel load 50A



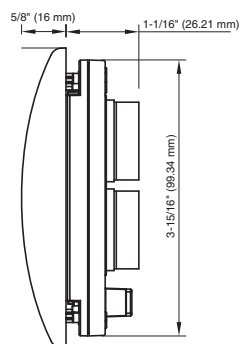
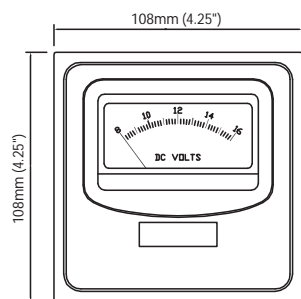
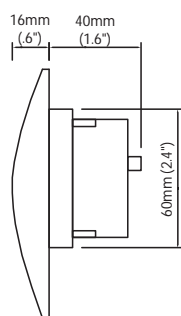
1000-VM-12V Voltmeter

1000-6W Switch Panel

| Description        | Part #      |
|--------------------|-------------|
| 12V Systems        | 1000-VM-12V |
| DC Systems Monitor | 1000-DCSM   |
| AC Systems Monitor | 1000-ACSM   |

| Switches | Fuses  | Voltage | Part #      |
|----------|--------|---------|-------------|
| 6        | 6x 15A | 12      | 1000-6W     |
| 6        | 6x 15A | 24      | 1000-6W-24V |

Now available with digital AC and DC systems monitors



Side profile systems panel



1000-6W

### Related Products

SW-RVS2  
ON/OFFLabel Sets  
page 85

## 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.

### Replacement and/or different Operational Switch

| Description                           | Part #     |
|---------------------------------------|------------|
| On/On (On/Off)                        | SW-6064B3P |
| On/Off/On                             | SW-6064C3P |
| On/Off Spring-loaded in "on" position | SW-6064D3P |



### Related Products

Labels Sets  
page 83

| Part #            | 1100-BK                                | 1101-BK                                | 1101-BK-TS                             |
|-------------------|--|--|--|
| Interior/Exterior | Interior                               | Interior                               | Exterior                               |
| Single/Double     | Single                                 | Double                                 | Double                                 |
| Rated             | 10A                                    | 10A                                    | 20A                                    |
| LxWxH             | 2.4" x 1.2" x 0.75"<br>60 x 30 x 18 mm | 3.6" x 1.2" x 0.75"<br>91 x 30 x 18 mm | 3.6" x 1.2" x 0.75"<br>91 x 30 x 18 mm |

## 12V & 24V Push-button Switches & Buzzers with LED Ring

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 (*see inside back cover*)
- IP50 environmental protection buzzers (*see inside back cover*)
- 80 decibel buzzer sound intensity
- Warning buzzers flash red on alarm

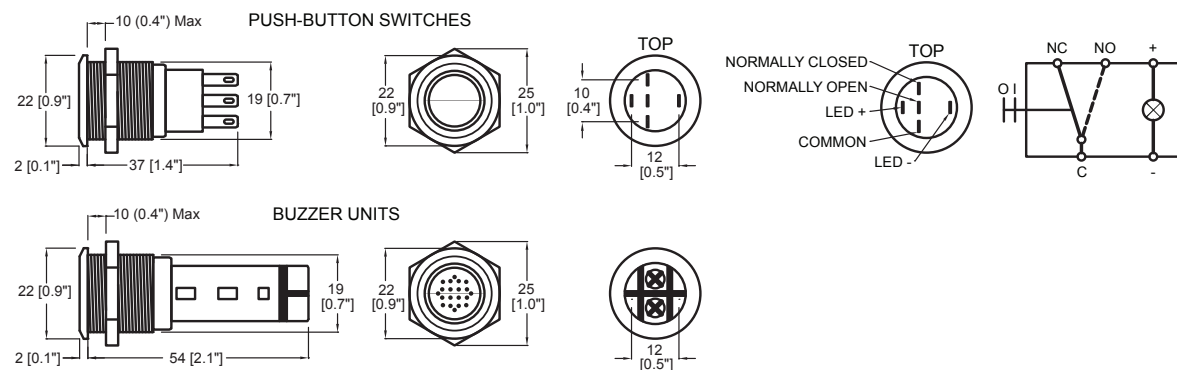


### 12V

| Description        | Color | Part #         | OEM #          |
|--------------------|-------|----------------|----------------|
| Latching On/Off    | Red   | 80-511-0001-00 | 80-511-0001-01 |
| Latching On/Off    | Blue  | 80-511-0003-00 | 80-511-0003-01 |
| Latching On/Off    | Green | —              | 80-511-0011-01 |
| Momentary (On)/Off | Red   | 80-511-0002-00 | 80-511-0002-01 |
| Momentary (On)/Off | Blue  | 80-511-0004-00 | 80-511-0004-01 |
| Momentary (On)/Off | Green | —              | 80-511-0012-01 |
| Buzzer             | Red   | 80-511-0009-00 | 80-511-0009-01 |

### 24V

| Description        | Color | Part #         | OEM #          |
|--------------------|-------|----------------|----------------|
| Latching On/Off    | Red   | 80-511-0005-00 | 80-511-0005-01 |
| Latching On/Off    | Blue  | 80-511-0007-00 | 80-511-0007-01 |
| Momentary (On)/Off | Red   | 80-511-0006-00 | 80-511-0006-01 |
| Momentary (On)/Off | Blue  | 80-511-0008-00 | 80-511-0008-01 |
| Buzzer             | Red   | 80-511-0010-00 | 80-511-0010-01 |



## Connection Cable

This 12" (300 mm) cable simply pushes onto the back of the push button switches and features 0.8 mm<sup>2</sup> (18g) cables for switch and backlight connections that comply with ISO/ABYC. Other end is stripped wire for easy connection.

Part # 80-511-0031-00  
OEM # 80-511-0031-01





## Custom Panel & Design Services

BEP offers a wide range of standard AC and DC Circuit Breaker Panels. Whether customers require some minor modification to a standard panel, a custom selection of breakers and meters, or a completely tailored circuit design and battery switch panel, BEP can deliver a solution.



Details on how to create your custom panel, see following page. ►

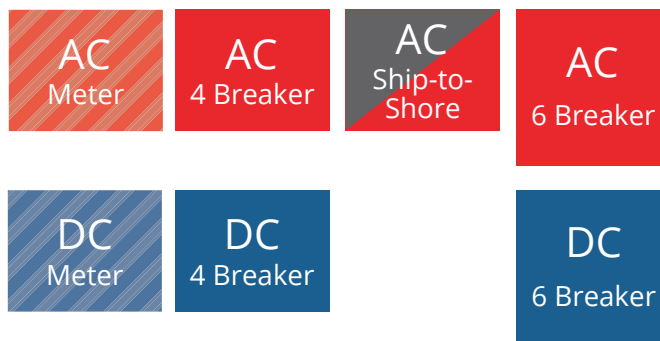
## Custom Panel Selection

### Easy 4 Step Process

Custom Panel Selection is simple and effective. The customer will need to define which selection of Panel Sections are required for the system. Panel layout will define the relative location of each Panel Section type in a simple grid. Breaker ratings, load groups or meter sources will then need to be defined within each Panel Section.

### 1 Pick Panel Section Types

Breaker & Meter panels can vary between AC or DC and 110V or 230V systems. Each Panel Section holds four or six breakers per block or a single meter.

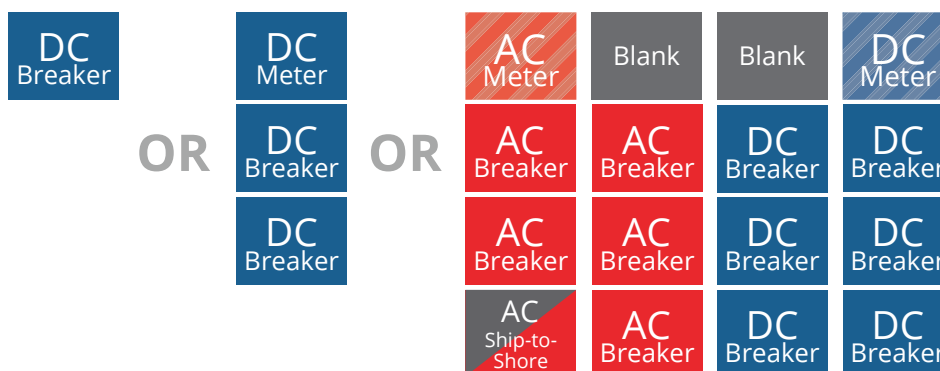


### 2 Panel Layout

Panel Sections can be assembled in a grid layout and will vary based on the layout and the number of Panel Section blocks required.

Blanks can be used to even up rows or columns, or can feature additional custom requirements from indicator lights to switches.

Residual Current Circuit Breaker and Overcurrent Protection (RCBO) and Ship-to-Shore slide selection can also be added.

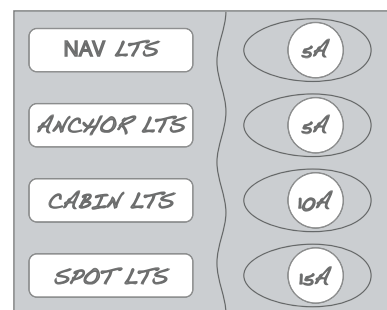


### 3 Define Breaker Ratings Positions & Load Groups

Each four or six breaker panel can hold any combination of required amperage ratings and source load groups.

### 4 Order

Contact your BEP Agent with your Panel Layout and Circuit Drawings. BEP will then confirm pricing, breaker panel drawings and estimated lead time for your consideration.





## Panel Design Services

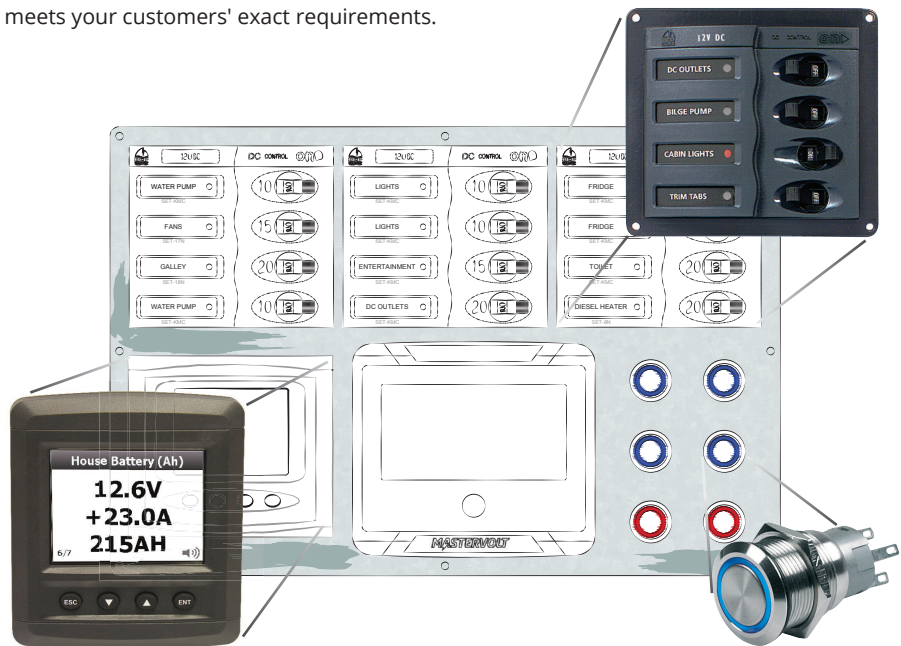
*For a completely tailored product based on your needs*

For specific requirements, we can develop a customized breaker and battery panel solution that will ensure your installation meets your customers' exact requirements.

### Specifications & Ordering

Once you have developed a wiring diagram or illustration of the requirements for your installation, contact your BEP agent to discuss your individual requirements and specifications. A comprehensive layout and drawing will be developed, with pricing and estimated lead time to be presented for your consideration.

To help guide your design, BEP features a number of common custom requirements for consideration.



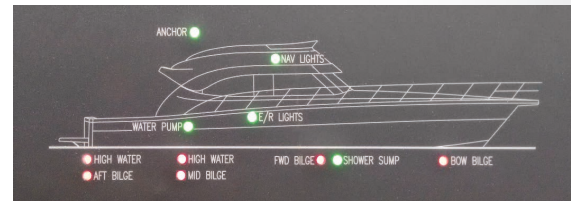
### Battery Management & Circuit Breaker Panels

Large area panels can often hold a custom selection of circuit breakers, RCDs, battery switches and more. Sizes can range from small traditional sizes up to a maximum of 2 metres.



### Adding a mimic panel

Mimic panels or simple indicator lights can be added to illustrate circuit activation or warnings.



### Professionally cut to shape

Panels are not always traditional and square. We have the capability to design any number of complex shapes, ideal if you have a tight or non-traditional space to work with, or you simply desire different aesthetics in your installation.



### Custom switch locations graphics

Customized switch types and locations with tailored graphics, logos and labels can be supplied complete with wiring harness based on your specification ready for immediate installation.



### Non-panel

Our team have a broad range of capability and can develop customised wired solutions or components for your installation.





## DC Circuit Breaker Panels—No Meters

- Red systems on LED
- 12V (24V Backlighting Upgrade Kits on page 73)
- Marine grade powder coated aluminium
- ABYC standard voltage indication
- Green LED backlit labels
- Stylish clip on contour fascia
- Label set(s) and busbar supplied with panels
- Depth for mounting 2.5" (64 mm) all panels

## POWER TIP

### Maximum Amperage Explained

To reach the 160A maximum stated amperage rating each copper bus on rear of DC Panel requires a separate 16 mm<sup>2</sup> / 6 AWG feed cable that is attached to center of the bus bar i.e. on a 16 circuit breaker panel with a single bus the feed cable should be attached between circuit breakers #8 and #9.



| Part #                         | 900-DC                | 901H                          | 901V                          | 902NMH                        |
|--------------------------------|-----------------------|-------------------------------|-------------------------------|-------------------------------|
| Total Positions                | <b>4 Loads</b>        | <b>8 Loads</b>                | <b>8 Loads</b>                | <b>12 Loads</b>               |
| Circuit Breakers (single pole) | 1x 5A, 2x 10A, 1x 15A | 2x 5A, 2x 10A, 3x 15A, 1x 20A | 2x 5A, 2x 10A, 3x 15A, 1x 20A | 3x 5A, 4x 10A, 4x 15A, 1x 25A |
| Nominal Voltage                | 12V*                  | 12V*                          | 12V*                          | 12V*                          |
| Maximum Amperage               | 80A                   | 160A                          | 160A                          | 100A                          |
| HxWx2.5"                       | 4.5" x 5"             | 4.5" x 9.75"                  | 7.9" x 5"                     | 4.5" x 13.9"                  |
| HxWx65 mm                      | 115 x 127 mm          | 115 x 239 mm                  | 200 x 127 mm                  | 115 x 351 mm                  |
| Neg Bus                        | 6-way                 | 6-way                         | 6-way                         | 6-way                         |
| Label Sheet                    | 1                     | 1                             | 1                             | 1                             |

\*24V Backlighting Upgrade Kits on page 73.

## Related Products

### ACCESSORIES

Label Sets  
page 81-82



| Part #                         | 902NMV                        | 904NM                                 | 904NMH                                |
|--------------------------------|-------------------------------|---------------------------------------|---------------------------------------|
| Total Positions                | <b>12 Loads</b>               | <b>16 Loads</b>                       | <b>16 Loads</b>                       |
| Circuit Breakers (single pole) | 3x 5A, 4x 10A, 4x 15A, 1x 25A | 4x 5A, 5x 10A, 5x 15A, 1x 20A, 1x 25A | 4x 5A, 5x 10A, 5x 15A, 1x 20A, 1x 25A |
| Nominal Voltage                | 12V*                          | 12V*                                  | 12V*                                  |
| Maximum Amperage               | 160A                          | 160A per bus                          | 80A per bus                           |
| HxWx2.5"                       | 11.25" x 5"                   | 7.9" x 9.75"                          | 4.5" x 18.25"                         |
| HxWx65 mm                      | 285 x 127 mm                  | 200 x 239 mm                          | 115 x 463 mm                          |
| Neg Bus                        | 6-way                         | 12-way                                | 12-way                                |
| Label Sheet                    | 1                             | 1                                     | 1                                     |

\*24V Backlighting Upgrade Kits on page 73.

Cutout size - 3/8" (10 mm) inside all external edges.

For more information on circuit breaker panels go to [bepmarine.com](http://bepmarine.com)



| Part #                         | 904NMV                        | 905NM   | 905NMV  |
|--------------------------------|-------------------------------|---|---|
| Total Positions                | <b>16 Loads</b>               | <b>24 Loads</b>                               | <b>24 Loads</b>                               |
| Circuit Breakers (single pole) | 3x 5A, 4x 10A, 4x 15A, 1x 25A | 5x 5A, 8x 10A, 8x 15A, 1x 20A, 1x 25A, 1x 30A | 5x 5A, 8x 10A, 8x 15A, 1x 20A, 1x 25A, 1x 30A |
| Nominal Voltage                | 12V*                          | 12V*  | 12V*  |
| Maximum Amperage               | 160A                          | 160A per bus                                  | 160A per bus                                  |
| HxWx2.5"                       | 14.6" x 5"                    | 7.9" x 13.9"                                  | 11.25" x 9.75"                                |
| HxWx65 mm                      | 370 x 127 mm                  | 200 x 351 mm                                  | 285 x 239 mm                                  |
| Neg Bus                        | 6-way                         | 12-way  | 12-way  |
| Label Sheet                    | 1                             | 1-3   | 1-3   |

\*24V Backlighting Upgrade Kits below.



| Part #                         | 906NMH  | 906NMV  | NC36NM  |
|--------------------------------|---|---|---|
| Total Positions                | <b>32 Loads</b>                                 | <b>32 Loads</b>                                 | <b>36 Loads</b>                                 |
| Circuit Breakers (single pole) | 7x 5A, 11x 10A, 11x 15A, 1x 20A, 1x 25A, 1x 30A | 7x 5A, 11x 10A, 11x 15A, 1x 20A, 1x 25A, 1x 30A | 8x 5A, 12x 10A, 12x 15A, 2x 20A, 1x 25A, 1x 30A |
| Nominal Voltage                | 12V*  | 12V*  | 12V*  |
| Maximum Amperage               | 160A per bus                                    | 160A per bus                                    | 160A per bus                                    |
| HxWx2.5"                       | 7.9" x 18.25"                                   | 14.6" x 9.75"                                   | 11.25" x 13.9"                                  |
| HxWx65 mm                      | 200 x 463 mm                                    | 370 x 239 mm                                    | 285 x 351 mm                                    |
| Neg Bus                        | 24-way  | 24-way  | 24-way  |
| Label Sheet                    | 1-4   | 1-4   | 1-4, 6  |

\*24V Backlighting Upgrade Kits below.

## 24V Backlighting Upgrade Kits

For changing 12V panels to 24V backlighting.

| # of Circuits | Part #    | # of Circuits | Part #    | # of Circuits | Part #    |
|---------------|-----------|---------------|-----------|---------------|-----------|
| 4-way         | RES-4WAY  | 20-way        | RES-20WAY | 36-way        | RES-36WAY |
| 8-way         | RES-8WAY  | 24-way        | RES-24WAY | 44-way        | RES-44WAY |
| 12-way        | RES-12WAY | 28-way        | RES-28WAY |               |           |
| 16-way        | RES-16WAY | 32-way        | RES-32WAY |               |           |

## DC Circuit Breaker Panels—With Digital/Analog Monitoring

- All panels are available with either Analog or Digital meters
- 12V (24V Backlighting Upgrade Kits on page 73)
- Label set(s) and busbar supplied with panels
- Depth for mounting 2.5" (64 mm) all panels



| Part #                         | 900V-DCSM             | 901V-DCSM                     | 902-DCSM                      | 902V-DCSM                     |
|--------------------------------|-----------------------|-------------------------------|-------------------------------|-------------------------------|
| Meter                          | digital               | digital                       | digital                       | digital                       |
| Total Positions                | <b>4 Loads</b>        | <b>8 Loads</b>                | <b>12 Loads</b>               | <b>12 Loads</b>               |
| Circuit Breakers (single pole) | 1x 5A, 2x 10A, 1x 15A | 2x 5A, 2x 10A, 3x 15A, 1x 20A | 3x 5A, 4x 10A, 4x 15A, 1x 25A | 3x 5A, 4x 10A, 4x 15A, 1x 25A |
| Nominal Voltage                | 12V*                  | 12V*                          | 12V*                          | 12V*                          |
| Maximum Amperage               | 80A                   | 160A                          | 160A/80A buses                | 160A                          |
| HxWx2.5"                       | 7.9" x 5"             | 11.6" x 5"                    | 7.9" x 9.75"                  | 15" x 5"                      |
| HxWx65 mm                      | 200 x 127 mm          | 295 x 127 mm                  | 200 x 239 mm                  | 380 x 127 mm                  |
| Neg Bus                        | 6-way                 | 6-way                         | 6-way                         | 6-way                         |
| Label Sheet                    | 1                     | 1                             | 1                             | 1                             |

\*24V Backlighting Upgrade Kits on page 73.



| Part #                         | 904-DCSM                              | 903-DCSM                              | 905-DCSM                                      | 905V-DCSM                                     |
|--------------------------------|---------------------------------------|---------------------------------------|---|---|
| Meter                          | digital                               | digital                               | digital                                       | digital                                       |
| Total Positions                | <b>16 Loads</b>                       | <b>20 Loads</b>                       | <b>24 Loads</b>                               | <b>24 Loads</b>                               |
| Circuit Breakers (single pole) | 4x 5A, 5x 10A, 5x 15A, 1x 20A, 1x 25A | 5x 5A, 6x 10A, 7x 15A, 1x 20A, 1x 30A | 5x 5A, 8x 10A, 8x 15A, 1x 20A, 1x 25A, 1x 30A | 5x 5A, 8x 10A, 8x 15A, 1x 20A, 1x 25A, 1x 30A |
| Nominal Voltage                | 12V*                                  | 12V*                                  | 12V*  | 12V*  |
| Maximum Amperage               | 160A per bus                          | 160A/80A/160A buses                   | 160A per bus                                  | 160A per bus                                  |
| HxWx2.5"                       | 11.6" x 9.75"                         | 7.9" x 9.75"                          | 11.6" x 13.9"                                 | 15" x 9.75"                                   |
| HxWx65 mm                      | 295 x 239 mm                          | 200 x 351 mm                          | 295 x 351 mm                                  | 380 x 239 mm                                  |
| Neg Bus                        | 12-way                                | 12-way                                | 12-way  | 12-way  |
| Label Sheet                    | 1-2                                   | 1-3                                   | 1-3   | 1-3   |



\*24V Backlighting Upgrade Kits on page 73.



| Part #                         | 906-DCSM  | 906V-DCSM                                       | 907-DCSM   |
|--------------------------------|---|---|--|
| Meter                          | digital   | digital   | digital  |
| Total Positions                | <b>32 Loads</b>                                 | <b>32 Loads</b>                                 | <b>48 Loads</b>                                  |
| Circuit Breakers (single pole) | 7x 5A, 11x 10A, 11x 15A, 1x 20A, 1x 25A, 1x 30A | 7x 5A, 11x 10A, 11x 15A, 1x 20A, 1x 25A, 1x 30A | 12x 5A, 15x 10A, 15x 15A, 3x 20A, 1x 25A, 2x 30A |
| Nominal Voltage                | 12V*  | 12V*  | 12V*   |
| Maximum Amperage               | 160A per bus                                    | 160A per bus                                    | 160A per bus                                     |
| HxWx2.5"                       | 11.6" x 18.25"                                  | 18" x 9.75"                                     | 15" x 18.25"                                     |
| HxWx65 mm                      | 295 x 463 mm                                    | 455 x 239 mm                                    | 380 x 463 mm                                     |
| Neg Bus                        | 24-way  | 24-way  | 2 x 24-way                                       |
| Label Sheet                    | 1-4   | 1-4   | 1-5  |

All analog panels supplied with one shunt, extra shunts ordered separately. Digital panels supplied with 450A-50mV shunt. Cutout size - 10 mm (3/8") inside all external edges.

All panels available in 12V or 24V configuration. All part numbers shown are 12V backlighting. Order upgrade kits to suit number of breakers in panel. See page 73 for upgrade part number.

For more information on circuit breaker panels go to [bepmarine.com](http://bepmarine.com)

## Related Products



Ammeters  
page 95

## Related Products

### ACCESSORIES

Label Sets  
page 81-82

Cruiser Series DC Branch Circuit Breaker Panels

- 12V / 24V
- Mimic panel for quick reference of systems in operation
- Blank space for addition of extra meter
- Digital or analog readouts
- Depth for mounting 2.5" (64 mm) all panels



| Part #                         | NC32Y-DCSM                                      | NC36L-DCSM                                      |
|--------------------------------|---|---|
| Meter                          | digital   | digital   |
| Total Positions                | 32 Loads  | 36 Loads  |
| Circuit Breakers (single pole) | 7x 5A, 11x 10A, 11x 15A, 1x 20A, 1x 25A, 1x 30A | 8x 5A, 12x 10A, 12x 15A, 2x 20A, 1x 25A, 1x 30A |
| Nominal Voltage                | 12V or 24V*                                     | 12V or 24V*                                     |
| Maximum Amperage               | 160A per bus                                    | 160A per bus                                    |
| HxWx2.5"                       | 15" x 13.9"                                     | 15" x 13.9"                                     |
| HxWx65 mm                      | 380 x 351 mm                                    | 380 x 351 mm                                    |
| Neg Bus                        | 24-way  | 24-way  |
| Label Sheet                    | 1-4, 6  | 1-4, 6  |

Related Products

ACCESSORIES

Label Sets  
page 81-82

All analog panels supplied with one shunt, extra shunts ordered separately. Digital panels supplied with 450A – 50mV shunt. Cutout size – 3/8" (10 mm) inside all external edges.

\*All panels available in 12V or 24V configuration. If 24V is required, please specify when ordering by adding –24V to part number.

Double Pole Panels

- Double pole panels available in all panel sizes.
- Double pole CBs use twice the space of single pole breakers; an 8-load single pole panel will become 4-load when using double pole circuit breakers
- AC or DC versions available
- Single toggle



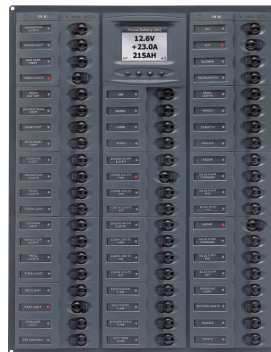
904NM-DP

## Millennium Series DC Branch Circuit Breaker Panels

- 12V / 24V
- Compact sizing
- Battery monitoring using BEP multifunction meter (voltage on 3 battery banks, charge, discharge amps and amp-hours remaining on main battery bank)
- Depth for mounting 2.5" (64 mm) all panels



| Part #                         | M28-DCSM                              | M32-DCSM  | M44-DCSM   |
|--------------------------------|---------------------------------------|---|--|
| Meter                          | digital                               | digital   | digital  |
| Total Positions                | <b>28 Loads</b>                       | <b>32 Loads</b>                                 | <b>44 Loads</b>                                  |
| Circuit Breakers (single pole) | 8x 5A, 8x 10A, 8x 15A, 2x 20A, 2x 30A | 7x 5A, 11x 10A, 11x 15A, 1x 20A, 1x 25A, 1x 30A | 10x 5A, 14x 10A, 14x 15A, 3x 20A, 1x 25A, 2x 30A |
| Nominal Voltage                | 12V or 24V*                           | 12V or 24V*                                     | 12V or 24V*                                      |
| Maximum Amperage               | 160A per bus                          | 160A per bus                                    | 160A per bus                                     |
| HxWx2.5" HxWx65 mm             | 14.6" x 9.75" 370 x 239 mm            | 11.25" x 13.9" 285 x 351 mm                     | 14.6" x 13.9" 370 x 351 mm                       |
| Neg Bus                        | 24-way                                | 24-way  | 24-way   |
| Label Sheet                    | 1-4                                   | 1-4, 6  | 1-4, 6   |



| Part #                         | M44H-DCSM  | M56-DCSM   |
|--------------------------------|--|--|
| Meter                          | digital  | digital  |
| Total Positions                | <b>44 Loads</b>                                  | <b>56 Loads</b>                                  |
| Circuit Breakers (single pole) | 10x 5A, 14x 10A, 14x 15A, 3x 20A, 1x 25A, 2x 30A | 12x 5A, 18x 10A, 18x 15A, 4x 20A, 2x 25A, 2x 30A |
| Nominal Voltage                | 12V or 24V*                                      | 12V or 24V*                                      |
| Maximum Amperage               | 160A per bus                                     | 160A per bus                                     |
| HxWx2.5" HxWx65 mm             | 11.25" x 18.25" 285 x 463 mm                     | 18" x 13.9" 455 x 351 mm                         |
| Neg Bus                        | 24-way   | 2x 24-way  |
| Label Sheet                    | 1-4, 6   | 1-4, 6   |

### Related Products

ACCESSORIES

Label Sets  
page 81-82



## AC Main Circuit Breaker Panels—No Meters

- Ideal for AC shore power installations and on board inverter installations
- For standard twin input systems, eg: one shore power and one genset input
- Depth for mounting 2.5" (64 mm) all panels



| Part #                                  | 900-ACM2W-110V           | 900-ACM2W       | 900-ACM6W-110V                  | 900-ACM6W                       | 900-AC1-110V              | 900-AC1                 | 900-ACCH-110V           | 900-ACCH |
|---|--------------------------|-----------------|---------------------------------|---------------------------------|---------------------------|-------------------------|-------------------------|----------|
| Nominal Voltage                         | 110V AC                  | 230V AC         | 110V AC                         | 230V AC                         | 110V AC                   | 230V AC                 | 110V AC                 | 230V AC  |
| Total Positions                         | <b>2 Loads + 1 Input</b> |                 | <b>6 Loads + 1 Input</b>        |                                 | <b>4 Loads + 2 Inputs</b> |                         | <b>2 Input Selector</b> |          |
| Circuit Breakers (single + double pole) | 2x 15A + 1x 30A          | 2x 10A + 1x 20A | 3x 15A, 2x 20A, 1x 25A + 1x 30A | 2x 10A, 3x 15A, 1x 20A + 1x 20A | 2x 15A, 2x 20A + 2x 30A   | 2x 10A, 2x 15A + 2x 20A | 2x 30A                  | 2x 15A   |
| Maximum Amperage                        | 30A                      | 20A             | 30A                             | 20A                             | 30A                       | 20A                     | 30A                     | 15A      |
| HxWx2.5" HxWx65 mm                      | 4.5" x 5" 115 x 127 mm   |                 | 7.9" x 5" 200 x 127 mm          |                                 | 4.5" x 9.4" 115 x 239 mm  |                         | 7.9" x 5" 200 x 127 mm  |          |
| Neg Bus                                 | IS-6MM-2                 |                 | IS-6MM-2                        |                                 | IS-6MM-2                  |                         | IS-6MM-2                |          |
| Label Sheet                             | 5                        |                 | 5                               |                                 | 5                         |                         | 5                       |          |



### Reverse Polarity Auto Trip Breaker

Now standard on all 230V, 50Hz panels (Euro and Asia-Pacific). This will automatically trip when it detects reverse polarity.

See page 51 for more details

## AC Main Circuit Breaker Panels—Digital

- All supplied with transducers
- Reverse polarity indicator
- Double pole mains input CBs with side lockout
- Digital meter shows volts, amps and frequency
- LED wired to indicate live panel with mains breaker either on or off
- AC source selector ensures no cross over between AC inputs (ship or shore power)
- AC voltage/frequency label to comply with ABYC Standards



| Part #                                  | 900-AC1H-ACSM             | 900-ACM6V-ACSM-110              | 900-ACM6V-ACSM           | 900-AC2H-ACSM-110                                | 900-AC2H-ACSM                                   |
|---|---------------------------|---------------------------------|--------------------------|--|---|
| Nominal Voltage                         | 230V AC                   | 110V AC                         | 230V AC                  | 110V AC  | 230V AC   |
| Meter                                   | digital                   | digital                         | digital                  | digital  | digital   |
| Total Positions                         | <b>4 Loads + 2 Inputs</b> |                                 | <b>6 Loads + 1 Input</b> |  | <b>8 Loads + 2 Inputs</b>                       |
| Circuit Breakers (single + double pole) | 2x 10A, 2x 15A + 2x 20A   | 2x 10A, 3x 15A, 1x 20A + 1x 20A | 2x 10A, 3x 15A, + 1x 20A | 2x 10A, 3x 15A, 2x 20A, 1x 25A + 1x 30A, 1x 50A" | 1x 5A, 3x 10A, 3x 15A, 1x 20A + 1x 20A, 1x 30A" |
| Maximum Amperage                        | 20A                       | 20A                             | 20A                      | 50A  | 30A   |
| HxWx2.5" HxWx65 mm                      | 4.5" x 13.8" 115 x 351 mm |                                 | 11.6" x 5" 295 x 127 mm  |  | 7.9" x 9.75" 200 x 239 mm                       |
| Neg Bus                                 | IS-6MM-2                  |                                 | 2x6-way                  |  | 2x6-way   |
| Label Sheet                             | 5                         |                                 | 5                        |  | 5   |



| Part #                                  | 900-AC2H-ACSM-110                               | 900-AC2H-ACSM                                  | 900-AC2V-ACSM-110                                      | 900-AC2V-ACSM                                  |
|---|---|--|--|--|
| Nominal Voltage                         | 110V AC   | 230V AC  | 110V AC  | 230V AC  |
| Meter                                   | digital   | digital  | digital  | digital  |
| Total Positions                         | <b>8 Loads + 2 Inputs</b>                       |  | <b>8 Loads + 2 Inputs</b>                              |  |
| Circuit Breakers (single + double pole) | 2x 10A, 3x 15A, 2x 20A, 1x 25A + 1x 30A, 1x 50A | 1x 5A, 3x 10A, 3x 15A, 1x 20A + 1x 20A, 1x 30A | 1x 5A, 2x 10A, 3x 15A, 2x 20A, 1x 25A + 1x 30A, 1x 50A | 1x 5A, 3x 10A, 3x 15A, 1x 20A + 1x 20A, 1x 30A |
| Maximum Amperage                        | 50A   | 30A  | 50A  | 30A  |
| HxWx2.5" HxWx65 mm                      | 7.9" x 9.75" 200 x 239 mm                       |  | 15" x 5" 380 x 127 mm                                  |  |
| Neg Bus                                 | 2x6-way   |  | 2x6-way  |  |
| Label Sheet                             | 5   |  | 5  |  |



| Part #                                  | 900-AC3-ACSM-110  | 900-AC3-ACSM   | 900-AC4-ACSM-110  | 900-AC4-ACSM   |
|---|---|--|---|--|
| Nominal Voltage                         | 110V AC   | 230V AC  | 110V AC   | 230V AC  |
| Meter                                   | digital   | digital  | digital   | digital  |
| Total Positions                         | <b>12 Loads + 2 Inputs</b>                              |  | <b>16 Loads + 2 Inputs</b>                              |  |
| Circuit Breakers (single + double pole) | 3x 10A, 4x 15A, 3x 20A, 1x 25A, 1x 30A + 1x 30A, 1x 50A | 1x 5A, 4x 10A, 5x 15A, 1x 20A, 1x 25A + 1x 20A, 1x 30A | 5x 10A, 7x 15A, 2x 20A, 1x 25A, 1x 30A + 1x 30A, 1x 80A | 1x 5A, 5x 10A, 7x 15A, 2x 20A, 1x 25A + 1x 20A, 1x 50A |
| Maximum Amperage                        | 50A   | 30A  | 80A   | 50A  |
| HxWx2.5" HxWx65 mm                      | 7.9" x 13.9" 200 x 351 mm                               |  | 7.9" x 13.9" 200 x 351 mm                               |  |
| Neg Bus                                 | 2x12-way  |  | 2x12-way  |  |
| Label Sheet                             | 5   |  | 5   |  |

Cutout size – 3/8" (10 mm) inside all external edges. All panels available in 12V or 24V backlighting configuration.

## Related Products

### ACCESSORIES

Label Sets  
page 81–82

## Back Panel Covers

- Designed to insulate exposed rear terminals
- Flame retardant PVC in two styles
- Flange Mount: for access to control panel back when mounted in place. Attaches to the rear of the same mounting surface as the panel.
- Panel Mount: for access only when panel is removed. Supplied with mounting pedestals.



BC-PM1



BC-FM1



BC-FM2



BC-PM2

| Part # | Mount type | Cover Description         | HxWxD               | HxWxD             |
|--------|------------|---------------------------|---------------------|-------------------|
| BC-FM1 | Flange     | 1 column 8-12 CBs + meter | 15" x 5" x 3.5"     | 380 x 127 x 90 mm |
| BC-FM2 | Flange     | 2 column 8-12 CBs + meter | 15" x 9.4" x 3.5"   | 380 x 239 x 90 mm |
| BC-FM3 | Flange     | 1 column 8-12 CBs         | 11.2" x 5" x 3.5"   | 285 x 127 x 90 mm |
| BC-FM4 | Flange     | 2 column 8-12 CBs         | 11.2" x 9.4" x 3.5" | 285 x 239 x 90 mm |
| BC-PM1 | Panel      | 1 column 8-12 CBs + meter | 14.2" x 4.2" x 3.5" | 360 x 107 x 90 mm |
| BC-PM2 | Panel      | 2 column 8-12 CBs + meter | 14.2" x 8.6" x 3.5" | 360 x 219 x 90 mm |





## Labels–Circuit Breaker Panels

| ACCESSORIES           | BAIT TANK PUMP         | 12V OUTLETS         | AFT LIGHTS            | AC MAINS          | AC MAINS            |                        |
|-----------------------|------------------------|---------------------|-----------------------|-------------------|---------------------|------------------------|
| SET-1N                | SET-2N                 | SET-3N              | SET-4N                | SET-5N            | SET-6N              |                        |
| ACCESSORIES           | BAIT TANK PUMP         | 12V OUTLETS         | AFT LIGHTS            | AC MAINS          | AC MAINS            |                        |
| ANCHOR LIGHT          | BILGE PUMP AFT         | 24V OUTLETS         | BEDROOM/CONVERTER     | AC OUTLETS        | ACCESSORIES         |                        |
| AUTO PILOT            | BILGE PUMP FORWARD     | AFT DECK LIGHT      | DAVIT WINCH           | AC OUTLETS        | ANCHOR WASH         |                        |
| BILGE PUMP            | BILGE PUMP MID         | BILGE AUTO MAN.     | ENGINE ALTERNATOR     | AIR CONDITIONING  | AUTOMATIC           |                        |
| CABIN LIGHTS          | BILGE PUMP PORT        | BOW LIGHTS          | FIRE SYSTEM           | BATTERY CHARGER   | AUTOPILOT           |                        |
| CABIN LIGHTS          | BILGE PUMP STARBOARD   | DOCKING LIGHTS      | FISH FINDER           | COOK TOP          | AUXILIARY           |                        |
| COCKPIT LIGHTS        | BLOWER                 | EMERGENCY PARALLEL  | FISHING LIGHT         | DISHWASHER        | BILGE AUTO MANUAL   |                        |
| COMPASS LIGHTS        | BOARDING LIGHT         | ENGINE ALARM        | GALLEY/BATH           | DIVE COMPRESSOR   | BILGE LIGHTS        |                        |
| DC OUTLETS            | CABIN LIGHTS AFT       | ENGINE BLOWERS      | HOUSE ALTERNATOR      | DRYER             | BOOM FURL           |                        |
| DEPTHSOUNDER          | CABIN LIGHTS FWD       | EXTRACTION FAN      | INTERCOM              | FREQUENCY         | BRIDGE LIGHTS       |                        |
| FREEZER               | CABIN LIGHTS MID       | FLOOD LIGHTS        | LOAD                  | GENSET            | BURGLAR ALARM       |                        |
| FRESHWATER PUMP       | CABIN LIGHTS PORT      | FORE DECK LIGHT     | LOCKER LIGHT          | HEATER            | CABIN FAN           |                        |
| GPS                   | CABIN LIGHTS STARBOARD | GALLEY LT           | MID WIPER             | HOTWATER CYLINDER | CB RADIO            |                        |
| INSTRUMENTS           | DECK WASH PUMP         | GENERATOR LIGHTS    | MID LIGHTS            | ICE MAKER         | CELL PHONE          |                        |
| LPG CONTROL           | ELECTRIC TOILET        | HOLDING TANK PUMP   | MIZZEN SPREADER LIGHT | INVERTER          | COMPUTER            |                        |
| MAST LIGHT            | ENGINE ROOM LIGHTS     | HOUSE BATTERIES     | PLOTTER               | INVERTER OUTLETS  | DC MAINS            |                        |
| NAVIGATION LIGHTS     | FRIDGE                 | LAZERETTE LIGHT     | PORT WIPER            | MICROWAVE         | FUEL TRANSFER       |                        |
| SALTWATER PUMP        | HORN                   | PORT                | PREHEAT               | OVEN              | GALLEY FAN          |                        |
| SHOWER DRAIN PUMP     | NAV LT'S PORT          | RADIO BATTERY       | SOLE LIGHT            | REFRIGERATION     | HATCH CONTROLS      |                        |
| SPARE                 | NAV LIGHTS STARBOARD   | SEARCH LIGHT        | HEATER FANS           | REVERSE POLARITY  | HYDRAULICS          |                        |
| SPOTLIGHT             | PANEL LIGHTS           | STARBOARD           | STARBOARD WIPER       | SHIPS POWER       | LOUD HAILER         |                        |
| SPREADER LIGHT        | RADAR                  | START BATTERIES     | SUB MAIN              | SHORE POWER       | MACERATOR           |                        |
| STEAMING LIGHT        | SALOON LIGHTS          | STEP LIGHT          | SUMP PUMP             | TRASH COMPACTOR   | MANUAL              |                        |
| STEREO                | SSB                    | STROBE LIGHT        | TANK ROOM LIGHTS      | TV                | NIGHT LIGHTS        |                        |
| TRIM TABS             | START                  | TOILET LT           | TOILET PUMP           | VIDEO             | PELMET LIGHTS       |                        |
| VHF                   | STERN LIGHT            | WEATHER FAX         | TOWING LIGHT          | WASHING MACHINE   | SOLAR PANEL         |                        |
| WINCH                 | STOP                   | WINDEX LIGHT        | TV/STEREO             | WASTE MASTER      | STOVE               |                        |
| WIPER                 | TRI LIGHT              | WINDOW WASHERS      | WALVAC                | WATER MAKER       | TV ANTENNA          |                        |
|                       |                        |                     |                       |                   |                     |                        |
| AFT PEAK LIGHT        | ANCHOR LIGHT           | BOILER/HEATER       | AIR COMPRESSOR        | 24-12V REDUCER    | ANCOR LIGHT         | AC OUTLETS GALLEY      |
| SET-7N                | SET-8N                 | SET-9N              | SET-10N               | SET-12N           | SET-A               | SET-B                  |
| AFT PEAK LIGHT        | ANCHOR LIGHT           | BOILER / HEATER     | AIR COMPRESSOR        | 24-12V REDUCER    | ANCHOR LIGHT        | AC OUTLETS GALLEY      |
| DECK FLOOD LIGHTS FWD | BARAGRAPH POWER        | BOW THRUSTER        | AIR CON GALLEY        | AERATOR           | CABIN LIGHTS        | AC OUTLETS PORT        |
| CABIN FANS            | CABIN FANS             | DC/DC CONVERTER     | AIR CON GUEST ROOM    | BALLAST AFT       | CABIN LIGHTS        | AC OUTLETS STBD        |
| DECK FLOOD LIGHTS AFT | CABIN FANS FWD         | DECK LIGHTS FORWARD | AIR CON MASTER STATE  | BALLAST CONTROL   | DC MAINS            | APPLIANCES             |
| DECK LIGHTS           | CABIN FANS AFT         | DECK LIGHTS AFT     | AIR CON PILOT HOUSE   | BALLAST FWD       | DISCHARGE           | BAR-B-QUE              |
| DECK LIGHTS PORT      | COURTESY LTS           | DECK LIGHTS MID     | AIR CON SALON         | BLACK TANK AFT    | DISCHARGE           | BILGE PUMP AUTO/MANUAL |
| DECK LIGHTS STARBOARD | COURTESY LTS FWD       | DECK LIGHTS UPPER   | AIR CON SALOON        | BLACK TANK FWD    | DISCHARGE           | BLACK WATER PUMP       |
| DECK LIGHTS FORWARD   | COURTESY LTS MID       | DEFROSTER           | AIR CON STATE ROOM    | BLACK WATER PUMP  | ELECTRONICS         | CHART LIGHT            |
| DECK LIGHTS AFT       | COURTESY LTS AFT       | GALLEY LIGHTS       | AIR CON V-BERTH       | BOOM LIGHT        | ELECTRONICS         | DECK LIGHTS            |
| FISHING LIGHTS        | DIESEL HEATER          | GREY WATER PUMP     | AIR CONDITIONING      | BRIDGE LIGHTS     | FRIDGE              | ENGINE ALT             |
| FISHING LIGHTS WHITE  | FIRE SYSTEM            | GUEST STATE LIGHTS  | AIR CONDITIONING 1    | BRIDGE SUPPLY     | HELM SUPPLY         | ELECTRIC TOILET        |
| FISHING LIGHTS RED    | FUEL PUMP              | HEAD PUMP 1         | AIR CONDITIONING 2    | DINING LIGHTS     | INVERTER            | ENGINE ROOM BILGE PUMP |
| FISHING LIGHTS GREEN  | HAILER                 | HEAD PUMP 2         | AIR CONDITIONING 3    | FIRE ALARM        | MACERATOR           | GALLERY FRIDGE         |
| FISH ROOM LIGHTS      | LECTRASAN              | MASTER STATE LIGHTS | CENTRAL VACUUM        | FLOW ALARM        | MACERATOR           | GAS DETECTOR           |
| FISH ROOM PUMP        | LECTRASAN FWD          | NAV LIGHTS          | CHARGER GENERATOR     | INTERIOR LIGHTS   | OVEN                | GENSET                 |
| FORE DECK LIGHT       | LECTRASAN STBD         | OIL PUMP            | CHARGER HOUSE         | LUFF LIGHT        | PORT ENGINE CONTROL | HEATER                 |
| FOCSLE LIGHT          | PORT ENGINE CONTROLS   | PILOT HOUSE LIGHTS  | CHARGER INVERTER      | MODEM             | PORT ENGINE CONTROL | INSTRUMENT LIGHTS      |
| MAST FLOOD LIGHTS FWD | PORT IGNITION          | SALOON LIGHTS       | COMPACTOR             | NAV AREA FAN      | PUMP                | LIGHTS                 |
| MAST FLOOD LIGHTS AFT | SAT COM                | SEARCH LIGHT        | ENGINE ROOM FANS      | OUTLETS AFT       | REFRIDGERATION      | PORT LIGHTS            |
| NET RECORDER          | SHOWER LIGHT           | SPARE               | HOT CIRC PUMP         | OUTLETS FWD       | STBD ENGINE CONTROL | RADIO                  |
| NOT UNDER COMMAND     | SALOON LIGHTS          | SPARE               | ICE MAKER LOWER       | OUTLETS MID       | STBD ENGINE CONTROL | READING LIGHT          |
| NUC LIGHTS            | SPARE                  | STEREO              | ICE MAKER UPPER       | OUTLETS PORT      | <STOP START> GENSET | SHOWER SUMP PUMP       |
| PLOTTER               | STABILIZER             | TRIM TAB CONTROL    | OUTLETS ENGINE ROOM   | OUTLETS STBD      | STOVE               | STBD LIGHTS            |
| PORT FLOOD LIGHTS     | STBD ENGINE CONTROLS   | V-BERTH LIGHTS      | OUTLETS EXTERNAL      | PORT ENGINE       | TOILET              | STEREO                 |
| SHOWER LIGHTS         | STBD IGNITION          | VHF LOWER           | OUTLETS GALLEY        | STBD ENGINE       | WASHER/DRYER        | TV                     |
| STBD FLOOD LIGHTS     | TOILET LIGHT           | VHF UPPER           | OUTLETS LOWER DECK    | STEP LIGHTS       | WATER HEATER        | UNDER FLOOR LIGHTS     |
| TOILET FAN            | WASTE TREATMENT        | WASH DOWN PUMP      | OUTLETS UPPER DECK    | STROBE            | 12V BATTERY CHARGER | VHF                    |
| TOILET LIGHT          |                        | WINDLASS            | WATER HEATER          | RIDING LIGHT      | 24V BATTERY CHARGER | WIPER                  |

**AFT BILGE ALARM****SET-13N**

AFT BILGE ALARM  
BILGE ALARM  
BILGE ALARM TEST  
BILGE AUTO  
BILGE LIGHTS  
BILGE MANUAL  
BILGE PUMP AUTO/  
MANUAL  
FWD BILGE ALARM  
HIGH WATER ALARM  
MID BILGE ALARM  
PORT AFT BILGE ALARM  
PORT AFT BILGE AUTO  
PORT AFT BILGE MANUAL  
PORT FWD BILGE ALARM  
PORT FWD BILGE AUTO  
PORT FWD BILGE MANUAL  
PORT MID BILGE ALARM  
PORT MID BILGE AUTO  
PORT MID BILGE MANUAL  
STBD AFT BILGE ALARM  
STBD AFT BILGE AUTO  
STBD AFT BILGE MANUAL  
STBD FWD BILGE ALARM  
STBD FWD BILGE AUTO  
STBD FWD BILGE MANUAL  
STBD MID BILGE ALARM  
STBD MID BILGE AUTO  
STBD MID BILGE MANUAL

**210KHZ TX****SET-14N**

210KHZ TX  
33KHZ TX  
AFT HOLD LIGHT  
COCKPIT FREEZER  
ENGINE CONTROLS  
FRIDGE/FREEZER  
FIRE PUMP  
FLUXGATE COMPASS  
FLYBRIDGE FREEZER  
FUEL GAUGE  
FUEL TRANSFER PORT  
FUEL TRANSFER STBD  
FWD HOLD LIGHT  
GANTRY LIGHTS  
HOLDING TANK PORT  
HOLDING TANK STBD  
MASTHEAD LIGHT  
PILOT LIGHT RED  
PILOT LIGHT WHITE  
PORT FUEL FILTER  
RUDDER INDICATOR  
STBD FUEL FILTER  
STEERING  
TOILET AFT  
TOILET FWD  
TOWING LIGHT AMBER  
TOWING LIGHT WHITE  
TUNA TUBES

**12V OUTLETS  
FLYBRIDGE****SET-15N**

12V OUTLET FLYBRIDGE  
ARCH LIGHTS  
BILGE PUMP CLUTCH  
CABIN HEATER  
COMPASS  
DRY HEAD PUMP  
DEMISTER  
ENGINE CLUTCH PUMP  
FLYBRIDGE HATCH  
FLYBRIDGE WIPERS  
FREEZER CLUTCH  
FWD STATEROOM LIGHTS  
GREYWATER PUMP 1  
GREYWATER PUMP 2  
GUEST CABIN STEREO  
INMARSAT  
INSTRUMENT LIGHTS  
INSTRUMENTS  
FLYBRIDGE  
INSTRUMENTS  
PILOTHOUSE  
MASTER HEAD LIGHTS  
NAV AREA LIGHTS  
OVERHEAD LIGHTS  
OVERHEAD SALOON  
LIGHTS  
SALOON WIPERS  
SECURITY SYSTEM  
UNDERFLOOR LIGHTS  
24V DC MAINS  
BOW BILGE HIGH WATER

**AC OUTLETS AFT****SET-16N**

AC OUTLETS AFT  
AC OUTLETS AFT CABIN  
AC OUTLETS COCKPIT  
AC OUTLETS DECK  
AC OUTLETS FWD  
AC OUTLETS FWD CABIN  
AC OUTLETS GALLEY  
AC OUTLETS GUEST CABIN  
AC OUTLETS MID  
AC OUTLETS PORT  
AC OUTLETS SALON  
AC OUTLETS SALOON  
AC OUTLETS STATEROOMS  
AC OUTLETS STBD  
AC OUTLETS WHEELHOUSE  
AIRCON AFT  
AIRCON AFT DECK  
AIRCON CABIN  
AIRCON FWD  
AIRCON FWD DECK  
AIRCON HELM  
AIRCON PUMP  
AIRCON PORT  
AIRCON STBD  
AIRHANDLER FWD  
STATEROOM  
AIRHANDLER MSTR  
STATEROOM  
AIRHANDLER PILOTHOUSE  
AIRHANDLER SALOON

**24 HOUR CIRCUITS****SET-17N**

24 HOUR CIRCUITS  
AFT BILGE PUMP  
AUTO / MAN  
AFT HEAD  
ALARM MUTE  
DEPTH / SPEED  
ELECTRONICS  
ENGINE ALARM  
FANS  
FWD BILGE PUMP  
AUTO / MAN  
FWD HEAD  
GALLEY / HEAD VENT  
GALLEY FRIDGE  
GAS STOVE  
GAUGES  
HEAD PUMP  
LEVEL INDICATOR  
LIGHTS  
MID BILGE PUMP  
AUTO / MAN  
NAV & INST LIGHTS  
OIL PRESSURE  
PT ENGINE  
PT ENGINE START / STOP  
STBD ENGINE  
STBD ENGINE START / STOP  
SUM LOG  
SYNCHRONIZER  
WATER TEMP  
WINDSHIELD

**27 MEG****SET-18N**

27 MEG  
AFT HOLDING TANK  
AFT WATER HEATER  
CABIN OUTLETS  
COCKPIT FRIDGE  
DC MAINS 1  
DC MAINS 2  
DEHUMIDIFIER  
DVD  
ENGINE BLOWER  
ENGINE ROOM OUTLETS  
ENTERTAINMENT  
FLYBRIDGE MAIN  
FWD HOLDING TANK  
FWD WATER HEATER  
GALLEY  
GAS SOLENOID  
GENERATOR  
GFCI OUTLET  
HATCH LIFTER  
HELM MAIN  
HOUR METER  
LAUNDRY  
LPG/COOKTOP  
NAVIGATION  
RANGE  
TV /DVD  
UHF

**12V BATTERY  
CHARGER****SET-19N**

12V BATTERY CHARGER  
24HR BILGE PUMP  
24V BATTERY CHARGER  
12V BATTERY CHARGER  
BILGE PUMP PORT FWD  
BILGE PUMP PORT MID  
BILGE PUMP STBD AFT  
BILGE PUMP STBD FWD  
BILGE PUMP STBD MID  
BOARDING PLATFORM  
BULWARK LIGHTS  
BUNK LIGHTS  
CABLE MASTER  
DESALINATOR  
DISHWASHER  
ELECTRIC WINDOWS  
ENGINE CONTROLS  
MACERATOR  
OIL PUMP  
PITCH CONTROL  
PORT AIR CON  
PORT ENGINE  
SONAR  
STOREROOM LIGHTS  
SPA  
STBD AIR CON  
STBD ENGINE  
TV

**12V AUX HORN****SET-20N**

12V AUX HORN  
AFT FRIDGE  
ALTERNATOR  
ANCHOR WINCH  
BATHROOM FAN  
BATHROOM OUTLETS  
BRIDGE SUPPLY  
DOCKING LIGHTS  
ENGINE ROOM BILGE ALARM  
FAX  
FISH FINDER  
HOLDING TANK GAUGE  
ICEMAKER  
INVERTER/CHARGER  
LAKE WATER  
MASTER HEAD  
RCD  
RESET  
SALON LIGHTS  
SHAVER OUTLETS  
SOUNDER  
SPEED  
SUM LOG  
TOILET PORT  
TOILET STBD  
TV LIFT  
WIND INSTRUMENTS

**BOILER/HEATER****SET-22N**

ALARMS  
CCTV  
COCKPIT FRIDGE  
COMMUNICATIONS  
CONTROL MAX 2.0  
DECK LIGHTS  
EARTH LEAKAGE LIGHTS  
EMERGENCY PARALLEL  
ENGINE ROOM MAIN  
EQUIPMENT ROOM  
FLYBRIDGE LIGHTS  
FRESH WATER PUMP PORT  
FRESH WATER PUMP STBD  
GENSET START  
GENSET STOP  
GRILL  
HEAD/GALLEY VENT  
HF RADIO  
IGNITION START  
MID HOLD LIGHTS  
RADIO LIGHT  
RADIOS  
REFRIGERATOR  
REVERSE POLARITY TEST  
UHF RADIO  
VHF RADIO  
WHEELHOUSE LIGHTS  
WINE COOLER

**AIR CON  
FLYBRIDGE****SET-23N**

AIR CON FLYBRIDGE  
AIR CON FWD  
AIR CON PORT  
AIR CON STBD  
BERTH LIGHTS  
BLOWER  
CABIN LIGHTS MAIN  
COOLING PUMP 1  
COOLING PUMP 2  
DISCHARGE  
DISCHARGE  
DISCHARGE  
DISCHARGE  
EMERGENCY LIGHTS  
GALLERY FRIDGE  
HELM LIGHTS  
MACERATOR  
MASTER CABIN LIGHTS  
PORT ENGINE CONTROLS  
PORT ENGINE CONTROLS  
PORT ENGINE CONTROLS  
QUARTZ LIGHTS  
STBD ENGINE CONTROLS  
STBD ENGINE CONTROLS  
STBD ENGINE CONTROLS  
STEREO MEMORY  
STORAGE BIN PUMP  
WATERBLASTER

**CABINE AVANT****SET-FRENCH**

CABINE AVANT  
CABINE BABORD  
CABINE TRIBORD  
DESSALINISATEUR  
DIVERS  
ECL INTERIEUR  
ESSUIE-GLACE  
FEU DE HUNE  
FEU DE MOUILLAGE  
FEU DE PONT  
FEUX DE NAVIGATION  
FLAPS TRIM TABS  
GPS  
GROUPE D'EAU  
GUINDEAU  
INSTRUMENTS  
PILOTE AUTOMATIQUE  
POMPE DE CALE  
PRISE 12V  
REFRIGERATEUR  
SALLE DE BAIN  
SALLE MACHINE  
SONDEUR  
STEREO  
TABLE A CARTE  
TIMONERIE  
VENTILATEUR DE CALE  
VHF

**AUXILIAIRE 1****SET-FRENCH 2**

AUXILIAIRE 1  
AUXILIAIRE 2  
AVERTISSEUR  
CABIN 2  
CABIN 3  
CABIN I  
CENTRALE NAV  
CHAUFFAGE  
CHAUFFE-EAU  
CONFORT  
CONGELATEUR  
DIVERS  
ECLAIRAGE BABORD  
ECLAIRAGE CARRE  
ECLAIRAGE NACELLE  
ECLAIRAGE TRIBORD  
ELECTRONIQUE  
FEU TRICOLEUR  
HI-FI  
MICRO-ONDES  
POMPE BABORD  
POMPE DE LAVAGE  
POMPE DOUCHE  
POMPE TRIBORD  
RADAR  
SPOTS  
TOILETTES  
WINCH

## Labels–Sprayproof / Battery Management Panels

### CSP6

#### ANCHOR LIGHT

#### SET-1SP

ANCHOR LIGHT  
< ANC. LIGHT NAV. LIGHT >  
ACCESSORIES  
AERATOR  
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  
GPS  
HORN  
INST. LIGHTS  
INSTRUMENTS  
NAVIGATION LIGHTS  
RADIO  
SALT WATER PUMP  
SPOTLIGHTS  
TRIM TABS  
WINCH  
WIPER

#### SET-2SP

ANCHOR LIGHT  
BILGE AUTO MAN  
BOOM LIGHT  
CABIN LIGHT  
COCKPIT LIGHTS  
COMPASS LIGHT  
DECK LIGHTS  
DEPTH SOUNDER  
E/R BLOWER  
FREEZER  
INSTRUMENTS  
LOCKER LIGHTS  
NAV LIGHTS  
PORT NAV LIGHTS  
PORT WIPER  
SHOWER DRAIN PUMP  
SPARE 1  
SPARE 2  
SPARE 3  
STBD NAV LIGHTS  
STBD WIPER  
STEAMING LIGHT  
STERN LIGHT  
TRANSOM LIGHTS  
TRI LIGHT

### CSP6

#### ACCESSORIES

#### SET-1SP/F

<MOUILLAGE NAVIGATION>  
ACCESSORIES  
AERATEUR  
APPLIQUES DE COCKPIT  
APPLIQUES INTERIEURES  
AVERTISSEUR  
ESSUIE-GLACE 1  
ESSUIE-GLACE 2  
ESSUIE-GLACE 3  
FEU DE MOUILLAGE  
FEU DE NAVIGATION  
FRIGO  
GPS  
GROUPE D'EAU  
INSTRUMENTS  
LECTEURS DE CARTES  
PILOTE AUTOMATIQUE  
POMPE CALE <AUTO  
MANUEL>  
POMPE DE CALE  
POMPE DE LAVAGE  
POMPE DE VIDANGE  
PRISES DE COURANT  
RADIO  
SONDEUR  
SPOTS  
VENTILATEUR  
WINCH

### 900-6WP

#### NAVIGATION LIGHTS

#### LBL-WP

ACCESSORIES  
AERATOR  
ANCHOR LIGHTS  
AUTOPILOT  
BAIT TANK PUMP  
BILGE PUMP  
BLOWER  
CABIN LIGHTS  
COCKPIT LIGHTS  
DC OUTLETS  
DECK WASH  
DEPTH SOUNDER  
FRESHWATER PUMP  
FRIDGE  
GPS  
HORN  
INST. LIGHTS  
INSTRUMENTS  
LOG  
NAVIGATION LIGHTS  
RADAR  
SPARE  
SPOT LIGHTS  
STEREO  
STERN LIGHT  
TRIM TABS  
VHF  
WIPER

### CMP-6WP

#### FRESHWATER PUMP

#### LBL-CMP

ACCESSORIES  
AERATOR  
ANCHOR LIGHTS  
AUTOPILOT  
BAIT TANK PUMP  
BILGE PUMP  
BLOWER  
CABIN LIGHTS  
COCKPIT LIGHTS  
DC OUTLETS  
DECK WASH  
DEPTH SOUNDER  
FRESHWATER PUMP  
FRIDGE  
GPS  
HORN  
INST. LIGHTS  
INSTRUMENTS  
LOG  
NAVIGATION LIGHTS  
RADAR  
SPARE  
SPOT LIGHTS  
STEREO  
STERN LIGHT  
TRIM TABS  
VHF  
WIPER

### 800-MS1-4

#### 24 HOUR LIGHTS

#### SET-MSP3

24 HOUR LIGHTS  
BOW BILGE PUMP  
BOW BILGE OVERRIDE  
BOW THRUSTER  
CATHODIC PROTECTION  
CHARTS/SOUNDER  
COCKPIT MAIN  
CO DETECTOR  
COCKPIT FRIDGE  
ELECTRONICS MAIN  
ELECTRIC CONTROLS  
ELECTRIC HEAD  
GENSET BATTERY CHARGER  
HATCH LIFTER  
HELM MAIN  
HEAD MACERATOR  
PORT BATTERY CHARGER  
PORT ENGINE BLOWER  
PORT CONTROLS  
SALOON MAINS  
STBD CONTROLS  
STEREO  
STEREO AMPLIFIER  
STBD BATTERY CHARGER  
STBD ENGINE BLOWER  
WIPER MID  
WIPER PORT  
WIPER STBD  
ACCESSORIES  
CONTROLS

### 800-MS1-4

#### 24V HOUSE VOLT-METER FEED

#### SET-MSP4

24V HOUSE VOLT-METER FEED  
BILGE ALARM  
BILGE PUMP 24 HR  
BILGE PUMP AFT HIGH WATER  
BILGE PUMP FWD HIGH WATER  
BILGE PUMP MID HIGH WATER  
BILGE PUMPS  
BILGE PUMPS MAIN  
FLYBRIDGE 12V MAINS  
FLYBRIDGE 24V MAINS  
GENSET BLOWER  
HIGH WATER ALARM  
HOUSE BATTERY CHARGER  
HOUSE BATTERY METER  
HOUSE MAIN  
LOWER 12V MAINS  
LOWER 24V MAINS  
PORT AFT BILGE PUMP  
PORT BATTER METER  
PORT FWD BILGE PUMP  
PORT MID BILGE PUMP  
SHOWER SUMP  
STBD AFT BILGE PUMP  
STBD BATTERY METER  
STBD FWD BILGE PUMP  
STBD MID BILGE PUMP  
TOILET  
TWIN DISK  
TWIN DISK PORT  
TWIN DISK STBD

### 706 - 707

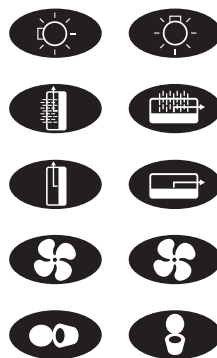
#### WINCH

#### SET-714

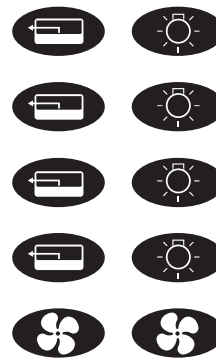
ANCHOR WINCH  
BILGE PUMP AFT  
BILGE PUMP FWD  
BILGE PUMP MID  
BILGE PUMP PORT  
BILGE PUMP STARB  
BOW THRUSTER  
DAVIT WINCH  
DC MAINS 1  
DC MAINS 2  
HALYARD WINCH  
HEAD 1  
HEAD 2  
HOLDING TANK  
INVERTER  
MEMORY CIRCUITS  
SECURITY SYSTEM  
SHEET WINCH  
SPARE  
WASTE TREATMENT 1  
WASTE TREATMENT 2

## Interior Series Switch Plates

#### SET-INT



#### SET-INT2



#### NOTE:

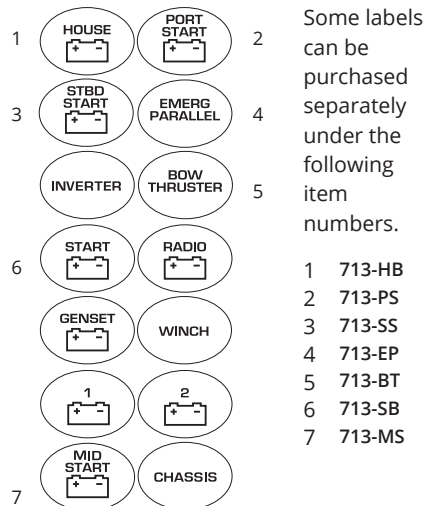
The complete range of BEP labels are listed in a quick reference table on our website: [bepmarine.com](http://bepmarine.com)



## Labels–Battery Switches, Control Center & Contour Connect

### Battery Switches 701-720

713



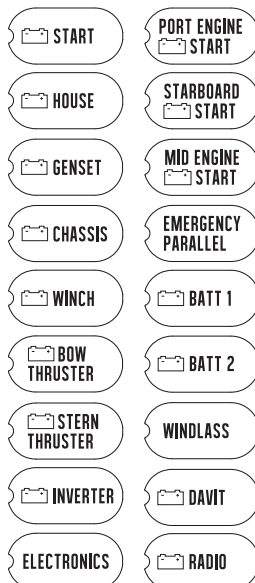
SET-715



SET-715 contains the 3 most commonly requested labels out of set 713 without the need to purchase a full label set.

### Battery Switches 770

SET-770



### Circuit Breaker Modules

SET-CC-1

SET-CC-1 labels are supplied standard with any 800 series module containing toggle or push reset circuit breakers.

|                        |                      |                      |
|------------------------|----------------------|----------------------|
| BATTERY CHARGER        | BILGE PUMP STBD      | ELECTRONICS          |
| BILGE PUMP AFT         | CATHODIC PROTECTION  | ENGINE CONTROLS      |
| BILGE PUMP ENGINE ROOM | CO DETECTOR          | ENGINE CONTROLS PORT |
| BILGE PUMP FWD         | DAVIT                | ENGINE CONTROLS STBD |
| BILGE PUMP MID         | DC MAIN              | ENGINE ROOM LIGHTS   |
| BILGE PUMP PORT        | DC OUTLETS           | FIRE SYSTEM          |
| FRESH WATER PUMP       | LECTRASAN            | STEREO               |
| FRIDGE                 | LIGHTS               | STEREO MEMORY        |
| FUEL TRANSFER PUMP     | PORT BATTERY CHARGER | SUMP PUMP            |
| HIGH WATER             | SPARE                | TOILET               |
| HOLDING TANK           | SPARE                | TRIM TABS            |
| HOUSE BATTERY CHARGER  | STBD BATTERY CHARGER | WINCH                |

### Battery Control Center

SET-CC-BCC-1

|               |                  |               |
|---------------|------------------|---------------|
| RADIO BATTERY | THRUSTER BATTERY | START BATTERY |
| GENSET        | HOUSE            | PORT START    |
| GENSET 1      | HOUSE 1          | MID START     |
| GENSET 2      | HOUSE 2          | STBD START    |
| BATTERY 1     | 24 HOUR          | STEREO MEMORY |
| BATTERY 2     | ALARM SYSTEM     | ACC           |

### Heavy-duty Circuit Breaker Modules

SET-CC-A

SET-CC-A labels are supplied standard with any 800 series module containing the heavy-duty Busman circuit breaker.

|                 |              |
|-----------------|--------------|
| ANCHOR WINCH    | HELM MAIN    |
| DAVIT           | LECTRASAN    |
| DC MAINS        | PUMPS        |
| DECK WINCH      | SALOON MAINS |
| DOCKING WINCH   | TOILET       |
| FLYBRIDGE MAINS | WINCH        |

## Labels—Generation 2, Micro & Interior Panels

### Spray-Proof Panels Generation II

#### Label Set SET-G2-1



ACCESSORIES  
AERATOR  
ANCHOR LT  
BAIT TANK  
BILGE PUMP  
AUTO B/P MAN  
BLOWER  
CABIN LIGHTS  
COCKPIT LTS  
DC OUTLETS  
DECK WASH  
DN WINCH UP  
ELECTRONICS  
ENGROOM LTS  
FLOOD LIGHTS  
FW PUMP  
FRIDGE  
GPS  
HORN  
INST. LIGHTS



INSTRUMENTS  
NAV LIGHTS  
RADIO  
SW PUMP  
SPOT LIGHTS  
UP PORT DN  
UP STBD DN  
WIPER

#### Label Set SET-G2-2



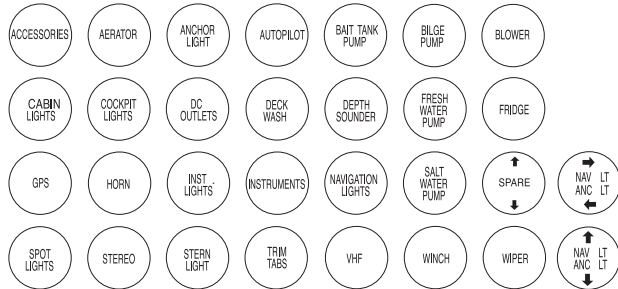
B/PUMP PORT  
B/PUMP STBD  
B/PUMP FWD  
B/PUMP MID  
B/PUMP AFT  
B/PUMP ENG RM  
COMPASS LT  
DECK LTS  
STEAMING LT  
NAV LTS PT  
NAV LTS STBD  
STEP LTS  
STERN LT  
WIPER PT  
WIPER MID  
WIPER STBD  
WASHERS  
FREEZER  
H/TANK PUMP  
SUMP PUMP



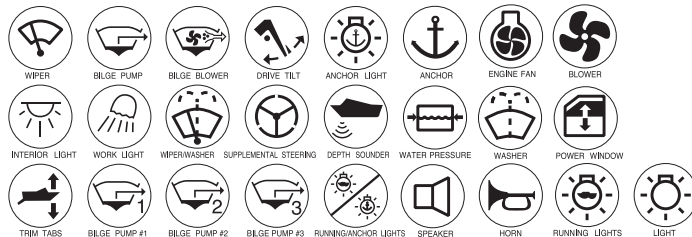
LOCKER LTS  
PANEL LTS  
TRI LT  
BOW LTS  
SHOWER LT  
SHOWER PUMP  
SPARE  
SPARE

### Sprayproof Switch Panels - Micro

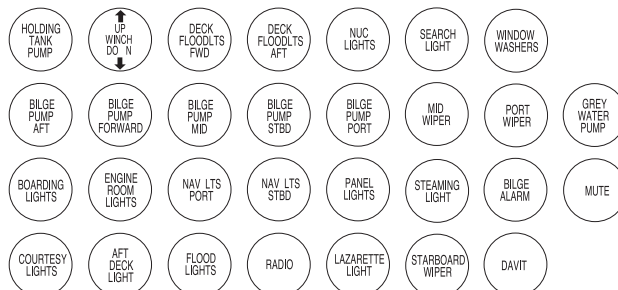
#### LBL-MIC1



#### LBL-MICSYM



#### LBL-MIC2



### Contour Interior Series Monitor Panels

#### SET-1000



#### SET-1002



# METERS

## AC & DC Systems Monitors



88

These state of the art full color monitors are made to meet the systems monitoring requirements of today's modern vessel and recreational vehicle. The DCSM and ACSM displays feature clear, extra large type face allowing for more detailed on-screen information and increased clarity. The screen has backlighting for easy night time viewing.

## Tank Senders



90

A range of options for tank sender units plus interfaces for signal conversion for gauges and digital monitoring systems.





# METERS

## Gas Detectors



92

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.

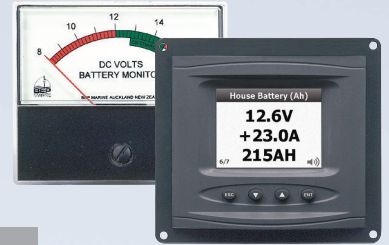
## Solenoid Valves



93

Remote control of the gas connection ensures safety while adding user convenience.

## Analog & Digital Meters



94

Comprehensive range of meters offers monitoring solutions for batteries, AC, tanks, and systems in operation.

Boston Whaler uses CZone® digital control and monitoring and a full complement of BEP products as standard equipment aboard the Outrage 420.

## AC & DC Systems Monitors

These full color monitors are made to meet the systems monitoring requirements of today's modern vessel and recreational vehicle. Complex AC and DC electrical installations onboard are becoming more common place. Additionally the increase in tank monitoring requirements for fuel, fresh, grey and black water, accurate monitoring of these systems is essential.

The DCSM and ACSM displays feature clear, extra large type face. This allows for more detailed on-screen information and increased clarity. The screen has backlighting for easy night time viewing.

### DC Systems Monitor (DCSM)

#### Specifications:

- 2.8" color QVGA LCD
- Input voltage 8–32V DC
- Dimensions (WxH): 90 x 100 mm
- Backlit keypad

#### Monitors:

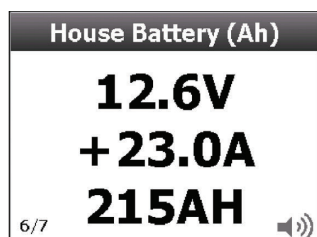
- Charge/discharge amps for two banks
- Capacity remaining in A/h and %
- Battery condition
- Tank fluid level
- Circuit status

#### Features:

- Eight 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

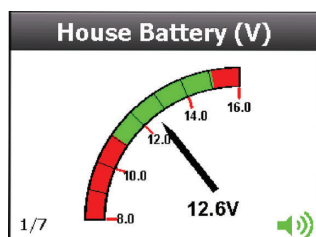


| Part #         | Description                          |
|----------------|--------------------------------------|
| 80-600-0021-00 | DCSM including 1x shunt and cable    |
| 80-600-0022-00 | DCSM excluding shunt                 |
| 600-DCSM-KIT   | Panel Conversion Kit for DCM to DCSM |



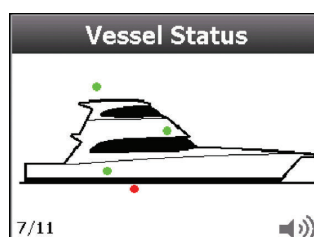
#### DC Power Meter

- Displays voltages of multiple battery banks (0–32V DC)
- Displays charge and discharge (amps) of two battery banks
- Displays battery capacity in amp hours
- High/Low level alarms



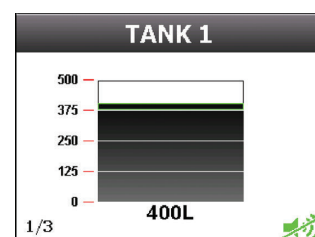
#### Display Type

- 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



#### Installation Cable Kit

- Two core screened cable in two lengths pre-terminated

|        |             |              |
|--------|-------------|--------------|
| Part # | 600-DCM-5M  | 16.45" (5 m) |
| Part # | 600-DCM-10M | 32.9" (10 m) |

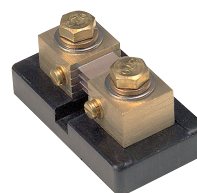


#### Ammeter Shunt Enclosure

Provides a protective housing for shunt termination meeting ABYC standards.

- Digital large: 450A - 50mV
- Analog small: 50A - 50mV, 100A - 50mV, 150A - 50mV
- Takes two small or one large shunt

Part # 711L



#### Ammeter Shunt

DC Current Ammeter Shunt measures DC amperage up to 450A using a scale of 0–50mV.

Part # LB-450-50

## AC Systems Monitor (ACSM)

### Specifications:

- 2.8" Color QVGA LCD
- Input voltage 8–32V DC
- Dimensions (WxH): 90 x 100 mm
- Backlit keypad

### Monitors:

- AC volts, amps and frequency

### Features:

- Three user configurable inputs
- Displays data in analog, digital and graphic forms
- Output for load shedding
- Programmable high/low audio/visual alarms for each input



| Part #         | Description                                |
|----------------|--|
| 80-600-0023-00 | ACSM including 1x AC-VSEN-4 and 2x CT-10-3 |
| 600-ACSM-KIT   | Panel Conversion Kit for ACM to ACSM       |



### 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 (true RMS)



### AC Volts/Frequency

- Displays AC voltage and frequency, 80-264V AC 50 & 60Hz



### AC Amps

- Displays Current for 3x AC supplies (0-75A)



### Alarms

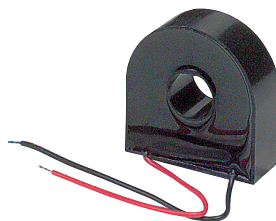
- High and low alarms for each input
- User selectable alarm levels
- Mutable



### AC Transducer

- The AC-VSEN-4 includes three voltage transformers for up to three voltage inputs.
- Dimensions: 2.75" x 5.5" x 2" (69 x 140 x 50 mm)

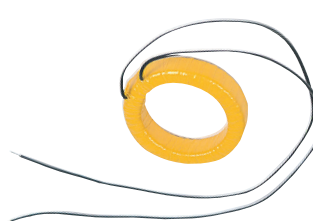
Part # AC-VSEN-4



### Current Transformer

- Maximum current 120A AC
- One CT-10-3 current transformer is supplied with ACSM. If a twin line system is in use, a second CT must be ordered.
- Dimensions: 1.5" x 1.55" x .55" (37.5 x 39.2 x 13.7 mm)
- Hole size: 0.5" (12 mm)

Part # CT-10-3



### 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 1.85 x 0.4" (Ø 47 x 10.5 mm)
- Hole size: 1.25" (32 mm)

Part # CT-HD



### Surge Protection Module

Protect your electronics from becoming damaged by harmful high voltage spikes. When fitted to the battery supply these modules look for sudden increases in voltage then switch into protection mode to absorb and suppress the high energy spike.

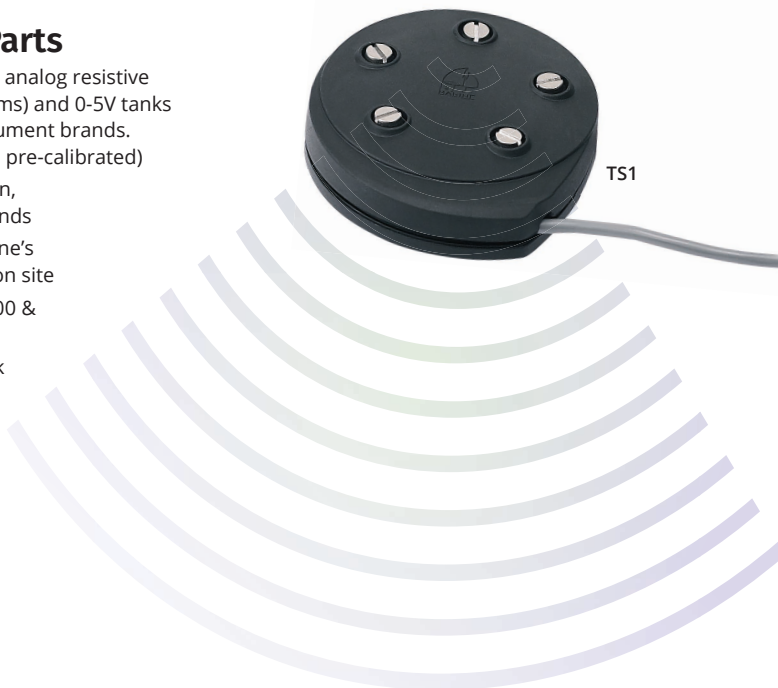
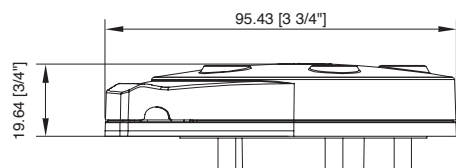
Part # 80-707-0004-00 12V DC

Part # 80-707-0005-00 24V DC



## Ultrasonic Tank Sender—No Moving Parts

- Handles common outputs – 240-33, 10-180, Vetus 10-300 for analog resistive gauges (not suitable for resistive digital gauges or CAN systems) and 0-5V tanks from BEP, Teleflex, Faria, VDO and many other popular instrument brands. (When connecting to non-adjustable gauges the TS1 must be pre-calibrated)
- Low Profile Design and standard SAE 5 hole mounting pattern, allowing it to be retrofitted to practically all other sender brands
- Can be set for tank dimensions via computer using BEP Marine's proprietary TS1 software, avoiding experimental tank filling on site
- Connects directly to the DC systems monitors (80-600-0021-00 & 80-600-0022-00 page 88) when configured to a 0-5V output
- Is set for 0-2000 mm depth off the shelf (not suitable for tank depths less than 200 mm) 8"
- Operating voltage: 10-32V
- Current draw: 25 mA with 5V gauge output
- Measurement method: Acoustic sonic measurement
- Tank depth: 0-6.5 ft (2000 mm)
- Accuracy Distance: 0-6.5 ft (2000 mm) at 2 mm accuracy
- Environmental temperature: 39.2-149°F (4-65°C)
- Chemical resistance: Petrol, diesel, water, toilet chemicals



Nonlinear tank parameter Calculation

### Nonlinear Tank Parameter Calculation

Enter Tank dimension in Meters:

|         |          |
|---------|----------|
| X Value | X1 Value |
| 0       | 0        |
| Y Value | X2 Value |
| 0       | 0        |
| W Value |          |
| 0       |          |
| H Value |          |
| 0       |          |
| Z Value |          |
| 0       |          |

Non Linearisation Calculated Values:

|          |
|----------|
| 20% : 20 |
| 40% : 40 |
| 60% : 60 |
| 80% : 80 |

Volume in litres

Calculate Close

BEP's proprietary Window's based software application allows for TS1 senders to be programmed specific to tank shape, size and fluid type via a computer's USB port.

Programming is a simple process and can be carried out by downloading free software from [bepmarine.com](http://bepmarine.com) and purchasing a programming kit **TS1-PK**.

Once programmed, the specific tank parameters are stored in the non-volatile memory of the TS1. Find more detailed information at [bepmarine.com](http://bepmarine.com)



### TS1 Programing Device

Part # TS1-PK



## Tank Sender Interface Module

- Only required when using VDO (10–180) or Centroid (10–180) or Teleflex (240–33) senders to produce a 0–5V signal for either the DCSM, or ACSM systems monitors.
- Switchable link for VDO or Teleflex signal. 10–32V supply.
- One unit per sender required.
- Dimensions: 2.4" x 1.3" x .9" (60 x 34 x 22 mm)

Part # 600-TLM-SIF

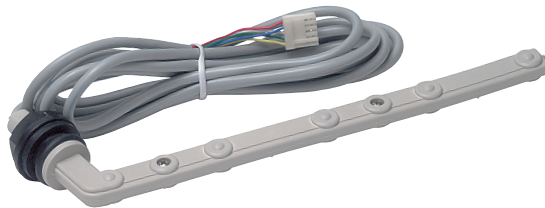


## LED Tank Gauge

The 600-TG offers economical monitoring for fresh or grey water tanks (plastic or fiberglass only). Using 600-TGSK strategically mounted well nuts will give four tank levels. Supplied with one sender kit. Second sender ordered separately.

Also available is the RV-TS-5M Tank sender. Only one hole is required for installation, the sender is sealed via external lock nuts. Suitable for tanks with maximum depth of 280 mm.

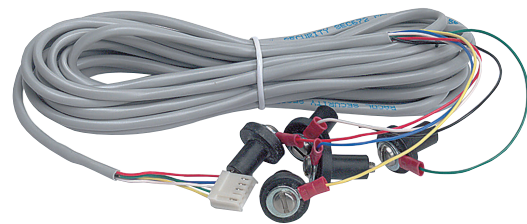
Part # 600-TG



## Tank Sender for 600-TG

Suits tanks with maximum depth of 280 mm and a maximum wall thickness of 10 mm, and a maximum hole size of 22 mm. Comes with 5 m cable.

Part # RV-TS-5M



## Tank Sender for 600-TG

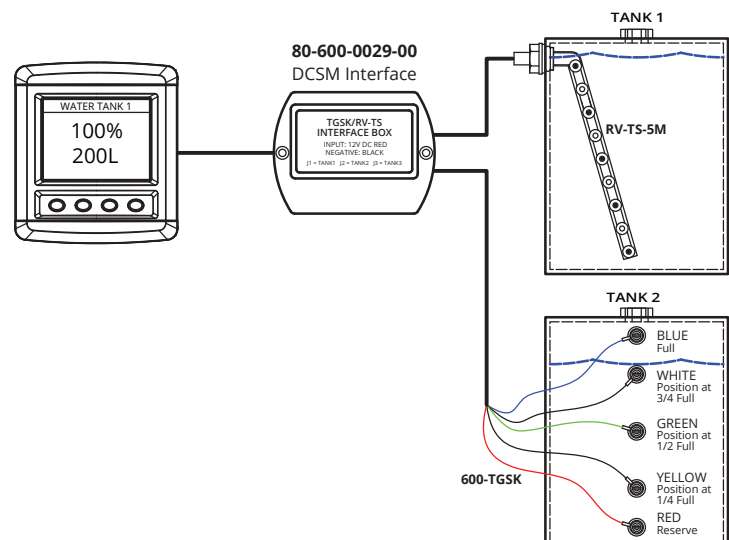
- Well nut hole size 3/8" (9 mm)
- Cable length 5 m
- One kit supplied with 600-TG

Part # 600-TGSK

## Tank Sender Interface Module

Converts signals from up to three tanks fitted with either RV-TS-5M or 600-TGSK tank sender units, to 0–5V signal to suit ACSM and DCSM systems monitors.

Part # 80-600-0029-00



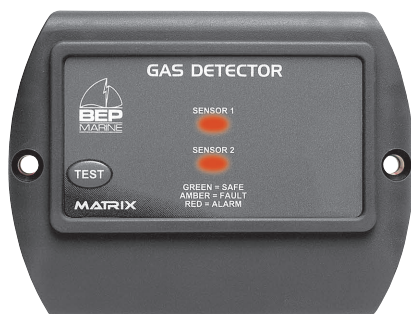
## Gas Detectors

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 sensors 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
- 2.4" x 3.5" x 0.7" (67 x 88 x 17 mm)

### 600-GD, 600-GDL, & FD-2 Specifications

|                   |                           |
|-------------------|---------------------------|
| Voltage (V DC)    | 10-32                     |
| Current (mA)      | 350 max.                  |
| Alarm Sensitivity | 20% lower explosive limit |
| Current@Out (mA)  | 800 max.                  |
| Solenoid (mA)     | 700 pulse, 250 hold       |



#### 600-GD

600-GD will detect LPG, Petrol and CNG fumes. Supplied with one sensor, with an option for a second sensor, Part # BL-SL-L output for remote alarm and blower unit. 600-GD can be used on 12 or 24V systems.



#### 600-GDL

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 allows the valve to be pulled in at 12V and then once energized it will step down to hold the valve in place. This reduces power consumption and heat while the gas is turned on.



#### BL-SL-L

One Sensor lead supplied (5 m) with GD & GDL.

Second Sensor lead ordered separately



#### 600-LPG

600-LPG is a stand alone gas shut-off system with no gas detection ability.



#### 600-GDRV

600-GDRV has the sensor mounted in the front facia creating a stand alone unit. The unit is designed to be surface mounted at the vessel's lowest point.



#### FD-2

FD-2 is designed for an economic in-dash installation. Supplied with sensor (5 m cable) which is capable of detecting combustible gases.



## Solenoid Valve & Regulator Kit

Current draw: 800mA

Current draw: 200mA when fitted with 600-GDL

Regulator flow rate: 3kPa

Gas outlet: 3/8 BSP

Gas inlet: QCC thermal nut

Outlet position: 90 degrees

**Note: The VR3-12V may not comply in some countries, and does not comply with USCG requirements. Please check with your local gas installer. Not for sale in the USA.**

Part # VR3-12V 12V



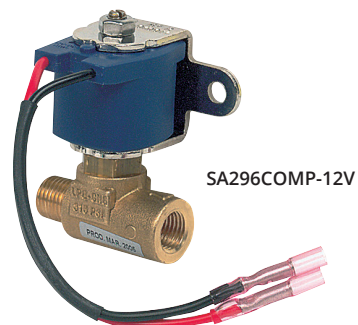
## Solenoid Valve

The CE approved SA296COMP-12V can be installed by an approved gas installer using approved components from within specific markets. 12V or 24V options available. Uses 1/4" BSP thread.

**Note: A separate regulator will need to be installed with the SA296 valves.**

Part # SA296COMP-12V 12V

Part # SA296COMP-24V 24V

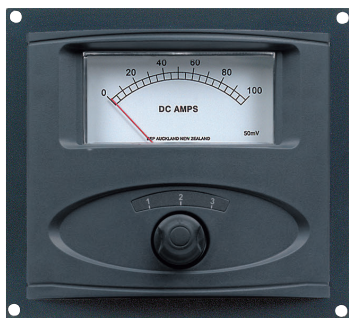


## Analog & Digital Meters

- Contour panel/front fascia complements contour range
- All Contour Matrix monitors can fit into this style of panel



80-601-0020-00



80-601-0025-00

### Panel Mounted Analog Battery Condition Meter (expanded scale)

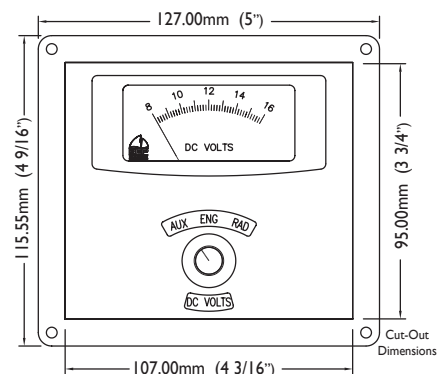
- Panel switchable to show three different battery banks
- Available 12V (8–16V) or 24V (16–32V)

| Part #         | Range     | Inputs |
|----------------|-----------|--------|
| 80-601-0020-00 | 8–16V DC  | 3      |
| 80-601-0021-00 | 16–32V DC | 3      |
| 80-601-0022-00 | 0–150V AC | 1      |
| 80-601-0023-00 | 0–300V AC | 1      |

### Panel Mounted Analog Ammeter Panel

- Panel switchable for use on up to three different ammeter shunts
- Supplied with one shunt, meter scales available, 0–50A 0–100A 0–150A

| Part #         | Range     | Inputs |
|----------------|-----------|--------|
| 80-601-0024-00 | 0–50A DC  | 3      |
| 80-601-0025-00 | 0–100A DC | 3      |
| 80-601-0026-00 | 0–150A DC | 3      |



Dimensions for analog and digital panels



### Panel Mounted DC Systems Monitor

- See page 88 for DCSM functionality
- Supplied with 450A–50mV shunt

Part # 80-600-0027-00



### Panel Mounted AC Systems Monitor

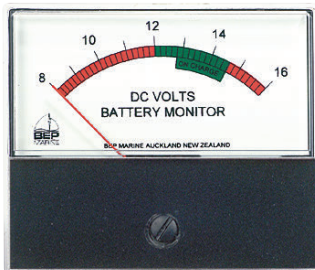
- See page 89 for ACSM functionality
- Supplied with voltage and current transducers

Part # 80-600-0028-00

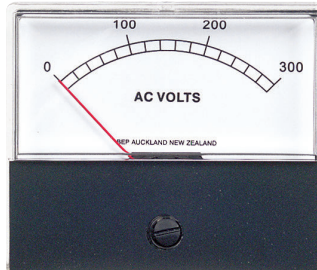


## Analog Meters

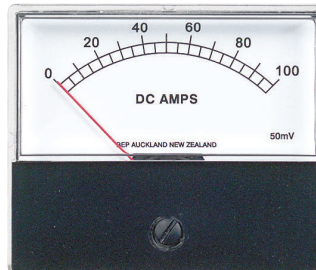
- Analog meters as used in BEP Contour circuit breaker panels.
- All analog meters accurate to within 2.5%



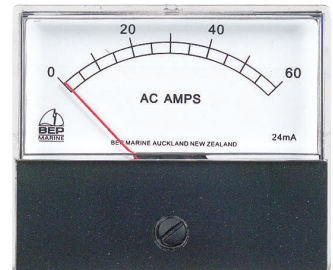
N816DCV



N0300ACV



N0100A



N060ACT

| Meters   | Part # | Range     | Division Marks | Shunt Type |
|----------|--------|-----------|----------------|------------|
| Amp (DC) | N020A  | 0-20A DC  | 1A             | Internal   |
|          | N050A  | 0-50A DC  | 2A             | 50A-50mV   |
|          | N0100A | 0-100A DC | 5A             | 100A-50mV  |
|          | N0150A | 0-150A DC | 1A             | 150A-50mV  |

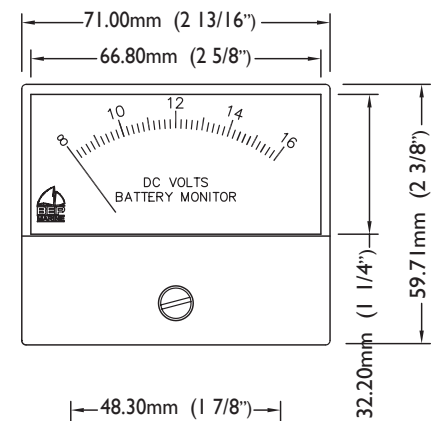


When ordering optional external shunt ammeters, shunts must be ordered separately.

| Meters    | Part #   | Range     | Division Marks |
|-----------|----------|-----------|----------------|
| Volt (DC) | N816DCV  | 8-16V DC  | 0.2V           |
|           | N1632DCV | 16-32V DC | 0.4V           |
| Volt (AC) | N0150ACV | 0-150V AC | 10V            |
|           | N0300ACV | 0-300V AC | 20V            |
| Amp (AC)  | N060ACT  | 0-60A AC  | 5A             |



CT-10-AN must be ordered when using N060ACT or N0100ACT.



## Systems in Operation Panels

- 10 mm red LED's giving important systems on information
- Ideal for flybridge or remote dash position. Also available with alarm and mute switch.
- Backlit labels

| Part #  | LxWxD            | LxWxD             | Label Set # | LEDs       | Alarm | Mute switch |
|---------|------------------|-------------------|-------------|------------|-------|-------------|
| SOP1    | 4.5" x 5" x 1.6" | 115 x 127 x 40 mm | 1           | 4          | No    | No          |
| SOP1-AL | 4.5" x 5" x 1.6" | 115 x 127 x 40 mm | 1           | 3+1 switch | Yes   | Yes         |
| SOP2    | 4.5" x 9" x 1.6" | 115 x 239 x 40 mm | 1-2         | 8          | No    | No          |



SOP1



SOP2



## Wire & Cable Technical Data

### Conductors Sized (AWG) for 3% Voltage Drop

Use 3% voltage drop for any "critical application" affecting the safety of the vessel or its passengers: bilge pumps, navigation lights, electronics, etc....

#### Important!

**Length (feet):** Determined by measuring the length of the conductor from the positive (+) power source connection to the electrical device and back to the negative (-) power source connection. Note that the power source connection may be either the battery, panelboard or switchboard.

**Current (amps):** Determined by adding the total amps on a circuit. Conductor sizes not covered in Table B or Table C may be calculated by using the following formula:

$$CM = \frac{K \times I \times L}{E}$$

After calculating the Circular Mil Area (CM), use Table E to determine the proper conductor size (National Fire Protection Agency and Coast Guard require that the next larger conductor be used when the calculated CM area falls between the two conductor sizes).

**CM** = Circular Mil Area of Conductors

**K** = 10.75 (Constant representing the mil-foot resistance of copper)

**I** = Current - amps / **L** = Length - feet

**E** = Voltage drop at load (in voltage drop in a decimal expression)

#### For Example...

**Q:** A bilge pump draws 10 amps. The positive run is 11 feet from the power panel, including the float switch. The negative run is only 10 feet. What size is the wire?

**A:** Use the formula to reach the correct answer:

Table D shows that 12 AWG wire has a CM area of 6,500 and is the correct choice. However, SAE wire has a CM area of only 5,833. Under NFPA and USCG regulations, 10 SAE wire must be used.

### 3% Voltage Drop at 12 Volts

|        |      | Current (Amps) |    |    |     |     |     |     |     |     |     |     |     |     |
|--------|------|----------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Length |      | 5              | 10 | 15 | 20  | 25  | 30  | 40  | 50  | 60  | 70  | 80  | 90  | 100 |
| 10'    | 3 m  | 18             | 14 | 12 | 10  | 10  | 8   | 6   | 6   | 6   | 6   | 6   | 4   | 4   |
| 15'    | 5 m  | 16             | 12 | 10 | 10  | 8   | 8   | 6   | 6   | 4   | 4   | 4   | 2   | 2   |
| 20'    | 6 m  | 14             | 10 | 10 | 8   | 6   | 6   | 6   | 4   | 4   | 2   | 2   | 2   | 2   |
| 25'    | 8 m  | 12             | 10 | 8  | 6   | 6   | 6   | 4   | 4   | 2   | 2   | 2   | 1   | 1   |
| 30'    | 9 m  | 12             | 10 | 8  | 6   | 4   | 4   | 4   | 2   | 2   | 2   | 2   | 1   | 1   |
| 40'    | 12 m | 10             | 8  | 6  | 6   | 4   | 4   | 2   | 2   | 1   | 1/0 | 1/0 | 2/0 | 2/0 |
| 50'    | 15 m | 10             | 6  | 6  | 4   | 4   | 2   | 2   | 1   | 1/0 | 2/0 | 3/0 | 4/0 | 4/0 |
| 60'    | 18 m | 10             | 6  | 6  | 4   | 2   | 2   | 1   | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |
| 70'    | 21 m | 8              | 6  | 4  | 2   | 2   | 1   | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |     |
| 80'    | 24 m | 8              | 6  | 4  | 2   | 2   | 1   | 1/0 | 2/0 | 3/0 | 4/0 | 4/0 |     |     |
| 90'    | 27 m | 8              | 4  | 2  | 2   | 1   | 1/0 | 2/0 | 3/0 | 4/0 | 4/0 |     |     |     |
| 100'   | 30 m | 6              | 4  | 2  | 2   | 1   | 1/0 | 2/0 | 3/0 | 4/0 |     |     |     |     |
| 110'   | 33 m | 6              | 4  | 2  | 2   | 1   | 1/0 | 2/0 | 3/0 | 4/0 |     |     |     |     |
| 120'   | 36 m | 6              | 4  | 2  | 1   | 1/0 | 2/0 | 3/0 | 4/0 |     |     |     |     |     |
| 130'   | 40 m | 6              | 2  | 2  | 1   | 1/0 | 2/0 | 3/0 | 4/0 |     |     |     |     |     |
| 140'   | 43 m | 6              | 2  | 2  | 1/0 | 2/0 | 3/0 | 4/0 |     |     |     |     |     |     |
| 150'   | 46 m | 6              | 2  | 1  | 1/0 | 2/0 | 3/0 | 4/0 |     |     |     |     |     |     |
| 160'   | 49 m | 6              | 2  | 1  | 1/0 | 2/0 | 3/0 | 4/0 |     |     |     |     |     |     |
| 170'   | 52 m | 6              | 2  | 1  | 2/0 | 3/0 | 3/0 | 4/0 |     |     |     |     |     |     |

### 3% Voltage Drop at 24 Volts

|        |      | Current (Amps) |    |    |    |    |    |     |     |     |     |     |     |     |
|--------|------|----------------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| Length |      | 5              | 10 | 15 | 20 | 25 | 30 | 40  | 50  | 60  | 70  | 80  | 90  | 100 |
| 10'    | 3 m  | 18             | 18 | 16 | 14 | 12 | 12 | 10  | 10  | 10  | 8   | 8   | 8   | 6   |
| 15'    | 5 m  | 18             | 16 | 14 | 12 | 12 | 10 | 10  | 8   | 8   | 6   | 6   | 6   | 6   |
| 20'    | 6 m  | 18             | 14 | 12 | 10 | 10 | 10 | 8   | 6   | 6   | 6   | 6   | 4   | 4   |
| 25'    | 8 m  | 16             | 12 | 12 | 10 | 10 | 8  | 6   | 6   | 6   | 4   | 4   | 4   | 4   |
| 30'    | 9 m  | 16             | 12 | 10 | 10 | 8  | 8  | 6   | 6   | 4   | 4   | 4   | 2   | 2   |
| 40'    | 12 m | 14             | 10 | 10 | 8  | 6  | 6  | 6   | 4   | 4   | 2   | 2   | 2   | 2   |
| 50'    | 15 m | 12             | 10 | 8  | 6  | 6  | 6  | 4   | 4   | 2   | 2   | 2   | 1   | 1   |
| 60'    | 18 m | 12             | 10 | 8  | 6  | 6  | 4  | 4   | 2   | 2   | 1   | 1   | 1/0 | 1/0 |
| 70'    | 21 m | 12             | 8  | 6  | 6  | 4  | 4  | 2   | 2   | 1   | 1   | 1/0 | 1/0 | 2/0 |
| 80'    | 24 m | 10             | 8  | 6  | 6  | 4  | 4  | 2   | 2   | 1   | 1/0 | 1/0 | 2/0 | 2/0 |
| 90'    | 27 m | 10             | 8  | 6  | 4  | 4  | 2  | 2   | 1   | 1/0 | 1/0 | 2/0 | 2/0 | 3/0 |
| 100'   | 30 m | 10             | 6  | 6  | 4  | 4  | 2  | 2   | 1   | 1/0 | 2/0 | 2/0 | 3/0 | 3/0 |
| 110'   | 33 m | 10             | 6  | 6  | 4  | 2  | 2  | 1   | 1/0 | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 |
| 120'   | 36 m | 10             | 6  | 4  | 4  | 2  | 2  | 1   | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |
| 130'   | 40 m | 8              | 6  | 4  | 2  | 2  | 2  | 1   | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |
| 140'   | 43 m | 8              | 6  | 4  | 2  | 2  | 1  | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |     |
| 150'   | 46 m | 8              | 6  | 4  | 2  | 2  | 1  | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |     |
| 160'   | 49 m | 8              | 6  | 4  | 2  | 2  | 1  | 1/0 | 2/0 | 3/0 | 4/0 | 4/0 | 4/0 |     |
| 170'   | 52 m | 8              | 6  | 2  | 2  | 1  | 1  | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |     |     |

### 3% Voltage Drop at 32 Volts

|        |      | Current (Amps) |    |    |    |    |    |    |     |     |     |     |     |     |
|--------|------|----------------|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| Length |      | 5              | 10 | 15 | 20 | 25 | 30 | 40 | 50  | 60  | 70  | 80  | 90  | 100 |
| 10'    | 3 m  | 18             | 18 | 16 | 16 | 14 | 14 | 12 | 12  | 10  | 10  | 10  | 8   | 8   |
| 15'    | 5 m  | 18             | 16 | 14 | 14 | 12 | 12 | 10 | 10  | 8   | 8   | 8   | 6   | 6   |
| 20'    | 6 m  | 18             | 16 | 12 | 12 | 12 | 10 | 10 | 8   | 8   | 6   | 6   | 6   | 6   |
| 25'    | 8 m  | 18             | 14 | 12 | 12 | 10 | 10 | 8  | 8   | 6   | 6   | 6   | 6   | 4   |
| 30'    | 9 m  | 16             | 14 | 10 | 10 | 10 | 8  | 8  | 6   | 6   | 6   | 4   | 4   | 4   |
| 40'    | 12 m | 16             | 12 | 10 | 10 | 8  | 8  | 6  | 6   | 4   | 4   | 4   | 2   | 2   |
| 50'    | 15 m | 14             | 12 | 8  | 8  | 8  | 6  | 6  | 4   | 4   | 2   | 2   | 2   | 2   |
| 60'    | 18 m | 14             | 10 | 8  | 8  | 6  | 6  | 4  | 4   | 2   | 2   | 2   | 2   | 1   |
| 70'    | 21 m | 12             | 10 | 6  | 6  | 6  | 6  | 4  | 2   | 2   | 2   | 1   | 1   | 0   |
| 80'    | 24 m | 12             | 10 | 6  | 6  | 6  | 4  | 4  | 2   | 2   | 1   | 1   | 0   | 0   |
| 90'    | 27 m | 12             | 8  | 6  | 6  | 6  | 4  | 2  | 2   | 2   | 1   | 1/0 | 1/0 | 2/0 |
| 100'   | 30 m | 12             | 8  | 6  | 6  | 4  | 4  | 2  | 2   | 1   | 1/0 | 1/0 | 2/0 | 2/0 |
| 110'   | 33 m | 10             | 8  | 6  | 6  | 4  | 4  | 2  | 2   | 1   | 1/0 | 1/0 | 2/0 | 2/0 |
| 120'   | 36 m | 10             | 8  | 6  | 4  | 4  | 2  | 2  | 1   | 1/0 | 1/0 | 2/0 | 2/0 | 3/0 |
| 130'   | 40 m | 10             | 8  | 6  | 4  | 4  | 2  | 2  | 1   | 1/0 | 2/0 | 2/0 | 3/0 | 3/0 |
| 140'   | 43 m | 10             | 6  | 6  | 4  | 2  | 2  | 1  | 1/0 | 1/0 | 2/0 | 3/0 | 3/0 | 3/0 |
| 150'   | 46 m | 10             | 6  | 6  | 4  | 2  | 1  | 1  | 1/0 | 2/0 | 2/0 | 3/0 | 3/0 | 4/0 |
| 160'   | 49 m | 10             | 6  | 4  | 4  | 2  | 1  | 1  | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |
| 170'   | 52 m | 8              | 6  | 4  | 2  | 2  | 1  | 1  | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 | 4/0 |

## Wire & Cable Technical Data

### Conductors Sized (AWG) for 10% Voltage Drop

Use 10% voltage drop for any "non-critical" applications: windlass, cabin lights, etc....

#### 10% Voltage Drop at 12 Volts

| Length |      | Current (Amps) |    |    |    |    |    |    |    |     |     |     |     |     |
|--------|------|----------------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
|        |      | 5              | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60  | 70  | 80  | 90  | 100 |
| 10'    | 3 m  | 18             | 18 | 18 | 16 | 16 | 14 | 14 | 12 | 12  | 10  | 10  | 10  | 10  |
| 15'    | 5 m  | 18             | 18 | 16 | 14 | 14 | 12 | 12 | 10 | 10  | 8   | 8   | 8   | 8   |
| 20'    | 6 m  | 18             | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 8   | 8   | 8   | 6   | 6   |
| 25'    | 8 m  | 18             | 16 | 14 | 12 | 12 | 10 | 10 | 8  | 8   | 6   | 6   | 6   | 6   |
| 30'    | 9 m  | 18             | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 6   | 6   | 6   | 6   | 4   |
| 40'    | 12 m | 16             | 14 | 12 | 10 | 10 | 8  | 8  | 6  | 6   | 6   | 4   | 4   | 4   |
| 50'    | 15 m | 16             | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 4   | 4   | 4   | 2   | 2   |
| 60'    | 18 m | 14             | 12 | 10 | 8  | 8  | 6  | 6  | 4  | 4   | 2   | 2   | 2   | 2   |
| 70'    | 21 m | 14             | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 2   | 2   | 2   | 2   | 1   |
| 80'    | 24 m | 14             | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 2   | 2   | 2   | 1   | 1   |
| 90'    | 27 m | 12             | 10 | 8  | 6  | 6  | 6  | 4  | 2  | 2   | 2   | 1   | 1   | 1/0 |
| 100'   | 30 m | 12             | 10 | 8  | 6  | 6  | 4  | 4  | 2  | 2   | 1   | 1   | 1/0 | 1/0 |
| 110'   | 33 m | 12             | 8  | 8  | 6  | 6  | 4  | 2  | 2  | 2   | 1   | 1/0 | 1/0 | 1/0 |
| 120'   | 36 m | 12             | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 1   | 1   | 1/0 | 1/0 | 2/0 |
| 130'   | 40 m | 12             | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 1   | 1/0 | 1/0 | 2/0 | 2/0 |
| 140'   | 43 m | 10             | 8  | 6  | 6  | 4  | 2  | 2  | 1  | 1   | 1/0 | 2/0 | 2/0 | 2/0 |
| 150'   | 46 m | 10             | 8  | 6  | 4  | 4  | 2  | 2  | 1  | 1/0 | 1/0 | 2/0 | 2/0 | 3/0 |
| 160'   | 49 m | 10             | 8  | 6  | 4  | 4  | 2  | 2  | 1  | 1/0 | 2/0 | 2/0 | 3/0 | 3/0 |
| 170'   | 52 m | 10             | 6  | 6  | 4  | 2  | 2  | 2  | 1  | 1/0 | 2/0 | 2/0 | 3/0 | 3/0 |

#### 10% Voltage Drop at 24 Volts

| Length |      | Current (Amps) |    |    |    |    |    |    |    |    |    |    |    |     |
|--------|------|----------------|----|----|----|----|----|----|----|----|----|----|----|-----|
|        |      | 5              | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 10'    | 3 m  | 18             | 18 | 18 | 18 | 18 | 18 | 16 | 16 | 14 | 14 | 14 | 12 | 12  |
| 15'    | 5 m  | 18             | 18 | 18 | 18 | 16 | 16 | 14 | 14 | 12 | 12 | 12 | 10 | 10  |
| 20'    | 6 m  | 18             | 18 | 18 | 16 | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 10 | 10  |
| 25'    | 8 m  | 18             | 18 | 16 | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 10 | 8  | 8   |
| 30'    | 9 m  | 18             | 18 | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 8  | 8   |
| 40'    | 12 m | 18             | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 8  | 6  | 6   |
| 50'    | 15 m | 18             | 16 | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 6   |
| 60'    | 18 m | 18             | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 6  | 4   |
| 70'    | 21 m | 16             | 14 | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 6  | 4  | 4   |
| 80'    | 24 m | 16             | 14 | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 4  | 4   |
| 90'    | 27 m | 16             | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 4  | 4  | 2   |
| 100'   | 30 m | 16             | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 4  | 2  | 2   |
| 110'   | 33 m | 14             | 12 | 10 | 8  | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2   |
| 120'   | 36 m | 14             | 12 | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2  | 2   |
| 130'   | 40 m | 14             | 12 | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2  | 2   |
| 140'   | 43 m | 14             | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 2  | 2  | 2  | 2  | 1   |
| 150'   | 46 m | 14             | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2  | 2  | 1   |
| 160'   | 49 m | 14             | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2  | 1  | 1   |
| 170'   | 52 m | 12             | 10 | 8  | 6  | 6  | 6  | 4  | 2  | 2  | 2  | 2  | 1  | 1   |

#### 10% Voltage Drop at 32 Volts

| Length |      | Current (Amps) |    |    |    |    |    |    |    |    |    |    |    |     |
|--------|------|----------------|----|----|----|----|----|----|----|----|----|----|----|-----|
|        |      | 5              | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 10'    | 3 m  | 18             | 18 | 18 | 18 | 18 | 18 | 18 | 16 | 16 | 14 | 14 | 14 | 14  |
| 15'    | 5 m  | 18             | 18 | 18 | 18 | 18 | 18 | 16 | 14 | 14 | 14 | 12 | 12 | 12  |
| 20'    | 6 m  | 18             | 18 | 18 | 18 | 16 | 16 | 14 | 14 | 12 | 12 | 12 | 10 | 10  |
| 25'    | 8 m  | 18             | 18 | 18 | 16 | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 10 | 10  |
| 30'    | 9 m  | 18             | 18 | 18 | 16 | 14 | 14 | 12 | 14 | 10 | 10 | 10 | 10 | 8   |
| 40'    | 12 m | 18             | 18 | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 8  | 8   |
| 50'    | 15 m | 18             | 16 | 14 | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 8  | 6  | 6   |
| 60'    | 18 m | 18             | 16 | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 8  | 6  | 6  | 6   |
| 70'    | 21 m | 18             | 14 | 14 | 12 | 10 | 10 | 8  | 8  | 8  | 6  | 6  | 6  | 6   |
| 80'    | 24 m | 18             | 14 | 12 | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 6  | 4   |
| 90'    | 27 m | 18             | 14 | 12 | 10 | 10 | 10 | 8  | 6  | 6  | 6  | 6  | 4  | 4   |
| 100'   | 30 m | 16             | 14 | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 4  | 4   |
| 110'   | 33 m | 16             | 14 | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 4  | 4   |
| 120'   | 36 m | 16             | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 4  | 4  | 2   |
| 130'   | 40 m | 16             | 12 | 10 | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 4  | 2  | 2   |
| 140'   | 43 m | 14             | 12 | 10 | 8  | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2   |
| 150'   | 46 m | 14             | 12 | 10 | 8  | 8  | 6  | 6  | 6  | 4  | 4  | 2  | 2  | 2   |
| 160'   | 49 m | 14             | 12 | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2  | 2   |
| 170'   | 52 m | 14             | 12 | 10 | 8  | 8  | 6  | 6  | 4  | 4  | 2  | 2  | 2  | 2   |

# Wire & Cable Technical Data

## Conductor Sizes

| AWG | mm <sup>2</sup> | AWG<br>CM area | SAE<br>CM area | Ampacity<br>Outside | Engine Space<br>Inside |
|-----|-----------------|----------------|----------------|---------------------|------------------------|
| 18  | 0.8             | 1,600          | 1,537          | 20                  | 17                     |
| 16  | 1               | 2,600          | 2,336          | 25                  | 21                     |
| 14  | 2               | 4,100          | 3,702          | 35                  | 30                     |
| 12  | 3               | 6,500          | 5,833          | 45                  | 38                     |
| 10  | 5               | 10,500         | 9,343          | 60                  | 51                     |
| 8   | 8               | 16,800         | 14,810         | 80                  | 68                     |
| 6   | 13              | 26,600         | 24,538         | 120                 | 102                    |
| 4   | 21              | 42,000         | 37,360         | 160                 | 136                    |
| 2   | 34              | 66,500         | 62,450         | 210                 | 178                    |
| 1   | 42              | 83,690         | 77,790         | 245                 | 208                    |
| 1/0 | 53              | 105,600        | 98,980         | 285                 | 242                    |
| 2/0 | 68              | 133,100        | 125,100        | 330                 | 280                    |
| 3/0 | 85              | 167,800        | 158,600        | 385                 | 327                    |
| 4/0 | 107             | 211,600        | 205,500        | 445                 | 378                    |



| PN          | Page | PN      | Page | PN             | Page | PN           | Page | PN           | Page   |
|-------------|------|---------|------|----------------|------|--------------|------|--------------|--------|
| 1000-6W     | 67   | 1001704 | 54   | 1002008        | 57   | 185040F-01-1 | 49   | 600-GDRV     | 92     |
| 1000-6W-24V | 67   | 1001705 | 54   | 1002009        | 57   | 185040F/DSP  | 49   | 600-LPG      | 92     |
| 1000-ACSM   | 67   | 1001706 | 54   | 1002010        | 56   | 185040P-01-1 | 49   | 600-TG       | 91     |
| 1000-DCSM   | 67   | 1001707 | 54   | 1002011        | 57   | 185040P/DSP  | 49   | 600-TGSK     | 91     |
| 1000-VM-12V | 67   | 1001708 | 54   | 1002012        | 57   | 185050F-01-1 | 49   | 600-TLM-SIF  | 91     |
| 1001001     | 60   | 1001709 | 54   | 1002013        | 56   | 185050F/DSP  | 49   | 700          | 16     |
| 1001002     | 60   | 1001710 | 54   | 1002014        | 57   | 185050P-01-1 | 49   | 700B         | 16     |
| 1001101     | 61   | 1001711 | 54   | 1002015        | 56   | 185050P/DSP  | 49   | 701          | 16, 29 |
| 1001102     | 61   | 1001712 | 54   | 1002016        | 57   | 185060F-01-1 | 49   | 701-KEY      | 17, 19 |
| 1001103     | 61   | 1001713 | 54   | 1002017        | 57   | 185060F/DSP  | 49   | 701-KEY-EP   | 17, 19 |
| 1001104     | 61   | 1001714 | 54   | 1002018        | 57   | 185060P-01-1 | 49   | 701-MD       | 18     |
| 1001301     | 58   | 1001715 | 54   | 1002019        | 57   | 185060P/DSP  | 49   | 701-MD-D     | 18     |
| 1001302     | 58   | 1001716 | 54   | 1002020        | 57   | 185070F-01-1 | 49   | 701-MDVS     | 20     |
| 1001303     | 58   | 1001801 | 53   | 1002021        | 56   | 185070F/DSP  | 49   | 701-MDVS-24V | 20     |
| 1001304     | 58   | 1001802 | 53   | 1002022        | 56   | 185070P-01-1 | 49   | 701-PM       | 17     |
| 1001305     | 58   | 1001803 | 53   | 1002023        | 56   | 185070P/DSP  | 49   | 701B         | 16     |
| 1001306     | 58   | 1001804 | 53   | 1002024        | 56   | 185080F-01-1 | 49   | 701B-PM      | 17     |
| 1001307     | 58   | 1001805 | 53   | 1002025        | 56   | 185080F/DSP  | 49   | 701S         | 16     |
| 1001308     | 58   | 1001806 | 53   | 1002027        | 56   | 185080P-01-1 | 49   | 701S-B       | 16     |
| 1001401     | 55   | 1001807 | 53   | 1002101        | 60   | 185080P/DSP  | 49   | 701S-B-PM    | 17     |
| 1001402     | 55   | 1001808 | 53   | 1002102        | 60   | 185100F-01-1 | 49   | 701S-PM      | 17     |
| 1001501     | 55   | 1001809 | 53   | 1002203        | 61   | 185100F/DSP  | 49   | 702-2S/B     | 42     |
| 1001502     | 55   | 1001810 | 53   | 1002204        | 61   | 185100P-01-1 | 49   | 702-2S/B     | 42     |
| 1001503     | 55   | 1001811 | 53   | 1002205        | 61   | 185100P/DSP  | 49   | 702-2SB/L    | 42     |
| 1001504     | 55   | 1001812 | 53   | 1002301        | 60   | 185120F-01-1 | 49   | 702-8-10-B   | 42     |
| 1001505     | 55   | 1001901 | 56   | 1100-BK        | 67   | 185120P-01-1 | 49   | 702-MFH      | 47     |
| 1001506     | 55   | 1001902 | 56   | 1101-BK        | 67   | 185120P/DSP  | 49   | 702-MFH-B    | 47     |
| 1001507     | 55   | 1001903 | 56   | 1101-BK-TS     | 67   | 185135F-01-1 | 49   | 702B         | 42     |
| 1001508     | 55   | 1001904 | 56   | 121-710-1101/1 | 51   | 185135P-01-1 | 49   | 702B         | 42     |
| 1001509     | 55   | 1001905 | 57   | 124001000      | 50   | 185135P/DSP  | 49   | 702SB        | 42     |
| 1001601     | 60   | 1001906 | 56   | 12VDUSB        | 66   | 185150F-01-1 | 49   | 704-4S/B     | 42     |
| 1001602     | 60   | 1001907 | 56   | 12VDUSB-B      | 66   | 185150F/DSP  | 49   | 704-4S/B     | 42     |
| 1001603     | 59   | 1001908 | 56   | 12VDUSBN-B     | 66   | 185150P-01-1 | 49   | 705-100A     | 43     |
| 1001604     | 59   | 1002001 | 56   | 12VDUSBW-B     | 66   | 185150P/DSP  | 49   | 705-100A/B   | 43     |
| 1001605     | 59   | 1002002 | 56   | 12VPG          | 66   | 600-ACSM-KIT | 89   | 705-135A     | 43     |
| 1001606     | 59   | 1002003 | 57   | 12VRC          | 66   | 600-DCM-10M  | 88   | 705-135A/B   | 43     |
| 1001607     | 59   | 1002004 | 56   | 185030F-01-1   | 49   | 600-DCM-5M   | 88   | 705-150A     | 43     |
| 1001608     | 59   | 1002005 | 57   | 185030F/DSP    | 49   | 600-DCSM-KIT | 88   | 705-150A/B   | 43     |
| 1001609     | 59   | 1002006 | 56   | 185030P-01-1   | 49   | 600-GD       | 92   | 705-50A      | 43     |
| 1001610     | 59   | 1002007 | 57   | 185030P/DSP    | 49   | 600-GDL      | 92   | 705-50A/B    | 43     |

| PN               | Page   | PN             | Page   | PN             | Page   | PN             | Page | PN                 | Page   |
|------------------|--------|----------------|--------|----------------|--------|----------------|------|--------------------|--------|
| 705-80A          | 43     | 720B           | 16     | 778-ANLTP      | 33, 35 | 80-600-0021-00 | 88   | 900-2WPOFO         | 65     |
| 705-80A/B        | 43     | 721            | 16     | 778-ANLTP-B    | 35     | 80-600-0022-00 | 88   | 900-3WPS           | 65     |
| 706-2W           | 43     | 721B           | 16     | 778-T2S-400    | 33, 35 | 80-600-0023-00 | 89   | 900-4WP            | 65     |
| 706-2W/B         | 43     | 770-B          | 14     | 778-T2S-400-B  | 35     | 80-600-0027-00 | 94   | 900-5WPS           | 65     |
| 706-4W/B         | 43     | 770-DP         | 14     | 778-T2S-600    | 33, 35 | 80-600-0028-00 | 94   | 900-5WPUSB         | 65     |
| 706-4WB          | 43     | 770-DP-B       | 14     | 778-T2S-600-B  | 35     | 80-600-0029-00 | 91   | 900-6WP            | 65     |
| 707              | 43     | 770-DP-EZ      | 14     | 779-LB-1-B     | 38     | 80-601-0020-00 | 94   | 900-AC1            | 78     |
| 708-107-V3       | 28     | 770-DP-EZ-B    | 14     | 779-LB-2-B     | 38     | 80-601-0021-00 | 94   | 900-AC1-110V       | 78     |
| 708-42.5         | 28, 42 | 770-EZ         | 14     | 779-LBJ-2-B    | 38     | 80-601-0022-00 | 94   | 900-AC1H-ACSM      | 78     |
| 708-54.5         | 42     | 770-EZ-B       | 14     | 779-LBJ-2-B5   | 38     | 80-601-0023-00 | 94   | 900-AC2H-ACSM      | 78, 79 |
| 708-62.0         | 42     | 770-KEY-EP     | 14, 15 | 779-LBJ-3-B    | 38     | 80-601-0024-00 | 94   | 900-AC2H-ACSM-110  | 78, 79 |
| 708-64.5         | 42     | 770            | 14     | 779-LBJ-4-B    | 38     | 80-601-0025-00 | 94   | 900-AC2V-ACSM      | 79     |
| 708-68.5         | 42     | 77049020       | 46     | 779-LBJ-5-B    | 38     | 80-601-0026-00 | 94   | 900-AC2V-ACSM-110  | 79     |
| 708-70.0         | 28     | 77049160       | 46     | 779-LBJ-6-B    | 38     | 80-700-0050-00 | 26   | 900-AC3-ACSM       | 79     |
| 710-140A         | 21     | 77049400       | 46     | 779-LBZ-1-B    | 38     | 80-700-0051-00 | 26   | 900-AC3-ACSM-110   | 79     |
| 710-140A-B       | 21     | 771-S          | 14     | 779-LBZ-2-B    | 38     | 80-700-0052-00 | 26   | 900-AC4-ACSM       | 79     |
| 711L             | 88     | 771-S-B        | 14     | 80-511-0001-00 | 68     | 80-701-0018-00 | 20   | 900-AC4-ACSM-110   | 79     |
| 713              | 29, 84 | 771-S-EZ       | 14     | 80-511-0001-01 | 68     | 80-707-0004-00 | 89   | 900-ACCH           | 78     |
| 713-BT           | 84     | 771-S-EZ-B     | 14     | 80-511-0002-00 | 68     | 80-707-0005-00 | 89   | 900-ACCH-110V      | 78     |
| 713-EP           | 84     | 771-SFD        | 14     | 80-511-0002-01 | 68     | 80-708-0013-00 | 19   | 900-ACM2W          | 78     |
| 713-HB           | 84     | 772-DBC        | 14     | 80-511-0003-00 | 68     | 80-708-0017-00 | 19   | 900-ACM2W-110V     | 78     |
| 713-MS           | 84     | 772-DBC-B      | 14     | 80-511-0003-01 | 68     | 80-712-0039-00 | 47   | 900-ACM6V-ACSM     | 78     |
| 713-PS           | 84     | 772-DBC-EZ     | 14, 15 | 80-511-0004-00 | 68     | 80-712-0039-01 | 47   | 900-ACM6V-ACSM-110 | 78     |
| 713-SB           | 84     | 772-DBC-EZ-B   | 14     | 80-511-0004-01 | 68     | 80-716-0014-00 | 26   | 900-ACM6W          | 78     |
| 713-SS           | 84     | 777-BB3S-650   | 33, 34 | 80-511-0005-00 | 68     | 80-716-0015-00 | 26   | 900-ACM6W-110V     | 78     |
| 714-140A-DVSR    | 22, 24 | 777-BB3S-650-B | 34     | 80-511-0005-01 | 68     | 80-716-0016-00 | 26   | 900-BA             | 65     |
| 714-140A-DVSR-B  | 22     | 777-BB4S-500   | 33, 34 | 80-511-0006-00 | 68     | 80-716-0017-00 | 25   | 900-DC             | 72     |
| 715-H            | 22, 24 | 777-BB4S-500-B | 34     | 80-511-0006-01 | 68     | 80-716-0018-00 | 25   | 900-RCD-16A        | 50     |
| 715-S            | 23, 24 | 777-BB5S-650   | 33, 34 | 80-511-0007-00 | 68     | 80-716-0030-00 | 8    | 900-RCD-1X16-32A   | 50     |
| 715-V            | 22, 24 | 777-BB5S-650-B | 34     | 80-511-0007-01 | 68     | 80-716-0031-00 | 8    | 900-RCD-2X16A      | 50     |
| 716-H-140A-DVSR  | 23, 24 | 777-BB8S-650   | 33, 34 | 80-511-0008-00 | 68     | 80-716-0032-00 | 8    | 900-RCD-2X32A      | 50     |
| 716-SQ-140A-DVSR | 23, 24 | 777-BB8S-650-B | 34     | 80-511-0008-01 | 68     | 80-724-0006-00 | 19   | 900-RCD-32A        | 50     |
| 716-V-140A-DVSR  | 23, 24 | 777-Z10W-200   | 33, 34 | 80-511-0009-00 | 68     | 80-724-0007-00 | 20   | 900-SOP            | 65     |
| 717-140A-DVSR    | 24     | 777-Z10W-200-B | 34     | 80-511-0009-01 | 68     | 80-911-0045-00 | 19   | 900V-DCSM          | 74     |
| 718-140A-DVSR    | 23, 24 | 777-Z18W-200   | 33, 34 | 80-511-0010-00 | 68     | 800-MS1        | 29   | 901H               | 72     |
| 719-140A-DVSR    | 24     | 777-Z18W-200-B | 34     | 80-511-0010-01 | 68     | 800-MS2        | 29   | 901V               | 72     |
| 720              | 16     | 778-ANL        | 33, 35 | 80-511-0011-01 | 68     | 800-MS3        | 29   | 901V-DCSM          | 74     |
| 720-MDO          | 18     | 778-ANL-B      | 35     | 80-511-0012-01 | 68     | 800-MS4        | 29   | 902-DCSM           | 74     |
| 720-MDO-EP       | 20     | 778-ANL2S      | 33, 35 | 80-511-0031-00 | 68     | 900-2WP        | 65   | 902NMH             | 72     |
| 720-MDVSO        | 20     | 778-ANL2S-B    | 35     | 80-511-0031-01 | 68     | 900-2WPMOM     | 65   | 902NMV             | 72     |

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| 902V-DCSM      | 74   | BC-FM4           | 80     | CBS-50A-DP       | 51   | CT-10-3    | 89   | IS-10MM-1R      | 40     |
| 903-DCSM       | 74   | BC-PM1           | 80     | CBS-50A-DP-TC230 | 51   | CT-HD      | 89   | IS-10MM-2       | 40     |
| 904-DCSM       | 74   | BC-PM2           | 80     | CBS-50A-SP       | 51   | FANL-600-B | 46   | IS-10MM-2/L     | 40     |
| 904NM          | 72   | BFHD-30A         | 46     | CBS-50A-SP-IGP   | 51   | FANL-675-B | 46   | IS-6MM-1        | 40     |
| 904NM-DP       | 76   | BFHD-30A/DSP     | 46     | CBS-50A-TP       | 51   | FANL-750-B | 46   | IS-6MM-1/DSP    | 40     |
| 904NMH         | 72   | BFHD-40A         | 46     | CBS-5A-SP        | 51   | FD-2       | 92   | IS-6MM-1R       | 40     |
| 904NMV         | 73   | BFHD-40A/DSP     | 46     | CC-1             | 28   | FT-225-B   | 46   | IS-6MM-1R/DSP   | 40     |
| 905-DCSM       | 74   | BFHD-50A         | 46     | CC-5             | 28   | FT-250-B   | 46   | IS-6MM-2/DSP    | 40     |
| 905NM          | 73   | BFHD-50A/DSP     | 46     | CC-801           | 27   | FT-300-B   | 46   | IS-8MM-1        | 40     |
| 905NMV         | 73   | BFHD-60A         | 46     | CC-802           | 27   | FT-350-B   | 46   | ISC-10BK        | 40     |
| 905V-DCSM      | 74   | BFHD-60A/DSP     | 46     | CC-803N          | 27   | FT-400-B   | 46   | ISC-10R         | 40     |
| 906-DCSM       | 75   | BFHD-70A         | 46     | CC-804           | 28   | FT-450-B   | 46   | ISC-6-2         | 40     |
| 906NMH         | 73   | BFHD-70A/DSP     | 46     | CC-810           | 27   | FT-500-B   | 46   | ISC-6-2R        | 40     |
| 906NMV         | 73   | BFHD-80A         | 46     | CC-BLANK         | 28   | FT-600-B   | 46   | IST-10MM-1S     | 33, 36 |
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| 907-DCSM       | 75   | BL-SL-L          | 92     | CG2-2W           | 64   | IP100      | 46   | IST-10MM-1SPT   | 33, 36 |
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| BB-12W-2NC     | 41   | CBL-50A-SP       | 29, 51 | CG2-6W-F         | 64   | IP175      | 46   | IST-10MM-8MM-B  | 36     |
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| BB-12W-2S      | 41   | CBL-60A-SP       | 51     | CLB-05           | 50   | IP200P/DSP | 46   | IST-8MM-1S-B    | 36     |
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| BB-24W-2S/DSP  | 41   | CBS-10A-DP       | 51     | CLB-10/DSP       | 50   | IP300      | 46   | IST-8MM-2S      | 33, 36 |
| BB-4S-150A     | 41   | CBS-10A-SP       | 51     | CLB-15           | 50   | IP300P/DSP | 46   | IST-8MM-2S-B    | 36     |
| BB-4S-150A/DSP | 41   | CBS-15A-DP       | 51     | CLB-15/DSP       | 50   | IP355      | 46   | J01A            | 46     |
| BB-6W-2S       | 41   | CBS-15A-DP-TC230 | 51     | CLB-20           | 50   | IP40       | 46   | J02A            | 46     |
| BB-6W-2S/DSP   | 41   | CBS-15A-SP       | 51     | CLB-20/DSP       | 50   | IP425      | 46   | J03A            | 46     |
| BB-LINK17MM    | 47   | CBS-20A-DP       | 51     | CLB-25           | 50   | IP425P/DSP | 46   | J05A            | 46     |
| BBC-12WBK      | 41   | CBS-20A-DP-TC230 | 51     | CLB-25/DSP       | 50   | IP50       | 46   | J10A            | 46     |
| BBC-12WR       | 41   | CBS-20A-SP       | 51     | CLB-30           | 50   | IP500      | 46   | J15A            | 46     |
| BBC-24WBK      | 41   | CBS-25A-DP       | 51     | CLB-30/DSP       | 50   | IP500P/DSP | 46   | J20A            | 46     |
| BBC-24WR       | 41   | CBS-25A-SP       | 51     | CLB-40           | 50   | IP50P/DSP  | 46   | J25A            | 46     |
| BBC-6WBK       | 41   | CBS-30A-DP       | 51     | CLB-40/DSP       | 50   | IP63       | 46   | J30A            | 46     |
| BBC-6WR        | 41   | CBS-30A-DP-TC230 | 51     | CLB-BOOT         | 50   | IP63P/DSP  | 46   | J40A            | 46     |
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| N060ACT             | 95   | SW-32113            | 66     |            |        |
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## Ingress Protection (IP) Ratings Guide

### Example:

An IP65 rating can be determined using the adjacent table and example:

- The first number of the rating example, 6, in the gray column means the enclosure is dust tight
- The second number of the rating example, 5, in the blue column means the enclosure is protected against jets of water

The IP rating system was established by the International Electrotechnical Commission (IEC), an organization for international standards and conformity assessment. The IEC collaborates closely with the International Organization for Standardization (ISO). A complete description of the IP ratings and associated tests is found in IEC Publication 529. Although these ratings were initially developed as a way to classify enclosures, they now provide a convenient, practical way to compare levels of sealing. Many electrical products have an Ingress Protection (IP) rating which identifies the environmental factors needing consideration prior to the product's installation.

This is important when deciding when to mount products in a dry and clean environment versus a wet and/or dusty environment. The IP rating indicates the degree of protection provided. The numbers following IP represent levels of sealing and can range from no protection to full protection against dust and water. The table provides a description of the protection at each level.

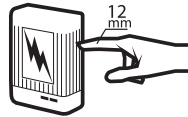
### SOLIDS

1



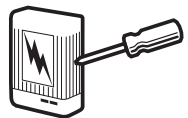
Protected against a solid object greater than 50 mm such as a hand.

2



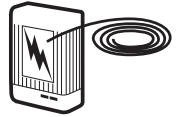
Protected against a solid object greater than 12 mm such as a finger.

3



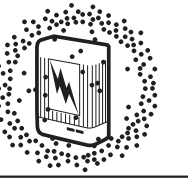
Protected against a solid object greater than 2.5 mm such as a screwdriver.

4



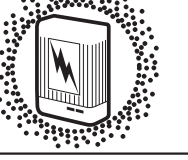
Protected against a solid object greater than 1 mm such as a wire.

5



Dust Protected. Limited ingress of dust permitted. Will not interfere with operation of the equipment. Two to eight hours.

6



Dust tight. No ingress of dust. Two to eight hours.

Rating Example:

**IP65**

INGRESS PROTECTION

### WATER

1



Protected against vertically falling drops of water. Limited ingress permitted.

2



Protected against vertically falling drops of water with enclosure tilted up to 15 degrees from the vertical. Limited ingress permitted.

3



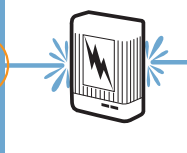
Protected against sprays of water up to 60 degrees from the vertical. Limited ingress permitted for three minutes.

4



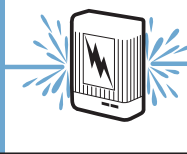
Protected against water splashed from all directions. Limited ingress permitted.

5



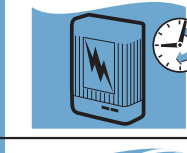
Protected against jets of water. Limited ingress permitted.

6



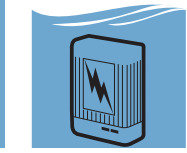
Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities.

7



Protection against the effects of immersion in water between 15 cm and 1 m for 30 minutes.

8



Protection against the effects of immersion in water under pressure for long periods.

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