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Blue Sea Systems Products on Water or Land

In addition to the marine industry, Blue Sea Systems products can be found on emergency vehicles, RVs, agricultural equipment, off-road vehicles, and other industries where rugged, dependable products are required.

Rating Symbols Shown in This Catalog:

Ic · **Amperage Continuous Rating**
- Ampérage continu
- Amperaje continuo
- Amperaggio continuo

I10 · **Amperage Cranking Rating (10 Seconds)**
- Ampérage au lancement (10 secondes)
- Amperaje de potencia de rotación (10 segundos)
- Amperaggio alla rotazione del motorino di avviamento (10 secondi)

I60 · **Amperage Cranking Rating (1 Minute)**
- Ampérage au lancement (5 min.)
- Amperaje de potencia de rotación (5 min.)
- Amperaggio alla rotazione del motorino di avviamento (5 min.)

I300 · **Amperage Intermittent Rating (5 Minutes)**
- Ampérage intermittent (5 min.)
- Amperaje de potencia intermitente (5 min.)
- Amperaggio intermittente (5 min.)

Iic · **Amperage Interrupting Capacity**
- Ampérage pouvoir de coupure
- Amperaje potencia de interrupción
- Amperaggio capacità di apertura

Imxo · **Amperage Maximum Operating**
- Ampérage maximum de fonctionnement
- Amperaje máximo de funcionamiento
- Amperaggio al funzionamento a pieno carico

Ioc · **Amperage Operating Current**
- Courant de fonctionnement en ampères
- Corriente operativa de amperaje
- Amperaggio corrente operativ

Itr · **Amperage Trip Reference**
- Référence de déclenchement en ampères
- Referencia de disparo de amperaje
- Riferimento di attivazione amperaggio

Cs · **Switching Cycles**
- Périodicité de démarrage
- Ciclos de conmutación
- Cicli di commutazione

Tmxo · **Temperature Maximum Operating**
- Température maximum de fonctionnement
- Temperatura máxima en funcionamiento
- Temperatura massima di esercizio

Tmno · **Temperature Minimum Operating**
- Température minimum de fonctionnement
- Temperatura mínima en funcionamiento
- Temperatura minima di esercizio

Vmxo · **Voltage Maximum Operating**
- Tension maximum de fonctionnement
- Voltaje máximo en funcionamiento
- Tensione massima di esercizio

Vmno · **Voltage Minimum Operating**
- Tension minimum de fonctionnement
- Voltaje mínimo de funcionamiento
- Tensione minima di esercizio

Power Conversion

PACIFIC SERIES Battery Chargers and Optional Remote Display
pages 8–10

7521, 7522, 7523
PACIFIC SERIES Battery Chargers
Multi-stage, three output charger with a rugged, finned aluminum case, Battery Specific Charging (BSC) that integrates with Automatic Charging Relays, and a multi-language display. Backed by a five year warranty.

7519
PACIFIC SERIES Battery Charger Remote Display
Shown in 360 Panel System

A large, bright backlit display with multi-language sentences for easy setup, monitoring and diagnostics. Includes full state of charge monitoring of house battery.

Battery Management

7712, 7714
Auto Releasing ML-Series Remote Battery Switches with SPST Switching
Provides 500A switching and features of current ML-Series Remote Battery Switches, and can now be controlled with a SPST or SPDT switch for applications where a normally open relay is desired.
page 23

Look for the following icon to identify new products throughout the catalog.

NEW

* 2105 is an updated product

Circuit Protection

ELCI Main Residual Current Circuit Breakers
page 41

3102100
Ignition protected

3106100
Ignition protected

3091, 3092 230V AC (typical of Europe)
Ignition protected

3093 240V AC (for isolation transformer applications)
Ignition protected

3113, 3116, 3118, 3119
SMS Surface Mount System Panel Enclosures
Provides surface mounting option for ELCI Main and other large frame circuit breakers in a waterproof enclosure.
page 42

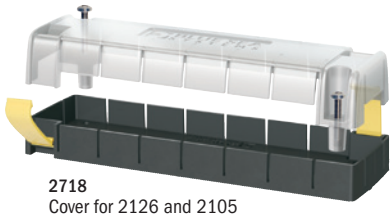
5035, 5037
ST-Blade Fuse Block
with 6 Independent Circuits.
page 51

Connectors and Insulators

MaxiBus 250A Common BusBars and Covers
Press fit studs eliminate need for securing nut and risk of loose or high resistance connections. New compact models and optional insulating cover.
page 62

2105*
2 × 5/16"-18 Stud and
12 × #10-24 terminal screws

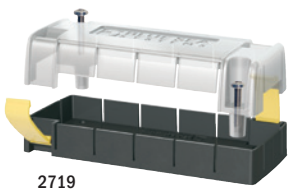
2126
6 × 5/16"-18 Stud



2718
Cover for 2126 and 2105

2127
4 × 5/16"-18 Stud

2128
6 × #10/24" Screw



2719
Cover for 2127 and 2128

Accessories

360 Panel Hinge Kit
page 109

4122
Replaces existing headers and footers and allows easy access to the rear of the panel.

INTEGRATED ELECTRICAL SYSTEM

3 Battery Banks, 1 Engine, 1 Genset, 1 Inverter

Power Conversion

NEW 1. PACIFIC SERIES Battery Charger (pages 8–10)
Digital, multistage charger designed to meet global electrical requirements

NEW 2. PACIFIC SERIES Battery Charger Remote Display
Mounted in the 360 Panel System (page 9)

3. DeckHand Dimmer (page 11)
Digitally controls dimming of non-regulated LEDs, incandescent and halogen lights

Battery Management

4. m-Series Battery Switch (page 15)
Compact 300A continuous rated battery disconnect

5. e-Series Battery Switch (page 16)
Standard case 350A continuous rated battery disconnect

6. ML-Series Remote Battery Switches (page 23)
500A magnetic latching relay with manual control

7. SI-Series Automatic Charging Relay (page 25)
120A relay automatically manages the charge between two battery banks

8. ML-Series Automatic Charging Relay (page 26)
Automatically combines batteries during charging, isolates batteries when discharging and when starting engines

Circuit Protection

NEW 9. SMS Surface Mount System (page 42)
Provides a sealed enclosure for surface mounting ELCI Main and other circuit breakers

10. ST-Blade Fuse Block (page 51)
Compact ATO®/ATC® fuse block consolidates, insulates and identifies multiple branch circuits

11. MIDI® Fuse Block (page 52)
30A to 200A circuit protection with independent fuse studs and insulating cover

12. Class T Fuse Block (page 53)
225A to 400A circuit protection with independent fuse studs and insulating cover

13. SafetyHub 150 Fuse Block (page 55)
Ignition protected 1A-200A 10 circuit fuse block with built-in negative bus

Connectors and Insulators

NEW 14. MaxiBus Common BusBar (page 62)
250A tin plated copper busbar for AC or DC circuits with optional insulating cover

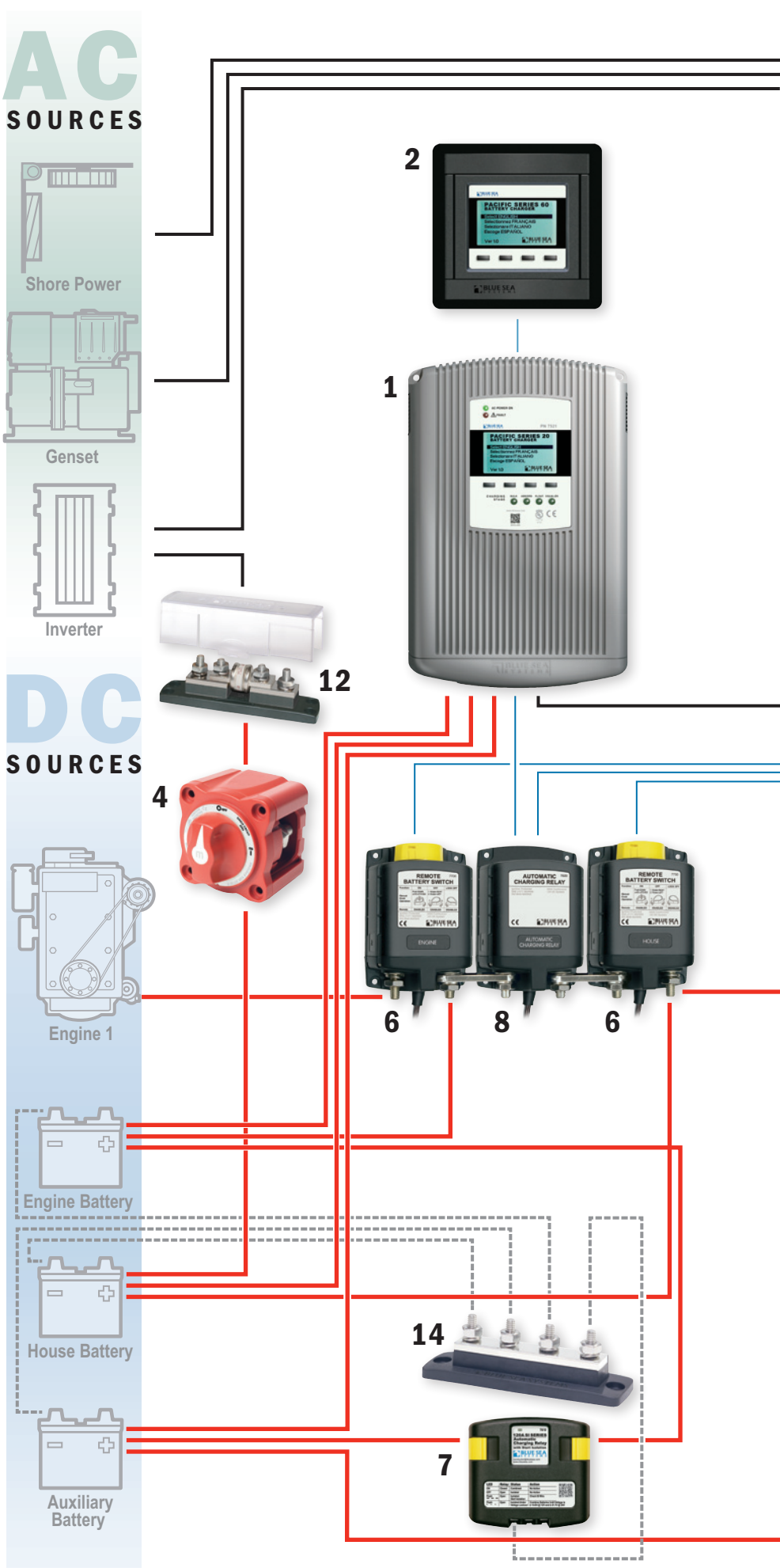
Power Distribution

15. WeatherDeck™ Waterproof Panel (page 70)
Blue Sea Systems' most waterproof panel for open cockpit or flybridge applications

16. Custom AC/DC 360 Panel (page 92)
Custom panels generally ship within seven days of order receipt

Monitoring

17. Vessel Systems Monitor (pages 102–103)
Four meters in one including AC, DC with Amp Hours, Tanks and Bilge



This diagram is for reference only. Consult an ABYC certified marine electrical professional for system design.

9

17

16

15

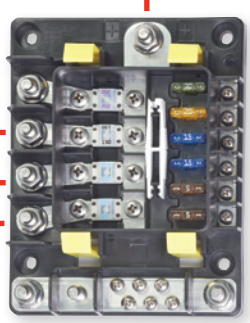
3

LEGEND

- Power AC
- Power DC
- Monitor and Control
- Ground

10

13



5

11

AC

AC LOADS

- Outlets
- Microwave
- Refrigerator

DC

DC LOADS

- Horn
- Running Lights
- Cabin Lights
- GPS
- VHF
- Stereo
- Windlass
- Bow Thruster

Power Conversion

Power Conversion

For over two decades Blue Sea Systems has designed and manufactured products that operate between the source of power and the load. These products switch, protect, distribute and monitor both AC and DC systems. Drawing on experience gained from design, manufacturing, and customer service, Blue Sea Systems is introducing power conversion products, beginning with dimmers and battery chargers.

Dimmers have been part of the product offering over the years, but advances in LED and halogen lighting have emphasized the need for a new and more versatile dimmer. DeckHand Dimmers add new features, including a timed illuminated exit setting that allows boaters to safely and conveniently disembark before the lights automatically turn off.

Customers have asked for a battery charger with the latest technology and features that is built with the integrity and engineering expertise applied to every Blue Sea Systems product. Customers want a charger that can work anywhere, in any conditions, with any battery type, which is easy to install and intuitive to operate. They also demand a high level of product support for questions and troubleshooting. Blue Sea Systems new PACIFIC SERIES Battery Chargers meet these requirements and offer peace of mind with an industry-leading five year warranty.

Both the PACIFIC SERIES Battery Chargers and DeckHand Dimmers were designed by Blue Sea Systems engineers to improve the experience and safety of boating. Specifics about these new products are found on the following pages.

SECTION INDEX

BATTERY CHARGERS

DIMMERS

NEW PACIFIC SERIES Battery Chargers

NEW PACIFIC SERIES Battery Charger Remote Display
Shown in 360 Panel System

DeckHand Dimmer

PACIFIC SERIES Battery Chargers NEW

Applying two decades of electrical product design and manufacturing expertise, Blue Sea Systems has developed the PACIFIC SERIES Battery Chargers.

Research and testing of existing battery chargers revealed several shortcomings impacting the performance, and ultimately the experience, customers had with their product. Blue Sea Systems has improved charger performance by focusing on environmental factors, electronic design, and technical support.

The PACIFIC SERIES Battery Chargers, with their advanced multistage charging technology, are engineered to perform in harsh conditions.

Environment

Boats operate in challenging environments for any electrical or electronic device. The three conditions causing the greatest problems for chargers are moisture, heat, and low quality AC input voltage.

To combat moisture, the PACIFIC SERIES Battery Chargers have a drip-proof design with an integrated venting system protecting them from wipe downs and drips.

Heat is one of the greatest enemies of a battery charger. It stresses the electronic components and can cause premature failure. Instead of plastic or sheet metal cases, the Pacific Series' rugged, finned aluminum case dissipates heat and leads to longer battery charger life.

Low quality AC voltage can compromise many battery chargers. To overcome this, Blue Sea Systems developed Input Power Response (IPR) to match the charge output to the quality of the AC voltage input which reduces component stress.

Electronic Design

PACIFIC SERIES Battery Chargers use modern MOSFET circuitry instead of diodes for output power distribution. If diodes are used for this purpose, lower voltage is supplied to the battery requiring the most charge and higher voltage to the batteries that may already be charged, when equivalent voltages are required for optimum charging. MOSFETs improve efficiency, reduce heat and allow the PACIFIC SERIES Battery Chargers to offer these additional advantages:

1. **Capability for multiple battery chemistries (such as a mix of flooded and gel batteries):** PACIFIC SERIES Battery Chargers vary absorption stage voltage according to the chemistry selected by the user for each of the three battery banks.* This extends battery life and increases performance by providing each battery bank with the voltage specified for its particular chemistry.
   * Up to 0.5V difference between absorption voltages can be achieved.
2. **Optimum charging of different battery bank sizes with different charge states:** PACIFIC SERIES Battery Chargers vary absorption stage time according to the size and charge state of each battery bank to reduce overcharging.
3. **Compensation for voltage drop in cables from the charger to the batteries:** Conventional battery chargers sense battery voltage at the charger, while the voltage at the battery terminal is lower by the amount of voltage drop in the charging cables, resulting in longer charge times than necessary. PACIFIC SERIES chargers allow the user to compensate for this drop for faster charge times while not overcharging other connected battery banks.

Support

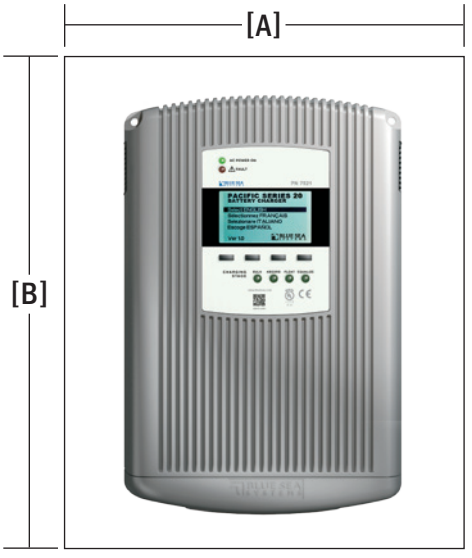
Battery charger status and fault conditions are typically indicated using a single ON LED or a combination of LEDs and simple onboard voltmeters. Deciphering the blinking lights, meters, and complex labels on many existing battery chargers is challenging. Poor status indication can lead to the misdiagnosis of a fault, resulting in costly repairs or replacement.

Blue Sea Systems' PACIFIC SERIES Battery Chargers have an integrated multi-language display for easy setup, monitoring, and diagnostics. This important feature ensures faults are easily identified and corrective procedures explained. An optional remote monitor offers a display and control at a navigation center or helm. With the purchase of a shunt, the remote monitor will also display amp hours and battery state of charge for one battery bank.

When assistance is required, poor technical support can occupy hours of time and cause frustration. Blue Sea Systems technical support is the company's priority. Members of the management and engineering teams spend one hour every weekday providing product support. Blue Sea Systems' foundation of customer care and technical support comes with every PACIFIC SERIES Battery Charger.

	PN	Description	Volts	Amps	Output	Recommended Mounting Clearance [A] Width in (mm)	Recommended Mounting Clearance [B] Height in (mm)
NEW	7521	Battery Charger	12V DC	20A	3	11.66 (296.16)	16.3 (414.02)
NEW	7522	Battery Charger	12V DC	40A	3	11.66 (296.16)	16.3 (414.02)
NEW	7523	Battery Charger	12V DC	60A	3	11.66 (296.16)	18.27 (464.06)

Mounting Clearance Diagram



Specifications subject to change. See bluesea.com for current information.

Electrical Performance

- **Universal line voltage 90-265V AC 50/60 Hz** for use anywhere, and is compatible with low voltage power sources
- **Power factor corrected** for efficient charging
- **MOSFET output** eliminates unintentional voltage differences between batteries providing a faster charge for batteries with the greatest amp-hour deficit

Mechanical Design

- **Rugged, finned aluminum case** for maximum heat dissipation
- **Integrated drip proof design** meets ABYC requirements
- **Conformal coated circuit boards**

Advanced Multi Stage Charging

- **Three outputs** provide charging for up to three battery banks
- **User selectable charge profiles** for lead acid, gel, AGM and new Thin Plate Pure Lead and Lithium Ion batteries
- **Battery Specific Charging (BSC) for different battery types and chemistries*** ensures each battery receives the optimal charge for long battery life
- **ACR integration–** disables ACR during BSC for individual battery charging profile
- **Battery temperature compensation** internal or with remote sensor
- **Battery Health Mode–** repeats the charge cycle weekly during storage or over extended periods
- **User selected battery equalizing function–** to revitalize wet acid batteries

* **Lithium Ion batteries cannot be combined with other battery types or chemistries**

Built In Safety Features

- **Ignition protected–** can be mounted in a gasoline powered boat's engine compartment or near batteries
- **Over and under temperature protection** for batteries
- **Overheating protection** for battery charger
- **DC over voltage protection**
- **AC reverse polarity protection**
- **Surge and short circuit protection**

Large Bright Backlit Display

- **Charge current, charge voltage, and charge cycle** specific to each battery
- **Multi language**
- **Easy to read** for set up, monitoring, and diagnostics

Optional Remote Display

- **Repeats battery charger onboard display information in convenient location**
- **DC Amps–** net of charger input and loads for house battery
- **Amp-Hour and State of Charge** for house battery with purchase of PN 8255 DC shunt 500A DC/50mV
- **Three mounting options including:** surface, rear panel, or 360 Panel System

Warranty

- **Five year** with Blue Sea Systems commitment to support

Rugged, finned aluminum case
Acts as a heat sink and stands up to the harsh marine environment

Multi language display
Easy to read for set up, monitoring, and diagnostics with optional remote display

Battery Specific Charging (BSC)
Optimizes charge profile for a mix of battery types including Lead Acid, Gel, AGM, TPPL and Lithium Ion

Universal line voltage 90-265 VAC 50/60 Hz
For use anywhere, and is compatible with low voltage power sources

7519 is a stand alone unit that can be mounted in the 360 Panel System

PACIFIC SERIES Battery Charger Remote Display
Shown in 360 Panel System

	PN	Description	Voltage	Width in (mm)	Height in (mm)
NEW	7519	PACIFIC SERIES Battery Charger Remote Display	12V DC	4.88 (123.83)	4.75 (120.65)

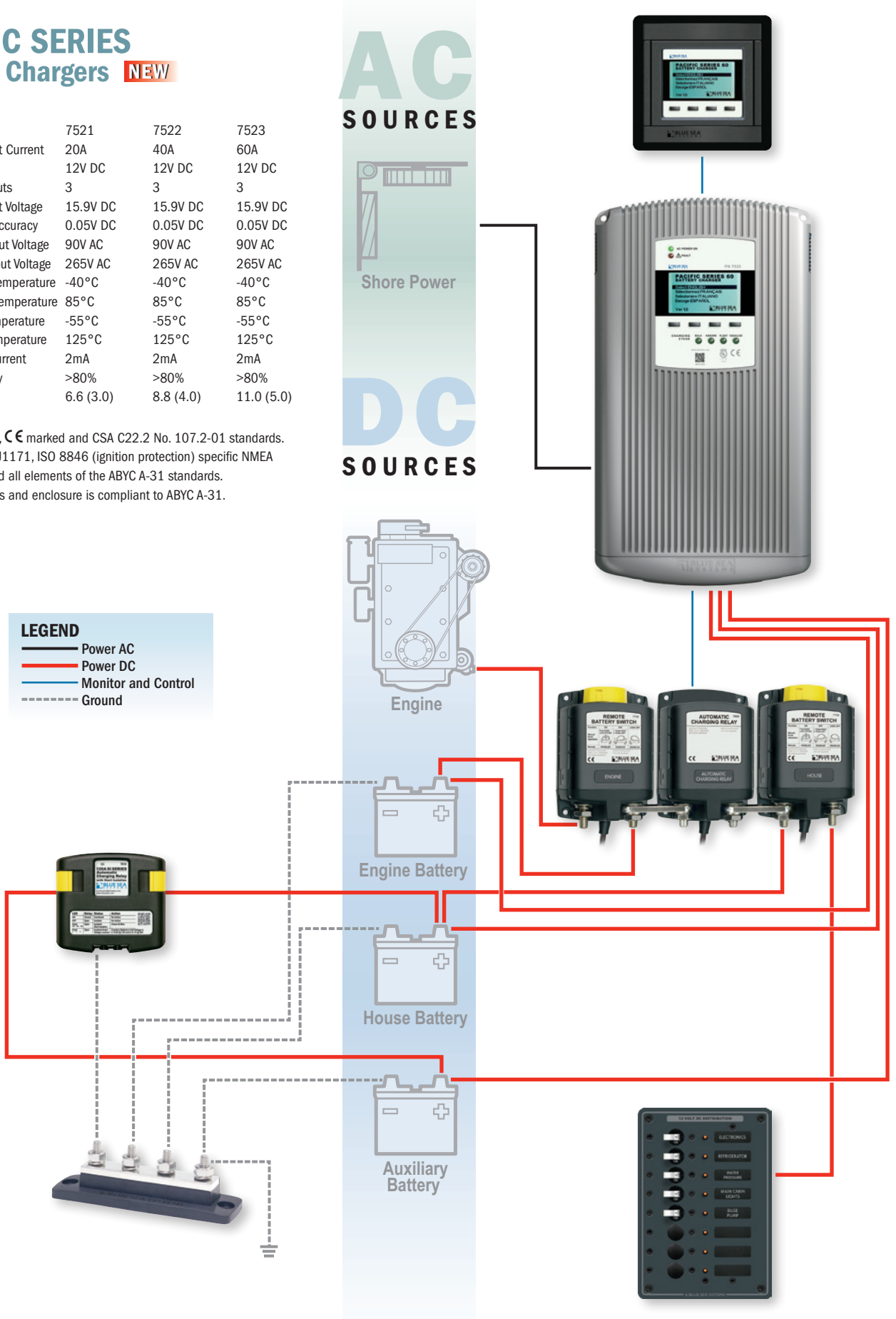
PACIFIC SERIES
Battery Chargers NEW

Specifications

Part Number	7521	7522	7523
Maximum Output Current	20A	40A	60A
Nominal Voltage	12V DC	12V DC	12V DC
Number of Outputs	3	3	3
Maximum Output Voltage	15.9V DC	15.9V DC	15.9V DC
Output Voltage Accuracy	0.05V DC	0.05V DC	0.05V DC
Minimum AC Input Voltage	90V AC	90V AC	90V AC
Maximum AC Input Voltage	265V AC	265V AC	265V AC
Min. Operating Temperature	-40°C	-40°C	-40°C
Max. Operating Temperature	85°C	85°C	85°C
Min. Storage Temperature	-55°C	-55°C	-55°C
Max. Storage Temperature	125°C	125°C	125°C
Max. Parasitic Current	2mA	2mA	2mA
Charger Efficency	>80%	>80%	>80%
Weight lb (kg)	6.6 (3.0)	8.8 (4.0)	11.0 (5.0)

Regulatory

UL 1236 marine, CE marked and CSA C22.2 No. 107.2-01 standards. SAE 1455, SAE J1171, ISO 8846 (ignition protection) specific NMEA requirements and all elements of the ABYC A-31 standards. Wire terminations and enclosure is compliant to ABYC A-31.



This diagram is for reference only. Consult an ABYC certified marine electrical professional for system design.

DC ⎓

DeckHand Dimmers

Adjustable off for a timed illuminated exit

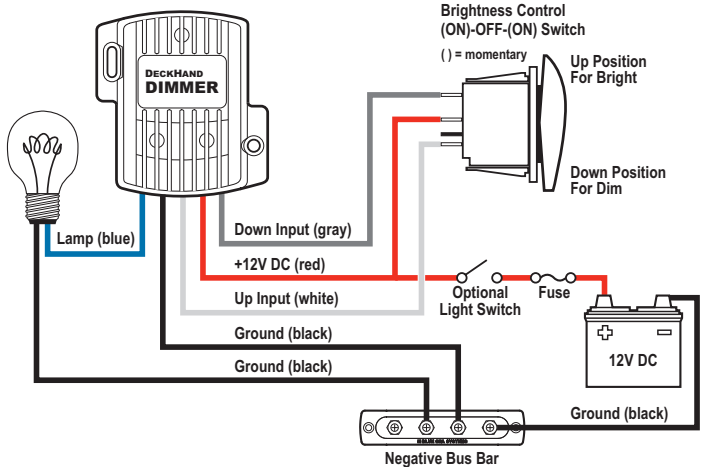
7508

8216 (included in retail package)
Pole/Throw: SPDT
Action: (ON)-OFF-(ON)

The timed illuminated exit setting allows boaters to safely and conveniently disembark before the lights automatically turn off.

Using the timed illuminated exit mode
One minute delay: Hold the switch in up position (bright) for 2 seconds. Lights will flash. Release switch after first flash and the lights will remain on for 1 minute.

Two to five minute delay: Hold the switch in up position (bright) for 1-4 seconds after the first flash. Release the switch after 2 to 5 flashes. The lights will remain on for 1 additional minute for each flash up to a maximum of 5 minutes.



Features

- Digitally controls dimming of non-regulated LEDs, incandescent, and halogen lights
- Memory for last dimmer setting
- Provides continuous pulse width modulation control from 0 to 100% of input voltage
- Bulb saver prevents excessive bulb aging during charging
- Offset mounting tabs allow multiple dimmers to be mounted close together
- Retail package includes momentary (ON)-OFF-(ON) switch 8216, see page 111

Specifications

Vn	**Nominal Voltage**	12 Volts DC
Operating Range		9V to 16V
Maximum Output Current		See table
Maximum Parasitic Current		<2mA
Temperature Rating		-40°C to 85°C

Regulatory

CE marked

Meets ISO 8846 ignition protection and

SAE J1171 external ignition protection requirements

PN	Imxo Amperage Maximum Output	Weight lb (kg)
7506	6 Amps	0.4 (0.18)
7507	12 Amps	0.58 (0.26)
7508	25 Amps	0.64 (0.29)

Retail package

Dimmer Cross Reference Chart

New PN	Amp Max. Operating	Nominal Voltage	Width in (mm)	Height in (mm)	Replaces PN	Amp Max. Operating	Nominal Voltage	Width in (mm)	Height in (mm)
7506	6 Amps	12V DC	3.25 (82.55)	3.5 (88.9)	7501	2 Amps	32V DC	1.7 (43.2)	2.05 (52.1)
7506	6 Amps	12V DC	3.25 (82.55)	3.5 (88.9)	7502	5 Amps	32V DC	2.2 (55.9)	3.06 (77.7)
7507	12 Amps	12V DC	3.25 (82.55)	3.5 (88.9)	7503	10 Amps	32V DC	2.2 (55.9)	3.06 (77.7)
7508	25 Amps	12V DC	3.25 (82.55)	3.5 (88.9)	7505	20 Amps	32V DC	2.2 (55.9)	3.06 (77.7)

Example of nested dimmer switches

Battery Management

Battery Management

A battery switch is required by ABYC in every boat with a battery over 800 Cold Cranking Amps (CCA). This requirement exists so that the potentially destructive energy in the batteries can be isolated in the event of a fire. Battery management is central to safe boating.

With involvement on ABYC's Electrical Component Project Technical Committee, Blue Sea Systems is close to the source of standards for battery switches. This participation in the process means quick response when standards, and the needs of boaters, change.

Manual Battery Switches are familiar to most boaters as a large, usually red switch with a round face and prominent knob. Blue Sea Systems offers several switch configurations to manage single or multiple battery banks: **ON/OFF Switch** for a single circuit; **Selector 3 Position Switch** that switches two battery banks to all loads; **Selector 4 Position Switch** that switches two battery banks to all loads or combines batteries to all loads; **Dual Circuit Switch** which simultaneously switches two isolated battery banks; and a **Dual Circuit Plus™ Switch** that adds the ability to combine two battery banks.

m-Series Manual Battery Switch

Remote Battery Switches add another level of safety and convenience to battery management by allowing control of the battery or batteries from a remote location. All Blue Sea Systems remote battery switches carry a 500A continuous rating and allow high-amp switching under load. Models with manual control have "Lock OFF" capability for servicing or emergencies. The new Auto Releasing ML-Series Remote Battery Switch with SPST Switching Provides 500A switching and features of current ML Remote Battery Switches, but can be controlled with SPST or SPDT switch for applications where a normally open relay is desired.

NEW ML-Series Remote Battery Switch

The SafetyHub 250 Fuse Block with Remote Battery Switch is the latest innovation in remote battery management. It combines a battery switch with remote and manual control with 1A – 200A ignition-protected fusing. By combining these two important functions, the SafetyHub 250 saves space and reduces wiring connections compared to separate components. Read more about the SafetyHub 250 and related products on pages 54 and 55.

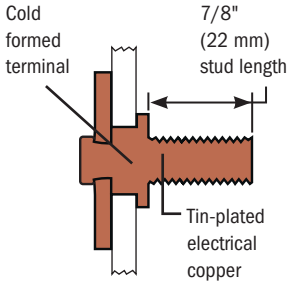
SafetyHub 250 Fuse Block with Remote Battery Switch

Automatic Charging Relays (ACRs) share the output of a single charging source with a second battery, whether the boat is underway or on the charger. A simple three-wire connection is all that's required for basic operation.

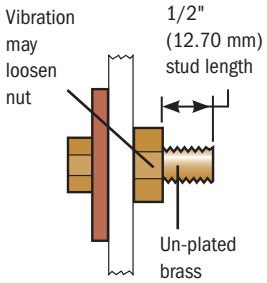
SI-Series Automatic Charging Relay

Blue Sea Systems One Piece Stud Reduces Risk of Fire

Blue Sea Systems
ONE PIECE STUD
Can never loosen over time



Competitors
TWO PIECE STUD
Can loosen and create risk of fire



SECTION INDEX

Manual Battery Switches

Purpose

Battery switches isolate the potentially destructive energy in the battery banks when the boat is not in use or during emergencies.

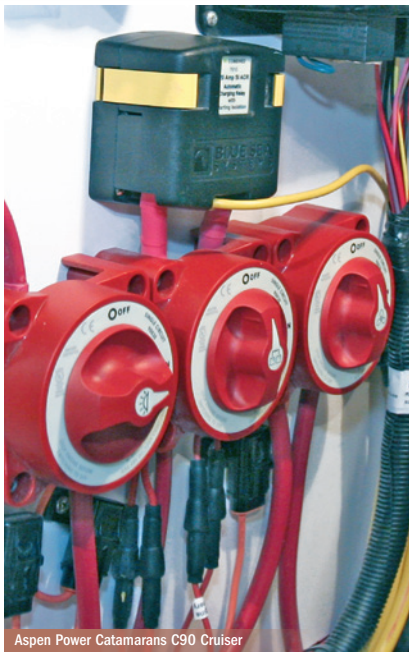
ABYC 11.7.1.2.1: A battery switch shall be installed in the positive conductor(s) from each battery or battery bank with a CCA rating greater than 800 Amperes.

Battery Switch Ratings

The UL standard for marine battery switches is UL 1107. This standard rates switches for 5 minute and 1 hour time periods. These ratings are not useful to the boater using a switch in the engine starting circuit where current durations may be 10-60 seconds. For this reason, Blue Sea Systems uses additional testing, consisting of a high amperage load during a cranking period of 10 seconds. An additional 60-second rating, representative of the load imposed on a battery switch in the starting circuit under very difficult starting conditions, is also given. These 10 and 60 second ratings are in addition to the testing done to UL 1107.

When determining the proper size battery switch, consult your engine manufacturer for the amperage requirements of your engine starting motor.

Aspen Power Catamarans C90 Cruiser



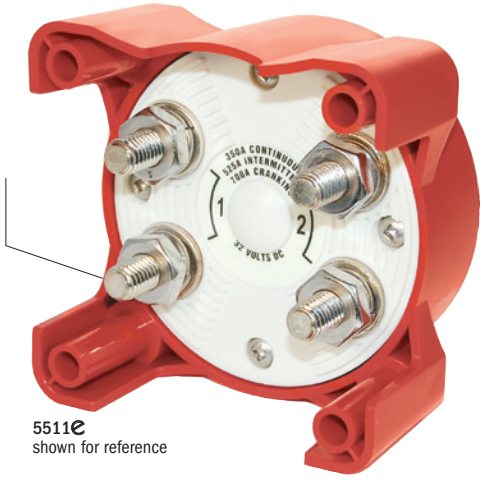
Aspen Power Catamarans C90 Cruiser

Common Features

- Case design offers flexible mounting options
- CE marked, ISO 8846
- UL Listed
- Meets UL 1500 and SAE J1171 external ignition protection requirements
- IP66—protected against powerful water jets
- Meets American Boat and Yacht Council requirements

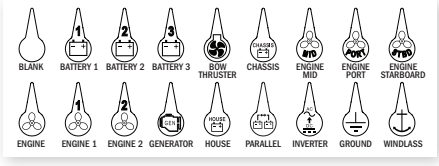
Terminal Studs

- Tin-plated copper for maximum conductivity and corrosion resistance
- One-piece design never loosens over time
- 7/8" (22 mm) length accepts multiple cable terminals

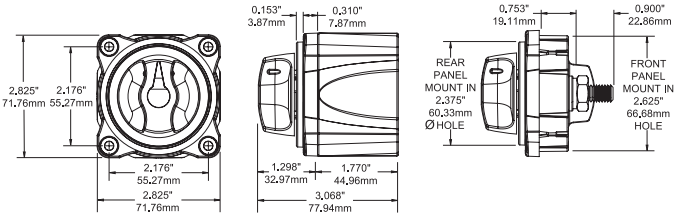


5511e
shown for reference

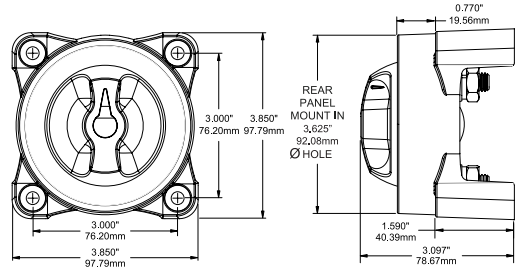
7902 ICON Circuit Identification Label Kit Available (page 115)



m-Series Battery Switch Dimension Drawing



e-Series and HD-Series Battery Switch Dimension Drawing



DC ⎓

m-Series Battery Switches

300 Amps continuous rating for outboards and small gasoline or diesel engines

Features

- Tin-plated copper studs for maximum conductivity and corrosion resistance
- Studs accept 3/8" (M10) ring terminals
- 7/8" (22 mm) stud length accepts multiple cable terminals
- Blue Sea Systems one-piece terminal stud design never loosens over time
- Isolating cover with three snap-in side pieces protects rear contacts and allows wire access in any direction
- Case design allows surface, rear, or front panel mounting options
- 6 Icon label set included for circuit identification (not included with 6005 and 6005200)
- Icon Circuit Identification Label Kit available 7902 (sold separately, page 115)
- Removable key - 6005, 6005200; removable knob - all others
- Available in black or red

Specifications

		6005, 6006 6005200 6006200	6007 6007200	6010, 6011 6010200 6011200
I_{10}	Cranking Rating: 10 sec.	1,500A	1,500A	1,000A per circuit
I_{60}	Cranking Rating: 1 min.	775A	775A	650A per circuit
I_{300}	Intermittent Rating: 5 min.	500A	500A	450A per circuit
I_c	Continuous Rating	300A	300A	300A per circuit
V_{mxo}	Voltage Maximum Operating	48V DC	32V DC	32V DC

Regulatory

CE marked, ISO 8846

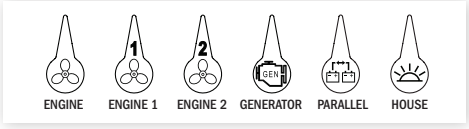
UL Listed - UL 1107 electric power switches

Meets American Boat and Yacht Council (ABYC) requirements

Meets UL 1500 and SAE J1171 external ignition protection requirements

IP66—protected against powerful water jets

For the full list of specifications, go to page 18–19



6 Icon Circuit Label Set (included)

7901 (red), 7901200 (black)
Removable Knob
Weight: 0.10lb (0.05kg)

7900 (red), 7900200 (black)
Removable key
Weight: 0.10lb (0.05 kg)

9159
Paralleling Link Bus

- Used to link multiple m-Series Battery Switches together
- Two per retail package

Weight: 0.14 lb (0.06 kg)

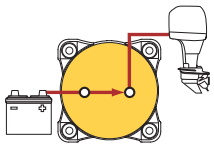
9159 linking three 6006 ON-OFF m-Series Battery Switches

Single Circuit ON-OFF

Switches a single battery to a single load group

6005 (red), 6005200 (black)

6006 (red), 6006200 (black)

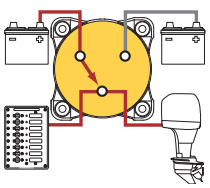


Switch set to ON

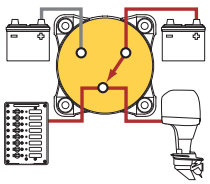
Selector 4 Position

Switches isolated battery banks to all loads or combines battery banks to all loads

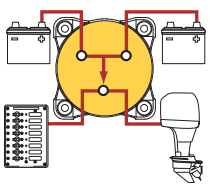
6007 (red), 6007200 (black)



Switch set to 1



Switch set to 2

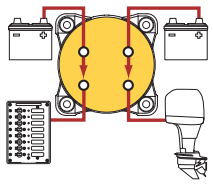


Switch set to 1+2

Dual Circuit™

Simultaneously switches two isolated battery banks

6010 (red), 6010200 (black)

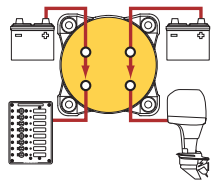


Switch set to ON

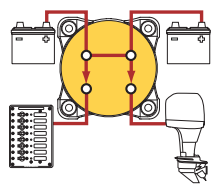
Dual Circuit Plus™

Simultaneously switches two isolated battery banks or combines battery banks to all loads

6011 (red), 6011200 (black)



Switch set to ON



Switch set to COMBINE BATTERIES

DC

e-Series Battery Switches

350 Amps continuous rating for inboard gasoline or diesel engines

Features

- Tin-plated copper studs for maximum conductivity and corrosion resistance
- Accepts up to 4/0 AWG (120 mm²) battery cables
- Studs accept 3/8" (M10) ring terminals
- 7/8" (22 mm) stud length accepts multiple cable terminals
- Blue Sea Systems one-piece terminal stud design never loosens over time
- Fits most Perko and Guest low amperage battery switch hole patterns
- Case design allows surface, rear, or front panel mounting options
- Tactile indicator conveys knob position by feel
- Icon Circuit Identification Label Kit available 7902 (sold separately, page 115)

Specifications		9003e 9004e	9001e, 9002e 11001	5510e 5511e
I10	Cranking Rating: 10 sec.	2,000A	2,000A	1,000A per circuit
I60	Cranking Rating: 1 min.	1,000A	1,000A	750A per circuit
I300	Intermittent Rating: 5 min.	600A	600A	525A per circuit
Ic	Continuous Rating	350A	350A	350A per circuit
Vmxo	Voltage Maximum Operating	48V DC	32V DC	32V DC

Regulatory

CE marked, ISO 8846

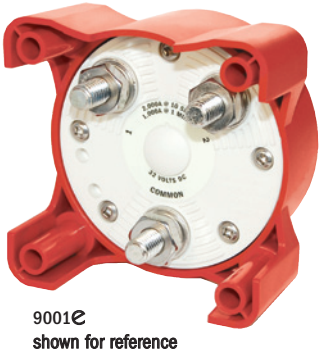
UL Listed - UL 1107 electric power switches

Meets American Boat and Yacht Council (ABYC) requirements

Meets UL 1500 and SAE J1171 external ignition protection requirements

IP66—protected against powerful water jets

For the full list of specifications, go to page 18–19

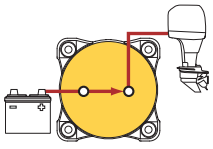


9001e
shown for reference
Please visit bluesea.com to see other battery switch backs

Single Circuit ON-OFF

Switches a single battery to a single load group

9003e, 9004e*

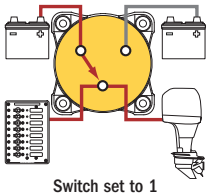


Switch set to ON

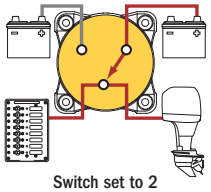
Selector 3 Position

Switches isolated battery banks to all loads

11001*



Switch set to 1

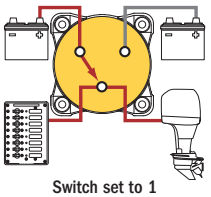


Switch set to 2

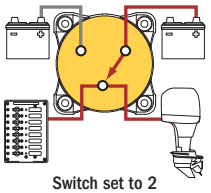
Selector 4 Position

Switches isolated battery banks to all loads or combines battery banks to all loads

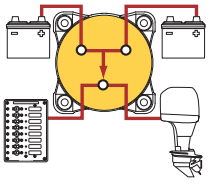
9001e, 9002e*



Switch set to 1



Switch set to 2

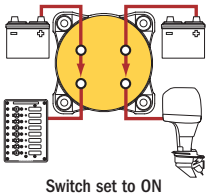


Switch set to 1+2

Dual Circuit™

Simultaneously switches two isolated battery banks

5510e

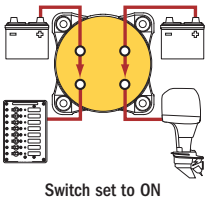


Switch set to ON

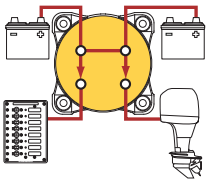
Dual Circuit Plus™

Simultaneously switches two isolated battery banks or combines battery banks to all loads

5511e



Switch set to ON



Switch set to COMBINE BATTERIES

* Includes Alternator Field Disconnect (AFD) which protects the diodes in the alternator in the event of the switch being switched to the OFF position while the engine is running. If the AFD is not used to protect the alternator, an LED can be connected to the AFD terminals to indicate when the battery switch is in any position but OFF.

DC

HD-Series Battery Switches

Up to 600 Amps continuous rating for large diesel engines

Features

- Tin-plated copper studs for maximum conductivity and corrosion resistance
- Accepts up to 4/0 AWG (120 mm²) battery cables
- Studs accept 1/2" (M12) ring terminals
- 7/8" (22 mm) stud length accepts multiple cable terminals
- Blue Sea Systems one-piece terminal stud design never loosens over time
- Fits most Perko and Guest low amperage battery switch hole patterns
- Case design allows surface, rear, or front panel mounting options
- Tactile indicator conveys knob position by feel
- Icon Circuit Identification Label Kit available 7902 (sold separately, page 115)

Specifications		3000, 3001	3002, 3003, 11003
I_{10}	Cranking Rating: 10 sec.	2,750A	2,750A
I_{60}	Cranking Rating: 1 min.	1,325A	1,150A
I_{300}	Intermittent Rating: 5 min.	900A	700A
I_c	Continuous Rating	600A	500A
V_{mxo}	Voltage Maximum Operating	32V DC	32V DC

Regulatory

CE marked, ISO 8846

UL Listed - UL 1107 electric power switches

Meets American Boat and Yacht Council (ABYC) requirements

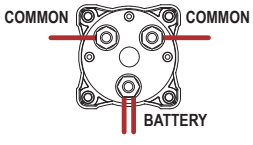
Meets UL 1500 and SAE J1171 external ignition protection requirements

IP66—protected against powerful water jets

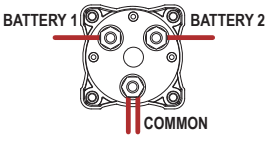
For the full list of specifications, go to page 18–19

3000
shown for reference
Please visit bluesea.com to see
other battery switch backs

Cable Quantity to Meet Ratings



ON-OFF
3000 and 3001 Connections

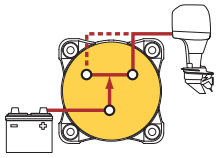


SELECTOR
3002, 3003, and 11003 Connections

Single Circuit ON-OFF

Switches a single battery to a single load group

3000, 3001*

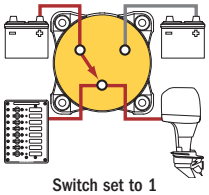


Switch set to ON

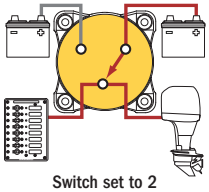
Selector 3 Position

Switches isolated battery banks to all loads

11003*



Switch set to 1

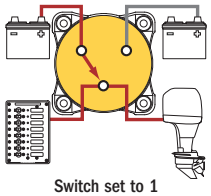


Switch set to 2

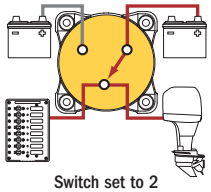
Selector 4 Position

Switches isolated battery banks to all loads or combines battery banks to all loads

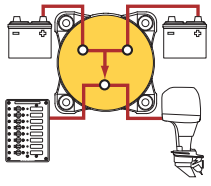
3002, 3003*



Switch set to 1



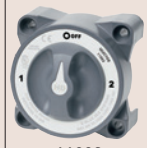
Switch set to 2



Switch set to 1+2

* Includes Alternator Field Disconnect (AFD) which protects the diodes in the alternator in the event of the switch being switched to the OFF position while the engine is running. If the AFD is not used to protect the alternator, an LED can be connected to the AFD terminals to indicate when the battery switch is in any position but OFF.

DC
Manual Battery Switch Comparison

Switch Type	Single Circuit ON-OFF						Selector 3 Position	
Function	Switches a single battery to a single load group						Switches battery banks to all loads	
Switch Family	m-Series	m-Series	e-Series	e-Series	HD-Series	HD-Series	e-Series	HD-Series
								
PN	6005	6006	9003e	9004e	3000	3001	11001	11003
Battery Inputs	1	1	1	1	1	1	2	2
Switch Positions	2	2	2	2	2	2	3	3
Battery Combine Function	–	–	–	–	–	–	–	–
Alternator Field Disconnect*	–	–	–	Yes*	–	Yes*	Yes*	Yes*
Make Before Break Contact Design	–	–	–	–	–	–	-	-
I_{10} Cranking Rating (10 sec.)	1,500A	1,500A	2,000A	2,000A	2,750A	2,750A	2,000A	2,750A
I_{60} Cranking Rating (1 min.)	775A	775A	1,000A	1,000A	1,325A	1,325A	1,000A	1,150A
I_{300} Intermittent Rating (5 min.)	500A	500A	600A	600A	900A	900A	600A	700A
I_c Continuous Rating	300A	300A	350A	350A	600A	600A	350A	500A
V_{mxo} Voltage Maximum Operating	48V DC	48V DC	48V DC	48V DC	32V DC	32V DC	32V DC	32V DC
Width	2.825" (72 mm)	2.825" (72 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)
Height	2.825" (72 mm)	2.825" (72 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)
Mounting Centers	2.176" (55 mm)	2.176" (55 mm)	3.00" (76 mm)	3.00" (76 mm)	3.00" (76 mm)	3.00" (76 mm)	3.00" (76 mm)	3.00" (76 mm)
Weight	0.62 lb (0.28 kg)	0.65 lb (0.29 kg)	0.95 lb (0.43 kg)	0.95 lb (0.43 kg)	1.30 lb (0.59 kg)	1.30 lb (0.59 kg)	1.15 lb (0.52 kg)	1.25 lb (0.57 kg)
Mounting	#10 Screw	#10 Screw	1/4" (M6) Screw	1/4" (M6) Screw	1/4" (M6) Screw	1/4" (M6) Screw	1/4" (M6) Screw	1/4" (M6) Screw
Terminal Stud Size	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	1/2" (M12)	1/2" (M12)	3/8"-16 (M10)	1/2" (M12)
Terminal Stud Length	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)
Maximum Terminal Stud Torque	120 in-lb (13.56 N-m)	120 in-lb (13.56 N-m)	140 in-lb (15.82 N-m)	140 in-lb (15.82 N-m)	220 in-lb (24.86 N-m)	220 in-lb (24.86 N-m)	140 in-lb (15.82 N-m)	220 in-lb (24.86 N-m)
Terminal Stud Material	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper
Cable Size to Meet Ratings ‡	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)
Cable Clearance for 4/0 Cables	1.12" (28.4 mm)	1.12" (28.4 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)
Ignition Protected	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171
Ingress Protected	IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP66

* Alternator Field Disconnect (AFD) protects the diodes in the alternator in the event of the switch being switched to the OFF position while the engine is running. If the AFD is not used to protect the alternator, an LED can be connected to the AFD terminals to indicate when the battery switch is in any position but OFF.

‡ Reducing cable size will reduce current rating

Selector 4 Position					Dual Circuit™		Dual Circuit Plus™	
Switches isolated battery banks to all loads or combines battery banks to all loads					Simultaneously switches two isolated battery banks		Simultaneously switches two isolated battery banks or combines battery banks to all loads	
m-Series	e-Series	e-Series	HD-Series	HD-Series	m-Series	e-Series	m-Series	e-Series
 6007	 9001e	 9002e	 3002	 3003	 6010	 5510e	 6011	 5511e
2	2	2	2	2	2	2	2	2
4	4	4	4	4	2	2	3	3
Yes	Yes	Yes	Yes	Yes	–	–	Yes	Yes
–	–	Yes*	-	Yes*	-	-	-	-
Yes	Yes	Yes	Yes	Yes	-	-	Yes	Yes
1,500A	2,000A	2,000A	2,750A	2,750A	1,000A per circuit	1,000A per circuit	1,000A per circuit	1,000A per circuit
775A	1,000A	1,000A	1,150A	1,150A	650A per circuit	750A per circuit	650A per circuit	750A per circuit
500A	600A	600A	700A	700A	450A per circuit	525A per circuit	450A per circuit	525A per circuit
300A	350A	350A	500A	500A	300A per circuit	350A per circuit	300A per circuit	350A per circuit
32V DC	32V DC	32V DC	32V DC	32V DC	32V DC	32V DC	32V DC	32V DC
2.825" (72 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	2.825" (72 mm)	3.850" (98 mm)	2.825" (72 mm)	3.850" (98 mm)
2.825" (72 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	3.850" (98 mm)	2.825" (72 mm)	3.850" (98 mm)	2.825" (72 mm)	3.850" (98 mm)
2.176" (55 mm)	3.00" (76 mm)	3.00" (76 mm)	3.00" (76 mm)	3.00" (76 mm)	2.176" (55 mm)	3.00" (76 mm)	2.176" (55 mm)	3.00" (76 mm)
0.77 lb (0.35 kg)	1.15 lb (0.52 kg)	1.15 lb (0.52 kg)	1.25 lb (0.57 kg)	1.25 lb (0.57 kg)	0.80 lb (0.36 kg)	1.16 lb (0.53 kg)	0.80 lb (0.36 kg)	1.16 lb (0.53 kg)
#10 Screw	1/4" (M6) Screw	1/4" (M6) Screw	1/4" (M6) Screw	1/4" (M6) Screw	#10 Screw	1/4" (M6) Screw	#10 Screw	1/4" (M6) Screw
3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	1/2" (M12)	1/2" (M12)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)
7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)
120 in-lb (13.56 N-m)	140 in-lb (15.82 N-m)	140 in-lb (15.82 N-m)	220 in-lb (24.86 N-m)	220 in-lb (24.86 N-m)	120 in-lb (13.56 N-m)	140 in-lb (15.82 N-m)	120 in-lb (13.56 N-m)	140 in-lb (15.82 N-m)
Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper	Tin-plated copper
4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)	4/0 AWG ‡ (120 mm²)
1.12" (28.4 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)	1.10" (27.9 mm)	1.12" (28.4 mm)	1.10" (27.9 mm)	1.12" (28.4 mm)	1.10" (27.9 mm)
UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171	UL 1500 SAE J1171
IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP66	IP66

* Alternator Field Disconnect (AFD) protects the diodes in the alternator in the event of the switch being switched to the OFF position while the engine is running. If the AFD is not used to protect the alternator, an LED can be connected to the AFD terminals to indicate when the battery switch is in any position but OFF.

‡ Reducing cable size will reduce current rating

Go to page 23 for Blue Sea Systems' selection of remote battery switches

DC

Dual Battery Bank Management Panels

Easily manage dual battery bank systems

Features

- Isolates the Engine circuit from the House circuit
- Allows emergency cross connect between isolated battery banks
- Protects electronics from sags and spikes caused by engine cranking

Component References

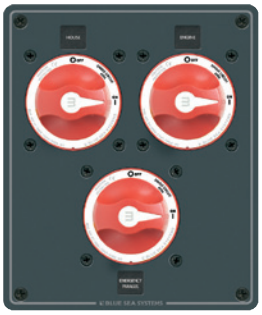
- m-Series Battery Switches (page 15)
- e-Series Battery Switches (page 16)
- C-Series Flat Rocker Circuit Breakers (page 39)
- Push Button Reset-Only Circuit Breakers (page 32)
- Square Format Label Set 4218 included (page 115)

Regulatory

Meets UL 1500 and SAE J1171 external ignition protection requirements

1406
- **360 Panel System**
- **3 Battery Switches:** m-Series, 6006200

1139 (switch not included)
- **360 Panel System**
- **Accepts any m-Series Battery Switch**



8280
- **Traditional Metal Panel**
- **3 Battery Switches:** m-Series, 6006

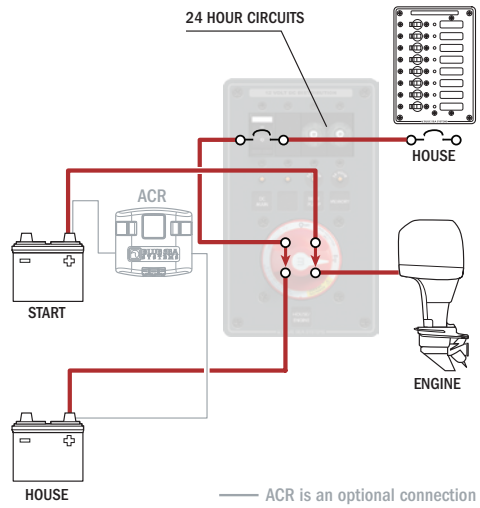
8080
- **Traditional Metal Panel**
- **1 C-Series Flat Rocker Circuit Breaker** (MAIN 100A)
- **2 Battery Switches:** m-Series, 6006

1408
- **360 Panel System**
- **Backlit circuit labels**
- **ON indicating LEDs**
- **3 Unswitched 24-hour circuits**
- **1 C-Series Flat Rocker Circuit Breaker** (MAIN 100A)
- **3 Push Button Reset-Only Circuit Breakers,** (BRANCH, 15A)
- **Battery Switch:** m-Series, 6011200

8686
- **Traditional Metal Panel**
- **2 Unswitched 24-hour circuits**
- **ON indicating LEDs**
- **Spare aperture for additional Flat Rocker or Push Button Reset-Only Circuit Breakers**
- **1 C-Series Flat Rocker Circuit Breaker** (MAIN 100A)
- **2 Push Button Reset-Only Circuit Breakers** (BRANCH 15A)
- **Battery Switch:** m-Series, 6011
- **24-hour Round Label Set 4140**

8690
- **Traditional Metal Panel**
- **2 Unswitched 24-hour circuits**
- **ON indicating LEDs**
- **Spare apertures for additional Flat Rocker or Push Button Reset-Only Circuit Breakers**
- **1 C-Series Flat Rocker Circuit Breaker** (MAIN 100A)
- **2 Push Button Reset-Only Circuit Breakers** (BRANCH 15A)
- **Battery Switch:** e-Series, 5511e
- **24-hour Round Label Set 4140**

PN	Vmxo Voltage Maximum Operating	Width in (mm)	Height in (mm)	Depth in (mm)	Weight lb (kg)
1139	-	4.88 (123.83)	4.75 (120.65)	0.50 (0.23)	0.50 (0.23)
1406	48V DC	13.63 (346.08)	4.75 (120.65)	2.50 (63.50)	5.50 (2.50)
8280	48V DC	6.25 (158.75)	7.50 (190.50)	2.25 (57.15)	3.20 (1.45)
8080	32V DC	5.25 (133.35)	6.50 (165.10)	3.00 (76.20)	2.20 (1.00)
1408	12V DC	4.88 (123.83)	7.75 (196.85)	3.50 (88.90)	3.20 (1.45)
8686	24V DC	4.50 (114.30)	7.50 (190.50)	3.25 (82.55)	1.85 (0.84)
8690	24V DC	5.25 (133.35)	8.00 (203.20)	3.50 (88.90)	2.64 (1.20)



System diagram for 8686 and 8690

Specifications subject to change. See bluesea.com for current information.

DC

Triple Battery Bank Management Panels

Two Dual Circuit Plus™ Battery Switches offer simplified switching combined with main and 24-hour circuit protection

Features

- Provides high-amp load protection
- Isolates the Engine circuit from the House circuit reducing the chance of fully discharging both battery banks
- Allows switching of three isolated circuits
- Provides 24-hour circuit protection
- Allows emergency cross connect between isolated battery banks
- Protects electronics from sags and spikes caused by engine cranking
- The addition of two Automatic Charging Relays (ACR) automates charging three battery banks (pages 25–26)

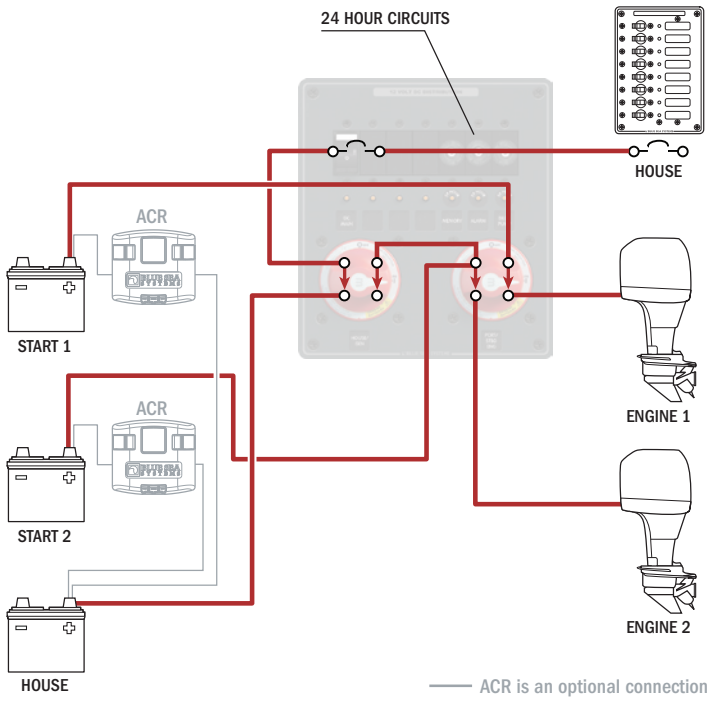
Component References

- m-Series Battery Switches (page 15)
- e-Series Battery Switches (page 16)
- C-Series Flat Rocker Circuit Breakers (page 39)
- Push Button Reset-Only Circuit Breakers (page 32)
- Square Format Label Set 4218 included (page 115)
- 24-Hour Round Format Label Set 4140 included (page 115)

Regulatory

Meets UL 1500 and SAE J1171 external ignition protection requirements

PN	Vmxo Voltage Maximum Operating	Width in (mm)	Height in (mm)	Depth in (mm)	Weight lb (kg)
1412	12V DC	9.25 (234.95)	7.75 (196.85)	3.50 (88.90)	6.12 (2.78)
8689	24V DC	7.25 (184.15)	8.00 (203.20)	3.25 (82.55)	3.46 (1.57)
8693	24V DC	10.50 (266.70)	8.00 (203.20)	3.50 (88.90)	4.42 (2.00)



System diagram for 8693 and 8689

1412

- 360 Panel System
- Backlit circuit labels
- 4 ON indicating LEDs
- 8 Unswitched 24-hour circuits
- 4 A-Series Flat Rocker Circuit Breakers (BRANCH 15A)
- 8 Push Button Reset-Only Circuit Breakers (BRANCH 15A)
- 2 Battery Switches: m-Series, 6011200

8689

- Traditional Metal Panel
- 3 Unswitched 24-hour circuits
- ON indicating LEDs
- Spare apertures for additional Flat Rocker or Push Button Reset-Only Circuit Breakers
- 1 C-Series Flat Rocker Circuit Breaker (MAIN 100A)
- 3 Push Button Reset-Only Circuit Breakers (BRANCH 15A)
- 2 Battery Switches: m-Series, 6011
- 24-hour Round Label Set 4140

8693

- Traditional Metal Panel
- 4 Unswitched 24-hour circuits
- ON indicating LEDs
- Spare apertures for additional Flat Rocker or Push Button Reset-Only Circuit Breakers
- 1 C-Series Flat Rocker Circuit Breaker (MAIN 100A)
- 4 Push Button Reset-Only Circuit Breakers (BRANCH 15A)
- 2 Battery Switches: e-Series, 5511e
- 24-hour Round Label Set 4140

DC ⎓

L-Series Solenoid Switch

450 Amp compact solenoid offers remote switching for applications with limited space where manual control is not required

9012

Features

- Hermetically sealed contacts
- Activated by an ON–OFF switch mounted anywhere
- Integrated coil control minimizes heating and amperage draw
- Mount in a dry location

Specifications

Voltage		12/24V DC
Main Power Contacts		
I_{10}	Cranking Rating: 10 sec.	See table
I_{60}	Cranking Rating: 1 min.	See table
I_{300}	Intermittent Rating: 5 min.	See table
I_c	Continuous Rating	See table
V_{mxo}	Voltage Maximum Operating	60V DC
C_s	Switching Cycles	1,000,000 Cycles
Terminal Stud Size		5/16" (M8)
Contact Form		SPST-NO
Coil Circuit		
Input Voltage		9–36V DC
I_{oc} (inrush, 130ms) Amperage Operating Current		3.80A
I_{oc} (holding) Amperage Operating Current		0.13A @ 12V DC 0.07A @ 24V DC

Regulatory

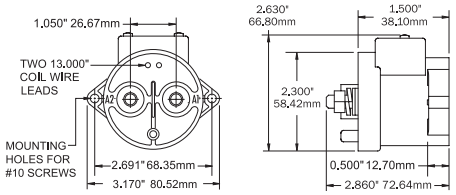
CE marked, UL Recognized—UL 508 industrial control equipment

Meets SAE J1171 external ignition protection requirements

See page 110–112 for ON-OFF Switches

Wire Size and Current Ratings

Wire Size	I_{10} Cranking 10 sec.	I_{60} Cranking 1 min.	I_{300} Intermittent 5 min.	I_c Continuous (UL 1107)
1/0	1,000A	500A	275A	250A
2/0	1,200A	550A	400A	300A
2x (2/0)	1,500A	850A	600A	450A



Blue Sea Systems distinguishes a Solenoid from a Remote Battery Switch to meet CE requirements and as guide for best practices.

Solenoid- high-amp electronic switch with no manual control, for circuits where a manual battery disconnect is offered elsewhere in the circuit.

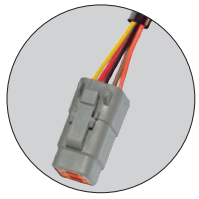
Remote Battery Switch- a solenoid or relay with a manual control switch allowing for switching if control circuit is compromised and for service lockout.

ML-Series Solenoid Switches

500 Amp Bi-Stable Magnetic Latching Solenoid allows high-amp switching under load where manual control is not required

7703 (tinned wires)
— provided on retail units

2145 Remote Control Contura Switch
Action: SPDT (ON)-OFF-(ON)



Deutsch DTM Connector
— provided on bulk units
Other connector plugs are available for high volume OEM applications.

PN	Coil Volts	Cable End	Packaged	Weight lb (kg)
7701	12V DC	Stripped Wire	Retail	1.69 (0.77)
7701100B	12V DC	Deutsch DTM	Bulk	1.69 (0.77)
7703	24V DC	Stripped Wire	Retail	1.69 (0.77)
7703100B	24V DC	Deutsch DTM	Bulk	1.69 (0.77)

Wire Color	Circuit Function
Red	+V DC, 24 Hour
Black	Ground
Yellow	-V DC, LED Output
Brown	+V DC, To Close
Orange	+V DC, To Open

Features

- 500 Amp continuous rating
- Bi-Stable Magnetic Latch (ML)—draws no current in the ON or OFF state
- LED output to remotely indicate switch state (requires optional LED, page 113)
- 3/8"-16 tin-plated copper studs for maximum conductivity and corrosion resistance
- 7/8" (22 mm) stud length accepts multiple cable terminals
- Label recesses for circuit identification
- Silver alloy contacts provide high reliability for switching live loads
- Retail packaging includes Remote Control Contura Switch 2145 (page 27)

Specifications

I_{10}	Cranking Rating: 10 sec.	See table
I_{60}	Cranking Rating: 1 min.	See table
I_{300}	Intermittent Rating: 5 min.	See table
I_c	Continuous Rating	See table
V_{mxo}	Voltage Maximum Operating (control)	16V DC (12 Volt models) 32V DC (24 Volt models)
C_s	Switching Cycles	100,000 Cycles
I_{oc}	Amperage Operating Current	<100 mA when changing state (control circuit–momentary)
Live Current Switching		300A @ 12V DC—10,000 Cycles
Terminal Stud Size		3/8"-16 (M10)
Terminal Stud Torque		140 in-lb (15.5 N•m)
Ring Terminal Size		3/8" (M10)
Terminal Ring Diameter Clearance		1.18" (30.0 mm)

Go to page 26 for dimension drawing

Regulatory

CE marked, Meets ISO 8846 and SAE J1171 external ignition protection requirements

IP66—protected against powerful water jets

Wire Size and Current Ratings

Wire Size	I_{10} Cranking 10 sec.	I_{60} Cranking 1 min.	I_{300} Intermittent 5 min.	I_c Continuous (UL 1107)
2/0	2,000A	750A	400A	225A
4/0	2,200A	750A	400A	300A
2x (4/0)	2,500A	1,100A	700A	500A

DC

ML-Series Remote Battery Switches

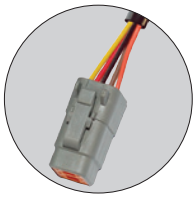
500 Amp Magnetic Latching Remote Battery Switch allows high-amp switching under load, manually or from remote locations

Features

- 500 Amp continuous rating
- Bi-Stable or Auto Releasing Magnetic Latching (ML) - draws no or very little current in the ON or OFF state
- Manual override knob provides an added level of safety allowing control with or without power and offering LOCKED OFF capability for servicing
- LED output to remotely indicate switch state (requires optional LED, page 113)
- 3/8"-16 tin-plated copper studs for maximum conductivity and corrosion resistance
- 7/8" (22 mm) stud length accepts multiple cable terminals
- Label recesses for circuit identification
- Silver alloy contacts provide high reliability for switching live loads
- Retail packaging includes Remote Control Contura Switch (page 27)

Remote Control Contura Switch Included in Retail Package

7712 (tinned wires)
– provided on retail units



Deutsch DTM Connector
– provided on bulk units
Other connector plugs are available for high volume OEM applications.

NEW **Auto Releasing ML-Series Remote Battery Switch with SPST Switching**
Provides 500A switching and features of current ML Remote Battery Switches, but can be controlled with SPST or SPDT switch for applications where a normally open relay is desired (PNs 7712, 7712100B, 7714, and 7714100B).

Specifications		7700, 7700100B 7702, 7702100B	7712, 7712100B 7714, 7714100B
I_{10}	Cranking Rating: 10 sec.	See table	See table
I_{60}	Cranking Rating: 1 min.	See table	See table
I_{300}	Intermittent Rating: 5 min.	See table	See table
I_c	Continuous Rating	See table	See table
V_{mxo}	Voltage Maximum Operating	See table	See table
I_{oc}	Amperage Operating Current	See table	See table
C_s	Switching Cycles	100,000 Cycles	100,000 Cycles
Terminal Stud Size		3/8"-16 (M10)	3/8"-16 (M10)
Terminal Stud Torque		140 in-lb (15.5 N•m)	140 in-lb (15.5 N•m)
Ring Terminal Size		3/8" (M10)	3/8" (M10)
Terminal Ring Diameter Clearance		1.18" (30.0 mm)	1.18" (30.0 mm)

Regulatory

CE marked, Meets ISO 8846 and SAE J1171 external ignition protection requirements
IP66–protected against powerful water jets

Wire Size and Current Ratings

Wire Size	I_{10} Cranking 10 sec.	I_{60} Cranking 1 min.	I_{300} Intermittent 5 min.	I_c Continuous (UL 1107)
2/0	2,000A	750A	400A	225A
4/0	2,200A	750A	400A	300A
2x (4/0)	2,500A	1,100A	700A	500A

7700, 7700100B
7702, 7702100B

Wire Color	Circuit Function
Red	+V DC, 24 Hour
Black	Ground
Yellow	-V DC LED Output
Brown	+V DC, To Close
Orange	+V DC, To Open

7712, 7712100B
7714, 7714100B

Wire Color	Circuit Function
Red	Control
Black	Ground
Yellow	-V DC LED Output
Brown	No Connect
Orange	No Connect
Green	No Connect

	Remote Battery Switch PN	Coil Volts	ML-Coil Function	Cable End	V_{mxo} Voltage Maximum Operating	I_{oc} Amperage Operating Current when ON	I_{oc} Amperage Operating Current when OFF	I_{oc} Amperage Operating Current when Changing State	Remote Control Switch Current	Multi-Station Switching Capability	Master Control Switch Capability	Control Switch Included	Packaged	Weight lb (kg)
	7700	12V DC	Bi-Stable	Stripped Wire	32V DC	-	-	<7A	<100 mA	Yes	-	2145 SPDT (ON)-OFF-(ON)	Retail	1.75 (0.79)
	7700100B	12V DC	Bi-Stable	Deutsch DTM	32V DC	-	-	<7A	<100 mA	Yes	-	-	Bulk	1.75 (0.79)
	7702	24V DC	Bi-Stable	Stripped Wire	32V DC	-	-	<4A	<100 mA	Yes	-	2145 SPDT (ON)-OFF-(ON)	Retail	1.75 (0.79)
	7702100B	24V DC	Bi-Stable	Deutsch DTM	32V DC	-	-	<4A	<100 mA	Yes	-	-	Bulk	1.75 (0.79)
NEW	7712	12V DC	Auto Releasing	Stripped Wire	16.5V DC	13mA	8mA	<7A	<10 mA	-	Yes	2155 SPDT ON-ON*	Retail	1.75 (0.79)
NEW	7712100B	12V DC	Auto Releasing	Deutsch DTM	16.5V DC	13mA	8mA	<7A	<10 mA	-	Yes	-	Bulk	1.75 (0.79)
NEW	7714	24V DC	Auto Releasing	Stripped Wire	32V DC	13mA	8mA	<4A	<10 mA	-	Yes	2155 SPDT ON-ON*	Retail	1.75 (0.79)
NEW	7714100B	24V DC	Auto Releasing	Deutsch DTM	32V DC	13mA	8mA	<4A	<10 mA	-	Yes	-	Bulk	1.75 (0.79)

* Although a SPST switch may be used if desired, use of a SPDT switch improves immunity to inadvertent switching if the control switch becomes damp.

Go to page 26 for dimension drawing

Automatic Charging Relays

In a boat with two battery banks, it is useful to be able to charge both banks while underway. Charge management devices connect two battery banks when charging, and isolate them from each other when not charging. If one battery becomes depleted, there will be a charged bank available for emergency starting.

There are two main types of charge management devices used on boats:

Automatic Charging Relays (ACR) use a relay combined with a voltage sensing circuit. When a charge is being applied to a battery and the voltage rises over 13V DC, the relay closes and combines the two batteries. When the charge is taken away or the load on the battery is greater than the charging input causing the voltage to drop to 12.75V DC, the relay opens and isolates the two batteries.

Battery Isolators are one-way electrical check valves that allow current to flow to, but not from, the battery. Their disadvantage is that they use diodes, which cause a voltage drop that consumes charging energy, creates heat, and causes batteries to be undercharged. Although alternators with external voltage sensing can correct for undercharging, voltage drop and heat remain a problem.

When choosing an ACR, consider:

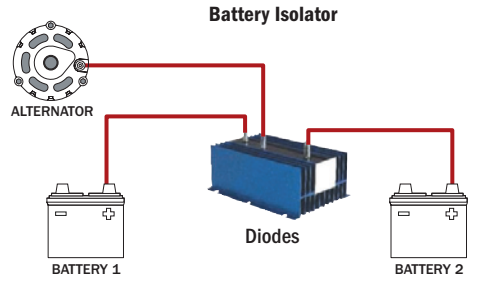
Current Management. ACRs can potentially be exposed to very high currents if the engine is cranked while the ACR has combined the batteries. This can occur when a charge source other than the alternator, such as a solar charger, has caused the ACR to close. Blue Sea Systems uses two methods to overcome this. ML- Series ACRs have high amperage contacts rated for engine starting, and the SI- Series ACR momentarily opens the relay, isolating the two batteries during starting.

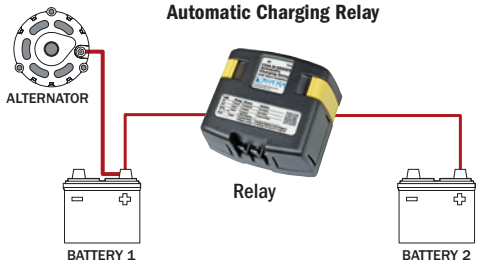
Remote Control. Blue Sea Systems ML- Series ACRs include a Remote Control Contura Switch so that ACR function can be controlled from a helm station or other convenient location.

Manual Override. In addition to the remote control switch, ML- Series ACRs are available with a local manual control knob to combine battery banks in an emergency.

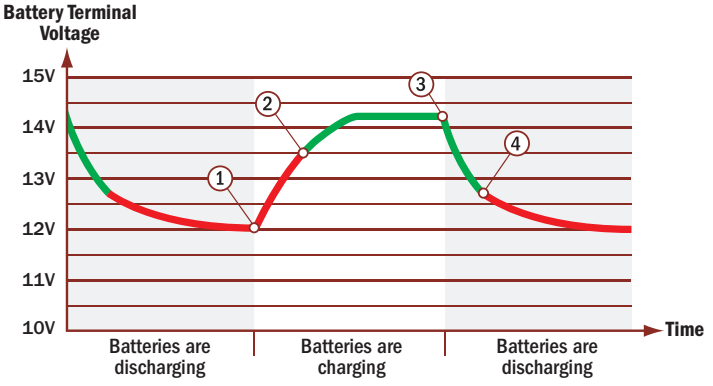
Start Isolation. All Blue Sea Systems ACRs can be configured for Start Isolation, which provides temporary isolation of house loads from the engine circuit during engine cranking. This protects sensitive electronics from voltage sags and spikes in the starting circuit.

Battery Isolator vs. Automatic Charging Relay





Automatic Charging Relay Operation



Legend

ACR OPEN - batteries are isolated.

ACR COMBINED - batteries are connected and are both charging.

(1) ACR relay is open and batteries are isolated. Voltage begins to rise slowly after engine starts or battery charger is turned on.

(2) When voltage rises to COMBINE voltage set on ACR
13.5V in this example,
ACR relay closes, connecting and charging both batteries.

(3) When engine stops or battery charger is turned off, voltage rapidly begins falling.

(4) When voltage falls to 6% less than COMBINE voltage
13.5V less 6% = 12.7V in this example,
ACR relay opens, isolating batteries, after 1 minute.

DC

SI-Series Automatic Charging Relay

Automatically combines batteries during charging, isolates batteries when discharging and when starting engines

7610
Cover ON

Cover OFF

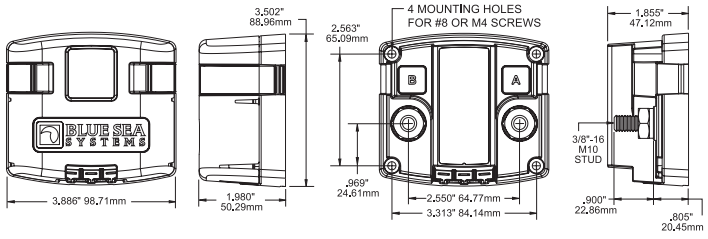
Features

- 120 Amp continuous rating
- Senses charging on two battery banks
- Side and bottom knockouts for cable connections
- Clip-on cover insulates terminal connections
- LED indicates ACR status
- 1/4" × .032" male quick connect terminals for ground, optional remote LED, and starting isolation
- 7/8" (22 mm) stud length to accept multiple cable terminals
- Start Isolation (SI)—temporary isolation of House loads from Engine circuit during engine cranking
- 12/24V DC auto ranging voltage input
- LED output remotely indicates ACR states (requires optional LED, page 113)

Specifications		12 Volts DC	24 Volts DC
I300	Intermittent Rating: 5 min.	210A	210A
Ic	Continuous Rating	120A	120A
Ioc	(Combine) Amperage Operating Current	175mA	115mA
Ioc	(Open) Amperage Operating Current	15mA	15mA
Maximum Cable Size		1/0 AWG	1/0 AWG
Terminal Stud Size		3/8"-16 (M10)	3/8"-16 (M10)
Maximum Torque		140 in-lbs	140 in-lbs
Relay Contact Position			
Combine	(30 sec.)	13.6V DC	27.2V DC
	(2 min.)	13.0V DC	26.0V DC
Open	(10 sec.)	12.35V DC	24.7V DC
	(30 sec.)	12.75V DC	25.5V DC
Open High		16.0V DC	30.0V DC
Under Voltage Lockout		10.8V DC	21.6V DC

Regulatory

CE marked, ISO 8846
Meets UL 1500 and SAE J1171 external ignition protection requirements
IP67 - protected against immersion up to 1 meter for 30 minutes



Add-A-Battery

Simplifies switching and automates charging for a complete two battery bank solution

7650

e-Series Dual Circuit Plus™ Battery Switch (page 16)

- Simplifies battery switching
- Isolates engine and house circuits
- Switch combines battery banks for emergency starting

120 Amp SI-Series Automatic Charging Relay (ACR) (page 25)

- Automatically combines battery banks during charging
- Isolates battery banks when discharging and when starting engines

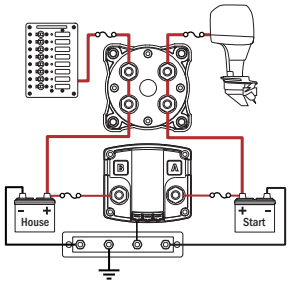


Diagram 1
Batteries isolated

Battery switch - ON position
Power available to House and Start circuits

Engine off - No charge present
ACR - Open

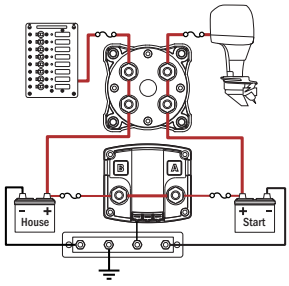


Diagram 2
Batteries combined through ACR

Battery switch - ON position
Power available to House and Start circuits

Engine running - Charge present
ACR - Closed

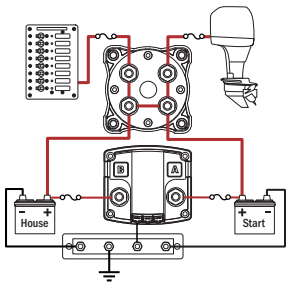


Diagram 3
Batteries combined through Battery Switch

Battery switch - COMBINE position
Power available to House and Start circuits

Engine off - No charge present
ACR - Open

DC ⎓

ML-Series Automatic Charging Relay

500 Ampere Bi-Stable Magnetic Latching Automatic Charging Relay automatically manages the charging of two large battery banks and offers optional manual override for emergency battery paralleling

Features

- 500 Ampere continuous rating
- Bi-Stable Magnetic Latch (ML) draws very low current in the ON state
- Start Isolation (SI) can be configured for temporary isolation of House loads from Engine circuit during engine cranking to protect sensitive electronics
- Engine Isolation (EI) can be configured for isolation of two engines while both are running to protect engine electronics and maximize alternator output
- Manual override knob provides an added level of safety allowing manual ON-OFF control with or without power while offering LOCKED OFF capability for servicing the electrical system
- Dual sensing senses charging on two battery banks
- Supports high-output alternators up to 500 Amps
- LED output to remotely indicate when batteries are combined, isolated, in voltage lockout, in Start or Engine Isolation (requires optional LED, page 113)
- 3/8"-16 tin-plated copper studs for maximum conductivity and corrosion resistance
- 7/8" (22 mm) stud length accepts multiple cable terminals
- Label recesses for circuit identification
- Silver alloy contacts provide high reliability for switching live loads
- Retail packaging includes Remote Control Contura Switch 2146 (page 27)

Specifications

I10	Cranking Rating: 10 sec.	See table
I60	Cranking Rating: 1 min.	See table
I300	Intermittent Rating: 5 min.	See table
Ic	Continuous Rating	See table
Cs	Switching Cycles	100,000 Cycles
Ioc	Amperage Operating Current	<7A when changing state, <40 mA when continuous (control circuit–momentary)

Relay Contact Position

-Combine	(30 sec.)	13.5V DC @ 12V | 27.0V DC @ 24V
-Combine	(90 sec.)	13.0V DC @ 12V | 26.0V DC @ 24V
-Open	(10 sec.)	12.35V DC @ 12V | 24.7V DC @ 24V
-Open	(30 sec.)	12.75V DC @ 12V | 25.5V DC @ 24V
-Open High		16.2V DC @ 12V | 32.4V DC @ 24V
Under Voltage Lockout		9.6V DC @ 12V | 19.2V DC @ 24V
Live Current Switching		300A @ 12V DC–10,000 Cycles
Terminal Stud Size		3/8"-16 (M10)
Terminal Stud Torque		140 in-lb (15.5 N•m)
Ring Terminal Size		3/8" (M10)
Terminal Ring Diameter Clearance		1.18" (30.0 mm)

Regulatory

CE marked, Meets ISO 8846 and SAE J1171 external ignition protection requirements

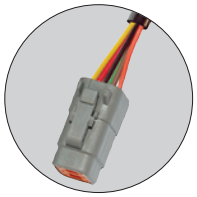
IP66–protected against powerful water jets

Wire Size and Current Ratings

Wire Size	I10 Cranking 10 sec.	I60 Cranking 1 min.	I300 Intermittent 5 min.	Ic Continuous (UL 1107)
2/0	2,000A	750A	400A	225A
4/0	2,200A	750A	400A	300A
2x (4/0)	2,500A	1,100A	700A	500A

PN	Coil Volts	Cable End	Manual Control	Package	Weight lb (kg)
7620	12V DC	Stripped Wire	No	Retail	1.69 (0.77)
7620100B	12V DC	Deutsch DTM	No	Bulk	1.69 (0.77)
7622	12V DC	Stripped Wire	Yes	Retail	1.75 (0.79)
7622100B	12V DC	Deutsch DTM	Yes	Bulk	1.75 (0.79)
7621	24V DC	Stripped Wire	No	Retail	1.69 (0.77)
7621100B	24V DC	Deutsch DTM	No	Bulk	1.69 (0.77)
7623	24V DC	Stripped Wire	Yes	Retail	1.75 (0.79)
7623100B	24V DC	Deutsch DTM	Yes	Bulk	1.75 (0.79)

7623 (tinned wires)
– provided on retail units



Deutsch DTM Connector
– provided on bulk units

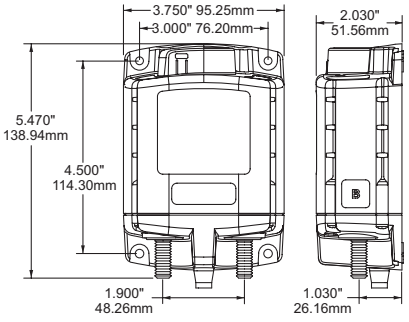
Other connector plugs are available for high volume OEM applications.

Please contact Blue Sea Systems for details.

Wire Color	Circuit Function
Red	Remote
Black	Ground
Yellow	LED Output
Brown	SI/EI #1
Orange	SI/EI #3
Green	SI/EI #2

7620

2146 Remote Control Contura Switch
Action: ON-OFF-ON



9160

Link Bus

Ideal for paralleling ML-Remote Battery Switches and Automatic Charging Relays

- Tin-plated copper for maximum conductivity and corrosion resistance
- 500A continuous rating
- Sold individually

Weight: 0.2 lb (0.09 kg)

Two 9160 paralleling ML-Series products

DC

Remote Control Contura Switches

Provide remote switching of ML-Series, and SafetyHub 250 Fuse Block

Features

- Vibration, shock, thermoshock, moisture and salt spray resistant

Specifications

Tmxo	Temperature Maximum Operating	85°C
Tmno	Temperature Minimum Operating	-40°C
Imxo	Amperage Maximum Operating	20A @ 12V DC
Imxo	Amperage Maximum Operating	15A @ 24V DC
Ioc (LED)	Amperage Operating Current	18mA
Pole/Throw		SPDT
Lighting		LED rated 100,000 hours half-life
Seals		Internal and external gasket panel seal
Mounting Hole		1.45" x 0.83" (36.83 mm x 21.08 mm)

Regulatory

Meets UL 1500 and ISO 8846 external ignition protection requirements
IP67—protected against immersion up to 1 meter for 30 minutes

See page 105 for a full selection of Contura Switches

2155
Lockout slide reduces the risk of accidental switching
Action: SPDT ON-ON
USED WITH:
SafetyHub 250 Fuse Block (page 55)
ML-Series Remote Battery Switch 7712 and 7714 (page 23)

2145
Lockout slide reduces the risk of accidental switching
Action: SPDT (ON)-OFF-(ON)
( ) = momentary
USED WITH:
ML-Series Solenoids (page 22)
ML-Series Remote Battery Switches (page 23)

2146
Action: SPDT ON-OFF-ON
USED WITH:
ML-Series Automatic Charging Relays (page 26)

Remote Control Switch Panels

Provides switching of up to three ML-Series Remote Battery Switches or ML-Series Automatic Charging Relays

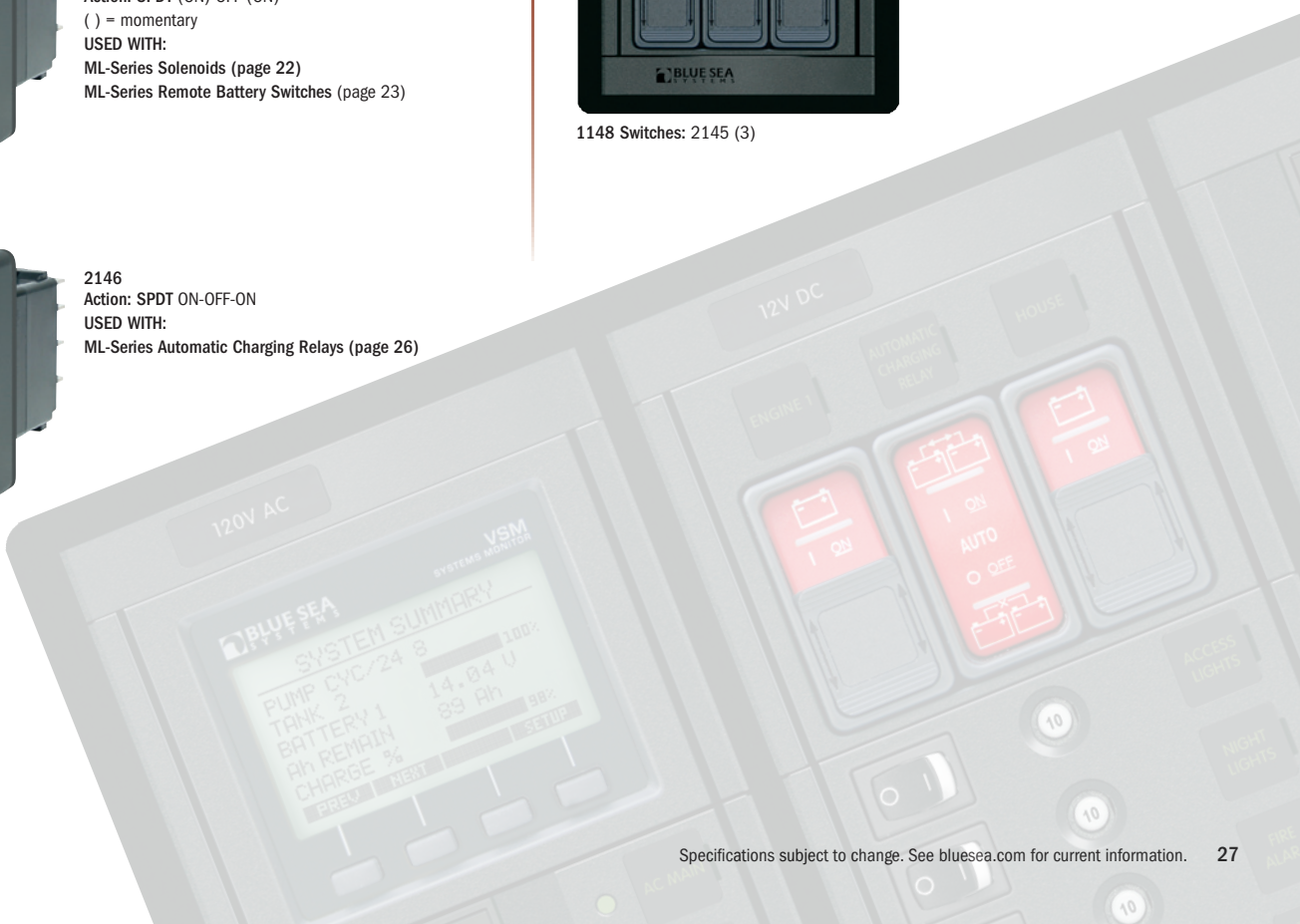
- Backlit labels and ON indicating lenses in switches
- Square format label set 4218 **(page 115)**
- 1147 for use with two ML-Series Remote Battery Switches **(page 23)** and one ML-Series Automatic Charging Relay **(page 26)**
- 1148 for use with ML-Series Remote Battery Switches **(page 23)**

Specifications

Vmxo	Voltage Maximum Operating:	24V DC
Dimensions (WxH)		4.88 x 4.75 in (123.83 x 120.65 mm)
Depth		2.00 in (50.80 mm)
Weight		1.10 lb (0.50 kg)

1147 Switches: 2145 (2); 2146 (1)

1148 Switches: 2145 (3)



DC⎓

Remote Battery Management Comparison

Product Type	Solenoid Switches			Remote Battery Switches			
Function	Provides high-amp switching			Provides high-amp switching with manual override			
Product	L-Series	ML-Series	ML-Series	ML-Series	ML-Series	ML-Series	ML-Series
							
PN	9012	7701*	7703*	7700*	7702*	NEW 7712*	NEW 7714*
Manual Control	–	–	–	Yes	Yes	Yes	Yes
Nominal Voltage	12/24V DC	12V DC	24V DC	12V DC	24V DC	12V DC	24V DC
I10 Cranking Rating (10 sec.)	1,500A DC	2,500A DC	2,500A DC	2,500A DC	2,500A DC	2,500A DC	2,500A DC
I60 Cranking Rating (1 min.)	850A DC	1,100A DC	1,100A DC	1,100A DC	1,100A DC	1,100A DC	1,100A DC
I300 Intermittent Rating (5 min.)	600A DC	700A DC	700A DC	700A DC	700A DC	700A DC	700A DC
Ic Continuous Rating	450A DC	500A DC	500A DC	500A DC	500A DC	500A DC	500A DC
Amperage Operating Current - continuous	0.13A @ 12V DC 0.07A @ 24V DC	0mA	0mA	0mA	0mA	< 13mA	< 13mA
Amperage Operating Current - when changing state	3.8A DC	< 7.0A DC	< 4.0A DC	< 7.0A DC	< 4.0A DC	< 7.0A DC	< 4.0A DC
Switching Cycles	1,000,000	100,000	100,000	100,000	100,000	100,000	100,000
Coil Function	Normally Open	ML Bi-Stable	ML Bi-Stable	ML Bi-Stable	ML Bi-Stable	ML Auto-Releasing	ML Auto-Releasing
Control Switch Included	–	2145 SPDT (ON)-OFF-(ON)	2145 SPDT (ON)-OFF-(ON)	2145 SPDT (ON)-OFF-(ON)	2145 SPDT (ON)-OFF-(ON)	2155 SPDT ON-ON	2155 SPDT ON-ON
Control Circuit Connection	Tinned Wire	Tinned Wire	Tinned Wire	Tinned Wire	Tinned Wire	Tinned Wire	Tinned Wire
Mounting	#10	#10	#10	#10	#10	#10	#10
Terminal Stud Size	5/16" (M8)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)
Terminal Stud Length	5/8" (15.87 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)
Maximum Terminal Stud Torque	80 in-lb (9.0 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)
Cable Size to Meet Ratings	2/0 AWG x 2	4/0 AWG x 2	4/0 AWG x 2	4/0 AWG x 2	4/0 AWG x 2	4/0 AWG x 2	4/0 AWG x 2
Terminal Ring Diameter Clearance	not rated	1.12" (28.4 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)
Width	3.17" (80.50 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)
Height	2.63" (66.80 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)
Depth	2.86" (72.64 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)
Weight	1.00 lb (0.45 kg)	1.69 lb (0.77 kg)	1.69 lb (0.77 kg)	1.75 lb (0.79 kg)	1.75 lb (0.79 kg)	1.75 lb (0.79 kg)	1.75 lb (0.79 kg)
Ignition Protected	SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171
Ingress Protected	–	IP66	IP66	IP66	IP66	IP66	IP66

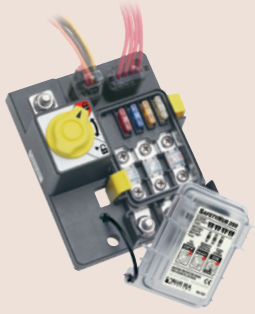
* Bulk units available that incorporate Deutsch DTM Connectors. Other connector plugs are available for high volume OEM applications.

SafetyHub 250

Combines remote switching with circuit protection

Automatic Charging Relays

Allows charging of multiple batteries from a single charge source

SafetyHub 250 Fuse Block with Remote Battery Switch	SI-Series	ML-Series	ML-Series	ML-Series	ML-Series
					
7727 (page 55)	7610	7620*	7622*	7621*	7623*
Yes	–	–	Yes	–	Yes
12V DC	12/24V DC	12V DC	12V DC	24V DC	24V DC
1,000A DC	N/A	2,500A DC	2,500A DC	2,500A DC	2,500A DC
520A DC	N/A	1,100A DC	1,100A DC	1,100A DC	1,100A DC
350A DC	210A DC	700A DC	700A DC	700A DC	700A DC
240A DC	120A DC	500A DC	500A DC	500A DC	500A DC
< 30mA	15mA open 175mA combined	< 40mA	< 40mA	< 40mA	< 40mA
< 7.0A DC	–	< 7.0A DC	< 7.0A DC	< 4.0A DC	< 4.0A DC
90,000	–	100,000	100,000	100,000	100,000
Bi-Stable	Normally Open	ML Bi-Stable	ML Bi-Stable	ML Bi-Stable	ML Bi-Stable
2155 SPDT ON-ON	–	2146 SPDT ON-OFF-ON	2146 SPDT ON-OFF-ON	2146 SPDT ON-OFF-ON	2146 SPDT ON-OFF-ON
Molex MX 150 Connector	–	Tinned Wire	Tinned Wire	Tinned Wire	Tinned Wire
M6 or 1/4"	#8 or M4	#10	#10	#10	#10
M8	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)	3/8"-16 (M10)
1.25" (31.75 mm)	1.5" (38.1 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)
177 in-lb (19.9 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)	140 in-lb (15.5 Nm)
2/0 AWG	1/0 AWG	4/0 AWG x 2	4/0 AWG x 2	4/0 AWG x 2	4/0 AWG x 2
1.09" (27.86 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)	1.12" (28.4 mm)
4.43" (112.5 mm)	3.89" (99 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)	3.75" (95.2 mm)
5.43" (138 mm)	3.50" (89 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)	5.47" (138.9 mm)
2.47" (62.7 mm)	1.98" (50.30 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)	2.03" (51.6 mm)
2.10 lb (0.95 kg)	1.26 lb (0.57 kg)	1.69 lb (0.77 kg)	1.75 lb (0.79 kg)	1.69 lb (0.77 kg)	1.75 lb (0.79 kg)
ISO 8046 SAE J1171	ISO 8846, UL1500 SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171	ISO 8846 SAE J1171
–	IP67	IP66	IP66	IP66	IP66

Circuit Protection

Circuit Protection

Best practices and ABYC standards dictate that every positive wire on the boat outside the engine starting circuit must have circuit protection. When excessive current flows in an electrical circuit, wire insulation can melt and possibly start a fire.

Circuit breakers and fuses protect the wires in electrical circuits. Blue Sea Systems' extensive selection of circuit breakers, fuses, fuse holders, and fuse blocks gives boaters a range of choices for main and branch circuit protection.

285-Series
Circuit Breakers

Circuit breakers are appropriate for situations where it is desirable to be able to reset instead of replace the device after a fault. Available circuit breakers include styles with and without switching, and for DC and AC systems. All Blue Sea Systems circuit breakers are a trip-free design. This important safety feature ensures that they cannot be held ON during a fault condition.

NEW Residual Current Circuit Breakers
ELCI Main and GFCI Branch

Blue Sea Systems has taken a leadership role in working with ABYC and circuit breaker manufacturers to develop Equipment Leakage Circuit Interrupters (ELCI). A fault with a boat's AC ground system can result in dangerous electrical current leaking from its intended path and into the water, putting nearby swimmers and those aboard the boat at risk. Blue Sea Systems is part of the solution to eliminate tragic, electrically-induced drownings at marinas and private docks.

NEW SMS Surface Mount System
Panel enclosure for ELCI Main circuit breakers and other large frame devises

Fuses generally cost less than circuit breakers and cover a larger amperage range, but must be replaced if they are blown. Amperage range is from .25A in the smallest glass fuse to 750A in a fuse intended to provide DC Main protection on large battery banks.

AMI® or
MIDI® Fuses

The new independent sourced circuit fuse block 5035 allows switched and 24-hour circuits combined on one ST-Blade Fuse Block. The SafetyHub 150 Fuse Block is an ignition protected fuse block with screw termination. It is safe for use on gasoline powered boats, reduces wiring connections, and consolidates up to ten fused circuits.

NEW ST Blade Fuse Block
Independent Sourced Circuit, 6 Position

SafetyHub 150 Fuse Block

SECTION INDEX

DC ⎓

Push Button Reset-Only Circuit Breakers

Provides economical circuit protection for 3 to 40 Amp loads when switching is provided elsewhere or not required

Features

- Branch circuit breakers - also used for 24-hour circuit protection
- Quick connect or screw terminal style
- Compact design enables high density circuit protection configurations
- Push-to-reset operation
- Trip Free design cannot be held ON during fault current condition
- Optional push button waterproof boot protects circuit breaker in wet environments

Specifications

Iic	Interrupting Capacity	3,000A @ 14.7V DC 2,500A @ 28V DC
Vmxo	Voltage Maximum Operating	32V DC
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-10°C
Tmxo	Temperature Maximum Operating	60°C
Type		Thermal trip, manual reset
Terminals		#8 Screw Terminals or 1/4" Male Quick Connect Terminals
Screw Terminal Torque		6 in-lb max.
Trip Time Delay		See www.bluesea.com
Thread		3/8"-27 UNS
Weight		0.06 lb (0.03 kg)

Regulatory

CE marked

UL Recognized—UL 1077–UL/cUL (USA and Canada), TUV certified

Meets UL 1500 and ISO 8846 external ignition protection requirements

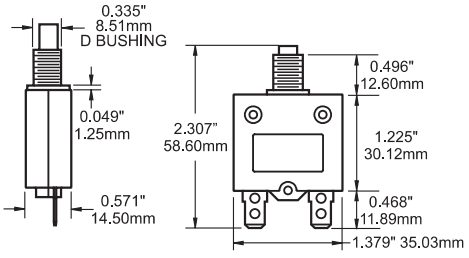
See page 119 for ABYC Interrupting Capacity Requirements.

Screw Terminals PN	Quick Connect Terminals PN	Itr Amps
2129	7050	3A DC
2130	7052	5A DC
2131	7053	7A DC
2132	7054	10A DC
2133	7056	15A DC
2134	7057	20A DC
2135	7058	25A DC
2136	7059	30A DC
2137	7061	40A DC

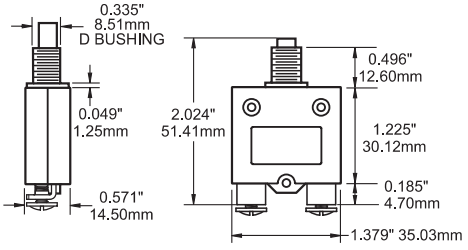
Cut Out Dimensions

7054

2132



1/4" Male Quick Connect Terminals



#8 Screw Terminals

DC Branch Circuit Breaker Panel

Provides an easy method for mounting Push Button Reset-Only Circuit Breakers in the 360 Panel System

1450

see page 76-79 for DC Branch Circuit Breaker Panels

Push Button Reset-Only Circuit Breaker Waterproof Boots

Protects push button circuit breakers in wet environments

Features

- Incorporated into waterproof panels (pages 71,73)
- Protects circuit breaker in wet environments, and resists discoloration and cracking
- Replaces dress nut mounting on circuit breakers
- 2 per retail package

Specifications

Weight	0.04 lb (0.02 kg)
Thread Material	Nickel-Plated Brass
Thread	3/8"-27

Regulatory

IP67—protected against immersion up to 1 meter for 30 minutes

4135

4136

4137

PN	Description
4135	Clear
4136	White
4137	Black

AC~ DC⎓

Medium Duty Push Button Reset-Only Circuit Breakers

Provides circuit protection for 15 to 60 Amp loads when switching is provided elsewhere or not required

2142

Features

- Weatherproof
- Can be used as Main, Branch or 24-hour circuit protection
- Compact design enables high density circuit protection configurations
- Push to reset operation
- Trip Free design cannot be held ON during fault current condition
- Captive star lock washers meet requirements for anti-rotation and eliminate handling of small, easily dropped parts

Specifications

Iic	Interrupting Capacity	5,000A @ 32V DC 3,000A @ 120V AC
Vmxo	Voltage Maximum Operating	32V DC / 120V AC
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-54°C
Tmxo	Temperature Maximum Operating	74°C
Type		Thermal trip, manual reset
Terminal Stud		#10-32 Stainless Steel
Terminal Stud Torque		30 in-lb max.
Trip Time Delay		See www.bluesea.com
Mounting Thread		#6 -32
Weight		0.15 lb (0.68 kg)

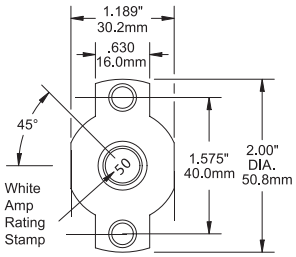
Regulatory

SAE J1428, SAE J553, UL 1077

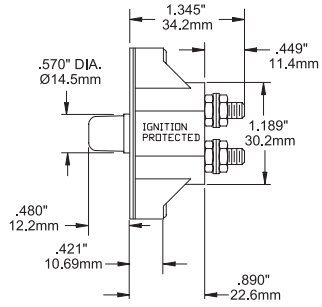
Meets UL 1500 external ignition protection requirements

See page 119 for ABYC Interrupting Capacity Requirements.

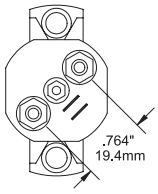
PN	Itr Amps
2138	15A DC
2139	20A DC
2140	30A DC
2141	40A DC
2142	50A DC
2143	60A DC



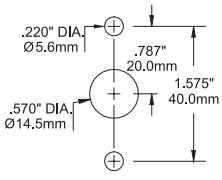
Front View



Side View



Back View



Cut Out Dimensions

Medium Duty Push Button Reset-Only Circuit Breaker Mounting Panel

Provides an easy method for mounting Medium Duty Push Button Reset-Only Circuit Breakers in the 360 Panel System

1150

(circuit breakers not included)

Dimensions (WxH): 4.88 x 4.75 in (123.83 x 120.65 mm)

Depth: 0.50 in (12.70 mm)

Weight: 0.60 lb (0.27 kg)

DC ⎓

285-Series Circuit Breakers

Replaces 185-Series Circuit Breakers

Provides medium duty circuit protection for 25 to 200 Amp loads when switching and circuit protection are both required

Features

- Visible reset lever shows open condition
- Trip-free—cannot be held closed after trip
- Drop in replacement for 185-Series Circuit Breakers

Specifications

I_{IC}	Interrupting Capacity	3,000A @ 48V DC†
V_{mxo}	Voltage Maximum Operating	48V DC
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-40°C
Tmxo	Temperature Maximum Operating	85°C
Type		Thermally Responsive Bi-Metal Blade
Class		Type III—Switchable/Manual Reset—Trip Free
Terminal Stud		M6 (accepts 1/4" Ring Terminal)
Terminal Stud Torque		50 in-lb
Mounting		1/4" Screw
Weight Panel Mount		0.33 lb (0.15 kg)
Weight Surface Mount		0.38 lb (0.17 kg)

Regulatory

CE marked

Meets SAE J1171 external ignition protection requirements,

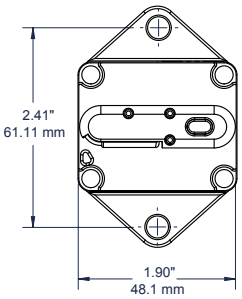
†AIC ratings achieved using SAE J1625

IP67—protected against immersion up to 1 meter for 30 minutes

See page 119 for ABYC Interrupting Capacity Requirements.

Panel Mount PN	Surface Mount PN	Itr Amps
7080	7180	25A DC
7081	7181	30A DC
7082	7182	40A DC
7083	7183	50A DC
7084	7184	60A DC
7085	7185	70A DC
7086	7186	80A DC
7087	7187	100A DC
7088	7188	120A DC
7089	7189	150A DC
7090	7190	200A DC

7087



Panel Mount Dimensions

7187

285-Series Mounting Options

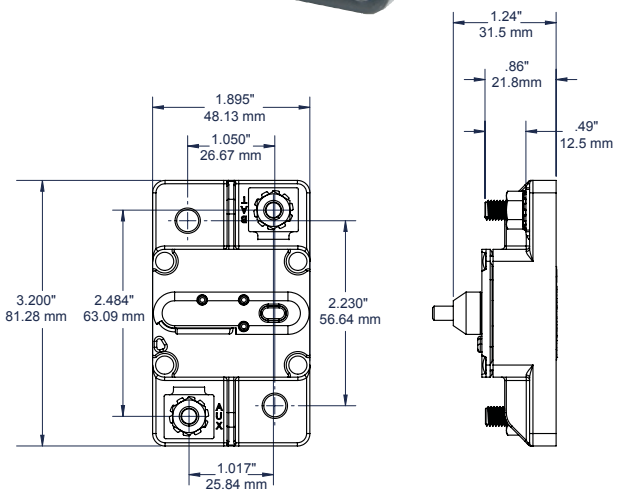
Provides mounting for Cooper Bussmann® 285-Series or 185-Series Panel Mount Circuit Breakers

7198

7098

1477

PN	Description	Width in (mm)	Height in (mm)	Weight lb (kg)
7198	Self-trimming molded rubber bezel	2.44 (61.90)	3.31 (84.07)	0.04 (0.02)
7098	Circuit breaker adapter bezel allows circuit breaker mounting in a 2-1/8" round hole	2.44 (61.90)	3.31 (84.07)	0.04 (0.02)
1477	Provides circuit breaker mounting in the 360 Panel System	4.88 (123.83)	4.75 (120.65)	0.50 (0.23)



Surface Mount Dimensions

DC ⎓

187-Series Circuit Breakers

Provides heavy duty circuit protection for 25 to 200 Amp loads when switching and circuit protection are both required

Features

- Single lever operation—clearly visible
- Trip-free—cannot be held closed after trip
- Self-trimming case eliminates need for mounting panels or trim bezels
- Round case for easy installation with standard sized hole saw (panel mount models)
- Large clearance around terminal studs accepts up to 1/0 AWG lugs
- Recessed mounting holes for clean appearance
- Robust 5/16"-18 terminals provide high torque connections

Specifications

Iic	Interrupting Capacity	5,000A @ 12V DC 3,000A @ 24V DC 1,500A @ 42V DC
Vmxo	Voltage Maximum Operating	48V DC
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-40°C
Tmxo	Temperature Maximum Operating	85°C
Type		Thermally Responsive Bi-Metal Blade
Class		Type III—Switchable/Manual Reset—Trip Free
Terminal Stud		5/16"-18
Terminal Stud Torque		75 in-lb max.
Trip Time Delay		See www.bluesea.com
Mounting Hole		Accepts #10 (M5) Screw
Weight Panel Mount		0.50 lb (0.23 kg)
Weight Surface Mount		0.58 lb (0.26 kg)

Regulatory

CE marked

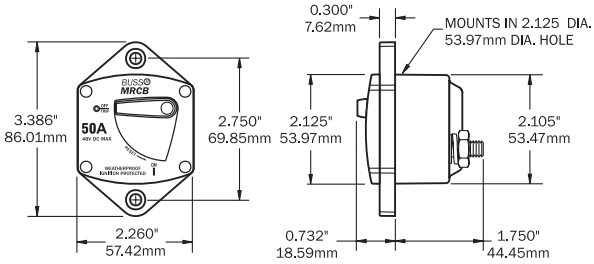
Meets SAE J1171 external ignition protection requirements

IP66—protected against powerful water jets

See page 119 for ABYC Interrupting Capacity Requirements.

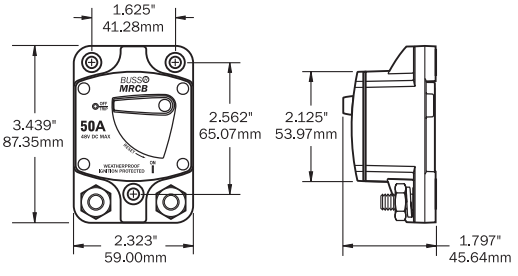
Panel Mount PN	Surface Mount PN	Itr Amps
7035	7135	25A DC
7036	7136	30A DC
7038	7138	40A DC
7039	7139	50A DC
7040	7140	60A DC
7041	7141	70A DC
7042	7142	80A DC
7043	7143	90A DC
7044	7144	100A DC
7046	7146	120A DC
7048	7148	150A DC
7049	7149	200A DC

7039



Panel Mount Dimensions

7139



Surface Mount Dimensions

AC ~ DC ⎓

A-Series Toggle Circuit Breakers

Combines switching and circuit protection into a single device

7202 7200 7233

Features

- The industry standard circuit breaker for Blue Sea Systems electrical panels
- Single pole is frequently used for AC or DC Branch circuit protection
- Double pole is frequently used for AC Main circuit protection
- Trip Free– cannot be held closed after trip

Specifications

Iic	Interrupting Capacity	See Interrupting Capacity Table
Vmxo	Voltage Maximum Operating	65V DC / 250V AC
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-40°C
Tmxo	Temperature Maximum Operating	85°C
Cs	Switching Cycles	10,000 @ rated amps and volts
Type		Magnetic Hydraulic–Trip free
Terminal Screw		#10-32 Stainless Steel
Terminal Screw Torque		14–15 in-lb Recommended
Trip Time Delay		See www.bluesea.com
Mounting Screw		#6-32 Stainless Steel (included)
Mounting Screw Torque		6–8 in-lb Recommended
Weight Single Pole		0.17 lb (0.08 kg)
Weight Double Pole		0.30 lb (0.14 kg)

Regulatory

CE marked, TUV certified, CSA certified

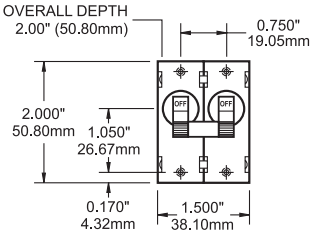
UL 1077 recognized

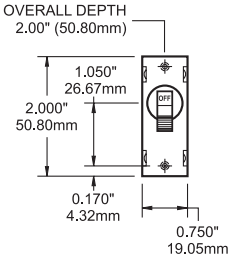
Interrupting Capacity Table (see ABYC Requirements page 119)

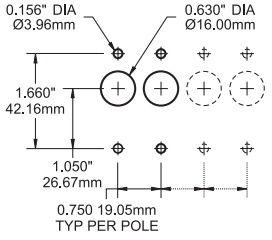
			UL 1077 - UL/CSA (US/Canada)	EN60934 - TUV (Europe)
Poles	Vmxo Volts	Itr Amps	Iic Interrupt	Iic Interrupt
1 Pole	65V DC	5–50A	7,500A	-
	120V AC	5–50A	3,000A	-
	250V AC	5–50A	3,000A	1,500A
2 Pole	65V DC	10–50A	7,500A	-
	120V AC	10–50A	3,000A	-
	120/240V AC	10–50A	3,000A	-
	250V AC	10–50A	3,000A	1,500A

PN	Color	Poles	Itr DC Amps	Itr AC Amps
7200	Black	1	5A DC	5A AC
7201	Red	1	5A DC	5A AC
7202	White	1	5A DC	5A AC
7347	Black	1	8A DC	8A AC
7299	White	1	8A DC	8A AC
7204	Black	1	10A DC	10A AC
7205	Red	1	10A DC	10A AC
7206	White	1	10A DC	10A AC
7208	Black	1	15A DC	15A AC
7209	Red	1	15A DC	15A AC
7210	White	1	15A DC	15A AC
7212	Black	1	20A DC	20A AC
7213	Red	1	20A DC	20A AC
7214	White	1	20A DC	20A AC
7216	Black	1	25A DC	25A AC
7217	Red	1	25A DC	25A AC
7218	White	1	25A DC	25A AC
7220	Black	1	30A DC	30A AC
7221	Red	1	30A DC	30A AC
7222	White	1	30A DC	30A AC
7224	Black	1	40A DC	40A AC
7225	Red	1	40A DC	40A AC
7226	White	1	40A DC	40A AC
7228	Black	1	50A DC	50A AC
7229	Red	1	50A DC	50A AC
7230	White	1	50A DC	50A AC

PN	Color	Poles	Itr DC Amps	Itr AC Amps
7232	Black	2	10A DC	10A AC
7233	White	2	10A DC	10A AC
7234	Black	2	15A DC	15A AC
7235	White	2	15A DC	15A AC
7348	Black	2	16A DC	16A AC
7294	White	2	16A DC	16A AC
7236	Black	2	20A DC	20A AC
7260	White	2	20A DC	20A AC
7237	Black	2	30A DC	30A AC
7238	White	2	30A DC	30A AC
7349	Black	2	32A DC	32A AC
7295	White	2	32A DC	32A AC
7239	Black	2	40A DC	40A AC
7240	White	2	40A DC	40A AC
7241	Black	2	50A DC	50A AC
7242	White	2	50A DC	50A AC





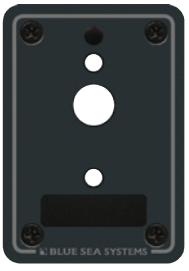


Cut out Dimensions

A-Series Toggle Circuit Breaker Mounting Panels

Simplifies mounting A-Series Toggle Circuit Breakers

- Accepts Blue Sea Systems Large Format Labels (page 115)
- Accepts Blue Sea Systems LEDs (page 113)



8072

8173

PN	Description	Width in (mm)	Depth in (mm)	Weight lb (kg)
8072	Single pole mounting panel	2.63 (66.80)	3.75 (95.25)	0.08 (0.04)
8173	Double pole mounting panel	2.63 (66.80)	3.75 (95.25)	0.08 (0.04)

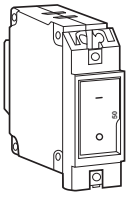
AC ~ DC ⎓

A-Series Rocker Circuit Breakers

Combines switching and circuit protection into a single device

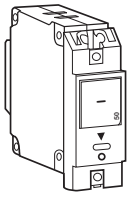
7403
Flat Rocker

- Standard circuit breaker used on the 360 Panel System (1200 Series)
- Flat actuator resists accidental switching by being flush in the ON position



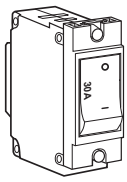
7425
Restricted OFF Rocker

- Actuator shows white in the OFF position
- Restricted OFF actuator can only be switched to OFF by insertion of small screwdriver into slot



7574
Raised Rocker

- Standard circuit breaker for AC Source Select panels in the 360 Panel System



Features

- White actuator indicates OFF position
- Single pole is available in Flat Rocker and Restricted Off styles
- Single pole is frequently used for AC or DC Branch circuit protection
- Double pole is available in Flat Rocker and Raised Rocker styles
- Double pole is frequently used for AC Main circuit protection
- Raised Rocker actuator style is used for AC source selection on the 360 Panel System
- International ON and OFF symbols support vertical or horizontal mounting

Specifications

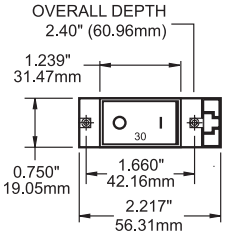
Iic	Interrupting Capacity	See Interrupting Capacity table below
Vmxo	Voltage Maximum Operating	32V DC / 250V AC
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-40°C
Tmxo	Temperature Maximum Operating	85°C
Cs	Switching Cycles	10,000 @ rated amps and volts
Type		Magnetic Hydraulic–Trip free
Terminal Screw		#10-32 Stainless Steel
Terminal Screw Torque		14–15 in-lb Recommended
		(load terminal is 30° angled)
Trip Time Delay		See www.bluesea.com
Mounting Screw		#6-32 Stainless Steel (included)
Mounting Screw Torque		6–8 in-lb Recommended
Weight Single Pole		0.16 lb (0.07 kg)
Weight Double Pole		0.38 lb (0.17 kg)

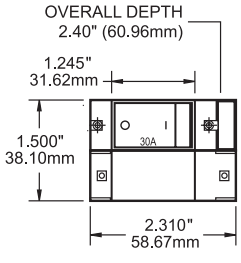
Regulatory

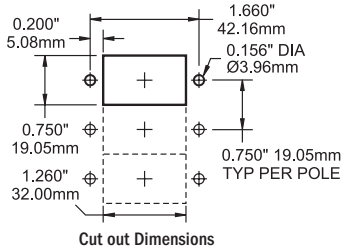
CE marked, TUV certified, CSA certified
UL 1077 recognized

Interrupting Capacity Table (see ABYC Requirements page 119)

			UL 1077 - UL/CSA (US/Canada)	EN60934 - TUV (Europe)
Poles	Vmxo Volts	Itr Amps	Iic Interrupt	Iic Interrupt
1 Pole	32V DC	5–50A	5,000A	-
	125V AC	5–50A	3,000A	-
	250V AC	5–50A	1,500A	1,500A
2 Pole	32V DC	10–50A	5,000A	-
	240V AC	10–50A	3,000A	-
	240V AC	10–50A	3,000A	1,500A







Cut out Dimensions

Single Pole Circuit Breakers

PN	Actuator Styles	Poles	Itr DC Amps	Itr AC Amps
7400	Flat Rocker	1	5A DC	5A AC
7425	Restricted Off	1	5A DC	5A AC
7401	Flat Rocker	1	8A DC	8A AC
7426	Restricted Off	1	8A DC	8A AC
7402	Flat Rocker	1	10A DC	10A AC
7427	Restricted Off	1	10A DC	10A AC
7403	Flat Rocker	1	15A DC	15A AC
7428	Restricted Off	1	15A DC	15A AC
7404	Flat Rocker	1	20A DC	20A AC
7429	Restricted Off	1	20A DC	20A AC
7405	Flat Rocker	1	25A DC	25A AC
7430	Restricted Off	1	25A DC	25A AC
7406	Flat Rocker	1	30A DC	30A AC
7431	Restricted Off	1	30A DC	30A AC
7407	Flat Rocker	1	40A DC	40A AC
7432	Restricted Off	1	40A DC	40A AC
7408	Flat Rocker	1	50A DC	50A AC
7433	Restricted Off	1	50A DC	50A AC

Double Pole Circuit Breakers

PN	Actuator Styles	Poles	Itr DC Amps	Itr AC Amps
7570	Raised Rocker	2	10A DC	10A AC
7410	Flat Rocker	2	10A DC	10A AC
7571	Raised Rocker	2	15A DC	15A AC
7411	Flat Rocker	2	15A DC	15A AC
7572	Raised Rocker	2	16A DC	16A AC
7412	Flat Rocker	2	16A DC	16A AC
7573	Raised Rocker	2	20A DC	20A AC
7413	Flat Rocker	2	20A DC	20A AC
7574	Raised Rocker	2	30A DC	30A AC
7414	Flat Rocker	2	30A DC	30A AC
7575	Raised Rocker	2	32A DC	32A AC
7415	Flat Rocker	2	32A DC	32A AC
7576	Raised Rocker	2	40A DC	40A AC
7416	Flat Rocker	2	40A DC	40A AC
7577	Raised Rocker	2	50A DC	50A AC
7417	Flat Rocker	2	50A DC	50A AC

AC~ DC⎓
C-Series Toggle Circuit Breakers

Combines switching and circuit protection into a single device


7250*


7267


7270


7251


7287

AC~ DC⎓ | DC⎓ | AC~

DC Features

- Large frame provides stud termination for 5–300 Amp loads
- Provides overcurrent protection for inverters, bow thrusters, and windlasses
- Offers high interrupt capacity—suitable for Main circuit protection
- Trip Free— cannot be held closed after trip

AC Features

- Frequently used for 120/240 Volt AC circuit protection
- Double pole can be used as AC Main circuit breaker to switch hot and neutral or two hots in 120/240 Volt AC Branch applications
- Triple pole can be used as 120/240 Volt AC Main circuit breaker to switch both lines (hots) and neutral
- Double and triple pole circuit breakers will trip all poles if any one pole trips

DC and AC Specifications

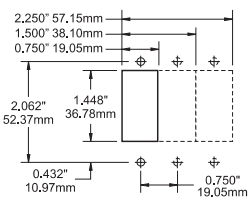
Iic	Interrupting Capacity	See Interrupt Capacity Table
Vmxo	Voltage Maximum Operating	See Interrupt Capacity Table
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-40°C
Tmxo	Temperature Maximum Operating	85°C
Cs	Switching Cycles	10,000 @ rated amperage and voltage
Type		Magnetic Hydraulic—Trip free
Terminal Stud		1/4"-20 Tin-Plated Brass
Terminal Stud Torque		35 in-lb max.
Trip Time Delay		See www.bluesea.com
Mounting Screw		#6-32 Stainless Steel (included)
Mounting Screw Torque		6-8 in-lb Recommended

Regulatory

7250I ONLY—meets SAE J1171, UL 1500, and ISO 8846 external ignition protection requirements

PN	Color	Poles†	Itr DC Amps	Itr AC Amps	Weight lb (kg)
7350	White	1	5A DC	5A AC	0.28 (0.13)
7351	White	1	10A DC	10A AC	0.28 (0.13)
7352	White	1	15A DC	15A AC	0.28 (0.13)
7353	White	1	20A DC	20A AC	0.28 (0.13)
7354	White	1	25A DC	25A AC	0.28 (0.13)
7355	White	1	30A DC	30A AC	0.28 (0.13)
7244	White	1	50A DC	50A AC	0.36 (0.17)
7246	White	1	60A DC	60A AC	0.36 (0.17)
7248	White	1	80A DC	80A AC	0.36 (0.17)
7250	White	1	100A DC	100A AC	0.36 (0.17)
7250I	Red	1	100A DC	100A AC	0.36 (0.17)
7365	White	2	-	30A AC	0.60 (0.27)
7251	White	2	-	50A AC	0.60 (0.27)
7254	White	2	-	60A AC	0.60 (0.27)
7256	White	2	-	80A AC	0.60 (0.27)
7258	White	2	-	100A AC	0.60 (0.27)
7267	White	2*	150A DC	-	0.64 (0.31)
7268	White	2*	175A DC	-	0.64 (0.31)
7269	White	2*	200A DC	-	0.64 (0.31)
7287	White	3	-	50A AC	0.90 (0.41)
7288	White	3	-	60A AC	0.90 (0.41)
7289	White	3	-	80A AC	0.90 (0.41)
7290	White	3	-	100A AC	0.90 (0.41)
7270	White	3*	250A DC	-	0.93 (0.46)
7271	White	3*	300A DC	-	0.93 (0.46)

* Paralleled poles have 5/16" stud on bus

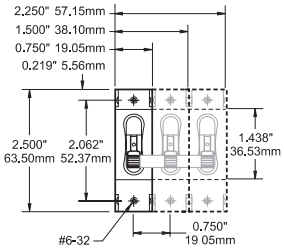


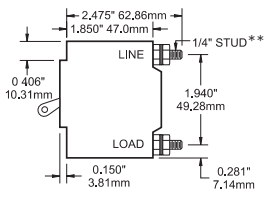
Cutout Dimensions

Interrupting Capacity Table (see ABYC Requirements page 119)

			UL 1077 - UL/CSA (US/Canada)	EN60934 - TUV (Europe)
Poles*	Vmxo Volts	Itr Amps	Iic Interrupt	Iic Interrupt
1 Pole*	80V DC	5–100A	10,000A	-
	125V AC	5–100A	5,000A	-
	250V AC	5–100A	5,000A	5,000A
1 Pole* PN 7250I	48V DC	100A	5,000A	-
	125V AC	100A	1,500A	-
2 and 3 Pole	65V DC	150–300A	5,000A‡	-
	125/250V AC	30–100A	5,000A	5,000A
	250V AC	30–100A	5,000A	5,000A

‡ No agency approvals





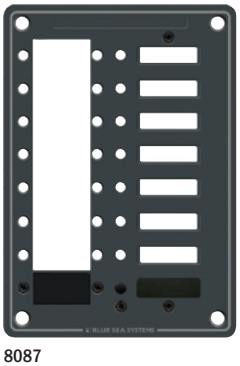
C-Series Toggle Circuit Breaker Mounting Panels

Simplifies mounting C-Series Toggle Circuit Breakers

- Accepts Blue Sea Systems Large Format Labels and ON indicating LEDs
- Panel plugs can be inserted to fill blank positions
- Panel Plug Kit 8089 included—circuit breaker mounting screws, panel plug, LED plug and blank label

PN	Description	Width in (mm)	Depth in (mm)	Weight lb (kg)
8088	3 position mounting panel	5.25 (133.35)	3.75 (95.25)	0.24 (0.11)
8087	8 position mounting panel	5.25 (133.35)	7.50 (190.50)	0.40 (0.18)
8089	Panel Plug Kit	-	-	-

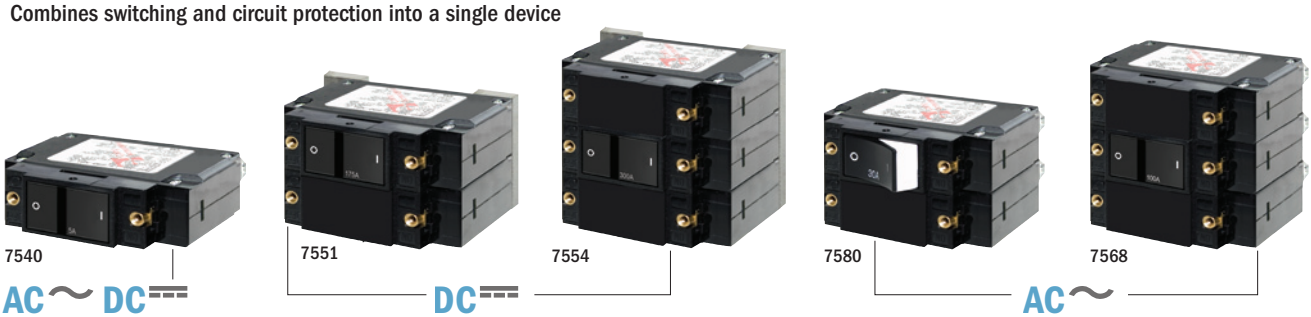

8088


8087

AC~ DC⎓

C-Series Rocker Circuit Breakers

Combines switching and circuit protection into a single device



DC Features

- White actuator indicates OFF position
- Large frame provides stud termination for 5–300 Amp loads
- Flat rocker actuator is flush in the ON position, reducing the risk of accidental switching
- Provides overcurrent protection for inverters, bow thrusters, and windlasses
- Trip Free—cannot be held closed after trip

Specifications

Iic	Interrupting Capacity	See Interrupt Capacity Table
Vmxo	Voltage Maximum Operating	See Interrupt Capacity Table
Itr	Amperage Trip Reference	See table
Tmno	Temperature Minimum Operating	-40°C
Tmxo	Temperature Maximum Operating	85°C
Cs	Switching Cycles	10,000 @ rated amperage and voltage
Type	Magnetic Hydraulic—Trip free	
Terminal Stud		1⁄4"-20 Tin-Plated Brass
Terminal Stud Torque		35 in-lb max.
Trip Time Delay		See www.bluesea.com
Mounting Screw		#6-32 Stainless Steel (included)
Mounting Screw Torque		6–8 in-lb Recommended

Regulatory

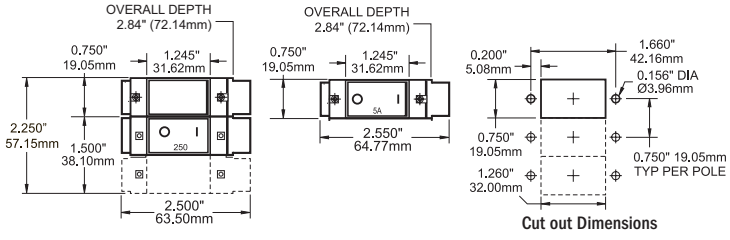
SINGLE-POLE CIRCUIT BREAKERS ONLY– CE marked, meet SAE J1171, UL 1500 and ISO 8846 external ignition protection requirements, CSA certified, and UL 1077 recognized

AC CIRCUIT BREAKERS ONLY—TUV certified, CSA certified, and UL 1077 recognized

AC AND AC/DC CIRCUIT BREAKERS ONLY–CE marked

Interrupting Capacity Table (see ABYC Requirements page 119)

			UL 1077 - UL/CSA (US/Canada)	EN60934 - TUV (Europe)
Poles	Vmxo Volts	Itr Amps	Iic Interrupt	Iic Interrupt
1 Pole	32V DC	5–100A	5,000A	-
	120V AC	5–100A	3,000A	-
	240V AC	5–50A	3,500A	-
2 and 3 Pole	48V DC	150–300A	5,000A	-
	48V DC	150–200A	-	5,000A
	120/240V AC	30–100A	5,000A	-
	240V AC	30–100A	-	5,000A



Cut out Dimensions

AC Features

- Used for 120/240 Volt AC circuit protection
- Double pole can be used as AC Main circuit breaker to switch hot and neutral or two hots in 120/240 Volt AC Branch applications
- Triple pole can be used as 120/240 Volt AC Main circuit breaker to switch both lines (hots) and neutral
- Double and triple pole circuit breakers will trip all poles if any one pole trips

PN	Rocker Actuator	Poles	Itr DC Amps	Itr AC Amps	Weight lb (kg)
7540	Flat	1	5A DC	5A AC	0.28 (0.13)
7541	Flat	1	10A DC	10A AC	0.28 (0.13)
7542	Flat	1	15A DC	15A AC	0.28 (0.13)
7543	Flat	1	20A DC	20A AC	0.28 (0.13)
7544	Flat	1	25A DC	25A AC	0.28 (0.13)
7545	Flat	1	30A DC	30A AC	0.28 (0.13)
7546	Flat	1	50A DC	50A AC	0.28 (0.13)
7547	Flat	1	60A DC	60A AC	0.36 (0.17)
7548	Flat	1	80A DC	80A AC	0.36 (0.17)
7549	Flat	1	100A DC	100A AC	0.36 (0.17)
7560	Flat	2	-	30A AC	0.51 (0.23)
7580	Raised	2	-	30A AC	0.51 (0.23)
7561	Flat	2	-	50A AC	0.51 (0.23)
7581	Raised	2	-	50A AC	0.51 (0.23)
7562	Flat	2	-	60A AC	0.51 (0.23)
7582	Raised	2	-	60A AC	0.51 (0.23)
7563	Flat	2	-	80A AC	0.51 (0.23)
7583	Raised	2	-	80A AC	0.51 (0.23)
7564	Flat	2	-	100A AC	0.51 (0.23)
7584	Raised	2	-	100A AC	0.51 (0.23)
7475	Flat	2*	150A DC	-	0.64 (0.31)
7551	Flat	2*	175A DC	-	0.64 (0.31)
7476	Flat	2*	200A DC	-	0.64 (0.31)
7565	Flat	3	-	50A AC	0.78 (0.35)
7585	Raised	3	-	50A AC	0.78 (0.35)
7566	Flat	3	-	60A AC	0.78 (0.35)
7586	Raised	3	-	60A AC	0.78 (0.35)
7567	Flat	3	-	80A AC	0.78 (0.35)
7587	Raised	3	-	80A AC	0.78 (0.35)
7568	Flat	3	-	100A AC	0.78 (0.35)
7588	Raised	3	-	100A AC	0.78 (0.35)
7477	Flat	3*	250A DC	-	0.93 (0.46)
7554	Flat	3*	300A DC	-	0.93 (0.46)

* Paralleled poles have 5/16" stud on bus

AC ~

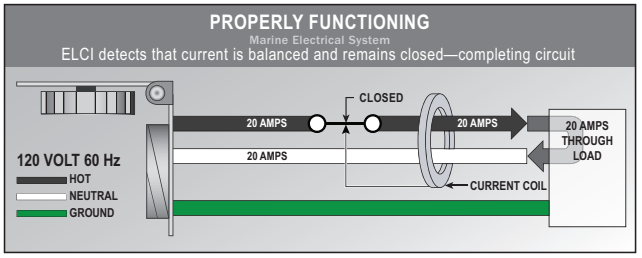
Residual Current Circuit Breakers GFCI Branch and ELCI Main

AC Ground Faults, the Boater, and ABYC

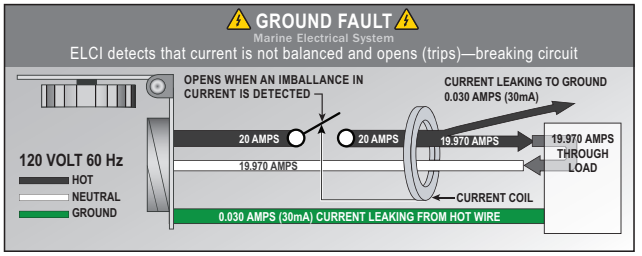
Understanding Equipment Leakage Circuit Interrupters (ELCIs) and Ground Fault Circuit Interrupters (GFCIs) to make your boat safer.

There are two potential failures in a boat's electrical system that can put people on or around the boat at risk of lethal electric shock.

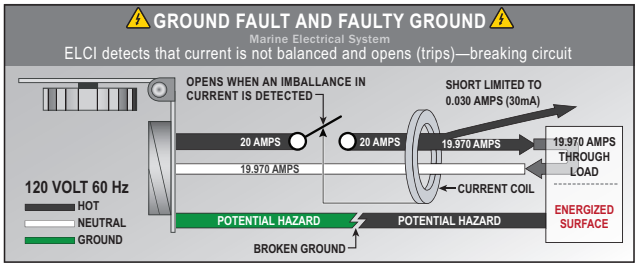
In a properly functioning marine electrical system, the same amount of AC current flows in the hot and neutral wires.



However, if electricity "leaks" from this intended path in these two wires to ground, this condition is called a ground fault. A good example of this is an insulation failure in the wiring of an appliance.



In addition, a faulty ground can occur when the grounding path is broken through a loose connection or broken wire. For instance, a shore power cord ground wire may fail due to constant motion and stress.



Faulty grounds can be undetectable; a simple continuity test will not necessarily reveal a problem. When these two conditions occur at the same time, the results may be tragic. The combination of a ground fault and a faulty ground can result in metal parts on the boat and under water becoming energized. If an electric drill with faulty internal wiring or a worn cord falls into the bilge, the water in the bilge will become energized, putting the worker and those nearby at risk.

In addition to the hazard to people on the vessel, there is a larger danger to swimmers near the boat. While people on board are likely to receive a shock from touching energized metal parts, nearby swimmers could receive a paralyzing dose of electricity and drown due to involuntary loss of muscle control.

A Coast Guard sponsored study showed numerous instances of electrical leakage causing drowning or potential drowning even though the shock did not directly cause electrocution.

Given the seriousness of the problem, ABYC requirements now include specific measures for avoiding this danger.

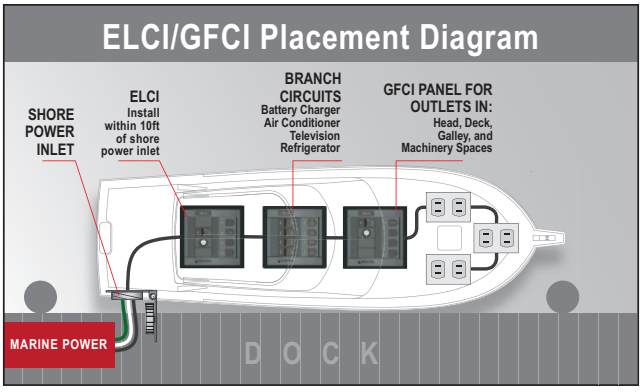
ABYC E–13.3.5 states:
If installed in a head, galley, machinery space, or on a weather deck, the receptacle shall be protected by a Type A (nominal 5 milliamperes) Ground Fault Circuit Interrupter (GFCI).

ABYC E-11.11.1 states:
An Equipment Leakage Circuit Interrupter (ELCI) shall be installed with or in addition to the main shore power disconnect circuit breaker(s) or at the additional overcurrent protection as required by E-11.10.2.8.3 whichever is closer to the shore power connection.

ELCIs, and the more familiar GFCIs (Ground Fault Circuit Interrupter), are part of a larger family of devices that measure current flow in the hot and neutral wires and immediately switch the electricity off if an imbalance of current flow is detected. ELCIs and GFCIs that are also RCBOs (Residual Current Circuit Breaker) provide overcurrent tripping protection characteristic of a normal circuit breaker.

GFCIs are used as branch circuit ground fault protection at the 5mA threshold in potentially wet environments. GFCIs protect against flaws in devices plugged into them, but offer no protection from the danger of a failing hard-wired appliance, such as a water heater or cooktop.

In contrast, an ELCI provides additional whole-boat protection. Installed as required within 10' of the shore power inlet, an ELCI provides 30mA ground fault protection for the entire AC shore power system beyond the ELCI. ABYC regulations still require the use of GFCIs in environments described above.



Although ABYC regulations apply only to new boat construction, ELCIs can mitigate dangers and liabilities that exist for any boat owner with a shore power connection. Retrofitting an ELCI to an existing AC system can be a worthwhile safeguard against risk. Since an ELCI/RCBO can serve as the main shore power circuit breaker, it can replace a standard circuit breaker in this application. Alternatively, an ELCI/RCBO can be added between the shore power inlet and the existing main shore power circuit breaker.

Safety ground system failures on boats are safety and liability disasters waiting to happen. ELCI protection on each shore power line, combined with protection afforded by GFCIs, will reduce risk to those on the boat, the dock, and in the water surrounding the boat.

GFCI Branch and ELCI Main Circuit Breaker Mounting Options

360 Panel and Traditional Metal Panel

GFCI Branch Rocker Circuit Breakers (page 41)

ELCI Main Rocker Circuit Breakers (page 41)

ELCI Main Toggle Circuit Breaker (page 41)

NEW Surface Mount System

SMS Surface Mount System Panel Enclosures (page 42)

360 Panel

Traditional Metal Panel

Residual Current Circuit Breaker
GFCI Branch and ELCI Main Panels (page 88)

AC~

Residual Current Circuit Breakers

GFCI Branch and ELCI Main

Residual Current Devices (RCDs) respond to leakage of electrical current outside of the intended circuit path. When the RCD function is combined with a circuit breaker for over current protection, the device is often referred to as an RCBO. In the USA, a device that trips on leakages of nominally 5mA and meets certain standards is called a Ground Fault Circuit Interrupter (GFCI). A device meeting the same standards but with a trip level of 30mA is called an Equipment Leakage Circuit Interrupter (ELCI). The devices below provide GFCI Branch or ELCI Main functions and circuit protection in panel mounted breakers.

3100

NEW 3102100

3103 NEW 3091, 3092, 3093

3104

NEW 3106100

Features

- Trips on short circuit, overload, or leakage to ground
- For installation in a power distribution panel
- GFCI Branch - Provides overcurrent and leakage protection per ABYC E-11 for head, galley, machinery and weather deck receptacles
- ELCI Main - Provides overcurrent and leakage protection per ABYC E-11 for whole boat shore power protection

Specifications

Iic	Interrupting Capacity	5,000 Amps
Tmno	Temperature Minimum Operating	-35°C
Tmxo	Temperature Maximum Operating	66°C
Cs	Switching Cycles	10,000 @ rated amperage and voltage
Type		Magnetic Hydraulic–Trip free
Mounting Screw		#6-32 Stainless Steel
Mounting Screw Torque		6–8 in-lb Recommended

Regulatory

3100 – UL 1077, UL 943 Class A

3103, 3104, 3102100, 3106100, 3091, 3092, 3093 – UL 1077, UL 943 Class A, UL 1500

	PN	Description	Frame Series	Nominal Voltage	Actuator Style	Ignition Protected	Poles	Itr AC Amperage		Leakage Trip Amps	Weight lb (kg)
								MAIN	BRANCH		
	3100	GFCI Branch	A-Series	120V AC per pole	Flat Rocker	-	1	-	15A	5mA	0.38 (0.17)
NEW	3102100	ELCI Main	A-Series	120V AC per pole	Flat Rocker	Yes	2	30A	-	30mA	0.45 (0.20)
	3103	ELCI Main	C-Series	120V AC per pole	Flat Rocker	Yes	2	50A	-	30mA	0.85 (0.38)
	3104	ELCI Main	C-Series	120/240V AC per pole	Flat Rocker	Yes	3	50A	-	30mA	1.00 (0.45)
NEW	3106100	ELCI Main	A-Series	120V AC per pole	White Toggle	Yes	2	30A	-	30mA	0.45 (0.20)
NEW	3091	ELCI Main	C-Series	230V AC per pole*	Flat Rocker	Yes	2	16A	-	30mA	0.85 (0.38)
NEW	3092	ELCI Main	C-Series	230V AC per pole*	Flat Rocker	Yes	2	32A	-	30mA	0.85 (0.38)
NEW	3093	ELCI Main	C-Series	240V AC per pole†	Flat Rocker	Yes	2	50A	-	30mA	0.85 (0.38)

* 230V AC, Typical of Europe
† 240V AC, For isolation transformer applications

Residual Current Circuit Breaker Panel

European DIN Style

Reduces the risk of fire and shock hazards caused by defects in boat appliances and circuit wiring

Features

- Backlit label positions and ON indicating LED
- For use with DIN rail RCBOs

1173 (circuit breaker not included)
Dimensions (WxH) 4.88 x 4.75 in (123.83 x 120.65 mm)
Weight: 0.70 lb (0.32 kg)

AC~

SMS Surface Mount System NEW

Panel enclosure for ELCI Main circuit breakers and other large frame devices. Meets ABYC E-11 when used with an ELCI Main circuit breaker and mounted within 10 feet of the shore power inlet

3119

Features

- Models available with ELCI Main circuit breakers for 120V 30A, 120V 50A, and 120/240V 50A
- Blank apertures for custom breaker loading
- Clear cover allows easy view of circuit breaker status
- Overlapping cover for strength and increased gasket protection
- Oversized, formed in place seamless PUR gasket
- Easily removable stainless steel hinge pin for unobstructed installation
- Stainless steel latch secures cover without penetrating the enclosure
- Blank circuit positions accommodate Carling Technologies™ A and C Series Flat Rocker and ELCI Main circuit breakers
- Stainless steel mounting hardware included
- Includes waterproof glands (3116, 3118, 3119)
- LED lights for back lighting and ON indication (3116, 3118, 3119)

Specifications

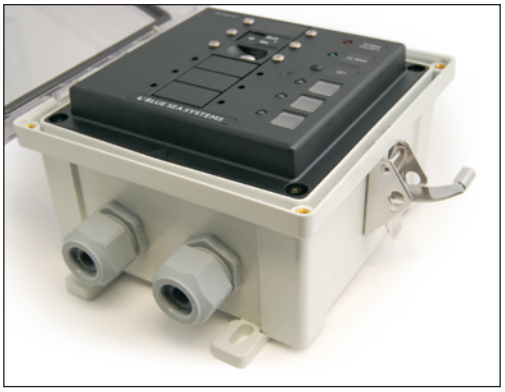
Enclosure Size	6.0" x 6.0" x 4.0" 152mm x 152mm x 102mm
Exterior Overall Dimensions	7.6" x 7.4" x 4.7" 192mm x 188mm x 120mm
Temperature Range	-40°C to 85°C
Cover Screws and Hardware	10-32 stainless steel
Mounting Hardware	Ø 1/4", #12, (6mm)

Regulatory

IP66—Protected against powerful water jets when cover is latched
Flammability rating—Per UL 508
Toxicity— Non-toxic, halogen free, RoHS compliant
UL Listed and NEMA 4X rated, NEMA Type 4, 4X, 6, 6P, 12, and 13

Please contact Blue Sea Systems for circuit breaker configurations that are not included on this page.

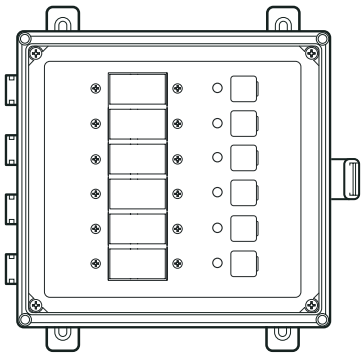
See page 119 for ABYC Interrupting Capacity Requirements.



SMS panel enclosure with glands installed*

	PN	Description	ELCI Main Circuit Breaker	Glands	"ON" Indicating LEDs	"Reverse Polarity" Indicating LED	LED Plugs	Mounting Screws	Backlit Circuit Label Positions	Labels
NEW	3113	6 Blank Circuit Positions	-	-	-	-	6	12	-	DC Panel Basic, 4205 AC Panel Basic, 4206 Panel Voltage ID -12V DC, 24V DC, -120V AC, 230V AC, 120/240V AC
NEW	3116	ELCI Main + 3 Blank Circuit Positions	120V AC 30A PN 3102 (page 41)	(2) 3124 (3) 3125	(4) 8034	(1) 8066	1	12	6	AC Main, 6520-0013 ELCI, 6520-0580 Reverse Polarity, 6520-0360 AC Panel Basic, 4206 Panel Voltage ID
NEW	3118	ELCI Main + 2 Blank Circuit Positions	120V AC 50A PN 3103 (page 41)	(2) 3124 (1) 3125 (2) 3126	(3) 8034	(1) 8066	2	12	5	AC Main, 6520-0013 ELCI, 6520-0580 Reverse Polarity, 6520-0360 AC Panel Basic, 4206 Panel Voltage ID
NEW	3119	ELCI Main + 1 Blank Circuit Position	120V/240V AC 50A PN 3104 (page 41)	(2) 3124 (1) 3125 (2) 3126	(3) 8034	(1) 8066	3	12	4	AC Main, 6520-0013 ELCI, 6520-0580 Reverse Polarity, 6520-0360 AC Panel Basic, 4206 Panel Voltage ID
NEW	3124	Small Gland PG7, #14 to #10 Single Wire	-	-	-	-	-	-	-	-
NEW	3125	Medium Gland PG16, #14 to #10 Single Wire	-	-	-	-	-	-	-	-
NEW	3126	Large Gland PG29, #8 Cable	-	-	-	-	-	-	-	-

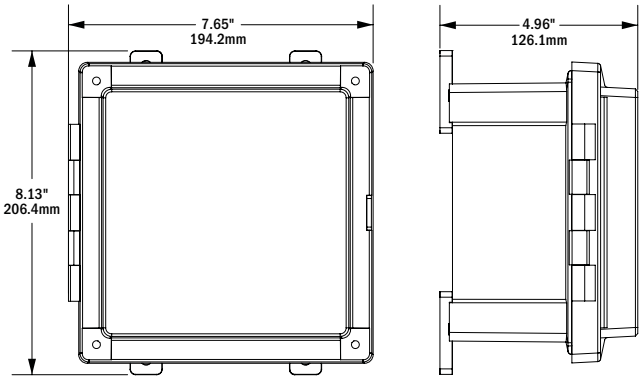
*** SMS panel enclosures are pre-assembled and ready for wire connections. Customers must select wire and entry or exit locations, drill holes, and install the appropriate glands.**

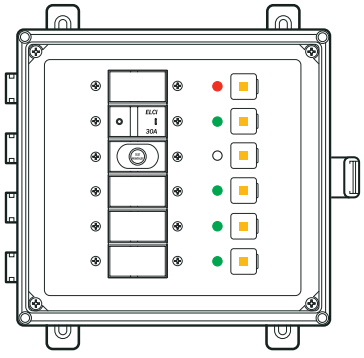


3113 6 Blank circuit positions

3113 SMS Panel Enclosure Includes:

6 LED plugs
12 circuit breaker mounting screws
30 Basic DC labels, 4205
30 Basic AC labels, 4206
Panel Voltage ID labels
-12V DC, 24V DC
-120V AC, 230V AC, 120/240V AC

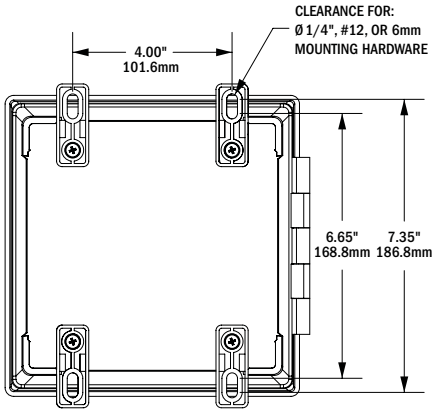


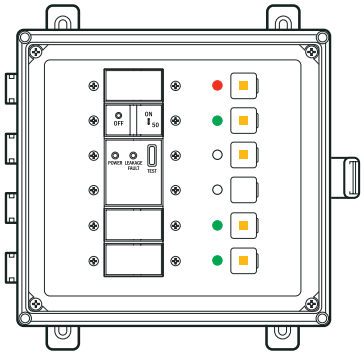


3116 ELCI Main + 3 Blank circuit positions

3116 SMS Panel Enclosure Includes:

1 ELCI Main 120V 30A, 30mA, 3102
2 small wire glands, 3124
3 medium wire glands, 3125
4 green "ON" indicating 120V AC LEDs, 8034
1 red "Reverse Polarity" indicating 120V AC LED, 8066
1 LED plug
12 circuit breaker mounting screws
Backlit circuit label positions
1 AC Main label
1 Reverse Polarity label
1 ELCI label
30 Basic AC labels, 4206
Panel Voltage ID label-120V AC

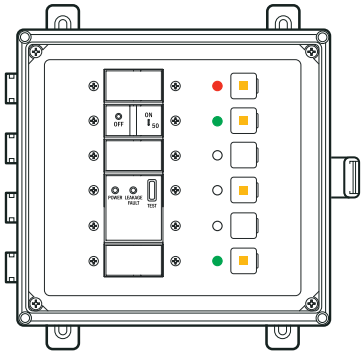




3118 ELCI Main + 2 Blank circuit positions

3118 SMS Panel Enclosure Includes:

1 ELCI Main 120V 50A, 30mA, 3103
2 small wire glands, 3124
1 medium wire gland, 3125
2 large wire glands, 3126
3 green "ON" indicating 120V AC LEDs, 8034
1 red "Reverse Polarity" indicating 120V AC LED, 8066
2 LED plugs
12 circuit breaker mounting screws
Backlit circuit label positions
1 AC Main label
1 Reverse Polarity label
1 ELCI label
30 Basic AC labels, 4206
Panel Voltage ID label-120V AC



3119 ELCI Main + 1 Blank circuit position

3119 SMS Panel Enclosure Includes:

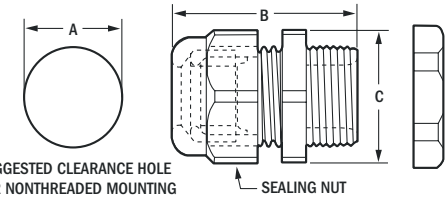
1 ELCI Main 120/240V, 50A, 30mA, 3104
2 small wire glands, 3124
1 medium wire gland, 3125
2 large wire glands, 3126
2 green "ON" indicating 120V AC LEDs, 8034
1 red "Reverse Polarity" indicating 120V AC LED, 8066
3 LED plugs
12 circuit breaker mounting screws
Backlit circuit label positions
1 AC Main label
1 Reverse Polarity label
1 ELCI label
30 Basic AC labels, 4206
Panel Voltage ID label-120V/240V AC

KEY

- Red 120V AC LED
- Green 120V AC LED
- LED Plug
- Backlit circuit label position

GLAND SPECIFICATIONS

	WIRE SIZE	CABLE DIA. RANGE		DIMENSIONS
		Min. Dia.	Max. Dia.	
 Small 3124	#14 to #10 Single Wire	.114 in 2.9 mm	.250 in 6.4 mm	A. Clearance Hole .492 in (12.5 mm) B. Max. O. A. Length 1.17 in (29.7 mm) C. Wrenching Flats .59 in (15.0 mm) Reference diagram below
 Medium 3125	#14 to #10 Cable	.230 in 5.8 mm	.530 in 13.9 mm	A. Clearance Hole .886 in (22.5 mm) B. Max. O. A. Length 1.66 in (42.2 mm) C. Wrenching Flats 1.05 in (26.7 mm) Reference diagram below
 Large 3126	#6 Cable	.590 in 15.0 mm	.990 in 25.4 mm	A. Clearance Hole 1.470 in (37.3 mm) B. Max. O. A. Length 2.23 in (56.6 mm) C. Wrenching Flats 1.66 in (42.2 mm) Reference diagram below



Circuit Breaker Comparison

DC⎓ Thermal Circuit Breakers*

Product	Push Button Reset-Only with Quick Connect Terminals	Push Button Reset-Only with Screw Terminals	Medium Duty Push Button Reset-Only*	285-Series Panel Mount	285-Series Surface Mount	187-Series Panel Mount	187-Series Surface Mount
			AC~ DC⎓ 				
Page no.	32	32	33	34	34	35	35
Iic Interrupting Capacity	3,000A @ 14.7V DC 2,500A @ 28V DC	3,000A @ 14.7V DC 2,500A @ 28V DC	5,000A @ 32V DC 3,000A @ 120V AC*	3,000A @ 48V DC†	3,000A @ 48V DC†	5,000A @ 12V DC 3,000A @ 24V DC 1,500A @ 42V DC	5,000A @ 12V DC 3,000A @ 24V DC 1,500A @ 42V DC
Vmxo Max. Voltage	32V DC	32V DC	32V DC / 120V AC*	48V DC	48V DC	48V DC	48V DC
Available Amperages	3–40A	3–40A	15–60A	25–200A	25–200A	25–200A	25–200A
Regulatory	CE marked, UL 1077, TUV certified, UL 1500, ISO 8846	CE marked, UL 1077, TUV certified, UL 1500, ISO 8846	SAE J1428, SAE J553, UL 1077, UL 1500	CE marked, SAE J1171, IP67	CE marked, SAE J1171, IP67	CE marked, SAE J1171, IP66	CE marked, SAE J1171, IP66

* Medium Duty Push Button Reset-Only Circuit Breakers are AC/DC rated
† AIC ratings achieved using SAE J1625

AC~ DC⎓ A-Series Circuit Breakers

Product	A-Series Toggle	A-Series Flat Rocker	A-Series Restricted Off Rocker	A-Series Toggle	A-Series Flat Rocker	A-Series Raised Rocker
						
Page no.	36	37	37	36	37	37
Iic Interrupting Capacity DC	7,500A @ 65V DC	5,000A @ 32V DC	5,000A @ 32V DC	7,500A @ 65V DC	5,000A @ 32V DC	5,000A @ 32V DC
Iic Interrupting Capacity AC	3,000A @ 120V AC 3,000A @ 250V AC	3,000A @ 125V AC 1,500A @ 250V AC	3,000A @ 125V AC 1,500A @ 250V AC	3,000A @ 120V AC 3,000A @ 120/240V AC 3,000A @ 250V AC	3,000A @ 240V AC	3,000A @ 240V AC
Vmxo Max. Voltage DC	65V DC	32V DC	32V DC	65V DC	32V DC	32V DC
Vmxo Max. Voltage AC	250V AC	250V AC	250V AC	250V AC	240V AC	240V AC
Poles	1	1	1	2	2	2
Available Amperages	5–50A	5–50A	5–50A	10–50A	10–50A	10–50A
Regulatory	CE marked, TUV certified, CSA certified, UL 1077	CE marked, TUV certified, CSA certified, UL 1077	CE marked, TUV certified, CSA certified, UL 1077	CE marked, TUV certified, CSA certified, UL 1077	CE marked, TUV certified, CSA certified, UL 1077	CE marked, TUV certified, CSA certified, UL 1077

AC~ GFCI Branch and ELCI Main Circuit Breakers

Product	GFCI Branch	ELCI Main	ELCI Main	ELCI Main	ELCI Main	ELCI Main		
								
Page no.	41	41	41	41	41	3091* (41)	3092* (41)	3093† (41)
Iic Interrupting Capacity AC	5,000A	5,000A	5,000A	5,000A	5,000A	5,000A	5,000A	5,000A
Nominal Voltage	120V per pole	120V per pole	120V per pole	120V per pole	120/240V per pole	230V per pole	230V per pole	240V per pole
Amperage	15A	30A	30A	50A	50A	16A	32A	50A
Leakage Trip Amps	5mA	30mA	30mA	30mA	30mA	30mA	30mA	30mA
Regulatory	UL 1077, UL 943 Class A	UL 1077, UL 943 Class A, UL 1500	UL 1077, UL 943 Class A, UL 1500	UL 1077, UL 943 Class A, UL 1500	UL 1077, UL 943 Class A, UL 1500	UL 1077, UL 943 Class A, UL 1500	UL 1077, UL 943 Class A, UL 1500	UL 1077, UL 943 Class A, UL 1500

* 230V AC, Typical of Europe
† 240V AC, For isolation transformer applications

AC ~ DC ⎓ C-Series Circuit Breakers

Product Style	C-Series Toggle	C-Series Toggle	C-Series Flat Rocker
			
Page no.	38	38	39
Iic Interrupting Capacity DC	10,000A @ 80V DC	10,000A @ 80V DC	5,000A @ 32V DC
Iic Interrupting Capacity AC	5,000A @ 125V AC 5,000A @ 250V AC	5,000A @ 125V AC 5,000A @ 250V AC	3,000A @ 120V AC 3,500A @ 240V AC
Vmxo Max. Voltage DC	80V DC	80V DC	32V DC
Vmxo Max. Voltage AC	250V AC	250V AC	240V AC
Poles	1	1	1
Available Amperages	5–100A	100A	5–100A
Regulatory	-	SAE J1171, UL 1500, ISO 8846	CE marked, SAE J1171, UL 1500, ISO 8846. CSA certified, UL 1077

DC ⎓ C-Series Circuit Breakers

Product Style	C-Series Toggle	C-Series Flat Rocker	C-Series Toggle	C-Series Flat Rocker
				
Page no.	38	39	38	39
Iic Interrupting Capacity DC	5,000A @ 65V DC	5,000A @ 48V DC	5,000A @ 65V DC	5,000A @ 48V DC
Vmxo Max. Voltage DC	65V DC	48V DC	65V DC	48V DC
Poles	2	2	3	3
Available Amperages	150–200A	150–200A	250–300A	250–300A
Regulatory	-	-	-	-

AC ~ C-Series Circuit Breakers

Product Style	C-Series Toggle	C-Series Raised Rocker	C-Series Flat Rocker	C-Series Toggle	C-Series Raised Rocker	C-Series Flat Rocker
						
Page no.	38	39	39	38	39	39
Iic Interrupting Capacity AC	5,000A @ 125/250V AC 5,000A @ 250V AC	5,000A @ 120/240V AC 5,000A @ 240V AC	5,000A @ 120/240V AC 5,000A @ 240V AC	5,000A @ 125/250V AC 5,000A @ 250V AC	5,000A @ 120/240V AC 5,000A @ 240V AC	5,000A @ 120/240V AC 5,000A @ 240V AC
Vmxo Max. Voltage AC	250V AC	240V AC	240V AC	250V AC	240V AC	240V AC
Poles	2	2	2	3	3	3
Available Amperages	30–100A	30–100A	30–100A	50–100A	50–100A	50–100A
Regulatory	-	CE marked, TUV certified, CSA certified, UL 1077	CE marked, TUV certified, CSA certified, UL 1077	-	CE marked, TUV certified, CSA certified, UL 1077	CE marked, TUV certified, CSA certified, UL 1077

Fuse and Fuse Blocks

The color coding system matches fuses with the corresponding holder or block for easier component selection. Look for color rectangles on the packaging of each fuse holder and block, then match the color with the fuse packaging to find the correct fuse type.

Some fuse blocks, such as the SafetyHub 150, require two different fuse types. Both color areas are shown on the SafetyHub packaging.

SafetyHub 150 Fuse Block package shows blue (ATO® or ATC®) and black (AMI® or MIDI®) rectangles to represent fuse types required

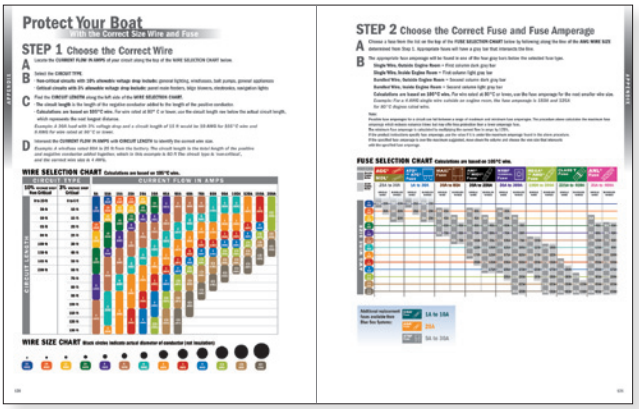
The color rectangles represent the fuses available through Blue Sea Systems, and are color coded on the packaging:

AGC® Fuse | MDL® Fuse | ATO® or ATC® Fuse | MAXI™ Fuse | AMI® or MIDI® Fuse | MEGA® or AMG® Fuse | MRBF® TERMINAL Fuse | CLASS T Fuse | ANL® Fuse

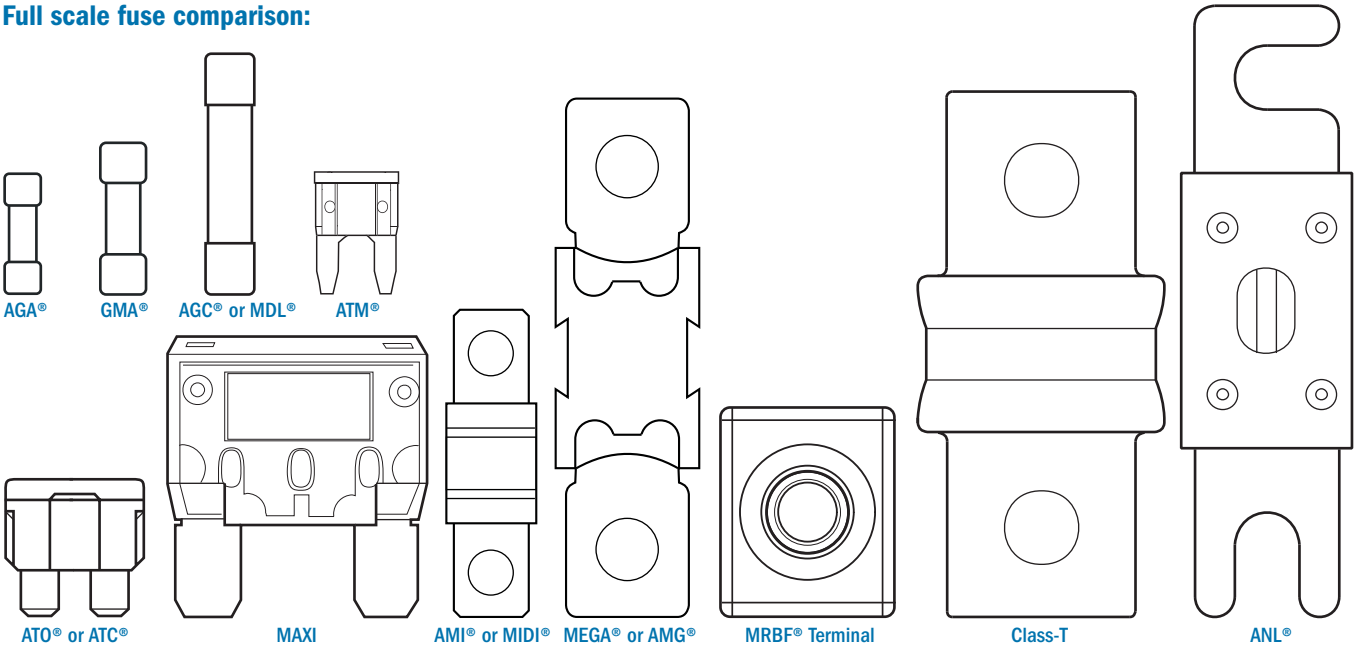
Replacement fuses:

AGA® Fuse | GMA® Fuse | ATM® Fuse

Protect Your Boat with the Correct Size Wire and Fuse. See pages 120–122, 124



Full scale fuse comparison:



Specifications subject to change. See bluesea.com for current information.

AC ~ DC ⎓

GMA® and AGA® Fuses

AGA® Fuse | GMA® Fuse

Fast-acting glass fuses

Features

- Compact Size
- Visible indication of blown condition
- Commonly used for 12/24V DC circuit protection associated with electronics
- GMA® Three per retail package
- AGA® Five per retail package


AGA® Fuse


GMA® Fuse

Specifications

Iic	Interrupting Capacity	See www.bluesea.com
Vmxo	Voltage Maximum Operating	See table
Itr	Amperage Trip Reference	See table
Blow Time Delay		See www.bluesea.com
GMA® Dimensions		5 mm (0.196") x 20 mm (0.79")
AGA® Dimensions		0.25" (6.35 mm) x 0.625" (15.87 mm)

PN	Fuse Type	Itr Amps	Vmxo DC Volts	Vmxo AC Volts	Weight lb (kg)
5280	GMA®	1A	24V DC	250V AC	0.1 (0.04)
5281	GMA®	2A	24V DC	250V AC	0.1 (0.04)
5282	GMA®	3A	24V DC	250V AC	0.1 (0.04)
5283	GMA®	5A	24V DC	125V AC	0.1 (0.04)
5284	GMA®	7A	24V DC	125V AC	0.1 (0.04)
5285	GMA®	10A	24V DC	125V AC	0.1 (0.04)
5275	AGA®	20A	32V DC	-	0.1 (0.04)

AGC® and MDL® Fuses

AGC® Fuse | MDL® Fuse

AGC® – Fast-acting glass fuse ideal for small electronic devices
MDL® – Slow blow glass fuse for bilge pumps and other motors

Features

- For use with Blue Sea Systems ST-Glass fuse blocks and AGC® or MDL® In-Line fuse holders (page 50)
- Visible indication of blown condition
- AGC® Five per retail package
- MDL® Two per retail package

Specifications

Vmxo	Voltage Maximum Operating	32V DC / See table for AC
Itr	Amperage Trip Reference	See table
Blow Time Delay		See www.bluesea.com
Dimensions		0.25" (6.30 mm) x 1.25" (32.00 mm)

AGC® Fuses

PN	Itr Amps	Vmxo Volts	Weight lb (kg)
5201	.25A	250V AC	0.1 (0.04)
5202	.5A	250V AC	0.1 (0.04)
5204	1A	250V AC	0.1 (0.04)
5205	1.5A	250V AC	0.1 (0.04)
5206	2A	250V AC	0.1 (0.04)
5207	2.5A	250V AC	0.1 (0.04)
5208	3A	250V AC	0.1 (0.04)
5209	4A	250V AC	0.1 (0.04)
5210	5A	250V AC	0.1 (0.04)
5211	6A	250V AC	0.1 (0.04)
5212	7A	250V AC	0.1 (0.04)
5213	7.5A	250V AC	0.1 (0.04)
5215	10A	250V AC	0.1 (0.04)
5217	15A	-	0.1 (0.04)
5218	20A	-	0.1 (0.04)
5219	25A	-	0.1 (0.04)
5220	30A	-	0.1 (0.04)

MDL® Fuses

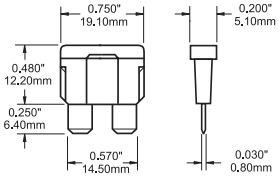
PN	Itr Amps	Vmxo Volts	Weight lb (kg)
5226	3A	250V AC	0.1 (0.04)
5227	5A	250V AC	0.1 (0.04)
5228	6.25A	250V AC	0.1 (0.04)
5229	7.5A	250V AC	0.1 (0.04)
5230	10A	-	0.1 (0.04)
5231	15A	-	0.1 (0.04)
5232	20A	-	0.1 (0.04)
5233	25A	-	0.1 (0.04)
5234	30A	-	0.1 (0.04)

DC ⎓

ATO® or ATC® Fuses

ATO® or ATC® Fuse

Delivers fast-acting protection for electronics and other small loads



Features

- Tin-plated connector blades for corrosion resistance
- Visible indication of blown condition
- Two per retail package

Specifications

Iic	Interrupting Capacity	1,000A
Vmxo	Voltage Maximum Operating	32V DC
Itr	Amperage Trip Reference	See table
Blow Time Delay		See www.bluesea.com
Weight per package		0.03 lb (0.01kg)

See page 51 for ST Blade Fuse Blocks 5028–5034
See page 71 for WeatherDeck™ Waterproof Fuse Panels

PN	Itr Amps
5235	1A
5236	2A
5237	3A
5238	4A
5239	5A
5240	7.5A
5241	10A
5242	15A
5243	20A
5244	25A
5245	30A

ATM® Fuses

ATM® Fuse

Mini blade-type fuse

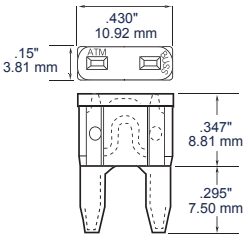
Features

- Color-coded for easy amperage identification
- Two per retail package

Specifications

Iic	Interrupting Capacity	1,000A
Vmxo	Voltage Maximum Operating	32V DC
Itr	Amperage Trip Reference	See table
Blow Time Delay		Fast

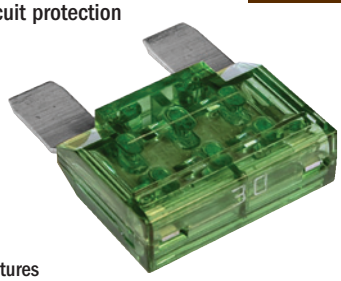
PN	Itr Amps	Weight lb (kg)
5270	5A	0.1 (0.04)
5271	10A	0.1 (0.04)
5272	15A	0.1 (0.04)
5273	20A	0.1 (0.04)
5274	30A	0.1 (0.04)

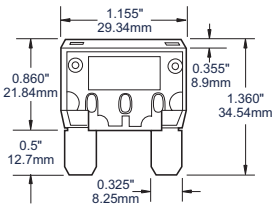


MAXI™ Fuses

MAXI™ Fuse

Provides economical branch circuit protection





Features

- Silver-plated connector blades for corrosion resistance
- Visible indication of blown condition
- One per retail package

Specifications

Iic	Interrupting Capacity	1,000A
Vmxo	Voltage Maximum Operating	32V DC
Itr	Amperage Trip Reference	See table
Blow Time Delay		See www.bluesea.com
Weight per package		0.04 lb (0.02 kg)

See page 50 for MAXI™ Fuse Block 5006

PN	Itr Amps
5138	30A
5139	40A
5140	50A
5141	60A
5142	70A
5143	80A

DC ⎓

AMI® or MIDI® Fuses

Compact fuse for main or branch 30 to 200 Amp circuit protection

Features

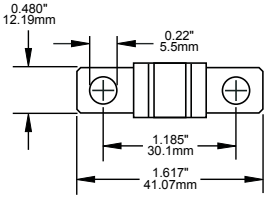
- Clear window offers visible indication of blown condition
- Color-coded for easy amperage identification
- Two per retail package

Specifications

I_{IC}	Interrupting Capacity	5,000A @ 16V DC | 2,000A @ 32V DC
V_{MXO}	Voltage Maximum Operating	32V DC
I_{TR}	Amperage Trip Reference	See table below
Weight per package		0.1lb (0.04kg)

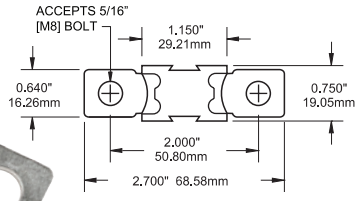
Regulatory When used with Blue Sea Systems' Safety Fuse Block 7720 page 52
Meets SAE J1171 external ignition protection requirements
IP66—protected against powerful water jets

PN	I_{TR} Amps	Weight lb (kg)
5250	30A	0.1 (0.04)
5251	40A	0.1 (0.04)
5252	50A	0.1 (0.04)
5253	60A	0.1 (0.04)
5254	70A	0.1 (0.04)
5255	80A	0.1 (0.04)
5256	100A	0.1 (0.04)
5257	125A	0.1 (0.04)
5258	150A	0.1 (0.04)
5259	175A	0.1 (0.04)
5260	200A	0.1 (0.04)



MEGA® or AMG® Fuses

Use with MEGA® or AMG® Fuse Blocks to create an economical system for 100 to 300 Amp circuit protection



Features

- One per retail package

Specifications

I_{IC}	Interrupting Capacity	2,000A @ 32V DC
V_{MXO}	Voltage Maximum Operating	32V DC
I_{TR}	Amperage Trip Reference	See table below
Trip Time Delay		See www.bluesea.com

Regulatory When used with Blue Sea Systems' Safety Fuse Block 7721 page 52
Meets SAE J1171 external ignition protection requirements
IP66—protected against powerful water jets

PN	I_{TR} Amps	Weight lb (kg)
5101	100A	0.06 (0.03)
5102	125A	0.06 (0.03)
5103	150A	0.06 (0.03)
5104	175A	0.06 (0.03)
5105	200A	0.06 (0.03)
5106	225A	0.06 (0.03)
5107	250A	0.06 (0.03)
5108	300A	0.06 (0.03)

Terminal Fuses

MRBF—Marine Rated Battery Fuse

Space-saving ignition protected fuse for 30 to 300 Amp loads. Must use with Terminal Fuse Block (page 52)

Features

- High Interrupt Rating satisfies ABYC requirements for DC Main circuit protection on large battery banks
- Clear window—visual indication of blown condition
- Color-coded for easy amperage identification
- One per retail package

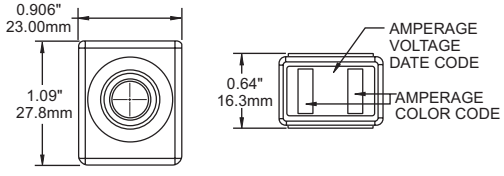
Specifications

I_{IC}	Interrupting Capacity	10,000A @ 14V DC 5,000A @ 32V DC 2,000A @ 58V DC
V_{MXO}	Voltage Maximum Operating	58V DC
I_{TR}	Amperage Trip Reference	See table below
Fuse Hole Opening		M8 (5⁄16")
Trip Time Delay		See www.bluesea.com

Regulatory
Meets SAE J1171 external ignition protection requirements
IP66—protected against powerful water jets

ABYC E-11.12.1.1.1. *Each ungrounded conductor connected to a battery charger, alternator, or other charging source, shall be provided with over current protection within a distance of seven inches (175mm) of the point of connection to the DC electrical system or to the battery.*

See page 52 for MRBF® Terminal Fuse Blocks (Marine Rated Battery Fuse) 2151 and 5018



PN	I_{TR} Amps	Color	Weight lb (kg)
5175	30A	LT Green	0.06 (0.03)
5176	40A	LT Blue	0.06 (0.03)
5177	50A	Red	0.06 (0.03)
5178	60A	Gold	0.06 (0.03)
5180	75A	Brown	0.06 (0.03)
5181	80A	Lime	0.06 (0.03)
5182	90A	Purple	0.06 (0.03)
5183	100A	Yellow	0.06 (0.03)
5184	125A	Green	0.06 (0.03)
5185	150A	Orange	0.06 (0.03)
5186	175A	White	0.06 (0.03)
5187	200A	Blue	0.06 (0.03)
5188	225A	Tan	0.06 (0.03)
5189	250A	Pink	0.06 (0.03)
5190	300A	Gray	0.06 (0.03)

DC

Class T Fuses

Use with Class T Fuse Blocks for circuit protection of devices including inverters. High interrupt capacity for large battery banks including Lithium-Ion and TPPL batteries

Features

- 20,000 Amp Interrupt Rating
- Extremely fast short-circuit response
- Recommended by most inverter manufacturers
- One per retail package

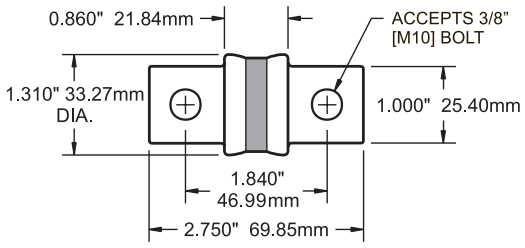
Specifications

Iic	Interrupting Capacity	20,000A @ 160V DC
Vmxo	Voltage Maximum Operating	160 Volts DC
Itr	Amperage Trip Reference	See table below
Trip Time Delay		See www.bluesea.com

Regulatory

UL listed to standard 248-15

See page 53 for the Class T Fuse Block 5502



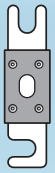
PN	Itr Amps	Weight lb (kg)
5117	225A	0.30 (0.14)
5118	250A	0.30 (0.14)
5119	300A	0.30 (0.14)
5120	350A	0.30 (0.14)
5121	400A	0.30 (0.14)

ANL Fuses vs. Class T Fuses

What is the difference between an ANL and a Class T fuse? These two fuses are the most common high amperage fuses used in marine applications and there are significant differences between the two:

ANL Fuse Advantages:

- Lower cost than Class T fuses
- Available in a wider amperage range than Class T Fuses
- Single mounting hole dimension allows all ANL Fuses to be used with the same fuse block
- Fusible link window gives visual indication of fuse being blown
- Ignition protected—safe for installation aboard gasoline powered boats

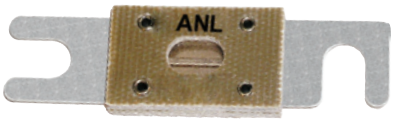


Class T Fuse Advantages:

- The only UL 248-15 listed fuse commonly available in the marine industry
- Very fast response to short circuits protects high-amp electronic equipment such as inverters
- Very slow response to momentary overloads caused by high-amp electronic equipment such as inverters
- 20,000 Amp Interrupting Capacity

ANL Fuses

Use with ANL Fuse Blocks for many applications with 35–750 Amp loads



Features

- 6,000 Amp Interrupt Rating satisfies ABYC requirements for main DC circuit protection on large battery banks
- Silver-plated connector blades for corrosion resistance
- Visible indication of blown fuse condition
- One per retail package

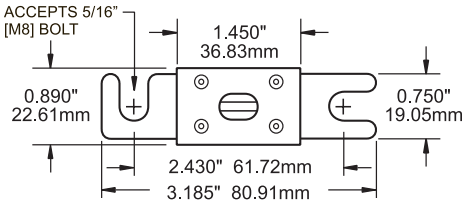
Specifications

Iic	Interrupting Capacity	6,000A @ 32V DC
Vmxo	Voltage Maximum Operating	32 Volts DC
Itr	Amperage Trip Reference	See table below
Trip Time Delay		See www.bluesea.com

Regulatory

Meets ISO 8846 and SAE J1171 external ignition protection requirements (35–500 Amps only)

See page 53 for the ANL Fuse Blocks 5503, 5004, and 5005



PN	Itr Amps	Weight lb (kg)
5164	35A	0.05 (0.02)
5165	40A	0.05 (0.02)
5122	50A	0.05 (0.02)
5123	60A	0.05 (0.02)
5124	80A	0.05 (0.02)
5125	100A	0.05 (0.02)
5126	130A	0.05 (0.02)
5127	150A	0.06 (0.03)
5128	175A	0.06 (0.03)
5129	200A	0.06 (0.03)
5130	225A	0.06 (0.03)
5131	250A	0.07 (0.04)
5132	275A	0.07 (0.04)
5133	300A	0.07 (0.04)
5134	325A	0.07 (0.04)
5135	350A	0.07 (0.04)
5136	400A	0.08 (0.04)
5137	500A	0.08 (0.04)
5161	600A	0.08 (0.04)
5162	675A	0.08 (0.04)
5163	750A	0.08 (0.04)

DC

AGC® or MDL® In-Line Fuse Holders

5060

Crimpable In-Line Fuse Holder

5060

For use with AGC® or MDL® glass fuses

- Accepts 12-16 AWG wire
- 30A Maximum fuse amperage
- Fuse sold separately (page 47)

Weight: 0.1lb (0.04kg)

5061

Waterproof In-Line Fuse Holders

5061

For use with AGC® or MDL® glass fuses

- Accepts 12-16 AWG wire
- 30A Maximum fuse amperage
- Fuse sold separately (page 47)

Weight: 0.1 lb (0.04 kg)

5062

5062

For use with AGC® or MDL® glass fuses

- Supplied with 12 AWG pigtails
- 20A Maximum fuse amperage
- Fuse sold separately (page 47)

Weight: 0.1 lb (0.04 kg)

5063

Heavy Duty In-Line Fuse Holder

5063

For use with AGC® or MDL® glass fuses

- Supplied with tinned copper 12 AWG pigtails
- 30A Maximum fuse amperage
- Fuse sold separately (page 47)

Weight: 0.1 lb (0.04 kg)

5021

5022

Water Resistant In-Line Fuse Holder

5021

For use with AGC® or MDL® glass fuses

- Rated IP66 on front—protected against powerful water jets
- Easy to open
- 20A Maximum fuse amperage
- 32A Maximum operating voltage
- 0.50" (12.70 mm) mounting hole
- Fuse sold separately (page 47)

Weight: 0.1 lb (0.04 kg)

5022

Replacement cap for 5021

ATO® or ATC® In-Line Fuse Holders

5064

In-Line Fuse Holder

5064

For use with ATO® or ATC® fuses

- Supplied with 12 AWG pigtails
- 30A Maximum fuse amperage
- Fuse sold separately (page 47)

Weight: 0.1 lb (0.04 kg)

5065

Waterproof In-Line Fuse Holders

5065

For use with ATO®or ATC® fuses

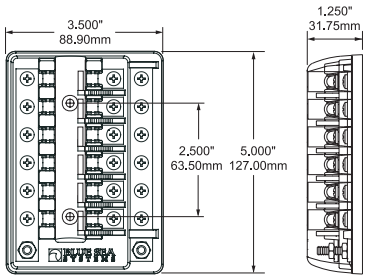
- Supplied with 12 AWG pigtails
- 30A Maximum fuse amperage
- Fuse sold separately (page 47)

Weight: 0.2 lb (0.09 kg)

ST Glass Fuse Blocks

Screw Terminal

Innovative design allows for labeling, spare fuse storage and easy fuse removal



5015

Features

- Can be used for 24-hour circuits
- Clear insulating cover with label recesses accepts Large Format Labels (page 115)
- Cover provides storage for spare fuses
- Cover satisfies ABYC/USCG insulation requirements
- Tin-plated phosphor bronze fuse clips are encapsulated and cannot be sprung
- Removable Positive Bus for consolidation of in-line fuses
- Integrated fuse ejector lever
- Fuses sold separately (page 47)

Specifications

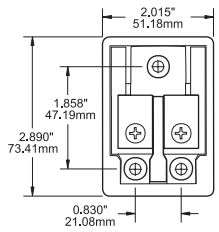
V_{mxo}	Voltage Maximum Operating	32V DC
I_{mxo}	Amperage Maximum Operating	30A (per circuit)
I_{mxo}	Amperage Maximum Operating	100A (per block)
Fuse Type		AGC® or MDL® Fuses
Screw Terminal		#8-32 with Captive Star Lock washer
Mounting		#8 Screw (M4)

PN	Circuits	Tin-plated copper negative bus	Weight lb (kg)
5015	6 with negative bus	#10-32 stud	0.55 (0.25)
5018	6	-	0.48 (0.22)

MAXI™ Fuse Block

Screw termination accepts a variety of wire sizes from 18 to 4 AWG

5006



Features

- Snap-on terminal cover insulates all conductive parts, satisfying ABYC/USCG requirements
- Accepts wire sizes 18–4 AWG from sides or bottom
- Terminal screws compress fuse blades within blocks for low resistance connections
- Fuses sold separately (page 47)

Specifications

V_{mxo}	Voltage Maximum Operating	32V DC
I_{mxo}	Amperage Maximum Operating	80A
Fuse Type		MAXI™ Fuses
MAXI™ Fuses available		30–80 Amps
Weight per package		0.25 lb (0.11 kg)
Mounting		#10 Screws

DC ⎓

ST Blade Fuse Blocks Screw Terminal

ATO® or ATC® Fuse

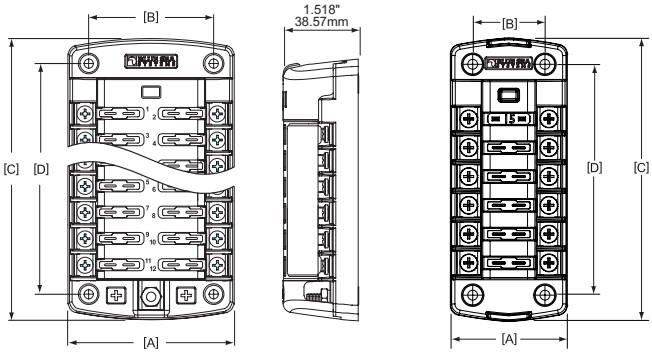
Compact ATO®/ATC® fuse block consolidates branch circuits and eliminates the tangle of in-line fuses for electronics and other appliances

Features

- Can be used for 24-hour circuits
- Clear insulating cover with label recesses accepts Small Format Labels (page 115)
- Cover satisfies ABYC/USCG insulation requirements
- Cover provides storage for two spare fuses*
- Accepts ring terminals
- Easy to open, push button latch provides easy access to fuses
- Tin-plated copper buses and fuse clips
- Positive distribution bus with #10-32 stud*
- Fuse Blocks with covers include 20 write-on circuit labels
- Fuses sold separately (page 47)

Specifications

Vmxo	Voltage Maximum Operating	32V DC
Imxo	Amperage Maximum Operating	30A (per circuit)
Imxo	Amperage Maximum Operating	100A (per block)*
Fuse Type		ATO® or ATC® Fuses
Screw Terminal		#8-32 Screws with Captive Star Lock washer
Mounting		#8 Screw (M4)



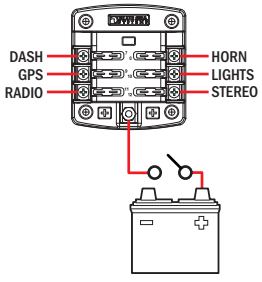
5035, 5037

	PN	Circuits	Cover	Negative Bus	[A] Width in (mm)	[B] Mounting Centers in (mm)	[C] Height in (mm)	[D] Mounting Centers in (mm)	Weight lb (kg)
	5028	6	Yes	-	3.32 (84.20)	2.50 (63.50)	3.65 (92.76)	2.64 (67.03)	0.42 (0.19)
	5033	6	-	-	3.32 (84.20)	2.50 (63.50)	3.65 (92.76)	2.64 (67.03)	0.42 (0.19)
	5025	6	Yes	#10-32 stud	3.32 (84.20)	2.50 (63.50)	4.89 (124.31)	3.88 (95.58)	0.55 (0.25)
	5030	6	-	#10-32 stud	3.32 (84.20)	2.50 (63.50)	4.89 (124.31)	3.88 (95.58)	0.47 (0.21)
	5029	12	Yes	-	3.32 (84.20)	2.50 (63.50)	5.23 (132.84)	4.22 (107.11)	0.68 (0.31)
	5034	12	-	-	3.32 (84.20)	2.50 (63.50)	5.23 (132.84)	4.22 (107.11)	0.59 (0.27)
	5026	12	Yes	#10-32 stud	3.32 (84.20)	2.50 (63.50)	6.47 (164.39)	5.46 (138.66)	0.75 (0.34)
	5031	12	-	#10-32 stud	3.32 (84.20)	2.50 (63.50)	6.47 (164.39)	5.46 (138.66)	0.65 (0.29)
NEW	5035	6	Yes	-	2.1 (54)	1.32 (34)	5.23 (132.84)	4.22 (107.11)	0.40 (0.18)
NEW	5037	6	-	-	2.1 (54)	1.32 (34)	5.23 (132.84)	4.22 (107.11)	0.35 (0.16)

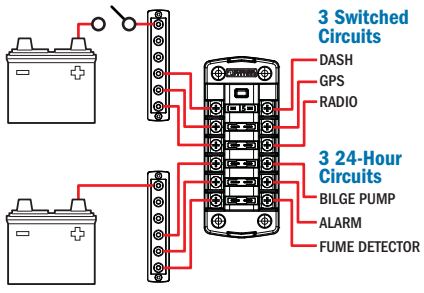
ST Blade Fuse Application Diagrams

Common Sourced Circuit Fuse Block
circuits must all be switched or all be 24-hour circuits.

6 Switched Circuits



Independent Sourced Circuit Fuse Block
allows switched and 24-hour circuits combined on one ST-Blade Fuse Block



* Does not apply to PNs 5035 or 5037

NEW Independent Sourced Circuit Fuse Blocks


5035


5037

Common Sourced Circuit Fuse Blocks


5028


5033


5025


5030


5029


5034


5026


5031

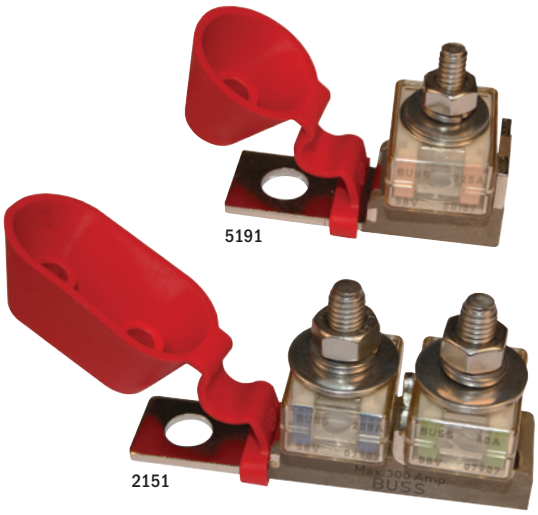
DC

Terminal Fuse Blocks

MRBF® TERMINAL Fuse

MRBF—Marine Rated Battery Fuse

Easily and economically satisfies ABYC 7" circuit protection rule by mounting on a 3/8" battery post, battery switch or bus bar



5191

2151

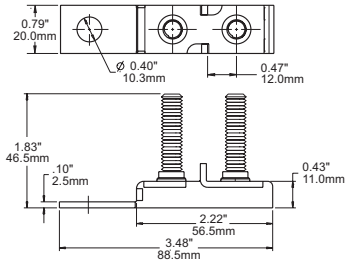
Features

- Isolated stud design uses standard M8 hardware and permits stacking of terminals
- Compact, high-amp fuse—appropriate for DC Main, inverter, windlass, and bow thruster circuit protection
- Provides high current protection in tight space constraints
- Weatherproof—suitable for small open-cockpit boats and other harsh environments
- Insulating cap prevents accidental shorts
- Accepts 5/16" ring terminals
- Fuses sold separately (page 48)

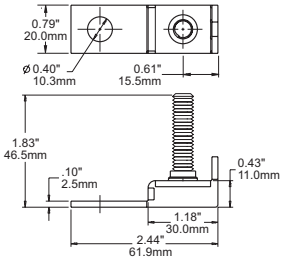
Specifications

Vmxo	Voltage Maximum Operating	58V DC
Imxo	Amperage Maximum Operating	300A
Maximum Torque		75 in-lbs
Terminal Stud Size		M8 (5/16")
Fuse Type		Terminal MRBF Fuses (page 44)
Terminal Fuses Available		30–300 Amps

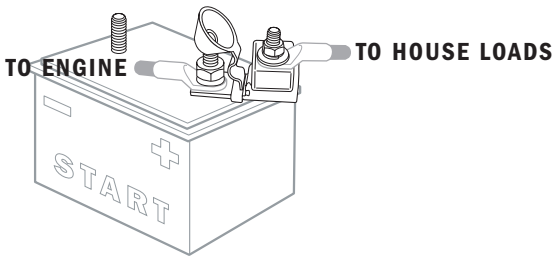
PN	Terminal Stud	Mounting Hole	Weight
2151	2	3/8"	0.29 lb (0.13 kg)
5191	1	3/8"	0.16 lb (0.07 kg)



2151



5191



Safety Fuse Blocks

AMI® or MIDI® Fuse

MEGA® or AMG® Fuse

For use with AMI® or MIDI® fuses

7720

For use with MEGA® or AMG® fuses

7721

Features

- Ignition protected for installation on gasoline
- Sealed cover protects fuses from the harsh marine environment
- Cover satisfies ABYC/USCG insulation requirements and accommodates a spare fuse
- Cover breakouts allow wire access in three directions
- Accepts Blue Sea Systems square format standard or custom label
- Fuses sold separately (page 48)

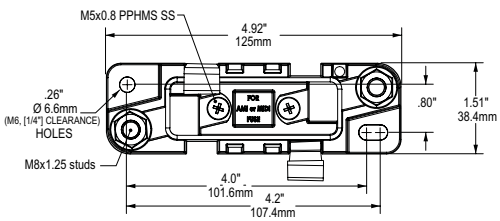
Specifications

Vmxo	Voltage Maximum Operating	32V DC
Wire Size to Meet Rating		2/0 AWG (70 mm²)
Mounting holes		Accept 1/4 " (M6) Screws

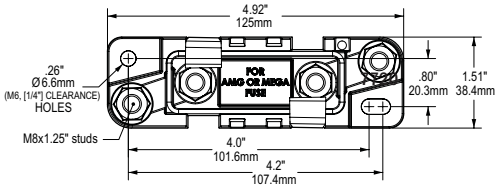
Regulatory

CE marked
Meets ISO 8846 and SAE J1171 external ignition protection requirements
IP66 – protected against powerful water jets

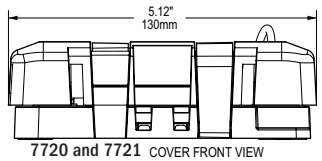
PN	Maximum Amperage Rating	Recommended Screw Torque	Recommended Stud Torque	Weight
7720	200A	27 in-lb (3.0 N-m)	120 in-lb (13.56 N-m)	0.4 lb (0.18 kg)
7721	300A	-	120 in-lb (13.56 N-m)	0.4 lb (0.18 kg)



7720 TOP VIEW BASE WITHOUT COVER



7721 TOP VIEW BASE WITHOUT COVER



7720 and 7721 COVER FRONT VIEW

Class T Fuse Block

Allows use of Class T fuses for high speed circuit protection of electronic equipment and inverters

5502

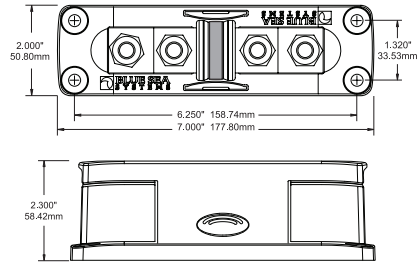
Features

- Accepts 3⁄8" (M10) ring terminals
- Insulating cover satisfies ABYC/USCG insulation requirements
- Cover breakouts allow wire access in any direction
- Insert molded studs ensure secure fuse mounting
- Stainless steel studs provide resistance to corrosion and high torque for excellent electrical contact
- UL 94-V0 base resists high heat
- Fuse sold separately (page 49)

Specifications

Vmxo	Voltage Maximum Operating	160V DC
Imxo	Amperage Maximum Operating	400A
Maximum Torque		190 in-lb (21.47 N-m)
Terminal Stud Size		3/8"-16 (M10)
Mounting holes		Accept 1/4 " (M6) Screws
Cable Size		Up to 4/0 AWG (120 mm²)
Fuse Mounting Blocks		Tin-Plated Copper
Class T Fuses available		225–400 Amps
Weight		1.55 lb (0.70 kg)

NOTE:
5502 replaces 5002
Current design reduces cost, maintains performance and improves insulating cover

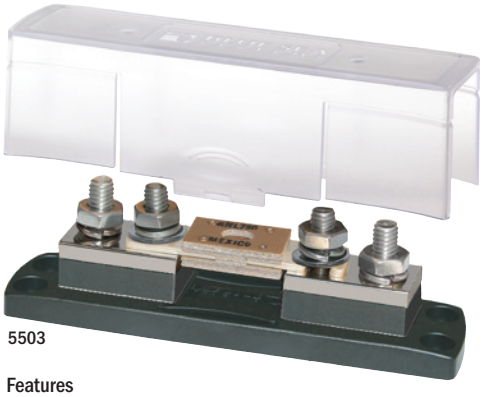


5502

ANL Fuse Blocks

Accepts a wide range of ANL fuse amperages for a versatile fusing system

5004 (cover not included)
5005



5503

NOTE:
5503 replaces 5003
Current design reduces cost, maintains performance and improves insulating cover

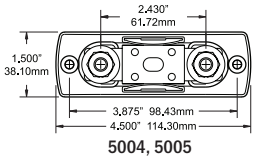
Features

- Accepts 5/16" (M8) ring terminals
- Insulating cover satisfies ABYC/USCG insulation requirements
- Cover breakouts allow wire access in any direction
- Insert molded studs ensure secure fuse mounting
- Stainless steel studs provide resistance to corrosion and high torque for excellent electrical contact
- UL 94-V0 base resists high heat
- Swing out design allows replacement of the fuse without removing fasteners
- Fuse sold separately (page 49)

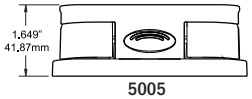
Specifications

		5503	5004/5005
Vmxo	Voltage Maximum Operating	32V DC	32V DC
Terminal Stud Size		5/16"-18 (M8)	5/16"-18 (M8)
Cable Size		Up to 4/0 AWG	Up to 4/0 AWG
Fuse Mounting Blocks		Tin-Plated Copper	Tin-Plated Copper
ANL Fuses Available		35–750 Amps	35–300 Amps

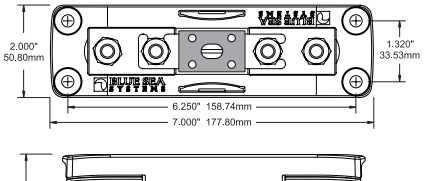
PN	Insulating Cover	Imxo Amperage Maximum Operating	Maximum Torque	Mounting Holes	Cable Size AWG	Weight lb (kg)
5004	-	300A	110 in-lb (12.40 N-m)	Accept #10 (M5) Screw	Up to 2/0	0.18 (0.08)
5005	Yes	300A	110 in-lb (12.40 N-m)	Accept #10 (M5) Screw	Up to 2/0	0.35 (0.16)
5503	Yes	750A	107 in-lb (12.09 N-m)	Accept 1/4" (M6) Screw	Up to 4/0	1.45 (0.66)

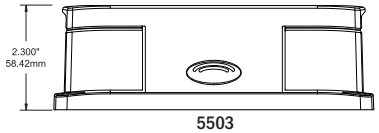


5004, 5005



5005





5503

SafetyHub Fuse Blocks

The SafetyHub product family is made up of ignition-protected fuse blocks capable of consolidating and protecting multiple 1A to 200A circuits. They are ignition protected for use on gasoline powered boats, and their reduced wiring connections make them easy to install. The SafetyHubs can be used for main or branch circuit protection.

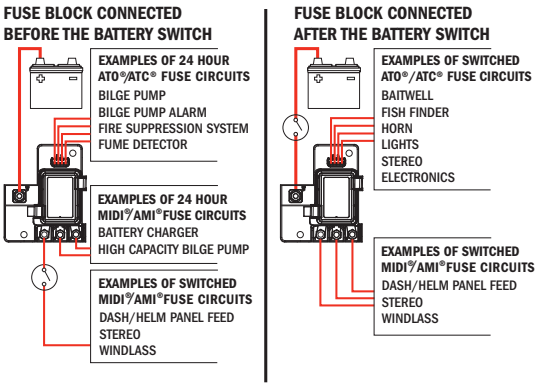
In addition, the SafetyHub 250 incorporates a battery switch with remote and manual control. This feature provides a local switch for emergency shutdown or servicing and allows convenient battery control from a remote location.

The SafetyHub 100 and 250 feature integrated connecting plugs. These plugs eliminate the tangle of wires to the low-amperage and remote control circuits and ensure that the connections are secure. The SafetyHub 150 features an integrated negative bus. By utilizing ATO® or ATC® and AMI® or MIDI® fuses, the SafetyHubs are able to consolidate multiple fuses into a compact space.

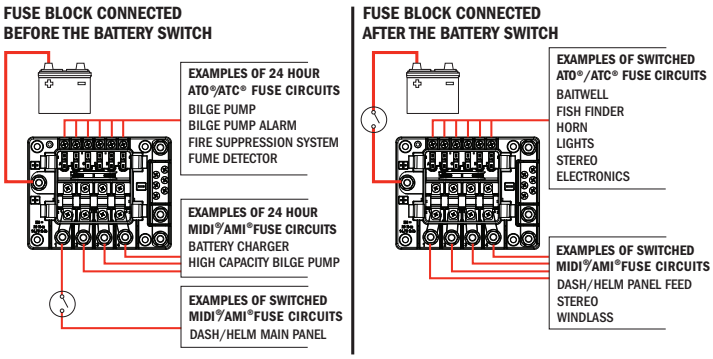
SafetyHubs are highly suited for vessels ranging from ski boats to offshore fishing boats. Whether they are used by boat builders to decrease cost and weight in new boats, or by installers to upgrade an existing electrical system, they provide a safe and reliable approach to circuit protection.

SafetyHub Application Diagrams

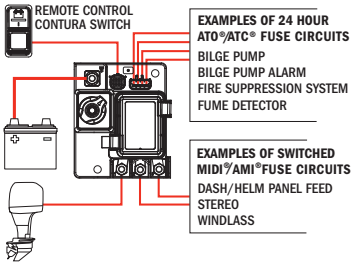
SafetyHub 100 Fuse Block



SafetyHub 150 Fuse Block



SafetyHub 250 Fuse Block with Remote Battery Switch

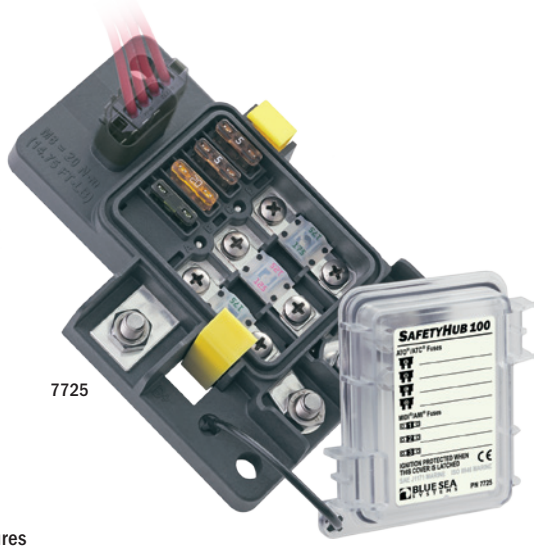


DC

SafetyHub 100 Fuse Block

ATO® or ATC® Fuse | AMI® or MIDI® Fuse

The SafetyHub 100 combines an ignition protected fuse block and integrated connecting plugs. It is safe for use on gasoline powered boats, reduces wiring connections, and consolidates up to seven fused circuits.



7725

Features

- Three 30A–200A AMI® or MIDI® Fuses for high-amp circuits including panel feeds, windlasses, and stereo amplifiers
- Four 1A–20A ATO®or ATC® Fuses for circuits including bilge pumps, alarms and clock memory
- Sealed cover protects fuses from the harsh marine environment: IP66 rating–protected against powerful water jets
- Integrated connector plug eliminates loose wires and provides a secure, waterproof connection
- Ignition protected fuse block meets Coast Guard and ABYC requirements for installation on gasoline or diesel powered boats
- Fuses sold separately (pages 47 and 48)

Specifications

I_{MXO}	Amperage Maximum Operating (combined)	280A
V_{MXO}	Nominal Operating Voltage	12V DC
Minimum Cable Size to Meet Ratings		4/0 AWG (120 mm²)
Recommended Ring Terminal		M8 (5/16")
Stud Size		M8 x 1.25
Stud Torque		15 ft-lb (20.3 N-m)

AMI® or MIDI® Fuse Block

I_{MXO}	Amperage Maximum Operating (per block)	240A†
I_{MXO}	Amperage Maximum Operating (per circuit)	170A†
Fuse Amperages Available		30A–200A
Minimum Cable Size to Meet Ratings		2/0 AWG (70 mm²)
Screw Size		M5 x .8 x 10
Screw Torque		27 in-lb (3.0 N-m)

ATO® or ATC® Fuse Block

I_{MXO}	Amperage Maximum Operating (per block)	50A†
I_{MXO}	Amperage Maximum Operating (per circuit)	20A†
Fuse Amperages Available		1A–20A

Regulatory

CE marked, Meets ISO 8846 ignition protection, and SAE J1171 external ignition protection requirements
IP66–protected against powerful water jets

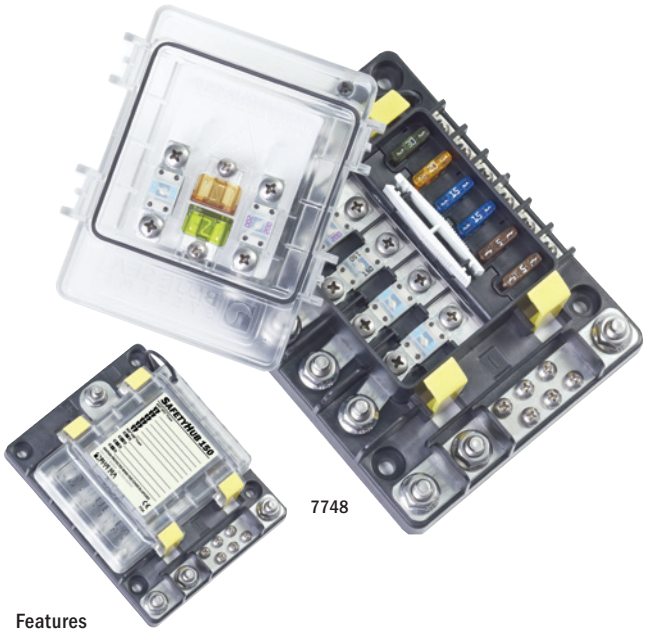
† Ratings are dependent on input cable sized for appropriate amperages.

PN	Description	Included in Retail Package	Weight lb (kg)
7725	SafetyHub 100 Fuse Block	Yes	1.1 (0.5)
7731B	Connector Plug with 12" Harness FCi 2.8mm	Yes	0.13 (0.06)

SafetyHub 150 Fuse Block

ATO® or ATC® Fuse | AMI® or MIDI® Fuse

The SafetyHub 150 is an ignition protected fuse block with screw termination. It is safe for use on gasoline powered boats, reduces wiring connections, and consolidates up to ten fused circuits. It can be used for primary or secondary DC power distribution.



7748

Features

- Four 30A–200A AMI® or MIDI® Fuses for high-amp circuits including panel feeds, windlasses, and stereo amplifiers
- Six 1A–30A ATO® or ATC® Fuses for circuits including bilge pumps, electronics and lights
- Sealed cover protects fuses from the harsh marine environment: IP66 rating—protected against powerful water jets
- Negative bus provides common location for negative collection
- Circuit identification label with write-on capability
- Fuse puller easily removes ATO® or ATC® fuses
- Cover provides storage space for two spare ATO® or ATC® and two spare AMI® or MIDI® fuses and mounting screws
- Fuses sold separately (pages 47 and 48)

Specifications

I_{mxo}	Amperage Maximum Operating (combined)	280A
V_{mxo}	Nominal Operating Voltage	12V DC, 24V DC, 32V DC
Minimum Cable Size to Meet Ratings		4/0 AWG (120 mm²)
Recommended Ring Terminal		M8 (5/16")
Stud Size		M8 x 1.25
Stud Torque		15 ft-lb (20.3 N-m)
Weight		1.90 lb (0.86 kg)

AMI® or MIDI® Fuse Block

I_{mxo}	Amperage Maximum Operating (per block)	280A†
I_{mxo}	Amperage Maximum Operating (per circuit)	170A†
Fuse Amperages Available		30A–200A
Minimum Cable Size to Meet Ratings		2/0 AWG (70 mm²)
Screw Size		M5 x .8 x 10
Screw Torque		27 in-lb (3.0 N-m)

ATO® or ATC® Fuse Block

I_{mxo}	Amperage Maximum Operating (per block)	50A†
I_{mxo}	Amperage Maximum Operating (per circuit)	25A†
Fuse Amperages Available		1A-30A
Screw Size		#8-32 x 6.5 mm
Screw Torque		18 in-lb (2.0 N-m)

Regulatory

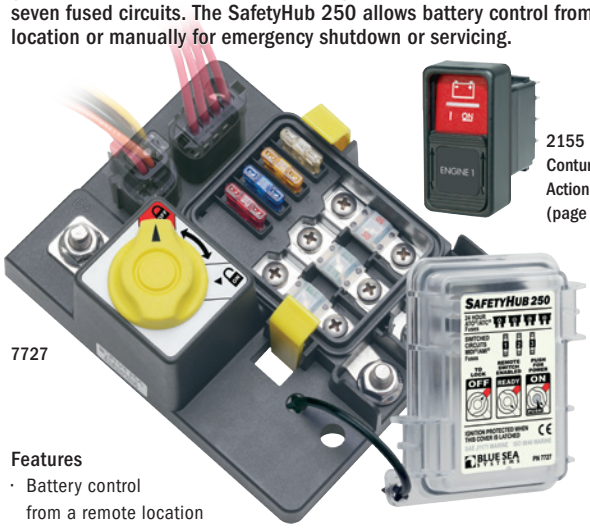
CE marked, Meets ISO 8846 ignition protection, and SAE J1171 external ignition protection requirements
IP66—protected against powerful water jets

† Ratings are dependent on input cable sized for appropriate amperages.

SafetyHub 250 Fuse Block with Remote Battery Switch

ATO® or ATC® Fuse | AMI® or MIDI® Fuse

The SafetyHub 250 combines an ignition protected fuse block with a remote battery switch and integrated connecting plugs. It is safe for use on gasoline powered boats, reduces wiring connections, and consolidates up to seven fused circuits. The SafetyHub 250 allows battery control from a remote location or manually for emergency shutdown or servicing.



7727

2155 Remote Control Contura Switch
Action: SPDT, ON-ON
(page 27)

Features

- Battery control from a remote location increases safety and convenience
- Manual control knob switches high-amp circuits for emergency battery disconnect or servicing
- Up to three switched 30A–200A AMI® or MIDI® Fuses for high-amp circuits including panel feeds, windlasses, and stereo amplifiers
- Four 24-hour 1A–20A ATO® or ATC® Fuses for circuits including bilge pumps, alarms, and clock memory
- Integrated connector plugs eliminate loose wires and provide a secure connection
- Must be mounted in a dry location
- Fuses sold separately (pages 47 and 48)

Specifications

I_{mxo}	Amperage Maximum Operating (combined)	280A
V_{mxo}	Nominal Operating Voltage	12V DC
Minimum Cable Size to Meet Ratings		4/0 AWG (120 mm²)
Recommended Ring Terminal		M8 (5/16")
Stud Size		M8 x 1.25
Stud Torque		15 ft-lb (20.3 N-m)

Internal Battery Switch

I_c	Continuous Amperage Rating	240A
I_{10}	Cranking Rating: 10 sec.	1,000A

AMI® or MIDI® Fuse Block

I_{mxo}	Amperage Maximum Operating (per block)	240A†
I_{mxo}	Amperage Maximum Operating (per circuit)	170A†
Fuse Amperages Available		30A–200A
Minimum Cable Size to Meet Ratings		2/0 AWG (70 mm²)
Screw Size		M5 x .8 x10
Screw Torque		27 in-lb (3.0 N-m)

ATO® or ATC® Fuse Block

I_{mxo}	Amperage Maximum Operating (per block)	50A†
I_{mxo}	Amperage Maximum Operating (per circuit)	20A†
Fuse Amperages Available		1A–20A

Regulatory

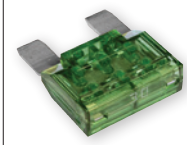
CE marked, Meets ISO 8846 ignition protection, and SAE J1171 external ignition protection requirements

† Ratings are dependent on input cable sized for appropriate amperages.

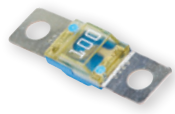
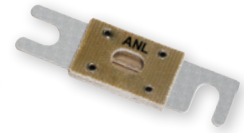
PN	Description	Included in Retail Package	Weight lb (kg)
7727	SafetyHub 250 Fuse Block with Remote Battery Switch	Yes	2.1 (1.0)
2155	Remote Control Switch	Yes	0.25 (0.11)
7731B	Connector Plug with 12" Harness FCi 2.8mm	Yes	0.13 (0.06)
7730B	Connector Plug with 12" Harness Molex MX -150	Yes	0.10 (0.05)
7732B	Engine Link Bus	Yes	0.05 (0.02)

Fuse and Fuse Holder Comparison

DC Fuses*

Product	GMA®	AGA®	AGC®	MDL®	ATM®	ATO® or ATC®	MAXI
	AC DC		AC DC	AC DC			
							
Page no.	47	47	47	47	47	47	47
Iic Interrupting Capacity DC	1,000A DC	1,000A DC	1,000A DC	1,000A DC	1,000A DC	1,000A DC	1,000A DC
Vmxo Maximum Voltage DC	32V DC	32V DC	32V DC	32V DC	32V DC	32V DC	32V DC
Vmxo Maximum Voltage AC	5–10A: 125V AC 1–3A: 250V AC	-	.25–10A: 250V AC	3–7.5A: 250V AC	-	-	-
Amperage Range	1–10A	20A	.25–30A	3–30A	5–30A	1-30A	30-80A
Quantity Per Package	3	5	5	2	2	2	1
Regulatory	-	-	-	-	-	-	-

* Certain amperages of GMA®, AGC®, and MDL® fuses are AC/DC rated see product page for specific ratings

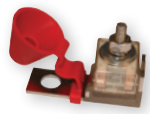
Product	Terminal (MRBF)	AMI® or MIDI®	MEGA® or AMG®	CLASS T	ANL®
					
Page no.	48	48	48	49	49
Iic Interrupting Capacity	10,000A @ 14V DC 5,000A @ 32V DC 2,000A @ 58V DC	5,000A @ 16V DC 2,000A @ 32V DC	2,000A @ 32V DC	20,000A @160V DC	6,000A @32V DC
Vmxo Maximum Voltage	58V DC	32V DC	32V DC	160V DC	32V DC
Amperage Range	30–300A	30–200A	100–300A	225–400A	35–750A
Quantity Per Package	1	2	1	1	1
Regulatory	SAE J1171 IP66 – protected against powerful water jets	ISO 8846 and SAE J1171 when used with Blue Sea Systems' SafetyHubs and Safety Fuse Blocks	ISO 8846 and SAE J1171 when used with Blue Sea Systems' SafetyHubs and Safety Fuse Blocks	-	35–500A Meets ISO 8846 and SAE J1171

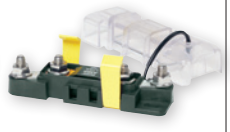
DC In-Line Fuse Holders

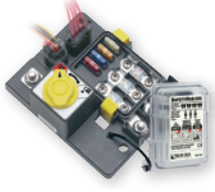
Product	Crimpable In-Line	Waterproof In-Line	Waterproof In-Line	Heavy Duty In-Line	Water Resistant In-Line	ATO® ATC® In-Line	Waterproof ATO® ATC® In-Line
							
Page no.	50	50	50	50	50	50	50
For use with	AGC® or MDL®	AGC® or MDL®	AGC® or MDL®	AGC® or MDL®	AGC® or MDL®	ATO® or ATC®	ATO® or ATC®
Wire Size	Accepts 12–16 AWG	Accepts 12–18 AWG	Accepts 12–16 AWG	Supplied with 12 AWG Pigtails	-	Supplied with 12 AWG Pigtails	Supplied with 12 AWG Pigtails
Imxo Maximum Amperage	30A per circuit	30A per circuit	20A per circuit	30A per circuit	20A per circuit	30A per circuit	30A per circuit
Regulatory	-	-	-	-	IP66 on front – protected against powerful water jets	-	-

Fuse Block Comparison

DC⎓ Fuse Blocks

Product	ST-Glass	ST-Blade	MAXI	Terminal (MRBF)	Terminal (MRBF)
					
Page no.	50	51	50	52	52
For use with	AGC® or MDL®	ATO® or ATC®	MAXI	Terminal (MRBF)	Terminal (MRBF)
V_{mxo} Maximum Voltage	32V DC	32V DC	32V DC	58V DC	58V DC
I_{mxo} Maximum Amperage per circuit	30A	30A	80A	300A	300A
I_{mxo} Maximum Amperage per block	100A	100A	80A	300A	300A
Amperage Range	.25–30A	1–30A	30–80A	30–300A	30–300A
Regulatory	-	-	-	Meets SAE J1171 when used with Blue Sea Systems' Terminal (MRBF) Fuses Meets IP66 when used with Blue Sea Systems' Terminal (MRBF) Fuses	Meets SAE J1171 when used with Blue Sea Systems' Terminal (MRBF) Fuses Meets IP66 when used with Blue Sea Systems' Terminal (MRBF) Fuses

Product	Safety AMI® or MIDI®	Safety MEGA® or AMG®	Class T	ANL®	ANL®
					
Page no.	52	52	53	53	53
For use with	AMI® or MIDI®	MEGA® or AMG®	Class T	ANL®	ANL®
V_{mxo} Maximum Voltage	32V DC	32V DC	160V DC	32V DC	32V DC
I_{mxo} Maximum Amperage per block	200A	300A	400A	300A	750A
Amperage Range	30–200A	100–300A	225–400A	35–300A	35–750A
Regulatory	ISO 8846 SAE J1171 IP66-protected against powerful water jets	ISO 8846 SAE J1171 IP66-protected against powerful water jets	–	–	-

Product	SafetyHub 100		SafetyHub 150		SafetyHub 250	
						
Page no.	54		55		55	
For use with	AMI® or MIDI® and ATO® or ATC®		AMI® or MIDI® and ATO® or ATC®		AMI® or MIDI® and ATO® or ATC®	
V_{mxo} Nominal Operating Voltage	12V DC		12V DC, 24V DC, 32V DC		12V DC	
I_{mxo} Maximum Total Amperage (combined)	280A		280A		280A	
I_{mxo} Maximum Amperage (per block)	AMI® or MIDI®: 240A	ATO® or ATC®: 50A	AMI® or MIDI®: 280A	ATO® or ATC®: 50A	AMI® or MIDI®: 240A	ATO® or ATC®: 50A
I_{mxo} Maximum Amperage (per circuit)	AMI® or MIDI®: 170A	ATO® or ATC®: 20A	AMI® or MIDI®: 170A	ATO® or ATC®: 25A	AMI® or MIDI®: 170A	ATO® or ATC®: 20A
Available Amperages	AMI® or MIDI®: 30–200A	ATO® or ATC®: 1–20A	AMI® or MIDI®: 30–200A	ATO® or ATC®: 1–30A	AMI® or MIDI®: 30–200A	ATO® or ATC®: 1–20A
Regulatory	ISO 8846, SAE J1171 IP66-protected against powerful water jets		ISO 8846, SAE J1171 IP66-protected against powerful water jets		ISO 8846, SAE J1171	

Connectors and Insulators

Connectors and Insulators

As the nuts and bolts of a marine electrical system, connectors perform important functions on board. By keeping current flowing efficiently, Blue Sea Systems connectors reduce heat and improve efficiency in a boat's electrical system.

BusBars and other connectors, such as PowerPosts, distribute positive wires or collect negative returns. BusBars range in capacity from 100A to 600A, with a variety of terminal stud configurations. The DualBus Plus combines a positive and negative bus on one block, and has a clear, snap-on cover to meet ABYC and USCG insulation requirements. The new MaxiBus 250A Common BusBars incorporate insert molded stainless steel studs and have optional fully enclosed bases and covers that meet ABYC insulation requirements.

Terminal blocks are another type of connector. They allow termination of wires from a multi-conductor cable in one location. Individual wires can then be split off to various loads. Frequently used for wires to lights and senders, they serve to create neater, safer wiring. Available jumpers allow combination of independent circuits.

All these parts are designed with the attention to detail the industry expects from Blue Sea Systems. Insert molded studs, tin-plated copper buses, and stainless steel screws are just three features that make Blue Sea Systems products stand out.

DualBus Plus Common BusBars

NEW MaxiBus 250A Common BusBars

NEW MaxiBus 250A Common BusBar Covers

PowerPost Cable Connector

Terminal Blocks

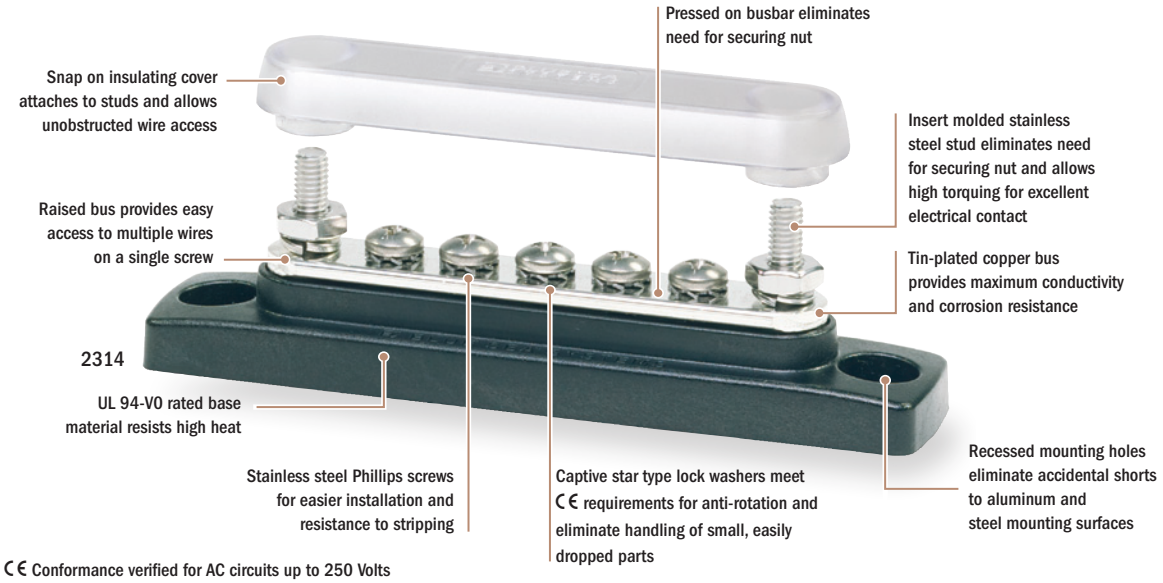
SECTION INDEX

BUSBARS

TERMINAL BLOCKS

CONNECTORS

THE INDUSTRY STANDARD FOR ELECTRICAL BUSBARS



CE Conformance verified for AC circuits up to 250 Volts

AC ~ DC ⎓

MiniBus 100A Common BusBars

Provides convenient busing for limited space applications

Specifications

Ic	Continuous Rating	100A AC/DC*
Vmxo	Voltage Maximum Operating	300V AC/48V DC
Mounting Holes		Accepts #10 (M5) Screws†
Bus Material		Tin-Plated Copper CDA 110/UNS C11000

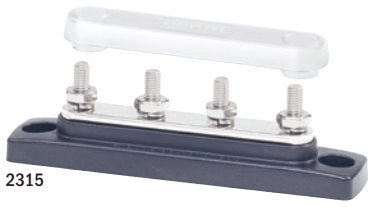
Regulatory

CE certified

2304

2314

2305



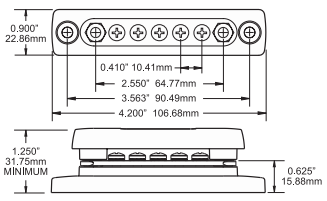
2315

DC ⎓

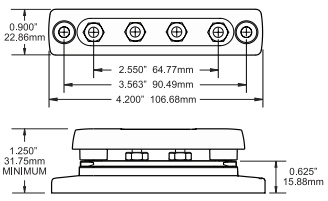
2306*†

2713

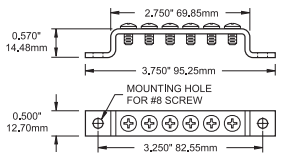
PN	Cover	Terminal Screw	Terminal Stud	Weight lb (kg)
2304	-	5 × #8-32	2 × #10-32	0.15 (0.07)
2314	Yes	5 × #8-32	2 × #10-32	0.17 (0.08)
2305	-	-	4 × #10-32	0.15 (0.07)
2315	Yes	-	4 × #10-32	0.17 (0.08)
2306	-	6 × #8-32	-	0.10 (0.05)
2713	Cover For MiniBus 2304 and 2305			0.05 (0.02)



2304, 2314



2305, 2315



2306

* 2306 is DC Only rated † 2306 mounting holes accept # 8 screws

DualBus 100A Common BusBars

Combines negative and positive buses on one block

Specifications

Ic	Continuous Rating	100A AC/DC
Vmxo	Voltage Maximum Operating	300V AC/48V DC
Mounting Holes		Accept #10 (M5) Screws
Bus Material		Tin-Plated Copper CDA 110/UNS C11000

Regulatory

CE Certified

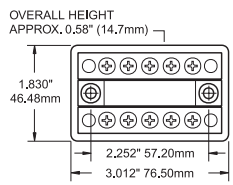
2709

2701

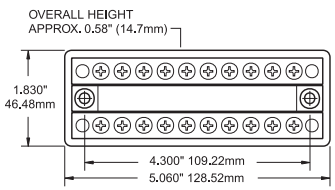
2710

2702

PN	Cover	Terminal Screw	Weight lb (kg)
2701	-	5 per bus × #8-32	0.20 (0.09)
2702	-	10 per bus × #8-32	0.30 (0.14)
2709	Cover for BusBar 2701		0.05 (0.02)
2710	Cover for BusBar 2702		0.05 (0.02)



2701



2702

DualBus Plus 150A Common BusBars

Secure, clear polycarbonate cover snaps on easily to meet USCG and ABYC insulation requirements

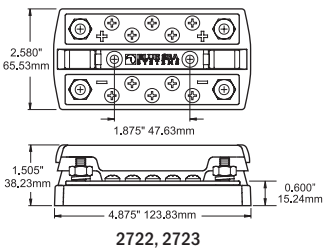
2722

- Combines negative and positive buses on one block
- Cover release button

Specifications

Ic	Continuous Rating	130A AC/150A DC
Vmxo	Voltage Maximum Operating	300V AC/48V DC
Mounting Holes		Accept #10 (M5) Screws
Bus Material		Tin-Plated Copper CDA 110/UNS C11000

PN	Terminal Screw	Terminal Stud	Weight lb (kg)
2722	5 per bus × #10-32	2 per bus × 1/4"-20 Stud	0.66 (0.30)
2723	5 per bus × #10-32	2 per bus × 5/16"-18 Stud	0.61 (0.28)



2722, 2723

AC ~ DC ⎓

150A Common BusBars

Insert-molded stainless steel stud eliminates need for securing nut and allows high torquing for excellent electrical contact

- The industry standard bus bar for positive distribution
- The industry standard bus bar for the collection of negative or AC ground circuits

Specifications

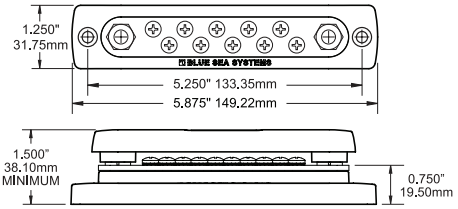
Ic	Continuous Rating	130A AC/150A DC
Vmxo	Voltage Maximum Operating	300V AC/48V DC
Mounting Holes		Accepts #10 (M5) Screws
Bus Material		Tin-Plated Copper CDA 110/UNS C11000

Regulatory

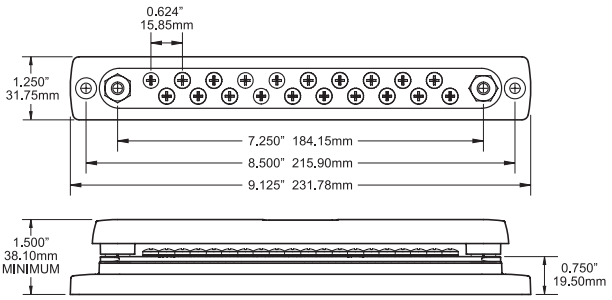
CE certified

PN	Cover	Terminal Screw	Terminal Stud	Weight lb (kg)
2301	-	10 × #8-32	2 × 1/4"-20	0.34 (0.15)
2300	Yes	10 × #8-32	2 × 1/4"-20	0.37 (0.16)
2302	-	20 × #8-32	2 × 1/4"-20	0.53 (0.24)
2312	Yes	20 × #8-32	2 × 1/4"-20	0.58 (0.26)
2303	-	-	4 × 1/4"-20	0.35 (0.16)
2307	Yes	-	4 × 1/4"-20	0.38 (0.17)
2715	Cover For BusBar 2301 and 2303			0.07 (0.03)
2716	Cover For BusBar 2302			0.13 (0.06)

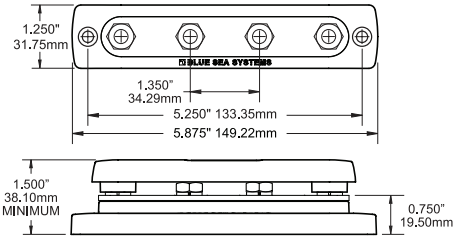
Note:
2715 replaces 2706
2716 replaces 2707



2300, 2301



2302, 2312



2303, 2307

2301

2300

2302

2312

2303

2307

2715

2716

AC ~ DC ⎓

MaxiBus 250A Common BusBars NEW

Now with insert molded stainless steel studs and optional fully enclosed insulating base and cover

- Insulating cover with breakouts for superior electrical insulation
- Insulating cover meets ABYC insulation requirements

Specifications

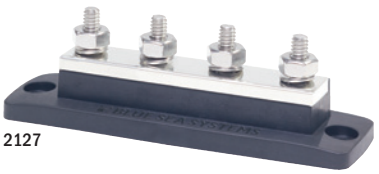
Ic	Continuous Rating	250A AC/250A DC
Vmxo	Voltage Maximum Operating	300V AC/48V DC
Mounting Holes		Accepts #10 (M5) Screws
Bus Material		Tin-Plated Copper CDA 110/UNS C11000

Regulatory

CE certified

2128

2105



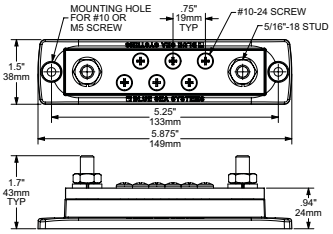
2127

2126

2719

2718

	PN	Terminal Studs	Terminal Screws	Weight lb (kg)
UPDATED	2105	2 × 5/16" -18	12 × #10-24	0.80 (0.36)
NEW	2126	6 × 5/16" -18	-	1.00 (0.45)
NEW	2718	Cover for 2105 and 2126		0.40 (0.18)
NEW	2127	4 × 5/16" -18	-	0.75 (0.34)
NEW	2128	2 × 5/16" -18	6 × #10-24	0.65 (0.29)
NEW	2719	Cover for 2127 and 2128		0.50 (0.22)



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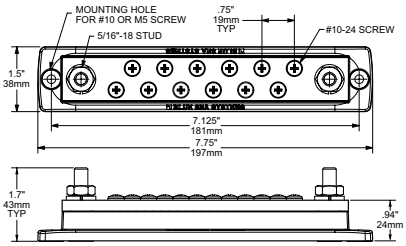

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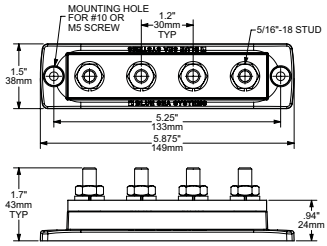

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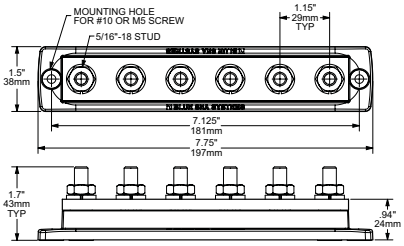

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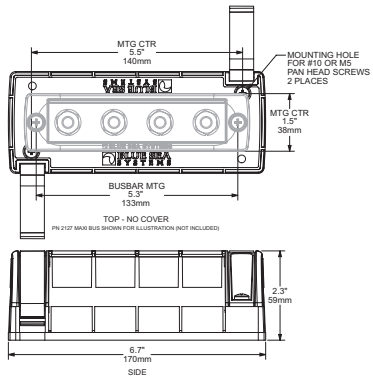

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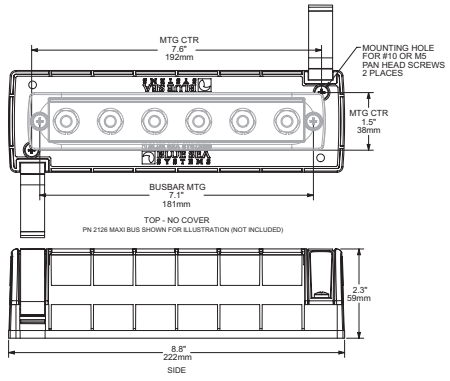
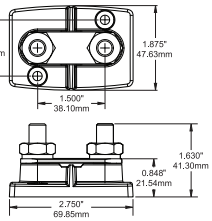


2718

DC⎓ PowerBar Common BusBars

Provides compact high-amp busing with 3/8" terminal studs

2019



Specifications

Ic	Continuous Rating	Amperage rating is determined by wire amperage capacity connected to the PowerBar up to 600 Amps
Vmxo	Voltage Maximum Operating	48V DC
Mounting Holes		Accepts #10 (M5) Screws
Bus Material		Tin-Plated Copper CDA 110/UNS C11000

Regulatory

CE certified

PN	Terminal Studs	Insulators	Weight lb (kg)
2019	2 × 3/8" -16	Included	0.36 (0.16)
2020	2 × 3/8" -16	-	0.36 (0.16)

AC~ DC⎓ PowerBar 600A Common BusBars

Highest amp rated busbar with 3/8" terminal studs

2104

2107

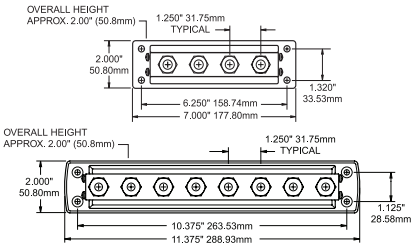
2708

Specifications

Ic	Continuous Rating	545A AC/600A DC
Vmxo	Voltage Maximum Operating	300V AC/48V DC
Mounting Holes		2104—Accepts 1/4" Screws 2107—Accepts #10 (M5) Screws
Bus Material		Tin-Plated Copper CDA 110/UNS C11000

Regulatory

CE certified



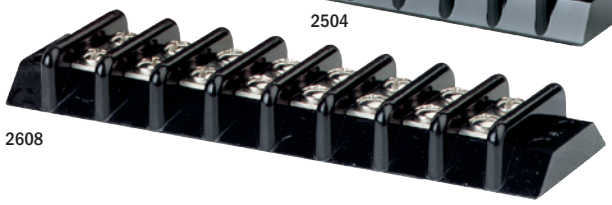
PN	Terminal Studs	Terminal Screws	Weight lb (kg)
2104	4 × 3/8" -16	4 x #8-32	1.75 (0.79)
2107	8 × 3/8" -16	4 x #8-32	2.75 (1.25)
2708	Cover For 2104		0.25 (0.11)

AC~ DC⎓ Terminal Blocks

Employs fully insulated independent terminal blocks for applications where circuits must be isolated

2404

2504



2608

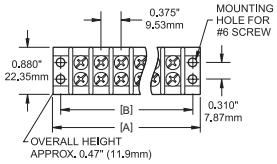
- Closed back design completely insulates power from the mounting surface
- Each screw pair is one isolated circuit
- Terminal Block Jumpers allow creation of common circuits

Specifications

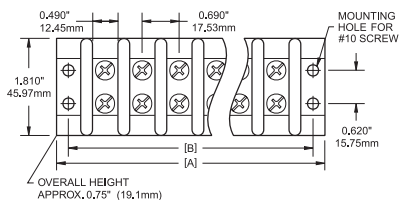
Ic	Continuous Rating	See table below
Vmxo	Voltage Maximum Operating	See table below
Bus Material		Tin-Plated Brass
Mounting Holes		See drawings below

Regulatory

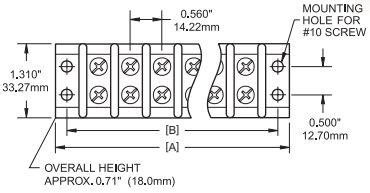
CE Certified



Drawing 1 (2402–2410)



Drawing 3 (2602–2610)



Drawing 2 (2502–2512)

PN	Circuits	AC/DC Ic	AC/DC Vmxo	Terminal Screw	Drawing Number	[A] Length in (mm)	[B] Mounting Centers in (mm)	Weight lb (kg)
2402	2	20	300	#6	1	1.41 (35.81)	1.13 (28.70)	0.05 (0.02)
2404	4	20	300	#6	1	2.16 (54.86)	1.88 (47.75)	0.06 (0.03)
2406	6	20	300	#6	1	2.91 (73.91)	2.63 (66.80)	0.08 (0.04)
2408	8	20	300	#6	1	3.66 (92.96)	3.38 (85.85)	0.10 (0.05)
2410	10	20	300	#6	1	4.41 (112.01)	4.13 (104.90)	0.11 (0.05)
2502	2	30	600	#8	2	2.10 (53.34)	1.69 (42.93)	0.11 (0.05)
2504	4	30	600	#8	2	3.22 (87.79)	2.81 (71.37)	0.15 (0.07)
2506	6	30	600	#8	2	4.34 (110.24)	3.93 (99.82)	0.21 (0.10)
2508	8	30	600	#8	2	5.46 (138.68)	5.05 (128.27)	0.27 (0.12)
2510	10	30	600	#8	2	6.58 (167.13)	6.17 (156.72)	0.33 (0.15)
2512	12	30	600	#8	2	7.70 (195.58)	7.29 (185.17)	0.35 (0.16)
2602	2	65	600	#10	3	2.50 (63.49)	2.06 (52.32)	0.15 (0.07)
2604	4	65	600	#10	3	3.88 (98.55)	3.44 (87.38)	0.25 (0.11)
2606	6	65	600	#10	3	5.26 (133.61)	4.82 (122.43)	0.34 (0.16)
2608	8	65	600	#10	3	6.64 (168.67)	6.20 (157.48)	0.43 (0.20)
2610	10	65	600	#10	3	8.02 (203.73)	7.58 (192.53)	0.52 (0.24)

Terminal Block Jumpers

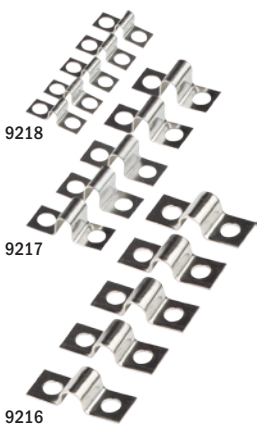
Combines independent circuits on a terminal block

- Jumpers allow creation of common circuits on independent connectors
- Five per retail package

Specifications

Bus Material	Nickel-Plated Brass
Continuous Amperage	Equivalent to matching block

PN	Description	Weight lb (kg)
9218	For use with 20A Terminal Blocks	0.03 (0.01)
9217	For use with 30A Terminal Blocks	0.04 (0.02)
9216	For use with 65A Terminal Blocks	0.05 (0.03)



9218

9217

9216

DC

Terminal Feed Through Connectors

Eliminates chafe and provides strain relief when passing high current through hulls, decks and bulkheads

- Protects large cables that are subject to chafing when passed through holes
- The large terminals have a mounting face that can be gasketed or bedded to provide a water tight installation

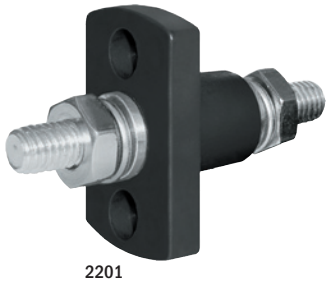
Specifications

V_{mxo}	Voltage Maximum Operating	48 Volts DC
I_{mxo}	Amperage Maximum Operating	See table below
Stud Material		Tin-Plated Copper Alloy
Mounting Holes		Accepts #10 (M5) Screws

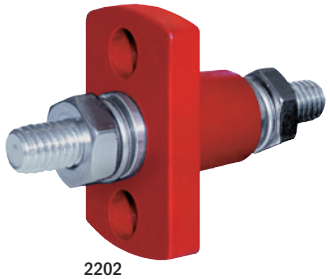
Regulatory

Rated IP66—protected against powerful water jets

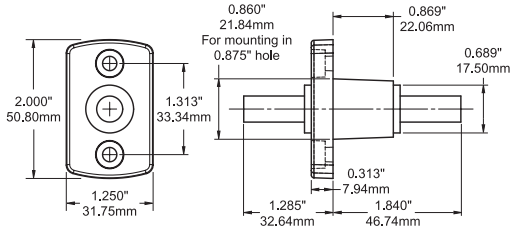
PN	Description	I_{mxo}	Color	Weight lb (kg)
2201	5/16"-18 Stud	250	Black	0.30 (0.14)
2202	5/16"-18 Stud	250	Red	0.30 (0.14)
2203	3/8"-16 Stud	250	Black	0.30 (0.14)
2204	3/8"-16 Stud	250	Red	0.30 (0.14)



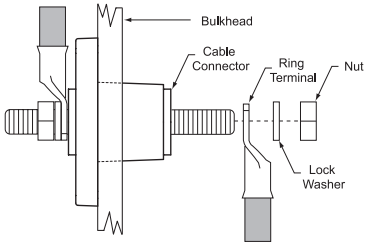
2201



2202



2201–2204

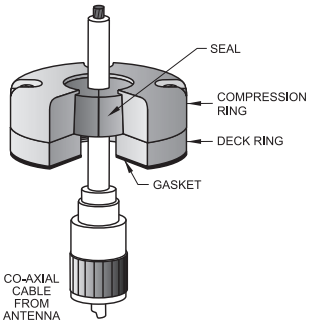


Mounting Diagram

CableClams

Provides a waterproof pass-through for antenna cables without requiring removal of the factory installed connector

1001

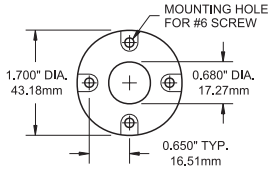


- Perfect for antenna installation
- Save the expense of removing and replacing connectors
- Avoid poor connections from removing factory connectors
- Use 1001 for GPS antenna cables, 1002 for VHF antenna cables, 1003 for Radar antenna cables

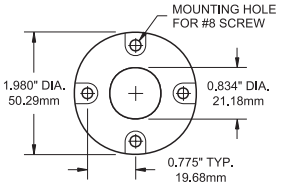
Specifications

Ring Material	UV-Stabilized Thermoplastic
Seal Material	UV-Stabilized Buna-N Rubber
Screws	Stainless Steel

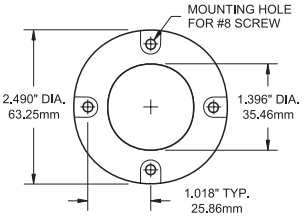
PN	Connector Opening in (mm)	Weight lb (kg)
1001	0.68 (17.27)	0.15 (0.07)
1002	0.83 (20.95)	0.20 (0.09)
1003	1.39 (35.18)	0.30 (0.14)



1001 Use for GPS antenna cables



1002 Use for VHF antenna cables



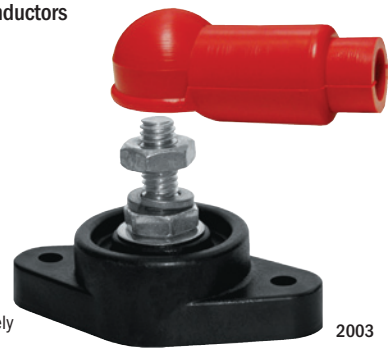
1003 Use for RADAR antenna cables

DC

PowerPost Cable Connectors

Insulated single stainless steel stud terminates multiple large conductors

2010



2003

- Connects high amperage cables securely
- Includes insulator

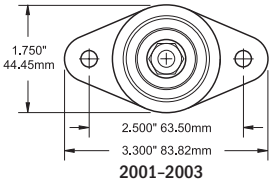
Specifications

Ic	Continuous Rating:	Not rated—amperage flows between terminals stacked on post and is determined by wire and terminals used.
Vmxo	Voltage Maximum Operating:	48V DC
Mounting Holes		Accepts #8 Screws (2010/2011) Accepts 1/4" Screws (2001/2002/2003)

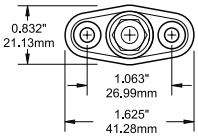
Regulatory

CE Certified

PN	Terminal Stud	Weight lb (kg)
2010	#10-32 × 5/8"	0.06 (0.03)
2011	1/4"-20 × 3/4"	0.10 (0.05)
2001	1/4"-20 × 1-1/16"	0.20 (0.09)
2002	5/16"-18 × 7/8"	0.25 (0.11)
2003	3/8"-16 × 7/8"	0.27 (0.12)



2001–2003

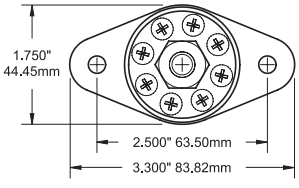


2010, 2011

PowerPost Plus Cable Connectors

Enables connection of multiple smaller wires in spaces where a traditional bus bar may not fit

2103



- 150 Amp bus allows small wire connections at high amperage cable connections
- Includes insulator

Specifications

Ic	Continuous Rating:	150A DC
Vmxo	Voltage Maximum Operating:	48V DC
Mounting Holes		Accepts 1/4" Screws
Bus Material		Tin-Plated Copper

Regulatory

CE Certified

PN	Terminal Stud	Terminal Screws	Weight lb (kg)
2101	1/4"-20 × 1"	8 × #8-32	0.29 (0.13)
2102	5/16"-18 × 3/4"	8 × #8-32	0.30 (0.14)
2103	3/8"-16 × 3/4"	8 × #8-32	0.34 (0.15)

Dual PowerPost Cable Connectors

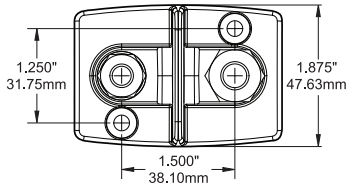
Provides a termination point for extending the length of outboard harnesses or other conductors

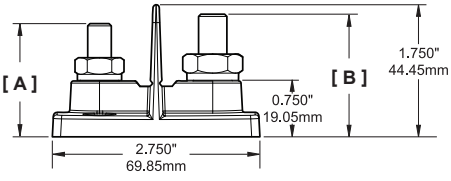
2017

- 2016/2017 are designed for connecting high amp conductors
- 2018 is designed for outboard engine installation when factory cables need to be extended
- Includes insulators 4002 and 4003 (see page 67)

Specifications

Ic	Continuous Rating:	Not rated—amperage flows between terminals stacked on post and is determined by wire and terminals used.
Vmxo	Voltage Maximum Operating:	48V DC
Mounting Holes		Accepts #10 (M5) Screws





PN	Description	Insulating Cover	Stud Height A in (mm)	Stud Height B in (mm)	Weight lb (kg)
2016	2 × 5/16"-18 Studs with Insulators	Yes	1.50 (38.1)	1.50 (38.1)	0.27 (0.12)
2016100	2 × 5/16"-18 Studs with Insulators	-	1.50 (38.1)	1.50 (38.1)	0.27 (0.12)
2017	2 × 3/8"-16 Studs with Insulators	Yes	1.63 (41.3)	1.63 (41.3)	0.27 (0.12)
2017100	2 × 3/8"-16 Studs with Insulators	-	1.63 (41.3)	1.63 (41.3)	0.27 (0.12)
2018	1 × 5/16"-18 Stud, 1 × 3/8"-16 Stud with Insulators	Yes	1.50 (38.1)	1.63 (41.3)	0.27 (0.12)
2018100	1 × 5/16"-18 Stud, 1 × 3/8"-16 Stud with Insulators	-	1.50 (38.1)	1.63 (41.3)	0.27 (0.12)

Connector Comparison

Product	MiniBus 100A Common BusBars			DualBus 100A Common BusBars		DualBus Plus 150A Common BusBars	150A Common BusBars	
								
Page no.	60	60	60	60	60	60	61	61
Ic Continuous Rating	100A AC 100A DC	100A AC 100A DC	100A AC 100A DC	100A AC 100A DC	100A AC 100A DC	130A AC 150A DC	130A AC 150A DC	130A AC 150A DC
Vmxo Max. Voltage	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC
Terminal Screw	5 × #8-32	-	6 × #8-32	5 per bus × #8-32	10 per bus × #8-32	5 per bus × #8-32	10 × #8-32	20 × #8-32
Terminal Stud	2 × #10-32	4 × #10-32	-	-	-	2 per bus × 1/4"-20 or 2 per bus × 5/16"-18	2 × 1/4"-20	2 × 1/4"-20
Insulating Cover	Cover available	Cover available	-	Cover available	Cover available	Included	Cover available	Cover available

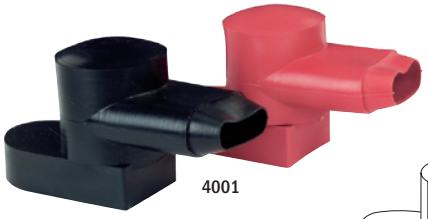
Product	150A Common BusBar	MaxiBus 250A Common BusBars				PowerBar Common BusBar	PowerBar 600A Common BusBars	
								
Page no.	61	62	62	62	62	63	63	63
Ic Continuous Rating	130A AC 150A DC	250A AC 250A DC	250A AC 250A DC	250A AC 250A DC	250A AC 250A DC	Determined by wire up to 600A	545A AC 600A DC	545A AC 600A DC
Vmxo Max. Voltage	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	300V AC 48V DC	48V DC	300V AC 48V DC	300V AC 48V DC
Terminal Screw	-	6 × #10-24	12 × #10-24	-	-	-	4 × #8-32	4 × #8-32
Terminal Stud	4 × 1/4"-20	2 × 5/16" -18	2 × 5/16" -18	4 × 5/16" -18	6 × 5/16" -18	2 × 3/8"-16	4 × 3/8"-16	8 × 3/8"-16
Insulating Cover	Cover available	Cover available	Cover available	Cover available	Cover available	Included	Cover available	-

Product	Terminal Blocks			Terminal Feed Through Connectors	PowerPost Cable Connectors		PowerPost Plus Cable Connectors	Dual PowerPost Cable Connectors
								
Page no.	63	63	63	64	65	65	65	65
Ic Continuous Rating	20A AC 20A DC	30A AC 30A DC	65A AC 65A DC	250A DC	Determined by wire and terminals	Determined by wire and terminals	150A DC	Determined by wire and terminals
Vmxo Max. Voltage	300V AC 300V DC	600V AC 600V DC	600V AC 600V DC	48V DC	48V DC	48V DC	48V DC	48V DC
Terminal Screw	#6	#8	#10	-	-	-	8 × #8-32	-
Terminal Stud	-	-	-	5/16"-18 or 3/8"-16	1 × #10-32 or 1 × 1/4"-20	1 × 1/4"-20 or 1 × 5/16"-18 or 1 × 3/8"-16	1 × 1/4"-20 or 1 × 5/16"-18 or 1 × 3/8"-16	2 × 5/16"-18 or 2 × 3/8"-16 or 1 × 5/16"-18 and 1 × 3/8"-16
Insulating Cover	-	-	-	-	Included	Included	Included	Included

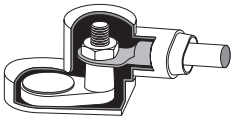
Rotating CableCap Insulators

Insulates battery terminals which have integral wing nut posts

- Top rotates 360 degrees to allow cable entry from any angle



4001

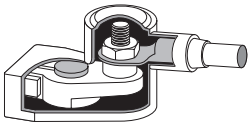


PN	Cable Size (AWG)	Color	Package	Weight lb (kg)
4001	All	Red/Black	Pair/Retail	0.25 (0.11)
9030B	All	Black	Bulk/Not for retail	0.10 (0.05)
9031B	All	Red	Bulk/Not for retail	0.10 (0.05)

Standard CableCap Insulators

Insulates battery terminals which have added adapter terminals

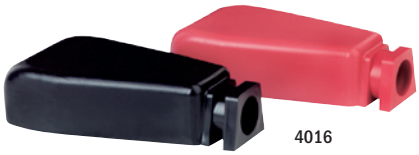
4005



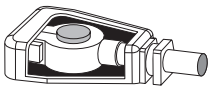
PN	Cable Size (AWG)	Color	Package	Weight lb (kg)
4005	4, 2, 1	Red/Black	Pair/Retail	0.22 (0.10)
4006	1/0, 2/0	Red/Black	Pair/Retail	0.22 (0.10)
9038B	4, 2, 1	Black	Bulk/Not for retail	0.07 (0.03)
9039B	4, 2, 1	Red	Bulk/Not for retail	0.07 (0.03)
9040B	1/0, 2/0	Black	Bulk/Not for retail	0.07 (0.03)
9041B	1/0, 2/0	Red	Bulk/Not for retail	0.07 (0.03)

Automotive CableCap Insulators

Insulates battery terminals which have standard automotive posts



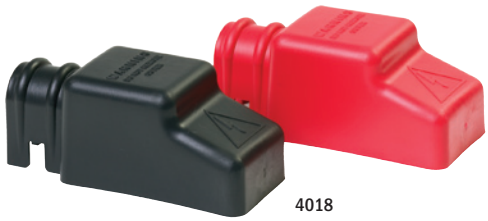
4016



PN	Cable Size (AWG)	Color	Package	Weight lb (kg)
4016	4, 2, 1	Red/Black	Pair/Retail	0.18 (0.08)
4017	1/0, 2/0	Red/Black	Pair/Retail	0.18 (0.08)
9176B	1/0, 2/0	Red	Bulk/Not for retail	0.07 (0.03)
9177B	1/0, 2/0	Black	Bulk/Not for retail	0.07 (0.03)

Square CableCap Insulators

Insulates battery terminals which have in-line dual posts



4018

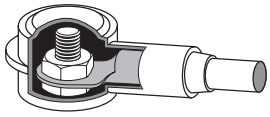
PN	Cable Size (AWG)	Color	Package	Weight lb (kg)
4018	1/0	Red/Black	Pair/Retail	0.19 (0.08)
4019B	1/0	Red	Bulk/Not for retail	0.06 (0.03)
4020B	1/0	Black	Bulk/Not for retail	0.06 (0.03)

Stud CableCap Insulators

Insulates single stud on alternators, starters, windlasses and high amperage termination points

4008

4009



PN	Cable Size (AWG)	Color	Package	Weight lb (kg)
4008	18–10	Red	Retail/3	0.05 (0.02)
4009	18–10	Black	Retail/3	0.05 (0.02)
4010	8–4	Red	Retail/2	0.05 (0.02)
4011	8–4	Black	Retail/2	0.05 (0.02)
4012	2–2/0	Red	Retail/1	0.07 (0.03)
4013	2–2/0	Black	Retail/1	0.07 (0.03)
4014	3/0–4/0	Red	Retail/1	0.07 (0.03)
4015	3/0–4/0	Black	Retail/1	0.07 (0.03)

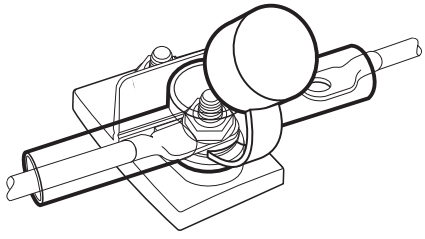
Dual Entry PowerPost Cable Insulator

Protects against accidental short circuits

- For use with Dual PowerPost Cable Connectors 2016, 2017, and 2018 (see page 66)

4002

4003



PN	Cable Size (AWG)	Cable Entry Size	Color	Package	Weight lb (kg)
4002	up to 2/0	0.7" (17.8 mm)	Black	Retail/1	0.08 (0.04)
4003	up to 2/0	0.7" (17.8 mm)	Red	Retail/1	0.08 (0.04)

Power Distribution

Power Distribution

At the heart of a boat's electrical system is the power distribution panel. Current flows into the panel from the source of power, and is distributed from the panel to various loads throughout the boat. Most panels provide switching as well as circuit protection.

Blue Sea Systems manufactures panels for all sizes of boats, from the smallest runabout to the largest offshore cruising yacht, with four panel types available.

ABOVE DECK PANELS

The WeatherDeck™ Waterproof Panels have a rugged construction to exceed the demands of wet locations. They feature backlit labels, built-in toggle guard, concealed mounting screws, and four mounting orientations.

Panel front is rated IP67 -protected against immersion up to 1 meter for 30 minutes

Contura Switch Water Resistant Panels represent time-honored design and easy serviceability. Fully loaded with 15A circuit breakers or fuses, these panels are an excellent addition to any cockpit, bridge or cabin.

Panel front is rated IP66 -protected against powerful water jets

BELOW DECK PANELS

Traditional Metal Panels are equally suited as replacement or new panels and they match existing panels on many boats. Fully pre-wired and shipped with LEDs in all positions, they are ready to install right out of the box.

Traditional Metal Panels are equally suited for use as extensions to existing panels or as replacements for existing panels

The 360 Panel System is the next generation of below-deck panel design. It uses an open frame and modular architecture to mount a broad selection of panel components for full customization. This allows multiple functions to be combined in a single panel for unmatched flexibility.

The 360 Panel System uses modular architecture to mount a broad selection of panel modules, allowing multiple functions to be combined in a single panel.

NEW
PACIFIC SERIES Battery Charger Remote Display Module

NEW
Bilge Pump Module

Use the Blue Sea Systems Panel Wizard to design a fully custom 360 Panel. Blue Sea Systems builds custom panels at the Bellingham, Washington manufacturing plant in a fraction of the time required by a typical custom panel shop. Custom panels generally ship within seven days of order receipt. Blue Sea Systems panels offer the advanced power distribution required by today's boat owner.

Go to panelwizard.bluesea.com to design a fully custom 360 Panel

SECTION INDEX

ABOVE DECK PANELS

BELOW DECK PANELS

DC⎓
WeatherDeck™ Waterproof Panels


Hunt Yachts Surfhunter 25 Center Console

DESIGNED FOR EXTREME WEATHER CONDITIONS


Hunt Yachts Surfhunter 25 Center Console

The WeatherDeck™ Panels are Blue Sea Systems' most waterproof panels and their contemporary appearance adds style to any boat.
Available in both fuse and circuit breaker models, the WeatherDeck™ Panels can be mounted in four orientations for maximum versatility.

circuit positions:

model	positions
circuit breaker	4, 6, 8
fuse	2, 4, 6, 8

voltage rating:

model	rating
circuit breaker	12V or 24V DC
fuse	12V DC

total panel rating:

model	rating
circuit breaker	45A
fuse 2 position	30A
4 position	60A
6 position	90A
8 position	100A

ON indication:
fuse model bi-colored backlit labels
labels: square format

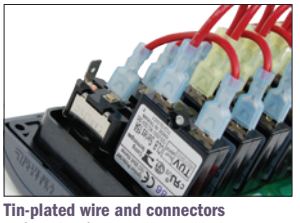
Panel front is rated IP67
Protected against immersion up to 1 meter for 30 minutes

Circuit Breaker Panel

Fuse Panel


Integrated switch guards reduce the risk of accidental switching

Backlit labels aid circuit identification in low light conditions


Tin-plated wire and connectors resist corrosion


UV-stabilized waterproof boots resist discoloration and cracking

DC⎓

WeatherDeck™ Waterproof Panels

Designed for open-cockpit and flybridge applications

Features

- FUSE MODELS ONLY: bicolored LEDs illuminate circuit labels to quickly identify OFF (Red), ON (Green), or Blown (No color) circuits
- CIRCUIT BREAKER MODELS ONLY: green LEDs illuminate circuit labels
- Integrated switch guards reduce the risk of accidental switching
- Independent label backlighting allows switching and dimming
- Backlighting is compatible with DeckHand Dimmers (page 11)
- Panels can be mounted in four different orientations
- Panel front rated IP67 when properly mounted with watertight mounting gasket
- UV stabilized weather-resistant faceplate snaps on and off providing access to components and concealing mounting screws
- Square Format Label Set 4215 included (page 115)

Component References

- ON–OFF Toggle Switch (page 110)
- WeatherDeck™ Toggle Switch Waterproof Boots (page 110)
- Push Button, Thermal Trip, Manual Reset-Only Circuit Breakers (page 32)
- Push Button, Thermal Trip, Manual Reset-Only Waterproof Boots (page 32)
- ATO®–ATC® Blade-Type Fuses (page 47)
- Rugged UV stabilized waterproof boots (page 32)

Circuit Breaker Panel Specifications

V_{mxo}	Voltage Maximum Operating	24 Volts DC
I_{mxo}	Amperage Maximum Operating	15 Amps @ 12 Volts DC (per circuit) 9 Amps @ 24 Volts DC (per circuit)
I_{oc} (Backlight)	Amperage Operating Current	10mA/Illuminated Circuit
Panel Cumulative Rating		45 Amps
Switch Rating		15 Amps Maximum
Backlighting Voltage		12 or 24V DC
Backlighting Amperage Draw		10mA/Illuminated Circuit
Circuit Breaker Rating		15 Amps

Fuse Panel Specifications

V_{mxo}	Voltage Maximum Operating	12 Volts DC
I_{mxo}	Amperage Maximum Operating	15 Amps @ 12 Volts DC (per circuit)
I_{oc} (Backlight)	Amperage Operating Current	10mA/Illuminated Circuit
Panel Cumulative Rating		2 Position—30 Amps 4 Position—60 Amps 6 Position—90 Amps 8 Position—100 Amps
Switch Rating		15 Amps Maximum
Backlighting Voltage		12 Volts DC Nominal
Fuses Available		1–30 Amps

Regulatory

IP67—protected against immersion up to 1 meter for 30 minutes

Circuit Breaker Panels

4374

4378

4376

Fuse Panels

4304

4302

4306

4308

PN	Circuit Protection	Width in (mm)	Height in (mm)	Depth in (mm)	Width Mounting Centers in (mm)	Height Mounting Centers in (mm)	Weight lb (kg)
4374	Circuit Breakers	4.25 (107.95)	4.30 (109.22)	3.50 (88.90)	3.69 (93.73)	3.74 (95.00)	0.97 (0.44)
4376	Circuit Breakers	4.25 (107.95)	6.00 (152.40)	3.50 (88.90)	3.69 (93.73)	5.44 (138.18)	1.36 (0.62)
4378	Circuit Breakers	4.25 (107.95)	7.70 (195.58)	3.50 (88.90)	3.69 (93.73)	7.14 (181.36)	1.83 (0.83)
4302	Fuses	3.88 (98.55)	2.60 (66.04)	2.50 (63.50)	3.31 (84.07)	2.04 (51.82)	0.52 (0.24)
4304	Fuses	3.88 (98.55)	4.30 (109.22)	2.50 (63.50)	3.31 (84.07)	3.74 (95.00)	0.90 (0.41)
4306	Fuses	3.88 (98.55)	6.00 (152.40)	2.50 (63.50)	3.31 (84.07)	5.44 (138.18)	1.15 (0.52)
4308	Fuses	3.88 (98.55)	7.70 (195.58)	2.50 (63.50)	3.31 (84.07)	7.14 (181.36)	1.55 (0.70)

DC
Contura Switch Water Resistant Panels

Back Cove 37

Using industry standard Contura switches, the Blue Sea Systems Contura Switch Water Resistant Panels are designed to perform above deck, as well as complement any interior. Fuse models are available in a classic grey finish, and circuit breaker models are available in white or black.

circuit positions:

model	positions
circuit breaker	3, 4, 6, 8
fuse	1, 3, 4, 6, 8

voltage rating: 12 or 24V DC

total panel rating: 45A

ON indication: LED in switch

labels:

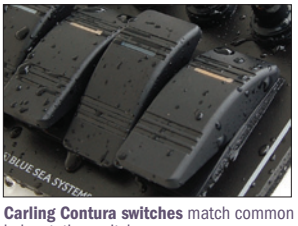
model	format
circuit breaker	small
fuse	large or small

Panel front is rated IP66 when mounted with gasket in place*
Protected against powerful water jets

RUGGED DESIGN FOR WET ENVIRONMENTS

Back Cove 37

Circuit Breaker Panel

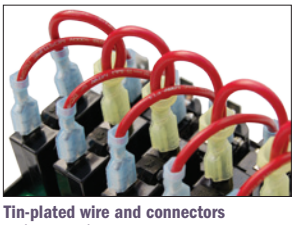


Carling Contura switches match common helm station switches

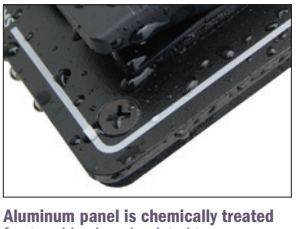
Integrated LEDs provide immediate indication of ON or OFF

Panel back must be enclosed in a dry environment

Fuse Panel



Tin-plated wire and connectors resist corrosion



Aluminum panel is chemically treated front and back and painted to resist corrosion

* circuit breaker model only

DC

Contura Switch Water Resistant Panels

Designed for open-cockpit and flybridge applications using switches to complement existing controls commonly used on many boats

Features

- Designed for 12 or 24 Volt systems
- Watertight mounting gasket
- ON indicating LEDs embedded in all switches
- Includes Small Format Label Set 8217 or 8214* (page 115)

NOTE: Labels are not backlit

Component References

- ON-OFF Contura switches† (page 111)
- Push Button Reset-Only Circuit Breakers (page 32)
- Water Resistant Fuse Holders (page 110)

Specifications

Vmxo	Voltage Maximum Operating	24 Volts DC
Ioc (Switch LED)	Amperage Operating Current	18 Milliamps each
Switch Rating		20 Amps @ 12 Volts DC
		15 Amps @ 24 Volts DC
Circuit Breaker Rating		15 Amps
Fuse Holder Rating		20 Amps maximum (15A fuses included)
Panel Cumulative Rating		45 Amps (all except 8 position panels)
		90A (8 position panels)

Regulatory

Meets UL 1500 and ISO 8846 ignition protection requirements (circuit breaker models only)
Panel front is IP66 when mounted with gasket in place—protected against powerful water jets

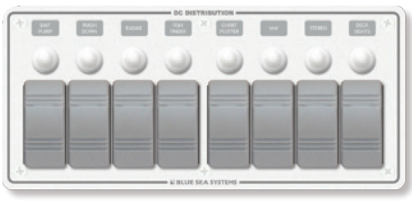
8374

8372

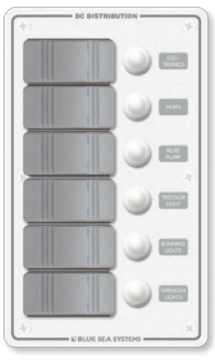
8373

8371

8274



8271



8273

8272

8262

8054*

8261

8053*

8263† / Bilge Pump Control Panel

PN	Push Button Circuit Breakers	AGC®/MDL® Fuse Holders	Width in (mm)	Height in (mm)	Depth in (mm)	Weight lb (kg)
8274	3	-	4.50 (114.30)	3.75 (95.25)	3.25 (82.55)	0.75 (0.34)
8272	4	-	5.25 (133.35)	4.25 (107.95)	3.25 (82.55)	0.90 (0.41)
8273	6	-	4.50 (114.30)	7.50 (190.50)	3.25 (82.55)	1.35 (0.61)
8271	8	-	9.37 (238.00)	4.25 (107.95)	3.25 (82.55)	1.75 (0.79)
8374	3	-	4.50 (114.30)	3.75 (95.25)	3.25 (82.55)	0.75 (0.34)
8372	4	-	5.25 (133.35)	4.25 (107.95)	3.25 (82.55)	0.90 (0.41)
8373	6	-	4.50 (114.30)	7.50 (190.50)	3.25 (82.55)	1.35 (0.61)
8371	8	-	9.37 (238.00)	4.25 (107.95)	3.25 (82.55)	1.75 (0.79)
8054*	-	3	5.25 (133.35)	3.75 (95.25)	3.00 (76.20)	0.70 (0.32)
8053*	-	6	5.25 (133.35)	7.50 (190.50)	3.00 (76.20)	1.20 (0.54)
8262	-	4	5.25 (133.35)	3.75 (95.25)	3.00 (76.20)	0.75 (0.34)
8261	-	8	9.37 (238.00)	3.75 (95.25)	3.00 (76.20)	1.40 (0.64)
8263†	-	1	2.25 (57.15)	3.75 (95.25)	3.00 (76.20)	0.25 (0.11)

* 8054 and 8053 include Large Format Label Set 8030 (pages 110) | † 8263 Bilge Pump Control Panel—(ON)-OFF-ON Contura Switch (page 105)

AC~ DC⎓
360 Panel System


Hunt Harrier 29

The 360 Panel System uses an open frame to mount a broad selection of modules that allows multiple functions to be combined in a single panel. This innovative design offers a wide choice of panel features, can accommodate future changes and permits rapid assembly and shipping time. With options ranging from battery management to source selection, the 360 Panel System provides unmatched design flexibility.

INNOVATIVE DESIGN MEETS UNRIVALED QUALITY


Hunt Harrier 29

circuit positions:
- **stock panels** up to 32
- **custom panels** up to 80

voltage rating:

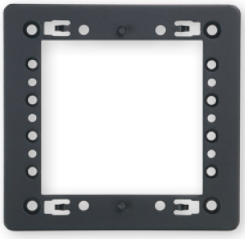
DC	12V, 24V
AC	120V, 120/240V, 230V*

total panel rating:
up to 100A per bus

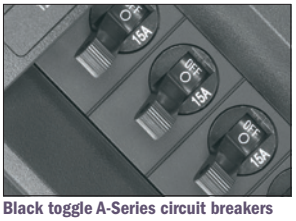
ON indication: LED

labels: square format

* 230 Volt (typical of Europe)


Open frame allows future replacement or upgrade of panel modules

Flat rocker circuit breakers



Black toggle A-Series circuit breakers

Push Button Reset Only circuit breakers provide high-density, low cost circuit protection

Circuit status LEDs and backlit labels aid low-light readability

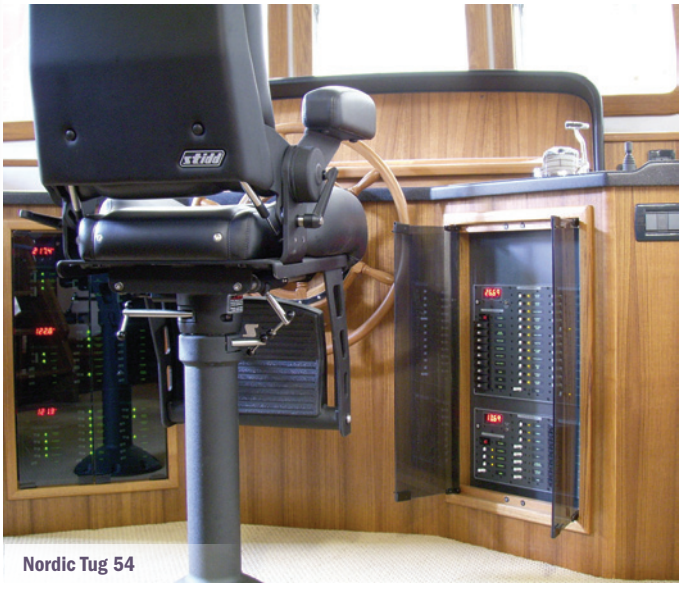
 Specifications subject to change. See bluesea.com for current information.

AC~ DC⎓
Traditional Metal Panels

Nordic Tug 54

The Traditional Metal Panels are equally suited for use as extensions to existing panels or as full replacements. All panels are pre-wired and include LEDs in all positions. Choose from over 100 stock panels ranging from simple circuit breaker models to complex multi-source AC configurations.

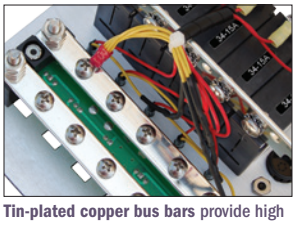
STYLED TO MATCH EXISTING PANELS



Nordic Tug 54

Industry standard white toggle A-Series circuit breakers

Circuit status LEDs and backlit labels aid low-light readability



Tin-plated copper bus bars provide high conductivity and corrosion resistance

circuit positions: up to 35

voltage rating:

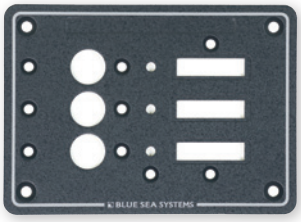
DC	12V, 24V
AC	120V, 120/240V, 230V*

total panel rating: up to 100A per bus

ON indication: LED

labels: large format

* 230 Volt (typical of Europe)



Marine grade aluminum frame securely holds fixed panel components and is chemically treated to resist corrosion (aluminum frame not sold separately)

DC⎓

Branch Circuit Breaker Panels

DC Branch panels distribute current from a high amperage input into lower amperage circuits.

Features:

- ON-indicating LEDs in all circuit positions
- Panels with voltmeters include a toggle switch to monitor voltage on up to three battery banks
- Backlit label positions†

Component References:

- A-Series Circuit Breakers (pages 36–37)
- Push Button Reset-Only Circuit Breakers (page 32)
- ON-OFF, SPST Rocker Switches (page 108)
- 360 Panel System includes PN 4205 label set (page 115)
- Traditional Metal panels include PN 8030 label set (page 115)
- DC Digital Multimeter (page 99)
- DC Analog Meters (page 97)
- Amber ON-indicating LEDs (page 113)





	8025	1216 / 1116*	1151 / 1455†	1155 / 1459†	8081
Style	**Traditional Metal**	**360 Panel System**	**360 Panel System**	**360 Panel System**	**Traditional Metal**
Total Positions	**3 Positions**	**4 Positions**	**4 Positions**	**4 Positions**	**5 Positions**
Circuit Breakers (PN)	3 A-Series, 15A (7210)	4 A-Series, 15A (7403)	4 Push Button, 10A (7054)	4 Push Button, 10A (7054)	5 A-Series, 15A (7210)
Rocker Switches (PN)	–	–	4 ON-OFF, SPST (7480)	4 ON-OFF, SPST (7480)	–
Nominal Voltage	12/24V DC	12V DC	12V DC	12V DC	12V DC
Maximum Amperage	100A	100A	40A	40A	50A
Meter (PN)	–	–	–	8–16V (8003)	8–16V (8028) / 0–50A (8041)
Width x Height in (mm)	5.25 (133.35) x 4.75 (120.65)	4.88 (123.83) x 4.75 (120.65)	4.88 (123.83) x 4.75 (120.65)	4.88 (123.83) x 7.75 (196.85)	5.25 (133.35) x 7.50 (190.50)
Depth in (mm)	2.50 (63.50)	3.00 (76.20)	3.50 (88.90)	3.50 (88.90)	2.50 (63.50)
Weight lb (kg)	1.15 (0.52)	1.35 (0.61)	1.07 (0.49)	1.4 (.64)	2.25 (1.02)





	8401	8096	1450	1156 / 1457†	1154 / 1456†
Style	**Traditional Metal**	**Traditional Metal**	**360 Panel System**	**360 Panel System**	**360 Panel System**
Total Positions	**5 Positions**	**6 Positions**	**8 Positions**	**8 Positions**	**8 Positions**
Circuit Breakers (PN)	5 A-Series, 15A (7210)	6 A-Series, 15A (7210)	8 Push Button, 15A (7056)	8 Push Button, 10A (7054)	8 Push Button, 10A (7054)
Rocker Switches (PN)	–	–	–	8 ON-OFF, SPST (7480)	8 ON-OFF, SPST (7480)
Nominal Voltage	12/24V DC	12/24V DC	12/24V DC	12V DC	12V DC
Maximum Amperage	100A	100A per bus	90A	80A	80A
Meter (PN)	Digital Multimeter (8248)	–	–	–	–
Width x Height in (mm)	5.25 (133.35) x 7.50 (190.50)	10.50 (266.70) x 3.75 (95.25)	4.88 (123.83) x 4.75 (120.65)	4.88 (123.83) x 7.75 (196.85)	9.25 (234.95) x 4.75 (120.65)
Depth in (mm)	4.00 (101.6)	2.50 (63.50)	3.50 (88.90)	3.50 (88.90)	3.50 (88.90)
Weight lb (kg)	3.45 (1.57)	2.25 (1.02)	1.21 (0.57)	1.75 (.80)	2.95 (1.34)





	1200 / 1100*	1225 / 1125*	8023	8385	1164 / 1463†
Style	**360 Panel System**	**360 Panel System**	**Traditional Metal**	**Traditional Metal**	**360 Panel System**
Total Positions	**8 Positions**	**8 Positions**	**8 Positions**	**8 Positions**	**8 Positions**
Circuit Breakers (PN)	8 A-Series, 15A (7403)	8 A-Series, 15A (7403)	5 A-Series, 15A (7210)	6 A-Series, 15A (7210)	8 Push Button, 10A (7054)
Rocker Switches (PN)	–	–	–	–	8 ON-OFF, SPST (7480)
Nominal Voltage	12V DC	12V DC	12/24V DC	12/24V DC	12V DC
Maximum Amperage	100A	100A per bus	100A	100A per bus	80A
Meter (PN)	–	–	–		8–16V (8003)
Width x Height in (mm)	4.88 (123.83) x 7.75 (196.85)	9.25 (234.95) x 4.75 (120.65)	5.25 (133.35) x 7.50 (190.50)	10.50 (266.70) x 4.50 (114.30)	4.88 (123.83) x 10.75 (273.05)
Depth in (mm)	3.00 (76.20)	3.00 (76.20)	2.50 (63.50)	2.50 (63.50)	3.50 (88.90)
Weight lb (kg)	2.6 (1.18)	3.84 (1.75)	1.95 (0.89)	2.70 (1.23)	3.72 (1.69)

 Specifications subject to change. See bluesea.com for current information.

* Black toggle style panels (not shown) † Panels without backlighting (not shown)

	1227 / 1127*	1224 / 1124*	8082	8402	1165 / 1461†
Style	360 Panel System	360 Panel System	Traditional Metal	Traditional Metal	360 Panel System
Total Positions	**8 Positions**	**8 Positions**	**10 Positions**	**10 Positions**	**12 Positions**
Circuit Breakers (PN)	8 A-Series, 15A (7403)	8 A-Series, 15A (7403)	7 A-Series, 15A (7210)	7 A-Series, 15A (7210)	12 Push Button, 10A (7054)
Rocker Switches (PN)	–	–	–	–	12 ON-OFF, SPST (7480)
Nominal Voltage	12V DC	12V DC	12V DC	12/24V DC	12V DC
Maximum Amperage	100A	50A	50A	100A	120A
Meter (PN)	Digital Multimeter (8248)	8–16V (8003) / 0–50A (8022)	8–16V (8028) / 0–50A (8041)	Digital Multimeter (8248)	–
Width X Height in (mm)	4.88 (123.83) x 7.75 (196.85)	9.25 (234.95) x 7.75 (196.85)	5.25 (133.35) x 11.25 (285.75)	5.25 (133.35) x 11.25 (285.75)	4.88 (123.83) x 10.75 (273.05)
Depth in (mm)	3.00 (76.20)	3.00 (76.20)	2.50 (63.50)	4.00 (101.6)	3.50 (88.90)
Weight lb (kg)	5.76 (2.62)	4.56 (2.07)	3.35 (1.52)	4.21 (1.91)	3.6 (1.64)

	1159 / 1464†	1223 / 1123*	1217 / 1117*	8375
Style	360 Panel System	360 Panel System	360 Panel System	Traditional Metal
Total Positions	**12 Positions**	**12 Positions**	**12 Positions**	**12 Positions**
Circuit Breakers (PN)	12 Push Button, 10A (7054)	12 A-Series, 15A (7403)	12 A-Series, 15A (7403)	10 A-Series, 15A (7210)
Rocker Switches (PN)	12 ON-OFF, SPST (7480)	–	–	–
Nominal Voltage	12V DC	12V DC	12V DC	12/24V DC
Maximum Amperage	120A	100A	100A per bus	100A per bus
Meter (PN)	8–16V (8003)	–	Digital Multimeter (8248)	–
Width x Height in (mm)	9.25 (234.95) x 7.75 (196.85)	4.88 (123.83) x 10.75 (273.05)	9.25 (234.95) x 7.75 (196.85)	14.75 (374.65) x 4.50 (114.30)
Depth in (mm)	3.50 (88.90)	3.00 (76.20)	4.00 (101.60)	2.50 (63.50)
Weight lb (kg)	4.37 (1.99)	4.85 (2.20)	5.99 (2.72)	5.84 (2.65)

	8376	8068	8403
Style	Traditional Metal	Traditional Metal	Traditional Metal
Total Positions	**13 Positions**	**13 Positions**	**13 Positions**
Circuit Breakers (PN)	10 A-Series, 15A (7210)	10 A-Series, 15A (7210)	10 A-Series, 15A (7210)
Nominal Voltage	12/24V DC	12V DC	12/24V DC
Maximum Amperage	100A	50A	100A per bus
Meter (PN)	–	8–16V (8028) / 0–50A (8041)	Digital Multimeter (8248)
Width x Height in (mm)	5.25 (133.35) x 11.25 (285.75)	10.50 (266.70) x 7.50 (190.50)	10.50 (266.70) x 7.50 (190.50)
Depth in (mm)	2.50 (63.50)	3.00 (76.20)	4.00 (101.6)
Weight lb (kg)	3.1 (1.41)	4.20 (1.91)	5.15 (2.34)

* Black toggle style panels (not shown) † Panels without backlighting (not shown)

DC⎓
Branch Circuit Breaker Panels

	1452	1163 / 1465†	1222 / 1122*	8377
Style	**360 Panel System**	**360 Panel System**	**360 Panel System**	**Traditional Metal**
Total Positions	**16 Positions**	**16 Positions**	**16 Positions**	**16 Positions**
Circuit Breakers (PN)	16 Push Button, 15A (7056)	16 Push Button, 10A (7054)	16 A-Series, 15A (7403)	10 A-Series, 15A (7210)
Rocker Switches (PN)	–	ON-OFF, SPST (16) (7480)	–	–
Nominal Voltage	12/24V DC	12V DC	12V DC	12/24V DC
Maximum Amperage	180A	160A	100A per bus	100A per bus
Width in (mm)	4.88 (123.83)	9.25 (234.95)	9.25 (234.95)	10.50 (266.70)
Height in (mm)	7.75 (196.85)	7.75 (196.85)	7.75 (196.85)	7.50 (190.50)
Depth in (mm)	3.50 (88.90)	3.50 (88.90)	3.00 (76.20)	2.50 (63.50)
Weight	2.20 (1.10)	4.57 (2.08)	6.27 (2.85)	3.68 (1.67)

	1201 / 1101*	8378	1121
Style	**360 Panel System**	**Traditional Metal**	**360 Panel System**
Total Positions	**16 Positions**	**18 Positions**	**20 Positions**
Circuit Breakers (PN)	16 A-Series, 15A (7403)	15 A-Series, 15A (7210)	20 A-Series, 15A (7208)
Nominal Voltage	12V DC	12V DC	12V DC
Maximum Amperage	50A	100A	100A per bus
Meter (PN)	8–16V (8003) / 0–50A (8022)	8–16V (8003) / 0–100A (8017)	Digital Multimeter (8248)
Width in (mm)	13.63 (346.08)	14.75 (374.65)	13.63 (346.08)
Height in (mm)	7.75 (196.85)	7.50 (190.50)	7.75 (196.85)
Depth in (mm)	3.00 (76.20)	2.50 (63.50)	4.00 (101.60)
Weight lb (kg)	6.58 (2.99)	7.80 (3.55)	8.4 (3.82)

	1221	8379	8380
Style	**360 Panel System**	**Traditional Metal**	**Traditional Metal**
Total Positions	**Main + 19 Positions**	**Main + 20 Positions**	**Main + 22 Positions**
Circuit Breakers (PN)	1 C-Series, 100A (7549) / 19 A-Series, 15A (7403)	1 C-Series, 100A (7250I) / 14 A-Series, 15A (7210)	1 C-Series, 100A (7250I) / 16 A-Series, 15A (7210)
Nominal Voltage	12V DC	12/24V DC	12V DC
Maximum Amperage	100A	100A	100A
Meter (PN)	Digital Multimeter (8248)	Digital Multimeter (8248)	8–16V (8028) / 0–100A Micro
Width in (mm)	13.63 (346.08)	14.75 (374.65)	10.50 (266.70)
Height in (mm)	7.75 (196.85)	7.50 (190.50)	11.25 (285.75)
Depth in (mm)	4.00 (101.60)	4.00 (101.6)	3.00 (76.20)
Weight lb (kg)	8.8 (4.0)	8.40 (3.82)	8.25 (3.75)

* Black toggle style panels (not shown) † Panels without backlighting (not shown)

	8264	1126	1226
Style	**Traditional Metal**	**360 Panel System**	**360 Panel System**
Total Positions	**24 Positions**	**32 Positions**	**Main + 31 Positions**
Circuit Breakers (PN)	15 A-Series, 15A (7210)	32 A-Series, 15A (7208)	1 C-Series, 100A (7549) / 31 A-Series, 15A (7403)
Nominal Voltage	12/24V DC	12V DC	12V DC
Maximum Amperage	100A per bus	100A per bus	100A per bus
Meter (PN)	–	Digital Multimeter (8248)	Digital Multimeter (8248)
Width in (mm)	14.75 (374.65)	13.63 (346.08)	13.63 (346.08)
Height in (mm)	7.50 (190.50)	10.75 (273.05)	10.75 (273.05)
Depth in (mm)	2.50 (63.50)	4.00 (101.60)	4.00 (101.60)
Weight lb (kg)	7.45 (3.39)	13.4 (6.09)	14.26 (6.48)

	8381	8382
Style	**Traditional Metal**	**Traditional Metal**
Total Positions	**Main + 32 Positions**	**Main + 35 Positions**
Circuit Breakers (PN)	1 C-Series, 100A (7250I) / 23 A-Series, 15A (7210)	1 C-Series, 100A (7250I) / 26 A-Series, 15A (7210)
Nominal Voltage	12V DC	12/24V DC
Maximum Amperage	100A	100A
Meter (PN)	8–16V (8003) / 0–100A (8017)	Digital Multimeter (8248)
Width in (mm)	14.75 (374.65)	14.75 (374.65)
Height in (mm)	11.25 (285.75)	11.25 (285.75)
Depth in (mm)	3.00 (76.20)	4.00 (101.6)
Weight lb (kg)	8.60 (3.91)	10.80 (4.91)

Fathom Expedition 40

Fathom Expedition 40

AC~
Branch Circuit Breaker Panels

AC Branch panels distribute current from a high amperage input into lower amperage circuits.

Features:

- On indicating LEDs in all circuit positions
- Backlit label positions

Component References:

- A-Series Circuit Breakers (pages 36–37)
- AC Analog Meters (page 98)
- 360 Panel System includes PN 4206 label set (page 115)
- Traditional Metal panels include PN 8031 label set (page 115)
- Green ON-indicating LEDs (page 113)




	8058	8158	1210	1211	1110	1111	8097	8197
Style	Traditional Metal		360 Panel System		360 Panel System		Traditional Metal	
Total Positions	3 Positions		4 Positions		4 Positions		6 Positions	
Circuit Breakers (PN)	3 A-Series, 15A (7210)	3 A-Series, 8A (7299)	4 A-Series, 15A (7403)	4 A-Series, 8A (7401)	4 A-Series, 15A (7208)	4 A-Series, 8A (7347)	6 A-Series, 15A (7210)	6 A-Series, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Maximum Amperage	100A		100A		100A		100A per bus	
Actuator Style	White Toggle		Flat Rocker		Black Toggle		White Toggle	
Insulating Back Cover	4026 sold separately (page 114)		1331 sold separately (page 108)		1331 sold separately (page 108)		-	
Width x Height in (mm)	5.25 (133.35) x 3.75 (95.25)		4.88 (123.83) x 4.75 (120.65)		4.88 (123.83) x 4.75 (120.65)		10.50 (266.70) x 3.75 (95.25)	
Depth in (mm)	2.50 (63.50)		3.00 (76.20)		3.00 (76.20)		2.50 (63.50)	
Weight lb (kg)	1.2 (0.55)		1.57 (0.71)		1.5 (0.68)		2.22 (1.01)	



	1228	1229	1128	1129	8059	8159
Style	360 Panel System		360 Panel System		Traditional Metal	
Total Positions	8 Positions		8 Positions		8 Positions	
Circuit Breakers (PN)	8 A-Series, 15A (7403)	8 A-Series, 8A (7401)	8 A-Series, 15A (7208)	8 A-Series, 8A (7347)	5 A-Series, 15A (7210)	5 A-Series, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Maximum Amperage	100A		100A		100A	
Actuator Style	Flat Rocker		Black Toggle		White Toggle	
Insulating Back Cover	1341 sold separately (page 108)		1341 sold separately (page 108)		4027 sold separately (page 114)	
Width x Height in (mm)	4.88 (123.83) x 7.75 (196.85)		4.88 (123.83) x 7.75 (196.85)		5.25 (133.35) x 7.50 (190.50)	
Depth in (mm)	3.00 (76.20)		3.00 (76.20)		2.50 (63.50)	
Weight lb (kg)	2.68 (1.22)		2.52 (1.15)		2.0 (0.91)	



	8411	8511	8478	8578	8480	8580
Style	Traditional Metal		Traditional Metal		Traditional Metal	
Total Positions	8 Positions		10 Positions		13 Positions	
Circuit Breakers (PN)	6 A-Series, 15A (7210)	6 A-Series, 8A (7299)	7 A-Series, 15A (7210)	7 A-Series, 8A (7299)	10 A-Series, 15A (7210)	10 A-Series, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Maximum Amperage	100A per bus		100A		100A	
Actuator Style	White Toggle		White Toggle		White Toggle	
Meter (PN)	-		0-150V (9353)	0-250V (9354)	-	
Insulating Back Cover	-		-		-	
Width x Height in (mm)	10.50 (266.70) x 4.50 (114.30)		5.25 (133.35) x 11.25 (285.75)		5.25 (133.35) x 11.25 (285.75)	
Depth in (mm)	2.50 (63.50)		2.50 (63.50)		2.50 (63.50)	
Weight lb (kg)	1.9 (0.86)		3.0 (1.36)		2.82 (1.28)	

230 Volt (typical of Europe)

	8479	8579	8461	8561	8265	8165
Style	Traditional Metal		Traditional Metal		Traditional Metal	
Positions	13 Positions		16 Positions		24 Positions	
Circuit Breakers (PN)	10 A-Series, 15A (7210)	10 A-Series, 8A (7299)	10 A-Series, 15A (7210)	10 A-Series, 8A (7299)	15 A-Series, 15A (7210)	15 A-Series, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Maximum Amperage	100A/bus		100A/bus		100A/bus	
Meter (PN)	0-150V (9353)	0-250V (9354)	-		-	
Actuator Style	White Toggle		White Toggle		White Toggle	
Insulating Back Cover	-		-		-	
Width in (mm)	10.50 (266.70) x 7.50 (190.50)		10.50 (266.70) x 7.50 (190.50)		14.75 (374.64) x 7.50 (190.50)	
Depth in (mm)	2.50 (63.50)		2.50 (63.50)		2.50 (63.50)	
Weight lb (kg)	4.05 (1.84)		3.74 (1.7)		5.12 (2.33)	

230 Volt (typical of Europe)

Ranger Tugs R-25 C

Ranger Tugs R-25 C

AC ~
Main Circuit Breaker Panels

The AC Main power system provides a path for delivering power from the ship's source of AC power to the AC branch distribution system. It begins at the AC power source (shore power, genset, or inverter), and ends at the AC branch circuit. See page 40 for a complete discussion of ABYC ELCI recommendations for AC Main circuit protection.

Features:
- Maximum panel amperage - Determined by Main breaker
- Red reverse polarity indication LED
- Green ON indicating LEDs
- Backlit label positions†

Component References:
- A-Series Circuit Breakers (pages 36–37)
- AC Analog Meters (page 98)
- AC Digital Multimeter (page 100)
- Red reverse polarity indication LED (page 113)
- Green ON indicating LEDs (page 113)
- Traditional Metal panels include PN 8031 label set (page 115)
- 360 Panel System includes PN 4206 label set (page 115)
- Source Selection Label Set included with panels 8077, 8177, 8079, and 8179 (page 85)





	8077†	8177†	8079†	8179†	8029†	8129†	1214	1215	1114	1115
Style	Traditional Metal		Traditional Metal		Traditional Metal		360 Panel System		360 Panel System	
Total Positions	Main Only		Main Only		Main + 1 position		Main + 2 positions		Main + 2 positions	
A-Series Circuit Breakers (PN)	Main, 30A (7238)	Main, 16A (7294)	Main, 50A (7242)	Main, 32A (7295)	Main, 30A (7238)	Main, 16A (7294)	Main, 30A (7414) 2 Branch, 15A (7403)	Main, 16A (7412) 2 Branch, 8A (7401)	Main, 30A (7237) 2 Branch, 15A (7208)	Main, 16A (7348) 2 Branch, 8A (7347)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	White Toggle		White Toggle		White Toggle		Flat Rocker		Black Toggle	
Insulating Back Cover	-		-		4026 sold separately (page 114)		1331 sold separately (page 108)		1331 sold separately (page 108)	
Width x Height in (mm)	2.63 (66.80) x 3.75 (95.25)		2.63 (66.80) x 3.75 (95.25)		5.25 (133.35) x 3.75 (95.25)		4.88 (123.83) x 4.75 (120.65)		4.88 (123.83) x 4.75 (120.65)	
Depth in (mm)	2.50 (63.50)		2.50 (63.50)		2.50 (63.50)		3.00 (76.20)		3.00 (76.20)	
Weight lb (kg)	0.51 (0.23)		0.51 (0.23)		1.05 (0.48)		1.58 (0.72)		1.5 (0.68)	




	1206	1207	8043	8143	8409	8509	8405	8505
Style	360 Panel System		Traditional Metal		Traditional Metal		Traditional Metal	
Total Positions	Main + 2 positions		Main + 3 positions		Main + 3 positions		Main + 3 positions	
A-Series Circuit Breakers (PN)	Main, 30A (7414) 2 Branch, 15A (7403)	Main, 16A (7412) 2 Branch, 8A (7401)	Main, 30A (7238) 3 Branch, 15A (7210)	Main, 16A (7294) 3 Branch, 8A (7299)	Main, 30A (7238) 3 Branch, 15A (7210)	Main, 16A (7294) 3 Branch, 8A (7299)	Main, 30A (7238) 3 Branch, 15A (7210)	Main, 16A (7294) 3 Branch, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	Flat Rocker		White Toggle		White Toggle		White Toggle	
Meter (PN)	0-150V (9353)	0-250V (8245)	0-150V (9353)	0-250V (8245)	0-150V (8244) 0-50A (8246)	0-250V (8245) 0-50A (8246)	Digital Multimeter (8247)	
Insulating Back Cover	1341 sold separately (page 108)		4027 sold separately (page 114)		4027 sold separately (page 114)		4027 sold separately (page 114)	
Width x Height in (mm)	4.88 (123.83) x 7.75 (196.85)		5.25 (133.35) x 7.50 (190.50)		5.25 (133.35) x 7.50 (190.50)		5.25 (133.35) x 7.50 (190.50)	
Depth in (mm)	3.00 (76.20)		2.50 (63.50)		3.00 (76.20)		4.00 (101.60)	
Weight lb (kg)	2.19 (1.0)		2.0 (0.91)		2.2 (1.0)		2.94 (1.34)	




	8099	8199	8027	8127	8412	8512	1230	1233
Style	Traditional Metal		Traditional Metal		Traditional Metal		360 Panel System	
Total Positions	Main + 4 positions		Main + 6 positions		Main + 6 positions		Main + 6 positions	
A-Series Circuit Breakers (PN)	Main, 30A (7238) 4 Branch, 15A (7210)	Main, 16A (7294) 4 Branch, 8A (7299)	Main, 30A (7238) 3 Branch, 15A (7210)	Main, 16A (7294) 3 Branch, 8A (7299)	Main, 30A (7238) 4 Branch, 15A (7210)	Main, 16A (7294) 4 Branch, 8A (7299)	Main, 30A (7414) 6 Branch, 15A (7403)	Main, 16A (7412) 6 Branch, 8A (7401)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	White Toggle		White Toggle		White Toggle		Flat Rocker	
Insulating Back Cover	-		4027 sold separately (page 114)		-		2 x 1331 sold separately (page 108)	
Width x Height in (mm)	10.50 (266.70) x 3.75 (95.25)		5.25 (133.35) x 7.50 (190.50)		10.50 (266.70) x 4.50 (114.30)		9.25 (234.95) x 4.75 (120.65)	
Depth in (mm)	2.50 (63.50)		2.50 (63.50)		2.50 (63.50)		3.00 (76.20)	
Weight lb (kg)	2.22 (1.01)		1.87 (0.85)		1.9 (0.86)		3.89 (1.77)	

† Panels without backlit labels

230 Volt (typical of Europe)

	1202	1203	8074	8174	8488	8588	8406	8506
Style	360 Panel System		Traditional Metal		Traditional Metal		Traditional Metal	
Total Positions	Main + 6 positions		Main + 8 positions		Main + 8 positions		Main + 8 positions	
A-Series Circuit Breakers (PN)	Main, 30A (7414) 6 Branch, 15A (7403)	Main, 16A (7412) 6 Branch, 8A (7401)	Main, 30A (7238) 5 Branch, 15A (7210)	Main, 16A (7294) 5 Branch, 8A (7299)	Main, 30A (7238) 5 Branch, 15A (7210)	Main, 16A (7294) 5 Branch, 8A (7299)	Main, 30A (7238) 5 Branch, 15A (7210)	Main, 16A (7294) 5 Branch, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	Flat Rocker		White Toggle		White Toggle		White Toggle	
Meter (PN)	-		0-150V (8244) 0-50A (8246)	0-250V (8245) 0-50A (8246)	0-150V (9353)	0-250V (9354)	Digital Multimeter (8247)	
Insulating Back Cover	1341 sold separately (page 108)		-		-		-	
Width x Height in (mm)	4.88 (123.83) x 7.75 (196.85)		5.25 (133.35) x 11.25 (285.75)		5.25 (133.35) x 11.25 (285.75)		5.25 (133.35) x 11.25 (285.75)	
Depth in (mm)	3.00 (76.20)		3.00 (76.20)		2.50 (63.50)		4.00 (101.60)	
Weight lb (kg)	2.7 (1.23)		3.28 (1.49)		3.0 (1.36)		3.18 (1.45)	

	8485	8585	8076	8176	8407	8507
Style	Traditional Metal		Traditional Metal		Traditional Metal	
Total Positions	Main + 11 positions		Main + 11 positions		Main + 11 positions	
A-Series Circuit Breakers (PN)	Main, 30A (7238) 8 Branch, 15A (7210)	Main, 16A (7294) 8 Branch, 8A (7299)	Main, 30A (7238) 8 Branch, 15A (7210)	Main, 16A (7294) 8 Branch, 8A (7299)	Main, 30A (7238) 8 Branch, 15A (7210)	Main, 16A (7294) 8 - Branch, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	White Toggle		White Toggle		White Toggle	
Meter (PN)	-		0-150V (8244) 0-50A (8246)	0-250V (8245) 0-50A (8246)	Digital Multimeter (8247)	
Insulating Back Cover	-		-		-	
Width x Height in (mm)	5.25 (133.35) x 11.25 (285.75)		10.50 (266.70) x 7.50 (190.50)		10.50 (266.70) x 7.50 (190.50)	
Depth in (mm)	2.50 (63.50)		3.00 (76.20)		4.00 (101.60)	
Weight lb (kg)	2.81 (1.28)		4.24 (1.93)		4.78 (2.17)	

	8407	8507	8464	8564	8465	8565
Style	Traditional Metal		Traditional Metal		Traditional Metal	
Total Positions	Main + 11 positions		Main + 14 positions		Main + 22 positions	
A-Series Circuit Breakers (PN)	Main, 30A (7238) 8 Branch, 15A (7210)	Main, 16A (7294) 8 Branch, 8A (7299)	Main, 30A (7238) 8 Branch, 15A (7210)	Main, 16A (7294) 8 Branch, 8A (7299)	Main, 30A (7238) 13 Branch, 15A (7210)	Main, 16A (7294) 13 Branch, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	White Toggle		White Toggle		White Toggle	
Meter (PN)	Digital Multimeter (8247)		-		-	
Insulating Back Cover	-		-		-	
Width x Height in (mm)	10.50 (266.70) x 7.50 (190.50)		10.50 (266.70) x 7.50 (190.50)		14.75 (374.65) x 7.50 (190.50)	
Depth in (mm)	4.00 (101.60)		2.50 (63.50)		2.50 (63.50)	
Weight lb (kg)	4.78 (2.17)		3.74 (1.70)		5.25 (2.39)	

230 Volt (typical of Europe)

AC ~
Source Selection Circuit Breaker Panels

AC Source Selection panels allow the boater to select between two or three AC sources to supply power to the AC Branch distribution system.

Features:

- Lockout slides ensure that no two sources of AC power are connected to the circuit simultaneously
- Maximum panel amperage - Determined by Main breaker
- Backlit label positions

Component References:

- A-Series Circuit Breakers (pages 36–37)
- AC Analog Meters (page 98)
- AC Digital Multimeter (page 100)
- Red reverse polarity indication LED (page 113)
- Green ON indicating LEDs (page 113)
- Traditional Metal panels with Branch circuit breakers include PN 8031 label set (page 115)
- 360 Panel System panels with Branch circuit breakers include PN 4206 label set (page 115)
- All Panels include a Reverse Polarity label and a Source Selection label set (page 85)




	1208	1209	1231	1232	8032	8132	8061	8161
Style	360 Panel System		360 Panel System		Traditional Metal		Traditional Metal	
Total Positions	2 Sources		2 Sources		2 Sources		2 Sources	
A-Series Circuit Breakers (PN)	2 Main, 30A (7574)	2 Main, 16A (7572)	2 Main, 50A (7577)	2 Main, 32A (7575)	2 Main, 30A (7238)	2 Main, 16A (7294)	2 Main, 50A (7242)	2 Main, 32A (7295)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	Raised Rocker		Raised Rocker		White Toggle		White Toggle	
Insulating Back Cover	1331 sold separately (page 108)		1331 sold separately (page 108)		4026 sold separately (page 114)		4026 sold separately (page 114)	
Width x Height in (mm)	4.88 (123.83) x 4.75 (120.65)		4.88 (123.83) x 4.75 (120.65)		5.25 (133.35) x 3.00 (76.20)		5.25 (133.35) x 3.00 (76.20)	
Depth in (mm)	3.00 (76.20)		3.00 (76.20)		3.00 (76.20)		3.00 (76.20)	
Weight lb (kg)	1.71 (.78)		1.71 (.78)		1.35 (.61)		1.35 (.61)	



	8498	8598	8499	8599	8467	8567
Style	Traditional Metal		Traditional Metal		Traditional Metal	
Total Positions	3 Sources + Transfer		2 Sources + 4 positions		2 Sources + 4 positions	
A-Series Circuit Breakers (PN)	2 Main, 30A (7238) 1 Main, 50A (7242) 1 Transfer, 30A (7238)	2 Main, 16A (7294) 1 Main, 32A (7295) 1 Transfer, 16A (7294)	2 Main, 30A (7238) 2 Branch, 15A (7210)	2 Main, 16A (7294) 2 Branch, 8A (7299)	2 Main, 30A (7238) 2 Branch, 15A (7210)	2 Main, 16A (7294) 2 Branch, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	White Toggle		White Toggle		White Toggle	
Insulating Back Cover	-		-		4027 sold separately (page 114)	
Width x Height in (mm)	4.88 (123.83) x 7.75 (196.85)		10.50 (266.70) x 4.50 (114.30)		5.25 (133.35) x 7.50 (190.50)	
Depth in (mm)	3.00 (76.20)		3.00 (76.20)		3.00 (76.20)	
Weight lb (kg)	2.20 (1.0)		1.9 (.86)		2.15 (.98)	



	8489	8589	8462	8562	8466	8566
Style	Traditional Metal		Traditional Metal		Traditional Metal	
Total Positions	2 Sources + 6 positions		2 Sources + 9 positions		2 Sources + 9 positions	
A-Series Circuit Breakers (PN)	2 Main, 30A (7238) 3 Branch, 15A (7210)	2 Main, 16A (7294) 3 Branch, 8A (7299)	2 Main, 30A (7238) 6 Branch, 15A (7210)	2 Main, 16A (7294) 6 Branch, 8A (7299)	2 Main, 30A (7238) 6 Branch, 15A (7210)	2 Main, 16A (7294) 6 Branch, 8A (7299)
Nominal Voltage	120V AC	230V AC	120V AC	230V AC	120V AC	230V AC
Actuator Style	White Toggle		White Toggle		White Toggle	
Meter	0-150V (9353)	0-250V (9354)	0-150V (9353)	0-250V (9354)	-	
Insulating Back Cover	-		-		-	
Width x Height in (mm)	5.25 (133.35) x 11.25 (285.75)		10.50 (266.70) x 7.50 (190.50)		5.25 (133.35) x 11.25 (285.75)	
Depth in (mm)	3.00 (76.20)		3.00 (76.20)		3.00 (76.20)	
Weight lb (kg)	3.00 (1.36)		3.8 (1.73)		2.81 (1.28)	

230 Volt (typical of Europe)

	8475	8575	8458
Style	Traditional Metal		Traditional Metal
Total Positions	2 Sources + 17 positions		3 Sources + 18 positions + Transfer
A-Series Circuit Breakers (PN)	2 Main, 30A (7238) 11 Branch, 15A (7210)	2 Main, 16A (7294) 11 Branch, 8A (7299)	2 Main, 30A (7238), 1 Main, 50A (7242), 1 Transfer, 30A (7238) 12 Branch, 15A (7210)
Nominal Voltage	120V AC	230V AC	120V AC
Actuator Style	White Toggle		White Toggle
Insulating Back Cover	-		-
Meter (PN)	Digital Multimeter (8247)		0-150V (9353), 0-50A (9630)
Width x Height in (mm)	14.75 (374.65) x 7.50 (190.50)		10.50 (266.70) x 13.75 (349.25)
Depth in (mm)	4.00 (101.60)		3.00 (76.20)
Weight lb (kg)	6.3 (2.86)		9.1 (4.14)

Label set included with all source selection panels
(not sold separately)

TRANSFER
INVERTER
SHORE
SHORE 1
SHORE 2
AC BUS 1
AC BUS 2
GEN
GEN 1
GEN 2

	8496	8596
Style	Traditional Metal	
Total Positions	3 Sources + 28 positions + Transfer	
A-Series Circuit Breakers (PN)	2 Main, 30A (7238), 1 Main, 50A (7242) 1 Transfer, 30A (7238), 19 Branch, 15A (7210)	2 Main, 16A (7294), 1 Main, 32A (7295) 1 Transfer, 16A (7294), 19 Branch, 8A (7299)
Nominal Voltage	120V AC	230V AC
Actuator Style	White Toggle	
Meter (PN)	Digital Multimeter (8247)	
Insulating Back Cover	-	
Width x Height in (mm)	14.75 (374.65) x 11.25 (285.75)	
Depth in (mm)	4.00 (101.60)	
Weight lb (kg)	10.10 (4.59)	

Aspen Power Catamarans C90 Cruiser

Aspen Power Catamarans C90 Cruiser

230 Volt (typical of Europe)

AC~
Source Selection Rotary Switch Panels

Heavy duty industrial rated switches provide a compact and intuitive solution for safely managing AC sources when circuit protection is provided elsewhere

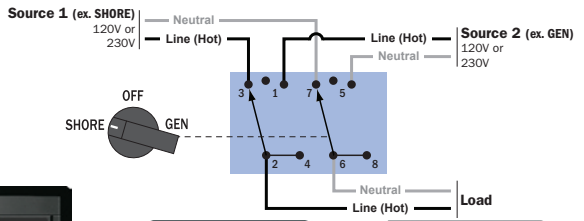
Panels include ON and Red REVERSE POLARITY indicating LEDs and Source Selection Label Set page 85

Switches are CE marked and UL listed

30 Amp 2 Positions + OFF, 2 Pole

Rotary Switch

- Switches 2 sources
- Allows connecting one of two different AC sources to one circuit





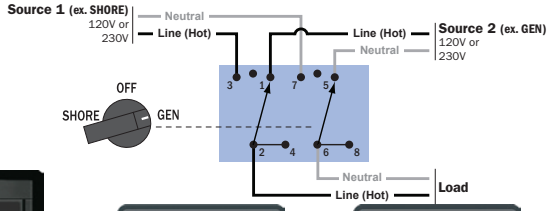


	9009	1481	1484	8367	8359
Style	Rotary Switch	360 Panel System	360 Panel System	Traditional Metal	Traditional Metal
Voltage Maximum Operating	600V AC	120V AC	230V AC	120V AC	230V AC
Wire Size Range	14–10 AWG	14–10 AWG	14–10 AWG	14–10 AWG	14–10 AWG
Insulating Panel Back	-	1331 sold separately (page 108)	1331 sold separately (page 108)	4026 sold separately (page 114)	4026 sold separately (page 114)
Width x Height in (mm)	1.89 (48.00) x 1.89 (48.00)	4.88 (123.83) x 4.75 (120.65)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)	5.25 (133.35) x 3.75 (95.25)
Depth in (mm)	1.91 (48.51)	1.91 (48.51)	1.91 (48.51)	1.91 (48.51)	1.91 (48.51)
Weight lb (kg)	.70 (.32)	1.15 (.52)	1.20 (0.54)	.65 (.30)	.65 (.30)

65 Amp 2 Positions + OFF, 2 Pole

Rotary Switch

- Switches 2 sources
- Allows connecting one of two different AC sources to one circuit





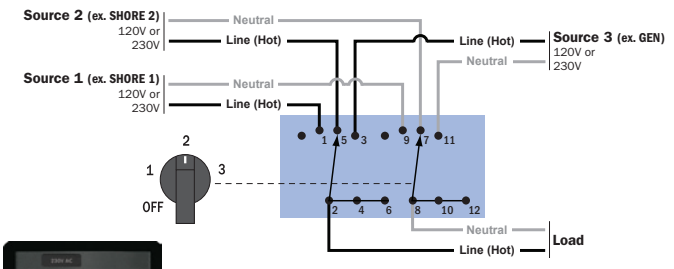


	9011	1483	1486	8365	8357
Style	Rotary Switch	360 Panel System	360 Panel System	Traditional Metal	Traditional Metal
Voltage Maximum Operating	600V AC	120V AC	230V AC	120V AC	230V AC
Wire Size Range	12–6 AWG	12–6 AWG	12–6 AWG	12–6 AWG	12–6 AWG
Insulating Panel Back	-	1331 sold separately (page 108)	1331 sold separately (page 108)	4026 sold separately (page 114)	4026 sold separately (page 114)
Width x Height in (mm)	2.52 (64.00) x 2.52 (64.00)	4.88 (123.83) x 4.75 (120.65)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)	5.25 (133.35) x 3.75 (95.25)
Depth in (mm)	2.41 (61.21)	2.41 (61.21)	2.41 (61.21)	2.41 (61.21)	2.41 (61.21)
Weight lb (kg)	1.25 (.57)	1.64 (.75)	1.64 (.75)	1.25 (.52)	1.25 (.57)

30 Amp 3 Positions + OFF, 2 Pole

Rotary Switch

- Switches 3 sources
- Allows connecting one of three different AC sources to one circuit





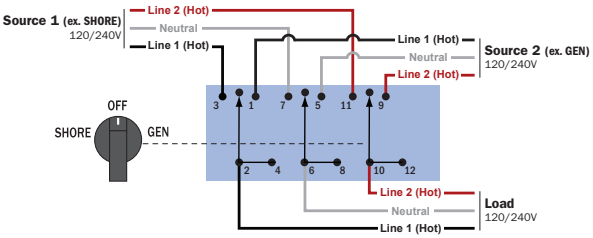


	9010	1482	1485	8366	8358
Style	Rotary Switch	360 Panel System	360 Panel System	Traditional Metal	Traditional Metal
Voltage Maximum Operating	600V AC	120V AC	230V AC	120V AC	230V AC
Wire Size Range	14–10 AWG	14–10 AWG	14–10 AWG	14–10 AWG	14–10 AWG
Insulating Panel Back	-	1331 sold separately (page 108)	1331 sold separately (page 108)	4026 sold separately (page 114)	4026 sold separately (page 114)
Width x Height in (mm)	1.89 (48.00) x 1.89 (48.00)	4.88 (123.83) x 4.75 (120.65)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)	5.25 (133.35) x 3.75 (95.25)
Depth in (mm)	2.41 (61.21)	2.41 (61.21)	2.41 (61.21)	2.41 (61.21)	2.41 (61.21)
Weight lb (kg)	.70 (.32)	1.25 (0.57)	1.25 (0.57)	.70 (.32)	.70 (.32)

65 Amp 2 Positions + OFF, 3 Pole

Rotary Switch

- Switches 2—120/240 Volt AC sources
- Switches both lines (hots) and neutral
- Allows connecting one of two different AC sources to one circuit



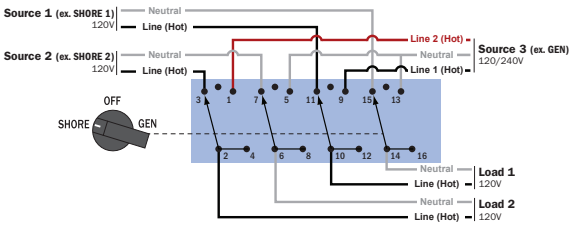


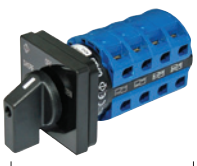
	9019	1487	8363
Style	Rotary Switch	360 Panel System	Traditional Metal
Voltage Maximum Operating	600V AC	240V AC	240V AC
Wire Size Range	12–6 AWG	12–6 AWG	12–6 AWG
Insulating Panel Back	-	-	-
Width x Height in (mm)	2.52 (64.00) x 2.52 (64.00)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)
Depth in (mm)	3.65 (92.71)	3.65 (92.71)	3.65 (92.71)
Weight lb (kg)	1.41 (.64)	3.10 (1.41)	1.41 (.64)

30 Amp 2 Positions + OFF, 4 Pole

Rotary Switch

- Switches between 2—120 Volt AC shore power sources and 1—120/240 Volt AC source to 2—120 Volt AC load groups
- Switches both lines (hots) and neutral



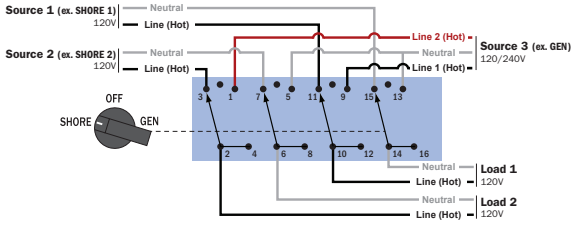


	6337	1489	8386
Style	Rotary Switch	360 Panel System	Traditional Metal
Voltage Maximum Operating	600V AC	240V AC	240V AC
Wire Size Range	14–10 AWG	14–10 AWG	14–10 AWG
Insulating Panel Back	-	1331 sold separately (page 108)	-
Width x Height in (mm)	1.89 (48.00) x 1.89 (48.00)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)
Depth in (mm)	2.98 (75.69)	2.98 (75.69)	2.98 (75.69)
Weight lb (kg)	.76 (.35)	1.20 (0.54)	.76 (.35)

65 Amp 2 Positions + OFF, 4 Pole

Rotary Switch

- Switches between 2—120 Volt AC shore power sources and 1—120/240 Volt AC source to 2—120 Volt AC load groups
- Switches both lines (hots) and neutral



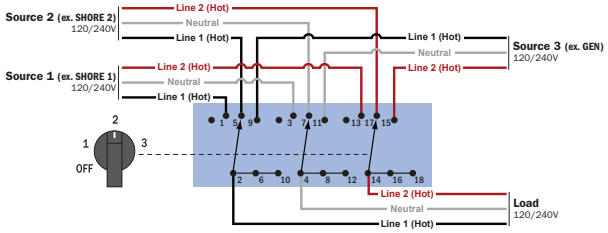


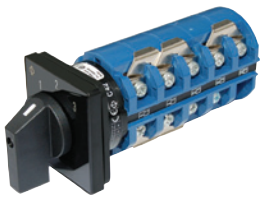
	9093	1480	8369
Style	Rotary Switch	360 Panel System	Traditional Metal
Voltage Maximum Operating	600V AC	240V AC	240V AC
Wire Size Range	12–6 AWG	12–6 AWG	12–6 AWG
Insulating Panel Back	-	-	-
Width x Height in (mm)	2.52 (64.00) x 2.52 (64.00)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)
Depth in (mm)	4.50 (114.30)	4.50 (114.30)	4.50 (114.30)
Weight lb (kg)	1.41 (.64)	3.50 (1.59)	1.41 (.64)

65 Amp 3 Positions + OFF, 3 Pole

Rotary Switch

- Switches 3—120/240 Volt AC sources
- Switches both lines (hot) and neutral
- Allows connecting one of three different AC sources to one circuit





	9077	1488	8361
Style	Rotary Switch	360 Panel System	Traditional Metal
Voltage Maximum Operating	600V AC	240V AC	240V AC
Wire Size Range	12–6 AWG	12–6 AWG	12–6 AWG
Insulating Panel Back	-	-	-
Width x Height in (mm)	2.52 (64.0) x 2.52 (64.0)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)
Depth in (mm)	5.50 (139.70)	5.50 (139.70)	5.50 (139.70)
Weight lb (kg)	2.0 (.91)	2.65 (1.20)	2.0 (.91)

AC~

Residual Current Circuit Breaker Panels GFCI Branch and ELCI Main

Reduces the risk of fire and shock hazards caused by defects in boat appliances and circuit wiring. See page 41 for a review of new ABYC ELCI recommendations for AC Main circuit protection.

Features

- Provides Main circuit protection with branch circuits

Component References

- GFCI Branch and ELCI Main Circuit Breakers (page 41)
- A-Series Circuit Breakers (page 36–37)
- Analog Meters (pages 97–98)






	1500	1502	8100	1190	8101	1191
Style	**360 Panel System**	**360 Panel System**	**Traditional Metal**	**360 Panel System**	**Traditional Metal**	**360 Panel System**
Total Positions	**GFCI + 2 Positions**	**ELCI + 1 Position**	**ELCI**	**ELCI + 1 position**	**ELCI + 5 positions**	**ELCI + 1 position**
Circuit Breaker (PN)	1 - GFCI Branch, 15A AC (3100)	1 - ELCI Main, 30A AC (3102)	1 - ELCI Main, 30A AC (3106)	1 - ELCI Main, 30A AC (3102)	1 - ELCI Main, 30A AC (3106)	1 - ELCI Main, 30A AC (3102)
A-Series Circuit Breaker (PN)	-	-	-	1 - Branch, 15A AC (7403)	2 - Branch, 15A AC (7210)	-
Amperage Trip Reference	15A AC	30A AC	30A AC	30A AC	30A AC	30A AC
Leakage Trip Amperage	5mA	30mA	30mA	30mA	30mA	30mA
Maximum Voltage	120V AC	120V AC	120V AC	120V AC	120V AC	120V AC
Actuator Style	Flat Rocker	Flat Rocker	White Toggle	Flat Rocker	White Toggle	Flat Rocker
Insulating Panel Back	1331 sold separately (page 108)	1331 sold separately (page 108)	-	1331 sold separately (page 108)	-	1341 sold separately (page 108)
Meter (PN)	-	-	-	-	-	0-150V AC (9353)
Width x Height in (mm)	4.88 (123.83) x 4.75 (120.65)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 3.75 (95.25)	4.88 (123.83) x 4.75 (120.65)	5.25 (133.35) x 7.50 (190.50)	4.88 (123.83) x 7.75 (196.85)
Depth in (mm)	3.00 (76.20)	3.99 (101.4)	3.50 (88.90)	3.99 (101.4)	3.50 (88.90)	3.99 (101.4)
Weight lb (kg)	.93 (.42)	.93 (.42)	1.65 (.75)	1.10 (1.0)	2.47 (1.12)	2.40 (1.1)




	8102	1193	1192	1194 AC/DC	
Style	**Traditional Metal**	**360 Panel System**	**360 Panel System**	**360 Panel System**	
Total Positions	**ELCI + 2 positions**	**ELCI + 5 positions**	**ELCI + 5 positions**	**Main + 15 positions DC**	**ELCI + 5 positions AC**
Circuit Breaker (PN)	1 - ELCI Main, 30A AC (3106)	1 - ELCI Main, 30A AC (3102)	1 - ELCI Main, 30A AC (3102)	1 - Main, 100A DC (7549) 1 - ELCI Main, 30A AC (3102)	
A-Series Circuit Breaker (PN)	2 - Branch, 15A AC (7210)	4 - Branch, 15A AC (7403)	4 - Branch, 15A AC (7403)	15 - Branch, 15A DC (7403)	4 - Branch, 15A AC (7403)
Amperage Trip Reference	30A AC	30A AC	30A AC	30A AC ELCI	
Leakage Trip Amperage	30mA	30mA	30mA	30mA	
Maximum Voltage	120V AC	120V AC	120V AC	120V AC/12V DC	
Actuator Style	White Toggle	Flat Rocker	Flat Rocker	Flat Rocker	
Insulating Panel Back	-	2 x 1331 sold separately (page 108)	1341 sold separately (page 108)	1x 1331 and 1 x 1341 sold separately (page 108)	
Meter (PN)	0-150V AC (9353)	-	-	8-16V DC (8003), 0-100A DC (8017) / 0-150V AC (9353)	
Width x Height in (mm)	5.25 (133.35) x 7.50 (190.50)	9.25 (234.95) x 4.75 (120.65)	4.88 (123.83) x 7.75 (196.85)	13.63 (346.08) x 10.75 (273.05)	
Depth in (mm)	3.50 (88.9)	3.99 (101.4)	3.99 (101.4)	3.99 (101.4)	
Weight lb (kg)	3.07 (1.4)	4.36 (2.0)	3.3 (1.5)	12.27 (5.6)	

AC ~

240 Volt AC (60Hz) Circuit Breaker Panels

Provides both source selection* and circuit protection for boats with 240 Volt AC systems

Features

- Source Selection Panels include lockout slides to prevent connecting
- Provides spare rocker apertures which may be used for single-pole 120 Volt AC or double-pole 240 Volt AC Branch circuits two AC sources simultaneously
- Square Format Label Set 4206 included† (page 115)

Component References

- C-Series Raised Rocker Circuit Breakers–triple-pole (page 39)
- C-Series Flat Rocker Circuit Breakers–triple-pole (page 39)
- C-Series Toggle (page 38)

* Source selection available for panels 1171 and 1172 only

	7372	1168	1169	1170	1171	1172
Style	**Traditional Metal**	**360 Panel System**	**360 Panel System**	**360 Panel System**	**360 Panel System**	**360 Panel System**
Total Positions	**Main Only**	**Main + 1 Position**	**Main + 7 positions**	**Main + 7 positions**	**2 Sources + 2 positions**	**2 Sources + 2 positions**
C-Series Circuit Breakers (PN)	1 Main, 50A (7287)	1 Main, 50A (7565)	1 Main, 50A (7565)	1 Main, 50A (7565)	2 Main, 50A (7585)	2 - Main, 50A (7585)
Poles	3	3	3	3	3	3
Nominal Voltage	120/240V AC	120/240V AC	120/240V AC	120/240V AC	120/240V AC	120/240V AC
Maximum Voltage	240V AC	240V AC	240V AC	240V AC	240V AC	240V AC
Actuator Style	White Toggle	Flat Rocker	Flat Rocker	Flat Rocker	Raised Rocker	Raised Rocker
Meter (PN)	-	-	0-250V AC (1057)	AC Digital Multimeter (8247)	0-250V AC (1057)	AC Digital Multimeter (8247)
Width in (mm)	5.25 (133.35))	4.88 (123.83)	4.88 (123.83)	4.88 (123.83)	4.88 (123.83)	4.88 (123.83)
Height in (mm	3.75 (95.25)	4.75 (120.65)	13.75 (349.25)	13.75 (349.25)	13.75 (349.25)	13.75 (349.25)
Depth in (mm)	3.00 (76.20)	3.00 (76.20)	3.00 (76.20)	4.00 (101.60)	3.00 (76.20)	4.00 (101.60)
Weight lb (kg)	1.38 (.63)	1.8 (.82)	4.9 (2.22)	5.35 (2.43)	7.2 (3.27)	7.65 (3.48)

Panels are assembled in Bellingham, WA

† not included with PN 7372 or PN 1168

AC ~ DC ⎓

Combination Circuit Breaker Panels

Combines AC and DC switching, circuit protection, source selection and monitoring into a single panel

Features

- ON indicating LEDs installed in all circuit positions
- Backlit label positions
- Includes toggle switch to monitor voltage on up to three batteries
- Circuit identification label sets included
- Insulating covers are included with 360 Panel System AC/DC panels

Component References:

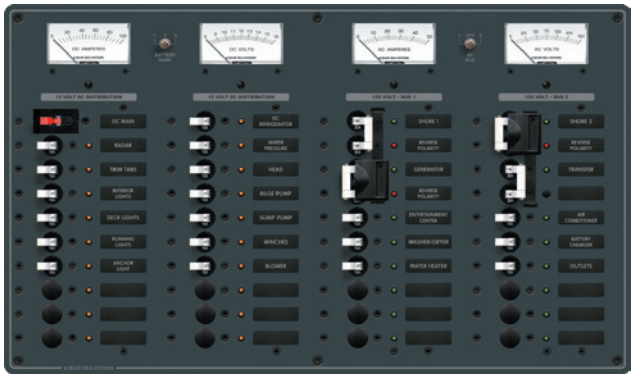
- A-Series Circuit Breakers (pages 36–37)
- C-Series Circuit Breakers (pages 38–39)
- AC and DC Analog Meters (page 97–98)
- AC and DC Digital Multimeters (page 99-100)
- 360 Panel System AC Insulating Rear Covers (page 108)
- Traditional Metal Panel AC insulating Rear Covers (page 114)
- Traditional Metal panels include PN 8031 and PN 8030 label set (page 115)
- 360 Panel System panels PN 4206 and PN 4205 label set (page 115)

	1204	1205	8084	8184
Style	360 Panel System		Traditional Metal	
Total AC Positions	Main + 6 positions		Main + 6 positions	
Total DC Positions	Main + 15 positions		Main + 15 positions	
AC Circuit Breakers (PN)	Main, 30A AC (7414) 6 Branch, 15A AC (7403)	Main, 16A AC (7412) 6 Branch, 8A AC (7401)	Main, 30A AC (7238) 3 Branch, 15A AC (7210)	Main, 16A AC (7294) 3 Branch, 8A AC (7299)
DC Circuit Breakers (PN)	Main, 100A DC (7549) 15 Branch, 15A DC (7403)	Main, 100A DC (7549) 15 Branch, 15A DC (7403)	Main, 100A DC (7250I) 9 Branch, 15A DC (7210)	Main, 100A DC (7250I) 9 Branch, 15A DC (7210)
AC/DC Voltage	120V AC/12V DC	230V AC/12V DC	120V AC/12V DC	230V AC/12V DC
Insulating Panel Back	Included with panel		PN 4029 sold separately (page 114)	
Actuator Style	Flat Rocker		White Toggle	
AC Meters (PN)	0-150V AC (9353)	0-250V AC (9354)	0-150V AC (9353)	0-250V AC (9354)
DC Meters (PN)	8-16V DC (8003), 0-100A DC (8017)		8-16V DC (8003), 0-100A DC (8017)	
Width x Height in (mm)	13.63 (346.08) x 10.75 (273.05)		14.75 (374.65) x 10.00 (254.00)	
Depth in (mm)	4.00 (101.60)		3.00 (76.20)	
Weight lb (kg)	11.67 (5.30)		8.75 (3.90)	

	8095	8195	1218	1219
Style	Traditional Metal		360 Panel System	
Total AC Positions	Main + 8 positions		Main + 6 positions	
Total DC Positions	Main + 29 positions		Main + 19 positions	
AC Circuit Breakers (PN)	Main, 30A AC (7238) 5 Branch, 15A AC (7210)	Main, 16A AC (7294) 5 Branch, 8A AC (7299)	Main, 30A AC (7414) 6 Branch, 15A AC (7403)	Main, 16A AC (7412) 6 Branch, 8A AC (7401)
DC Circuit Breakers (PN)	Main, 100A DC (7250I) 20 Branch, 15A DC (7210)	Main, 100A DC (7250I) 20 Branch, 15A DC (7210)	Main, 100A DC (7549) 19 Branch, 15A DC (7403)	Main, 100A DC (7549) 19 Branch, 15A DC (7403)
AC/DC Voltage	120V AC/12V DC	230V AC/12V DC	120V AC/12V DC	230V AC/12V DC
Insulating Panel Back	-		Included with panel	
Actuator Style	White Toggle		Flat Rocker	
AC Meters (PN)	0-150V AC (9353), 0-50A AC (9630)	0-250V AC (9354), 0-50A AC (9630)	AC Digital Multimeter (8247)	
DC Meters (PN)	8-16V DC (8003), 0-100A DC (8017)		DC Digital Multimeter (8248)	
Width x Height in (mm)	19.50 (495.30) x 11.50 (292.10)		13.63 (346.08) x 10.75 (273.05)	
Depth in (mm)	3.00 (76.20)		4.00 (101.60)	
Weight lb (kg)	12.45 (5.66)		12.8 (5.82)	

230 Volt (typical of Europe)

	1118	1119	8408	8508
Style	360 Panel System		Traditional Metal	
Total AC Positions	Main + 6 positions		Main + 6 positions	
Total DC Positions	20 positions		Main + 18 positions	
AC Circuit Breakers (PN)	Main, 30A AC (7237) 6 Branch, 15A AC (7208)	Main, 16A AC (7348) 6 Branch, 8A AC (7347)	Main, 30A AC (7238) 3 Branch, 15A AC (7210)	Main, 16A AC (7294) 3 Branch, 8A AC (7299)
DC Circuit Breakers (PN)	20 Branch, 15A DC (7208)	20 Branch, 15A DC (7208)	Main, 100A DC (7250I) 12 Branch, 15A DC (7210)	Main, 100A DC (7250I) 12 Branch, 15A DC (7210)
AC/DC Voltage	120V AC/12V DC	230V AC/12V DC	120V AC/12/24V DC	230V AC/12/24V DC
Insulating Panel Back	Included with panel		-	
Actuator Style	Black Toggle		White Toggle	
AC Meters (PN)	AC Digital Multimeter (8247)		AC Digital Multimeter (8247)	
DC Meters (PN)	DC Digital Multimeter (8248)		DC Digital Multimeter (8248)	
Width x Height in (mm)	13.63 (346.08) x 10.75 (273.05)		14.75 (374.65) x 10.00 (254.00)	
Depth in (mm)	4.00 (101.60)		4.00 (101.60)	
Weight lb (kg)	12.5 (5.68)		9.3 (4.23)	



	8085	8185	8086	8186
Style	Traditional Metal		Traditional Metal	
Total AC Positions	2 Sources + 12 positions		3 Sources + 12 positions + Transfer	
Total DC Positions	Main + 7 positions		Main + 19 positions	
AC Circuit Breakers (PN)	2 Main, 30A AC (7238) 9 Branch, 15A AC (7210)	2 Main, 16A AC (7294) 9 Branch, 8A AC (7299)	2 Main, 30A AC (7238) 1 Main, 50A AC (7242) 1 Transfer, 30A (7238) 6 Branch, 15A AC (7210)	2 Main, 16A AC (7294) 1 Main, 32A AC (7295) 1 Transfer, 16A (7294) 6 Branch, 8A AC (7299)
DC Circuit Breakers (PN)	Main, 100A DC (7250I) 4 Branch, 15A DC (7210)		Main, 100A DC (7250I) 13 Branch, 15A DC (7210)	
AC/DC Voltage	120V AC/12V DC	230V AC/12V DC	120V AC/12V DC	230V AC/12V DC
Insulating Panel Back	-		PN 4031 sold separately (page 114)	
Actuator Style	White Toggle		White Toggle	
AC Meters (PN)	0-150V AC (9353), 0-50A AC (9630)	0-250V AC (9354), 0-50A AC (9630)	0-150V AC (9353), 0-50A AC (9630)	0-250V AC (9354), 0-50A AC (9630)
DC Meters (PN)	8-16V DC (8003)		8-16V DC (8003), 0-100A DC (8017)	
Width x Height in (mm)	14.75 (374.65) x 10.00 (254.00)		19.50 (495.30) x 11.50 (292.10)	
Depth in (mm)	3.00 (76.20)		3.00 (76.20)	
Weight lb (kg)	9.00 (4.09)		12.45 (5.66)	

230 Volt (typical of Europe)

AC~ DC⎓
Custom 360 Panel System

360 PANEL SYSTEM

CUSTOM PANEL SOLUTIONS IN DAYS, NOT WEEKS

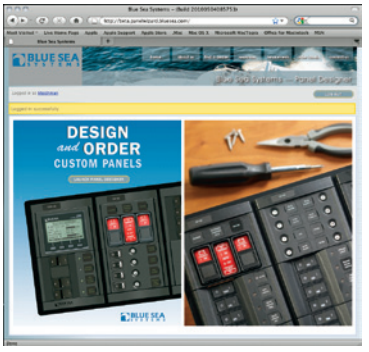
Blue Sea Systems knows that a stock panel may not meet the needs of every boater. A custom panel can be created for a unique application in a fraction of the time required by a custom panel shop. From a single module to a panel with 80 circuit breakers, all panel types can be built. Custom 360 Panels are built at Blue Sea Systems in Bellingham, Washington, and are shipped within seven days of order receipt.

Design a custom panel using the Panel Wizard or the Custom 360 Panel Worksheet. Both are available at www.bluesea.com.

Hunt Yachts Harrier 29

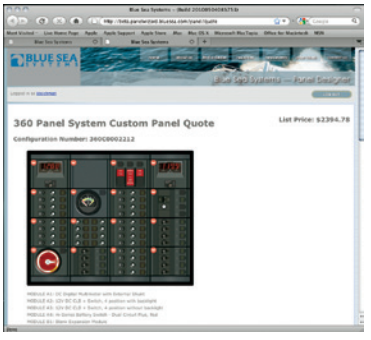
Design and order your custom panel in 3 easy steps:

1. **Launch** the Panel Wizard at panelwizard.bluesea.com



2. **Design** the panel with modules, circuit breakers, and labels and view the list price

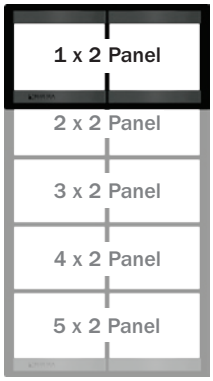
3. **Confirm** the panel design and submit an order

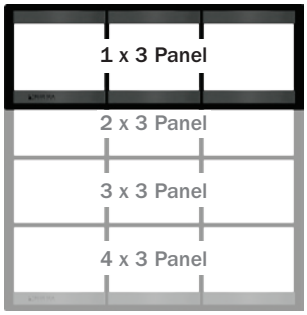


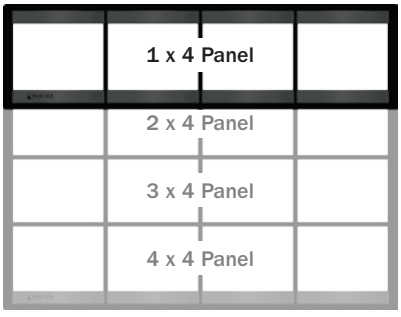
Receive Panels ship within seven days of order receipt

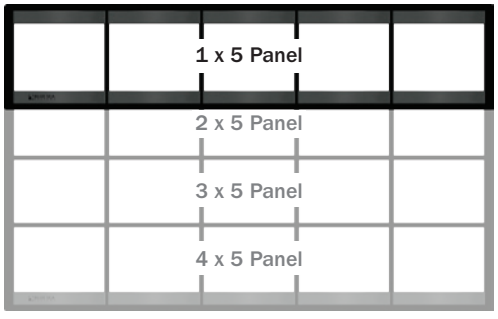
Available Modules and Frames for Custom 360 Panels

1 x 1 Panel










Vessel Systems Monitor
VSM 422


m-Series Battery Switch


Battery Management


DIN Meter


Medium Duty Push Button
Reset-Only Circuit Breakers


285-Series Circuit Breakers


Standard Analog Meter


Residual Current Circuit Breaker


12 Volt DC Sockets


Digital Meter

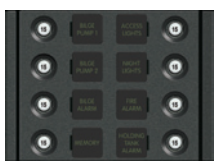

2 Inch Gauge

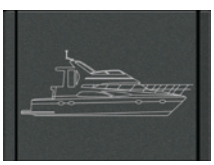

Push Button Circuit Breakers
with Rocker Switches


Rotary Switch Source Selection


Flat Rocker Circuit Breakers


NEW PACIFIC SERIES
Battery Charger Remote Display


Push Button Circuit Breakers


Pad Printed Blank Module


NEW Bilge Pump

Rows x Columns	Panel Height in (mm)	Panel Width in (mm)	Cut out Height in (mm)	Cut out Width in (mm)
1 x 1	4.75 (120.65)	4.88 (123.83)	3.31 (84.07)	4.38 (111.13)
2 x 1	7.75 (196.85)	4.88 (123.83)	6.31 (160.27)	4.38 (111.13)
3 x 1	10.75 (273.05)	4.88 (123.83)	9.31 (236.47)	4.38 (111.13)
4 x 1	13.75 (349.25)	4.88 (123.83)	12.31 (312.67)	4.38 (111.13)
1 x 2	4.75 (120.65)	9.25 (234.95)	3.31 (84.07)	8.75 (222.25)
2 x 2	7.75 (196.85)	9.25 (234.95)	6.31 (160.27)	8.75 (222.25)
3 x 2	10.75 (273.05)	9.25 (234.95)	9.31 (236.47)	8.75 (222.25)
4 x 2	13.75 (349.25)	9.25 (234.95)	12.31 (312.67)	8.75 (222.25)
5 x 2	16.75 (425.45)	9.25 (234.95)	15.31 (388.87)	8.75 (222.25)
1 x 3	4.75 (120.65)	13.63 (346.08)	3.31 (84.07)	13.13 (333.38)
2 x 3	7.75 (196.85)	13.63 (346.08)	6.31 (160.27)	13.13 (333.38)
3 x 3	10.75 (273.05)	13.63 (346.08)	9.31 (236.47)	13.13 (333.38)
4 x 3	13.75 (349.25)	13.63 (346.08)	12.31 (312.67)	13.13 (333.38)
1 x 4	4.75 (120.65)	18.00 (457.20)	3.31 (84.07)	17.50 (444.50)
2 x 4	7.75 (196.85)	18.00 (457.20)	6.31 (160.27)	17.50 (444.50)
3 x 4	10.75 (273.05)	18.00 (457.20)	9.31 (236.47)	17.50 (444.50)
4 x 4	13.75 (349.25)	18.00 (457.20)	12.31 (312.67)	17.50 (444.50)
1 x 5	4.75 (120.65)	22.38 (568.33)	3.31 (84.07)	21.88 (555.63)
2 x 5	7.75 (196.85)	22.38 (568.33)	6.31 (160.27)	21.88 (555.63)
3 x 5	10.75 (273.05)	22.38 (568.33)	9.31 (236.47)	21.88 (555.63)
4 x 5	13.75 (349.25)	22.38 (568.33)	12.31 (312.67)	21.88 (555.63)

Monitoring

Monitoring

Keeping track of onboard systems is critical to safety and peace of mind. Running low on fuel or not knowing about a failing battery can lead to dangerous situations. Blue Sea Systems produces analog meters, digital meters, a portable multimeter, and a vessel monitoring system to keep the boating experience safe and enjoyable.

Analog meters are relatively inexpensive and come in three styles. Micro meters are ideal for limited space applications. DIN meters represent European style. Standard meters mount in many existing panels. All Blue Sea Systems analog meters have backlit faces so they are easy to read in low-light conditions.

Standard Analog Meters

Digital meters have higher resolutions than analog meters, and have large, bright characters. Blue Sea Systems digital meters have splash-proof cases, feature three brightness levels, and can be easily panel or surface mounted.

Digital Meters

The Vessel Systems Monitor VSM 422 represents the best in comprehensive, cost-effective monitoring. It is four meters in one, monitoring DC systems, AC systems, up to three tanks, and bilge pump operation. Its ability to perform complicated battery state-of-charge and amp-hours-remaining calculations means no more guesswork about battery status. At a substantial cost savings over four separate monitors, it is an outstanding value.

Vessel Systems Monitor VSM 422

The compact Mini Clamp Multimeter fits easily into toolboxes. Optimized for the marine electrician and discerning boat owner, this meter helps with troubleshooting and diagnostics.


Mini Clamp Multimeter

SECTION INDEX

DC ⎓

DIN Meters

Easy to read European style analog DC meters

Common Features

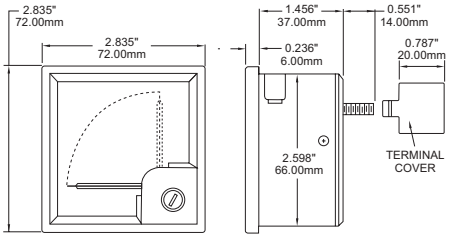
- Standard European 72mm design
- White matte dial with black printed scale and knife-edge pointer
- Backlit meter face (separate 12 or 24V DC backlight connections)
- Terminal cover included to prevent accidental short circuit
- Includes appropriate external DC shunt (page 105), when required

Specifications

Ioc (Meter)	Amperage Operating Current 1 mA at full scale
Ioc (Backlight)	Amperage Operating Current 16 mA@12V DC 20 mA@24V DC

1050
Voltmeter 8–16V
Connection: 2 wire to DC positive (+) and negative (-)
Weight: 0.33 lb (0.15 kg)

1051
Voltmeter 18–32V
Connection: 2 wire to DC positive (+) and negative (-)
Weight: 0.33 lb (0.15 kg)



1052
Ammeter 0–25A
Shunt type: Internal
Connection: 2 wire inline - no other power required
Weight: 0.13 lb (0.15 kg)

1053
Ammeter 0–50A
Shunt type: External—50 mV at full scale
Connection: 2 wire from shunt - no other power required
Weight: 0.53 lb (0.24 kg)

1054
Ammeter 0–100A
Shunt type: External—50 mV at full scale
Connection: 2 wire from shunt - no other power required
Weight: 0.53 kg (0.24 lb)

1055
Ammeter 0–150A
Shunt type: External—50 mV at full scale
Connection: 2 wire from shunt - no other power required
Weight: 0.53 lb (0.24 kg)

AC ~

DIN Meters

Easy to read European style analog AC meters

Common Features

- Standard European 72mm design
- White matte dial with black printed scale and knife-edge pointer
- Backlit meter face (separate 12 or 24V DC backlight connections)
- Terminal cover included to prevent accidental short circuit
- Includes appropriate external AC Current Transformer (page 105), when required

Specifications

Ioc (Meter)	Amperage Operating Current 50 mA AC at full scale (Ammeter only)
Ioc (Backlight)	Amperage Operating Current 16 mA@12V DC 20 mA@24V DC

1056
Voltmeter 0–150V
Connection: 2 wire to AC hot and neutral
Weight: 0.33 lb (0.15 kg)

1057
Voltmeter 0–250V
Connection: 2 wire to AC hot and neutral
Weight: 0.33 lb (0.15 kg)

1058
Ammeter 0–50A
Connection: 2 wire from coil slipped over wire to be measured
Weight: 0.43 lb (0.19 kg)

DC ⎓

Analog Meters

Standard and Micro size meters with backlighting for low light conditions

- Includes appropriate external DC shunt (page 105), when required
- Backlit meter face (separate 12 or 24V DC backlight connections)

Specifications

Ioc (Meter)	Amperage Operating Current 1 mA at full scale
Ioc (Backlight)	Amperage Operating Current 16 mA@12V DC 20 mA@24V DC

Voltmeters

Connection: 2 wire to DC positive (+) and negative (-)

8003
Function: 8–16V DC
Meter Face Size: 2-3/4"
Weight: 0.25 lb (0.11 kg)

8240
Function: 18–32V DC
Meter Face Size: 2-3/4"
Weight: 0.25 lb (0.11 kg)

Micro Voltmeters

Connection: 2 wire to DC positive (+) and negative (-)

8028
Function: 8-16V DC
Meter Face Size: 2"
Weight: 0.19 lb (0.09 kg)

8243
Function: 18-32V DC
Meter Face Size: 2"
Weight: 0.19 lb (0.09 kg)

Zero Center Micro Ammeter

8254
Function: 50-0-50A DC
Shunt Type: External—50 mV at meter full scale
Meter Face Size: 2"
Weight: 0.40 lb (0.18 kg)

Ammeters

Connection: 2 wire inline - no other power required

8005
Function: 0-25A DC
Shunt Type: Internal
Meter Face Size: 2-3/4"
Weight: 0.60 lb (0.27 kg)

Connection: 2 wire from shunt - no other power required

8022
Function: 0-50A DC
Shunt Type: External—50 mV at meter full scale
Meter Face Size: 2-3/4"
Weight: 0.60 lb (0.27 kg)

8017
Function: 0-100A DC
Shunt Type: External—50 mV at meter full scale
Meter Face Size: 2-3/4"
Weight: 0.60 lb (0.27 kg)

8018
Function: 0-150A DC
Shunt Type: External—50 mV at meter full scale
Meter Face Size: 2-3/4"
Weight: 0.60 lb (0.27 kg)

8019
Function: 0-200A DC
Shunt Type: External—50 mV at meter full scale
Meter Face Size: 2-3/4"
Weight: 0.60 lb (0.27 kg)

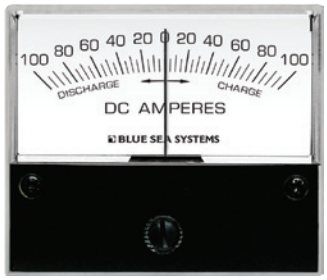
Micro Ammeters

Connection: 2 wire - no other power required

8038
Function: 0-15A DC
Shunt Type: Internal
Meter Face Size: 2"
Weight: 0.20 lb (0.09 kg)

Connection: 2 wire from shunt - no other power required

8041
Function: 0-50A DC
Shunt Type: External - 50 mV at meter full scale
Meter Face Size: 2"
Weight: 0.40 lb (0.18 kg)



Zero Center Ammeters

Connection: 2 wire from shunt - no other power required

8252*
Function: 50-0-50A DC
Shunt Type: External—50 mV at meter full scale
Meter Face Size: 2-3/4"
Weight: 0.58 lb (0.26 kg)

8253*
Function: 100-0-100A DC
Shunt Type: External—50 mV at meter full scale
Meter Face Size: 2-3/4"
Weight: 0.58 lb (0.26 kg)

* **Meters read both discharge and charge current**

Analog Voltmeter Panels

Enables voltage monitoring on up to 3 battery banks with one analog meter

- Includes standard 8003 DC Analog Voltmeter
- Displays voltage from 8–16 Volts DC
- 3 position switch for multiple battery banks

8015
Traditional Metal
Width: 5.25 in (133.35 mm)
Height: 3.75 in (95.25 mm)
Weight: 0.49 lb (0.22 kg)

1473
360 Panel System
Width: 4.88 in (123.83 mm)
Height: 4.75 in (120.65 mm)
Weight: 1.30 lb (0.59 kg)

AC ~

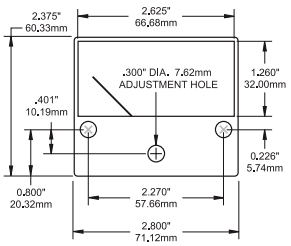
Analog Meters

Standard and Micro size meters with backlighting for low light conditions

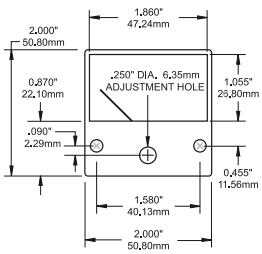
- Includes appropriate external AC Current Transformer (page 105), when required
- Backlit meter face (separate 12V or 24V DC backlight connections)

Specifications

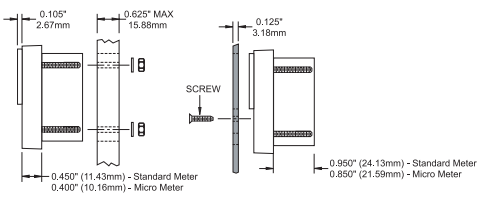
Ioc (Meter)	Amperage Operating Current
	50 mA AC at full scale (Ammeter only)
Ioc (Backlight)	Amperage Operating Current
	16 mA@12V DC
	20 mA@24V DC



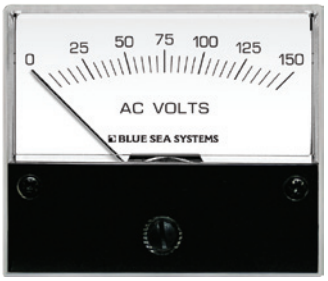
Standard Meter



Micro Meter

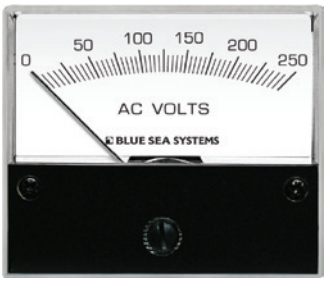


Surface Mount Panel Mount

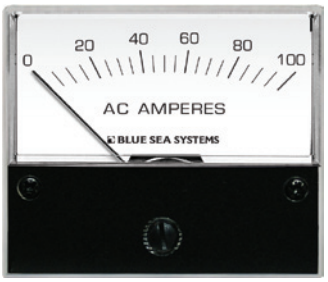


9353
Voltmeter 0–150V AC
Connection: 2 wire to AC hot and neutral
Meter Face Size: 2-3/4"
Weight: 0.25 lb (0.11 kg)

9630
Ammeter 0–50A AC
Connection: 2 wire from coil slipped over wire to be measured
Meter Face Size: 2-3/4"
Weight: 0.30 lb (0.14 kg)



9354
Voltmeter 0–250V AC
Connection: 2 wire to AC hot and neutral
Meter Face Size: 2-3/4"
Weight: 0.26 lb (0.12 kg)

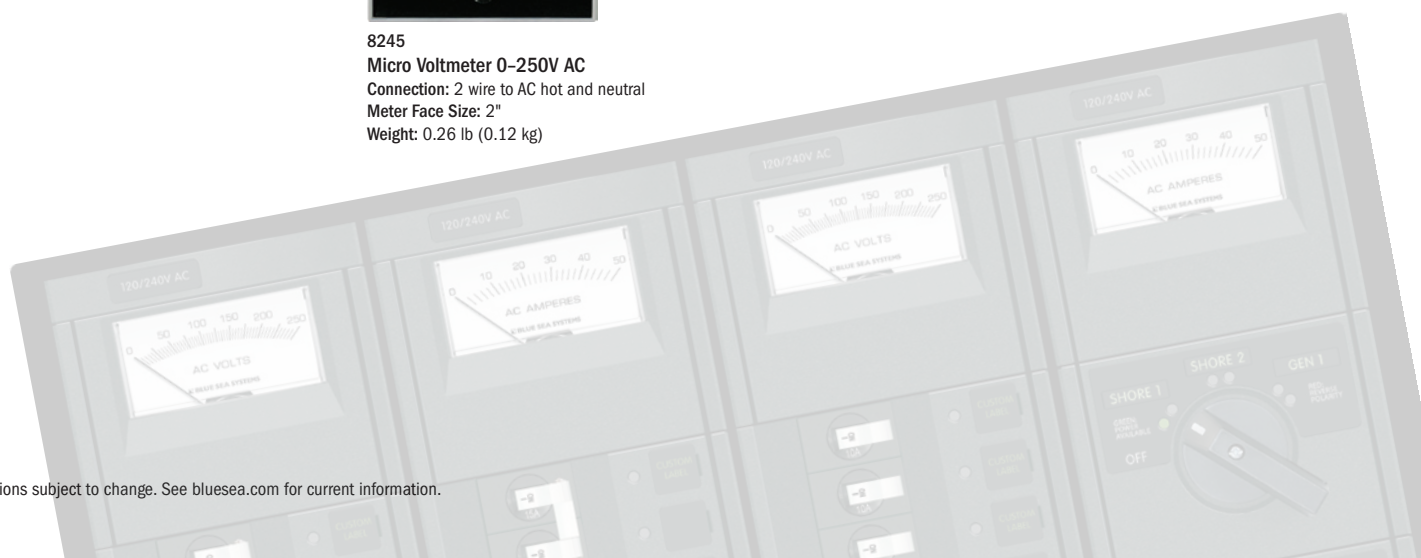


8258
Ammeter 0–100A AC
Connection: 2 wire from coil slipped over wire to be measured
Meter Face Size: 2-3/4"
Weight: 0.32 lb (0.15 kg)

8244
Micro Voltmeter 0–150V AC
Connection: 2 wire to AC hot and neutral
Meter Face Size: 2"
Weight: 0.19 lb (0.09 kg)

8246
Micro Ammeter 0–50V AC
Connection: 2 wire from coil slipped over wire to be measured
Meter Face Size: 2"
Weight: 0.26 lb (0.12 kg)

8245
Micro Voltmeter 0–250V AC
Connection: 2 wire to AC hot and neutral
Meter Face Size: 2"
Weight: 0.26 lb (0.12 kg)



DC
Digital Meters

Allows easy monitoring of key DC functions

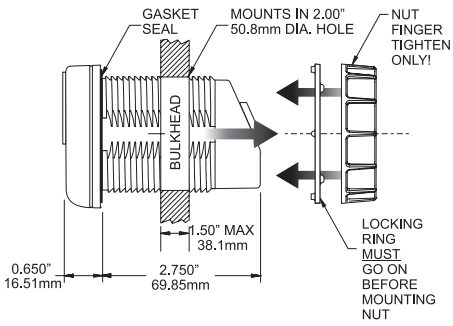
- Large, bright LED characters
- Three levels of brightness
- Splash-proof case
- Easy to surface mount in a 2" round hole

General Specifications:

Display Character Size	9/16"
Input Voltage	7-60V DC*
Maximum Power Consumption	1.00W**
Standby Power	0.15W

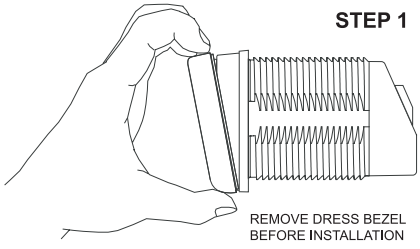
Digital Meter Front Panel Mount

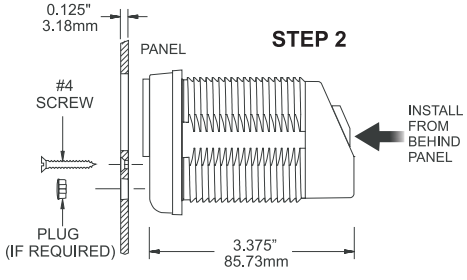
Surface mounting features a finger nut and locking ring for quick and easy installation into a 2.00" (52.00mm) diameter hole.

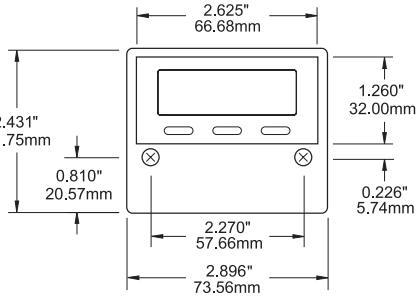


Digital Meter Rear Panel Mount

To panel mount simply remove the bezel and mount in any Blue Sea Systems full sized meter cut out







8248
DC Multimeter with Alarm

Voltage Measurement:

Range	0-60V DC
Resolution	0.01V DC
Accuracy (% of Reading)	± 0.5%***

Current Measurement:

Shunt	500A/50mV
Range	± 500A DC
Resolution (-100 to -500)	1A DC
Resolution (-99.9 to +500)	0.1A DC
Accuracy (% of Reading)	± 0.5%***

Sleep Mode: Programmable
Audio/Visual Alarms: High and low voltage
Included Shunt: 500A Shunt 8255 (page 105)
Weight: 1.12 lb (0.51 kg)

8235
DC Voltmeter

Voltage Measurement:

Range	0-60V DC
Resolution	0.01V DC
Accuracy (% of Reading)	± 0.5%***

Sleep Mode: Manual
Weight: 0.45 lb (0.20 kg)

8251
DC Voltmeter with Alarm

Voltage Measurement:

Range	0-60V DC
Resolution	0.01V DC
Accuracy (% of Reading)	± 0.5%***

Sleep Mode: Programmable
Audio/Visual Alarms: High and low voltage
Weight: 0.45 lb (0.20 kg)

8236
DC Ammeter

Current Measurement:

Shunt	500A/50mV
Range	± 500A DC
Resolution (-100 to -500)	1A DC
Resolution (-99.9 to +500)	0.1A DC
Accuracy (% of Reading)	± 0.5%***

Sleep Mode: Manual
Audio/Visual Alarms: High and low voltage
Included Shunt: 500A Shunt 8255 (page 105)
Weight: 1.11 lb (0.50 kg)

Digital Voltmeter Panels

Enables voltage monitoring on up to 3 battery banks with one digital meter

- Includes 8235 DC Digital Voltmeter
- 4 digit LED display—Displays voltage from 0–60 Volts DC
- 3 position switch for multiple battery banks

8051
Traditional Metal
Width: 5.25 in (133.35 mm)
Height: 3.75 in (95.25 mm)
Weight: 0.64 lb (0.29 kg)

1474
360 Panel System
Width: 4.88 in (123.83 mm)
Height: 4.75 in (120.65 mm)
Weight: 1.30 lb (0.59 kg)

* Applicable for measuring 12, 24, 32, 36, and 42 Volt DC systems if meter is powered by 8-32V supply

** Variable with voltage, display intensity, segments illuminated, and sleep mode

***± 1 least digit of resolution

AC~

Digital Meters

Allows easy monitoring of key AC functions

- Large, bright LED characters
- Three levels of brightness
- Splash-proof case
- Easy to surface mount in a 2" round hole

General Specifications:

Display Character Size	9/16"
Input Voltage	80-249V AC*
Maximum Power Consumption	1.00W**
Standby Power	0.60W**

8238
AC Ammeter

Current Measurement:	
Current Transformer	150A/50mA
Range 1 (Resolution 0.01A)	0.00-9.99A AC (RMS)
Range 2 (Resolution 0.1A)	10.0-150.0A AC (RMS)
Accuracy (% of Reading)	± 1.0%***
Sleep Mode:	Manual
Weight:	0.78 lb (0.35 kg)

8239
AC Frequency Meter

Frequency Measurement:	
Range	40-90Hz
Resolution	0.1Hz
Accuracy (% of Reading)	± 0.1%***
Calibrated with sine wave input	
Sleep Mode:	Manual
Weight:	0.72 lb (0.35 kg)

8247
AC Multimeter with Alarm

Voltage Measurement:	
Range	80-249V AC*
Resolution	0.1V AC
Accuracy (% of Reading)	
90-249V AC (RMS)	± 1.0%***
70-90V AC (RMS)	± 5.0%***
Current Measurement:	
Current Transformer	150A/50mA
Range 1 (Resolution 0.01A)	0.00-9.99A AC (RMS)
Range 2 (Resolution 0.1A)	10.0-150.0A AC (RMS)
Accuracy (% of Reading)	± 1.0%***
Frequency Measurement:	
Range	40-90Hz
Resolution	0.1Hz
Accuracy (% of Reading)	± 0.1%***
Calibrated with sine wave input	
Power Measurement:	
Range 1 (Resolution 10W)	0-9990W
Range 2 (Resolution 0.1kW)	10-45kW
Accuracy (% of Reading)	±5%***
Sleep Mode:	Programmable
Audio/Visual Alarms:	High and low voltage High current
Included Current Transformer:	8256 (page 99)
Weight:	0.78 lb (0.35 kg)

8237
AC Voltmeter

Voltage Measurement:	
Range	80-249V AC*
Resolution	0.1V AC
Accuracy (% of Reading)	
90-249V AC (RMS)	± 1.0%***
70-90V AC (RMS)	± 5.0%***
Sleep Mode:	Manual
Weight:	0.72 lb (0.35 kg)

AC~ DC⎓

120/240V AC Digital Meter Mounting Panel

For monitoring 120/240V AC Systems

- Use with AC Digital Multimeter 8247 for monitoring 120/240V AC Systems
- Monitor Line 1 or Line 2 to Neutral and Line 1 to Line 2 voltages
- Includes two additional Current Transformers 8256 (page 105) and mounting screws

8410 (meter not included)
Description: 120/240V AC Digital Meter Blank Panel
Width: 5.25 in (133.35 mm)
Height: 3.75 in (95.25 mm)
Weight: 0.85 lb (0.39 kg)

Analog and Digital Meter Mounting Panels

Provides an easy method of mounting meters

- Panel mounts standard 2-3/4" Analog or Digital Meters (pages 97–100)
- Includes mounting screws and center adjustment hole plug

8013 (meter not included)
Accepts (1) 2-3/4" Analog or Digital Meter
Width: 5.25 in (133.35 mm)
Height: 3.75 in (95.25 mm)
Weight: 0.25 lb (0.11 kg)

1475 (meter not included)
Accepts (1) 2-3/4" Analog or Digital Meter
Width: 4.88 in (123.83 mm)
Height: 4.75 in (120.65 mm)
Weight: 0.60 lb (15.24 kg)

* For 120 & 240 Volt AC single phase systems
** Variable with voltage, display intensity, segments illuminated, and sleep mode
*** ± 1 least digit of resolution

Meter Comparison

DC

DC Voltmeters

DC Ammeters

Style	DIN		Analog Standard		Analog Micro		Digital with or without Alarm		DIN			
												
Part Number	1050	1051	8003	8240	8028	8243	8235	8251*	1052	1053	1054	1055
Measurement	8-16V DC	18-32V DC	8-16V DC	18-32V DC	8-16V DC	18-32V DC	0-60V DC	0-60V DC	0-25A DC	0-50A DC	0-100A DC	0-150A DC
Width in (mm)	2.835" (72.00)		2.80" (71.12)		2.0" (50.80)		2.896" (73.56)		2.835" (72.00)			
Height in (mm)	2.835" (72.00)		2.375" (60.33)		2.0" (50.80)		2.431" (61.75)		2.835" (72.00)			
Depth in (mm)	2.42" (61.52)		1.96" (49.66)		1.79" (45.47)		3.375" (85.73)		2.42" (61.52)			

* with alarm

DC Ammeters

DC Multimeter

Style	Analog Standard					Analog Micro		Zero Center Standard		Zero Center Micro	Digital	Multimeter with Alarm
												
Part Number	8005	8022	8017	8018	8019	8038	8041	8252	8253	8254	8236	8248*
Measurement	0-25A	0-50A	0-100A	0-150A	0-200A	0-15A DC	0-50A DC	50-0-50A DC	100-0-100A DC	50-0-50A DC	±500A DC	0-60V, ±500A DC
Width in (mm)	2.80" (71.12)					2.0" (50.80)		2.80" (71.12)		2.0" (50.80)	2.896" (73.56)	2.896" (73.56)
Height in (mm)	2.375" (60.33)					2.0" (50.80)		2.375" (60.33)		2.0" (50.80)	2.431" (61.75)	2.431" (61.75)
Depth in (mm)	1.96" (49.66)					1.79" (45.47)		1.96" (49.66)		1.79" (45.47)	3.375" (85.73)	3.375" (85.73)

AC

AC Voltmeters

Style	DIN		Analog Standard		Analog Micro			Digital
								
Part Number	1056	1057	9353	9354	8244	8245	8246	8237
Measurement	0-150V AC	0-250V AC	0-150V AC	0-250V AC	0-150V AC	0-250V AC	0-50V AC	80-249V AC
Width in (mm)	2.835" (72.00)		2.80" (71.12)		2.0" (50.80)			2.896" (73.56)
Height in (mm)	2.835" (72.00)		2.375" (60.33)		2.0" (50.80)			2.431" (61.75)
Depth in (mm)	2.42" (61.52)		1.96" (49.66)		1.79" (45.47)			3.375" (85.73)

AC Ammeters

AC Frequency

AC Multimeter

Style	DIN	Analog Standard		Digital	AC Frequency	Multimeter with Alarm
						
Part Number	1058	9630	8258	8238	8239	8247*
Measurement	0-50A AC	0-50A AC	0-100A AC	0-150A AC	40-90Hz	80-249V , 0-150A, 40-90Hz, 0-9990W
Width in (mm)	2.835" (72.00)	2.80" (71.12)		2.896" (73.56)	2.896" (73.56)	2.896" (73.56)
Height in (mm)	2.835" (72.00)	2.375" (60.33)		2.431" (61.75)	2.431" (61.75)	2.431" (61.75)
Depth in (mm)	2.42" (61.52)	1.96" (49.66)		3.375" (85.73)	3.375" (85.73)	3.375" (85.73)

AC ~ DC ⎓

Vessel Systems Monitor VSM 422

VSM 422™

The Vessel Systems Monitor VSM 422 is a comprehensive monitor of four boat systems in one compact meter saving space and money.

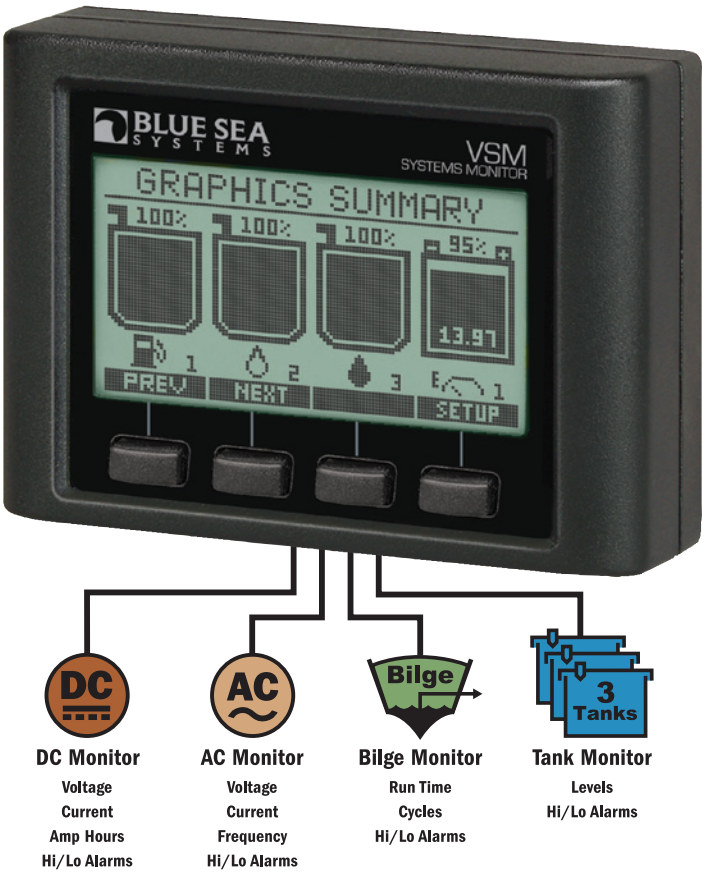
By monitoring DC (including battery state of charge), AC, tanks, and bilge pump, the VSM 422 alerts boaters to problems before they become emergencies.

The ability to monitor state of charge is critical to safe boating. By using a complex calculation of voltage, amperage, and amp-hours remaining, the VSM 422 is able to provide accurate and timely information about state of charge on the house battery, to help boaters know when it's time to recharge. The VSM 422 also monitors temperature on the primary battery with the included Battery Temperature Sensor.

AC monitoring includes voltage, amperage, watts, and frequency. Tank monitoring for up to three tanks includes alarm functions for high and low levels, and bilge pump monitoring includes pump active, cycle count, and duration.

With its user-friendly interface, intuitive display modes, and versatile case design, the Vessel Systems Monitor VSM 422 is an excellent replacement for four separate system monitors.

Note: Amp-hour function also available in PACIFIC SERIES Battery Charger Optional Remote Display (page 9). The remote display PN 7519 requires PN 8255 500A DC/50mV DC Shunt



Retail Packaging Includes:
head unit, surface mount bezel, surface mount gasket, DC Current Shunt 8255, AC Current Transformer 8256, Battery Temperature Sensor 1820, connectors, mounting screws and screw driver

DC Specifications

Nominal System Voltage	12 or 24V
Operating Voltage	8.5–33.0V
Minimum Current Draw	35mA @ 12V, backlight off 18.8mA @ 24V, backlight off
Voltage Accuracy	+/- 0.5%
Current Range	0-500A
Current Accuracy	+/- 1.0%

AC Specifications

Nominal System Voltage	120V @ 60Hz, North America 230V @ 50Hz, Typical of Europe
Operating Voltage	0-300V
Voltage Accuracy (RMS)	+/- 0.5%
Current Range	0-150A
Current Accuracy (RMS)	+/- 2.0%
Frequency	40-90Hz

Regulatory

CE Marked for E60945 electromagnetic interference
Unit face is IP67–protected against immersion up to 1 meter for 30 minutes
VSM 422 Surface Mount Gasket creates a waterproof seal on unit face

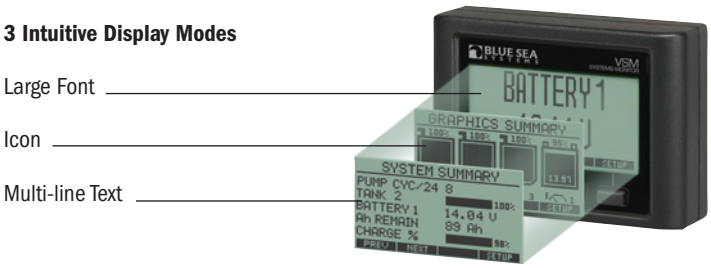
Tank Senders Supported:

10 - 180 Ω VDO–Typical of Europe
240 - 33 Ω Teleflex–North America
Blue Sea Systems Ultrasonic Tank Senders (sold separately)
· for diesel, water, or waste 1810 (32" tank depth)
· for gasoline 1811 (24" tank depth)

1800
Retail packaged in box

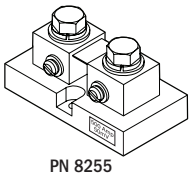
1801
Retail packaged in clam

3 Intuitive Display Modes

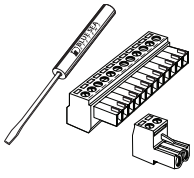


Components Included*

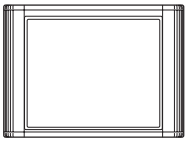
Head Unit



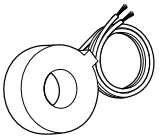
PN 8255
Shunt



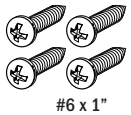
Connectors



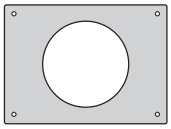
Surface Mount Bezel



PN 8256
AC Current Transformer



#6 x 1"
Pan Head Tapping Screws
for Surface Mount



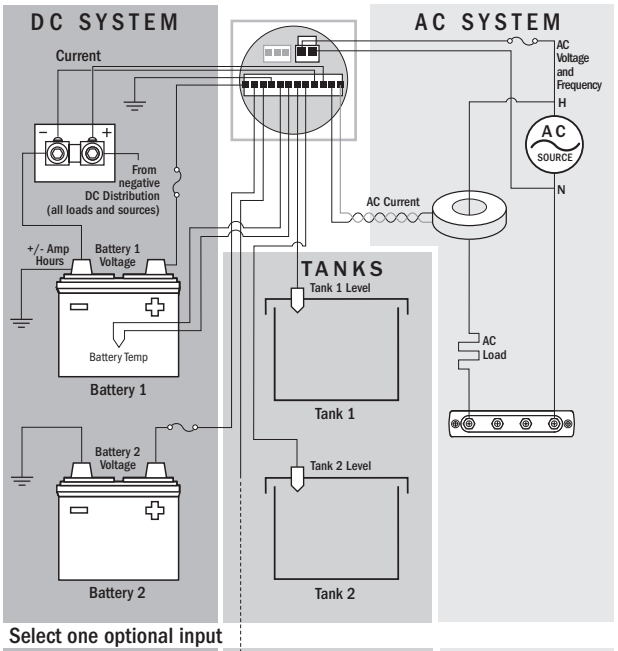
Surface Mount Gasket

PN 1820
Battery Temperature Sensor

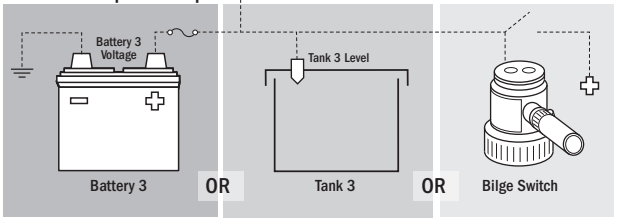
#6-32 x 1"
Flat Head Machine Screws
for Flat Panel Mount

*** Installation and Configuration Manual also included**

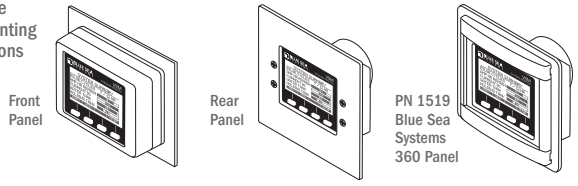
VESSEL SYSTEMS MONITOR

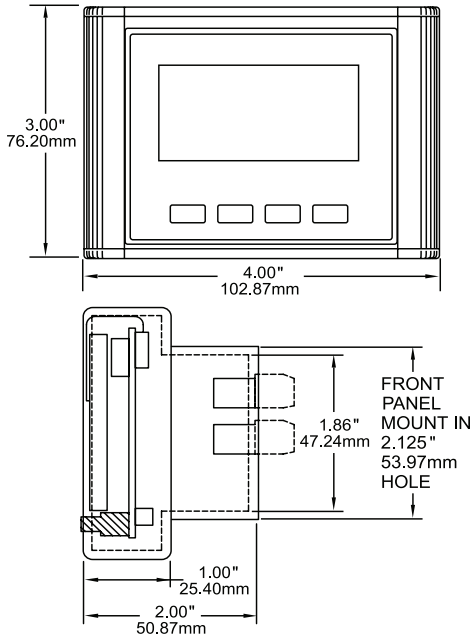


Select one optional input



Three Mounting Options

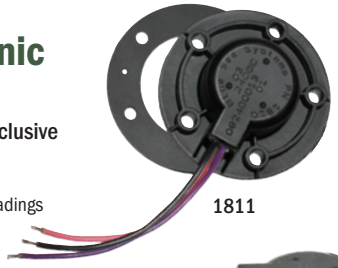




VSM 422 Ultrasonic Tank Senders

24" Gasoline tank sender for exclusive use with VSM 422

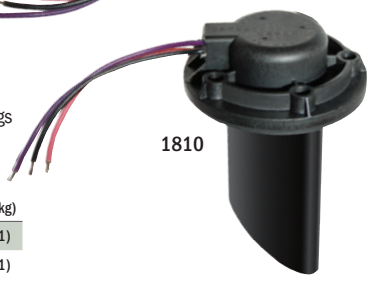
- For tanks up to 24" deep
- Anti-slosh algorithms for accurate readings
- Ignition protected



1811

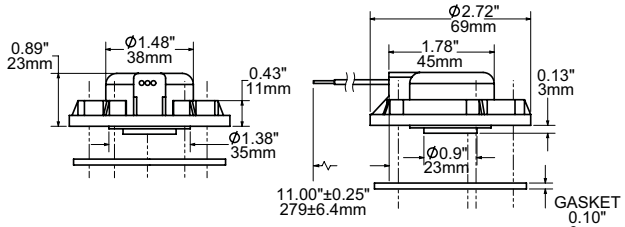
32" Diesel/Water/Waste tank sender for exclusive use with VSM 422

- For tanks up to 32" deep
- Anti-slosh algorithms for accurate readings
- Ignition protected

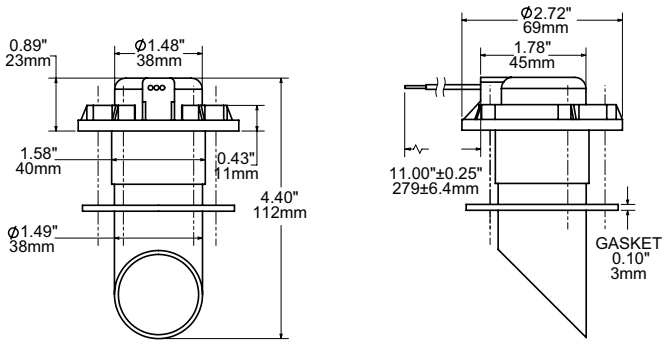


1810

PN	Vmxo Voltage Maximum Operating	Weight lb (kg)
1811	32V DC	0.25 (0.11)
1810	32V DC	0.25 (0.11)



1811 Dimensions



1810 Dimensions

VSM 422 Panel Mounting Options

1325 (meter not included)

1519 (meter not included)

PN	Description	Width in (mm)	Height in (mm)
1325	360 Mounting Kit Module	-	-
1519	360 Blank Panel	4.88 (123.83)	4.75 (120.65)

VSM Battery Temperature Sensor

Battery temperature sensor for exclusive use with VSM 422

- Measures temperature on primary battery

Specifications

Weight: 0.05 lb (0.23 kg)

1820

DC ⎓

2 Inch Round Gauges

Provides monitoring of key functions required for boat operation

NOT AVAILABLE IN RETAIL PACKAGING

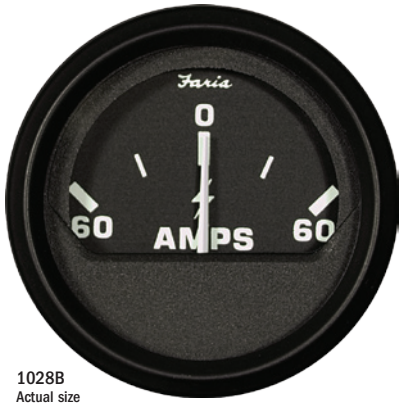
- Watertight, fog resistant, and anti-scratch glass face
- Edge-lit
- Will fit panels up to 0.8" thickness

Specifications

Vmxo	Voltage Maximum Operating	See table
Tmxo	Temperature Maximum Operating	158°F (70°C)
Tmno	Temperature Minimum Operating	-4°F (-20°C)
Ioc	Amperage Operating Current (with edgelight)	180mA
Ioc	Amperage Operating Current (without edgelight)	<100mA
Gauge diameter		2.00" (50.80mm)
Mounting hole diameter		2.06" (52.40mm)
Back clamp nuts torque		5–7 in-lb

Regulatory

CE Marked



1028B
Actual size

1023B

1022B

1030B

1029B

1026B (gauge is not edge-lit)

1024B

1027B

PN	Function	Vmxo	Depth in (mm)	Weight lb (kg)
1020B	Fuel Level E–1/2–F	16V DC	1.75 (44.45)	0.33 (0.15)
1021B	Potable Water Level E–1/2–F	16V DC	1.75 (44.45)	0.33 (0.15)
1022B	Engine Temp 100–250°F	16V DC	1.75 (44.45)	0.33 (0.15)
1023B	Oil Pressure 0–80 PSI/Bar	16V DC	1.75 (44.45)	0.33 (0.15)
1024B	Water Pressure 0–30 PSI/kPa	16V DC	2.10 (53.54)	0.69 (0.31)
1025B	Voltmeter 10–16 Volts	16V DC	1.75 (44.45)	0.33 (0.15)
1026B	Hour Meter—10,000 hrs	32V DC	2.40 (60.96)	0.37 (0.17)
1027B	Battery Condition Indicator	16V DC	3.00 (76.20)	0.37 (0.17)
1028B	DC Ammeter 60–0–60 Amps	16V DC	1.75 (44.45)	0.33 (0.15)
1029B	Clock—Quartz Analog	16V DC	2.70 (68.58)	0.37 (0.17)
1030B	Tank Level	16V DC	1.75 (44.45)	0.33 (0.15)

Gauge Panels

For mounting 2 Inch Round Gauges

1510 (Gauge not included)
Width: 4.88 in (123.83 mm)
Height: 4.75 in (120.65 mm)
Depth: 0.50 in (12.70 mm)
Weight: 0.50 lb (0.23 kg)

Small Format Label Sets (8214 and 8217 page 115)

AC~ DC⎓

Mini Clamp Multimeter

Compact and feature-rich AC/DC Multimeter eases diagnosis of marine electrical problems

- Clamp allows measurement of AC and DC current in wires without disturbing the circuits or contacting live terminals
- Compact size allows comfortable one hand operation, portability, and access to confined areas
- Auto range simplifies operation by automatically selecting the range that best fits the data
- Additional functions include: Data Hold, Overload Display, and Auto Power-Off
- True RMS AC measurement is accurate for normal sine wave and modified sine wave inverter output

Specifications

AC Amperes (Current): 0.01–400 Amps
AC Voltage: 0.001–600 Volts
DC Amperes (Current): 0.01–400 Amps
DC Voltage: 0.001–600 Volts
Resistance/Continuity Alarm: 0.1–40MΩ
Measurement Resolution: 4300 counts

Regulatory

- CE Marked
- CAT III, 600 Volts

8110
Mini Clamp Multimeter
Weight lb (kg): 0.47 (0.21)
(Includes test leads and carrying case)

DC⎓

DC Shunts

For use with DC Ammeters (page 96, 97, 99)

- For continuous operation, it is recommended that shunts not be run at more than two-thirds (66%) the rated current under normal conditions

Specifications

Shunt Type: Resistive
Full Scale: 50 mV

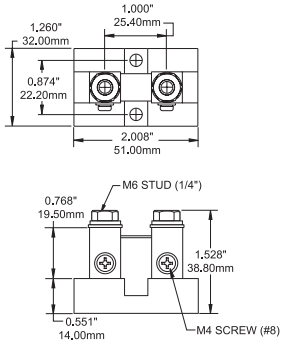
Imxo	Amperage Maximum Operating	66% of Rated Current
I300	Amperage Intermittent Rating (5 min.)	100%—Full scale rating
I3	Amperage Intermittent Rating (3 sec.)	300%—Full scale rating

9228

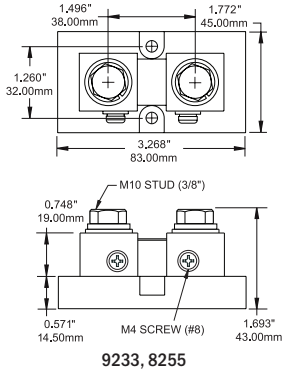
9233

8255

PN	For Use With	Ratio	Weight lb (kg)
9228	Analog Ammeter	50A DC/50mV DC	0.20 (0.09)
9230	Analog Ammeter	100A DC/50mV DC	0.20 (0.09)
9233	Analog Ammeter	200A DC/50mV DC	0.71 (0.32)
8255	Digital Ammeter	500A DC/50mV DC	0.71 (0.32)



9228, 9231



9233, 8255

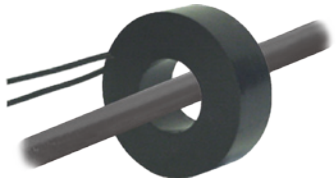
AC~

AC Current Transformers

For use with AC Ammeters (pages 96, 98, 100)

Specifications

Dimensions: 0.60 in (15.24 mm) Inside Diameter
1.38 in (35.05 mm) Outside Diameter



8073 (shown)
Analog Ammeter Transformer
Ratio: 50A AC/50mA AC
Weight: 0.10 lb (0.05 kg)

8257
Analog Ammeter Transformer
Ratio: 100A AC/50mA AC
Weight: 0.20 lb (0.09 kg)

8256
Digital Ammeter Transformer
Ratio: 150A AC/50mA AC
Weight: 0.20 lb (0.09 kg)

PN	For Use With	Ratio	Weight lb (kg)
8073	Analog Ammeter	50A AC/50mA AC	0.10 (0.05)
8257	Analog Ammeter	100A AC/50mA AC	0.20 (0.09)
8256	Digital Ammeter	150A AC/50mA AC	0.20 (0.09)

Accessories

Accessories

Blue Sea Systems has accessories available for above and below deck panels, as well as custom panel labels in any language.

Above deck accessories include toggle and Contura switches for Blue Sea Systems panels. Both types of switches are available in several pole/throw combinations.

Below deck accessories include innovative modular back covers for AC 360 Panels. ABYC standards mandate isolation of AC and DC components on combination panels. Stackable, screw-down covers protect AC components from coming into contact with tools, personnel, and DC wiring.

The new 360 Panel Hinge Kit replaces existing headers and footers to allow easy access to the rear of the panel. Order one hinge kit for each column of panel width.

Blue Sea Systems panel labels include labels with standard and custom text for all panel formats, with foreign language and special characters available. Custom labels ship rapidly due to an in-house printing facility, and over 500 standard labels are ready for immediate delivery. All labels are made using a two-layer high quality polycarbonate material with a waterproof adhesive, and are backprinted for scratch resistance.

Toggle Switch


Contura Switch

360 Panel Insulating Rear Cover


NEW 360 Panel Hinge Kit

Standard Panel Labels

Custom Panel Labels

SECTION INDEX

ABOVE DECK ACCESSORIES

BELOW DECK ACCESSORIES

360 Panel Label Backlight System

Enables backlighting for the Push Button Reset-Only Circuit Breaker and Rocker Switch 360 Panels

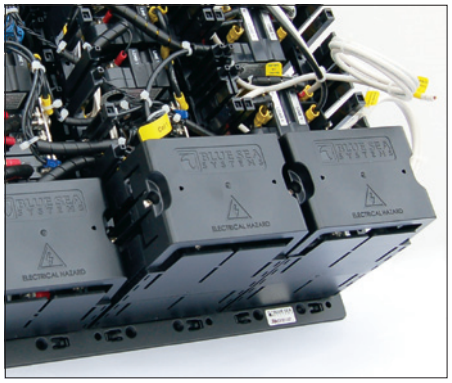
4121

Vmxo **Voltage Maximum Operating** 24 Volts DC
Weight 0.07 lb (0.03 kg)

360 Panel Insulating Back Covers

Provides electrical insulation for exposed panel backs

1331



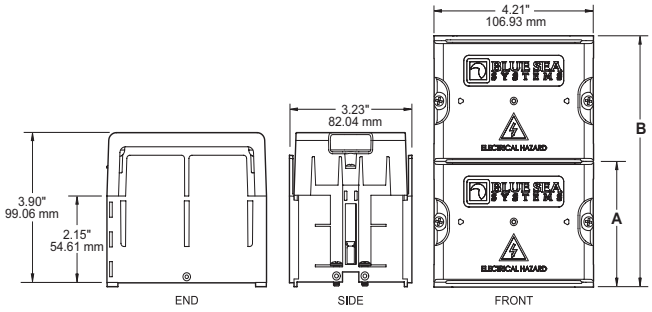
Features

- Isolation of panel AC components and circuits from DC system elements
- Meets ABYC safety requirements for panels with combined AC and DC loads
- Modular design consists of five interlocking pieces—SIDES, TOP, and ENDS
- Interlocking companion pieces can be stacked to accommodate large components
- Cover breakouts allow wire access in any direction
- UL 94-V0 rated base material resists high heat

Specifications

Material UL94-V0 Polycarbonate
Hardware 2 qty. #6 Phillips-drive sheet metal screws,
4 qty. #8-32 x 0.5" Phillips-drive machine screws with lock washers

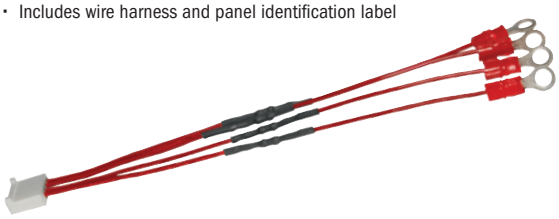
PN	Description	[A] Height in (mm)	[B] Height in (mm)	Weight lb (kg)
1331	1 module	3.23 (82.0)	-	0.56 (0.25)
1341	2 module	-	6.23 (158.2)	0.79 (0.36)



360 Panel 12 to 24 Volt Conversion Kit

Converts indicator LEDs from 12 Volt systems to 24 Volt systems

- Requires one kit per 12 Volt DC circuit breaker module
- Includes wire harness and panel identification label



4113
Weight 0.05 lb (0.02 kg)

360 Panel Rocker Switches

Provides switching options for applications requiring specific pole and throw configurations

Specifications

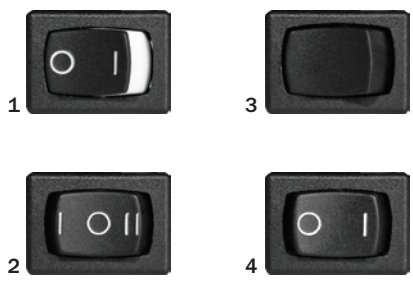
Single Pole

Imxo **Amperage Maximum Operating** See table below
Terminal Type Quick Connect Tab
Terminal Size 0.187" (4.80 mm)

Double Pole

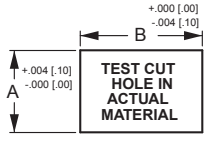
Imxo **Amperage Maximum Operating** See table below
Terminal Type 6.00" (152.00 mm) Wire Leads

PN	Pole-Throw	Illustration Below	Action ( ) = Momentary	Imxo Amperage Maximum Operating			
				12 Volts DC	24 Volts DC	125 Volts AC	250 Volts AC
7480	SPST	1	ON-OFF	10 Amps	10 Amps	10 Amps	10 Amps
7481	SPST	1	(ON)-OFF	10 Amps	10 Amps	12 Amps	6 Amps
7482	SPDT	2	ON-OFF-ON	10 Amps	8 Amps	8 Amps	8 Amps
7483	SPDT	2	ON-OFF-(ON)	10 Amps	8 Amps	8 Amps	8 Amps
7484	SPDT	2	(ON)-OFF-(ON)	10 Amps	8 Amps	8 Amps	8 Amps
7485	SPDT	4	(ON)-OFF-(ON)	10 Amps	8 Amps	8 Amps	8 Amps
7490	DPST	1	ON-OFF	5 Amps	5 Amps	8 Amps	4 Amps
7491	DPDT	3	ON-ON	5 Amps	5 Amps	8 Amps	4 Amps
7492	DPDT	2	ON-OFF-ON	5 Amps	5 Amps	8 Amps	4 Amps
7493	DPDT	3	ON-(ON)	5 Amps	5 Amps	8 Amps	4 Amps
7494	DPDT	2	ON-OFF-(ON)	5 Amps	5 Amps	8 Amps	4 Amps
7495	DPDT	2	(ON)-OFF-(ON)	5 Amps	5 Amps	8 Amps	4 Amps



RECOMMENDED PANEL OPENING

PANEL THICKNESS	A	B
.030" (.76mm)-.050" (1.27mm)	.508" (12.90mm)	.756" (19.20mm)
.050" (1.27mm)-.078" (1.98mm)	.508" (12.90mm)	.764" (19.40mm)
.078" (1.98mm)-.125" (3.17mm)	.508" (12.90mm)	.780" (19.81mm)



360 Panel Hinge Kit NEW

Replace existing headers and footers and allow easy access to the rear of the panel. Order one hinge kit for each column of panel width

Features

- Enables the panel to pivot down for easy access or servicing
- Retrofit existing 360 Panels
- Includes one header, one hinged footer, and all necessary mounting hardware

Specifications

Mounting Hardware

Mounts hinge components and panel to bulkhead substrate	4 qty. #10-32 x 1/2" Block oxide stainless steel head cap screws, with mating brass threaded inserts
Mounts hinge components to the 360 Panel frame	4 qty. #8-32 x 3/8" stainless steel Phillips flat head screws

4122

PN	Description
4122	360 Panel Hinge Kit includes one header and one footer and all necessary mounting hardware

360 Panel Plugs

Fills empty Flat Rocker apertures on the 360 Panel System for future use

4117 4116

PN	Description	Weight lb (kg)
4116	Fills Flat Rocker circuit breaker aperture	0.03 (0.01)
4117	Fills 360 Panel Rocker Switch aperture	0.03 (0.01)

360 Panel Adapters

Provides a method of mounting alternative switch and circuit breakers in the flat rocker aperture

4111 4112 4119

PN	Description	Weight lb (kg)
4111	Adapts Push Button Reset-Only Circuit Breaker (page 32)	0.03 (0.01)
4112	Adapts A-Series Toggle Circuit Breaker (page 36) and Panel Switch (page 112)	0.03 (0.01)
4119	Adapts Rocker Switch (page 108)	0.03 (0.01)

360 Panel 12 Volt DC Socket

Integrates 12 Volt DC Sockets with 360 Panel System

Component Reference

- 12 Volt DC Sockets (page 113)

Specifications

Vmxo **Voltage Maximum Operating** 15 Volts DC
Imxo **Amperage Maximum Operating** 15 Amps

1472

Dimensions: (WxH) 4.88 x 4.75 in (123.83 x 120.65 mm)
Depth 1.50 in (38.10 mm)
Weight 0.70 lb (0.32 kg)

360 Panel Blank

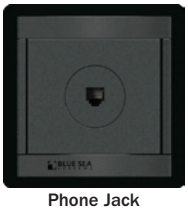
Provides a 360 Panel System platform for mounting equipment, switching, and monitoring functions

- Suitable for mounting accessories and for pad printing

1518

Dimensions: (WxH) 4.88 x 4.75 (123.83 x 120.65)
Depth 0.50 in (12.7 mm)
Weight 0.70 lb (0.32 kg)

Examples of user-customized Blank 360 Panels



Phone Jack

Pad Printed

WeatherDeck™ Toggle Switches (Single Pole)

Available in a variety of switch and pole configurations to meet specific circuit requirements

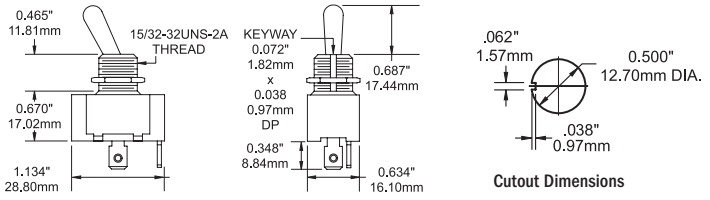
4150

- Specifically manufactured for use in WeatherDeck™ Waterproof Panels (pages 70–71)
- Nickel-plated brass and phenolic non-corrosive construction

Specifications

Imxo	**Amperage Maximum Operating**	10A @ 250V AC 15A @ 125V AC 15A @ 12V DC
	Terminal Size	0.25 in (6.35 mm)
	Terminal Type	Quick Connect Tab

PN	Pole/Throw	Action ( ) = Momentary	Weight lb (kg)
4150	SPST	OFF–ON	0.10 (0.05)
4151	SPST	OFF–(ON)	0.10 (0.05)
4152	SPDT	ON–OFF–ON	0.10 (0.05)
4153	SPDT	(ON)–OFF–ON	0.10 (0.05)
4154	SPDT	(ON)–OFF–(ON)	0.10 (0.05)



Cutout Dimensions

WeatherDeck™ Toggle Switch (Double Pole)

Often used for combining navigation lights and anchor lights with shared switch

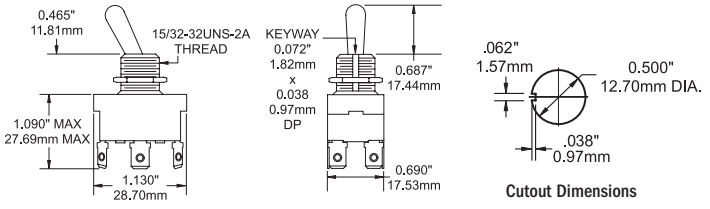
4155

Pole/Throw DPDT
Action ON-OFF-ON
Weight 0.10 lb (0.05 kg)

- For use in WeatherDeck™ Waterproof Panels (pages 70–71)
- Nickel-plated brass and phenolic non-corrosive construction

Specifications

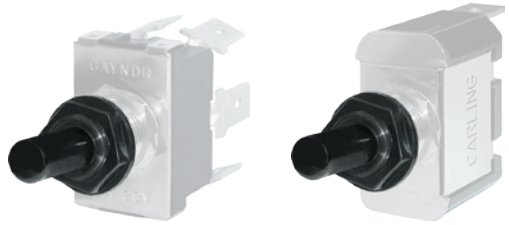
Vmxo	**Voltage Maximum Operating:**	30 Volts DC
Imxo	**Amperage Maximum Operating:**	5 Amps
	Terminal Size:	0.25 in (6.35 mm)
	Terminal Type:	Quick Connect Tab



Cutout Dimensions

WeatherDeck™ Toggle Switch Boot

Replaces boots found on all WeatherDeck™ panels



4138

- For mounting on WeatherDeck™ Waterproof Panel Switches
- UV resistant material resists discoloration and cracking
- Rated IP67—protected against immersion up to 1 meter for 30 minutes

Specifications

Case Material	UV Resistant Silicone Rubber
Thread Material	Nickel Plated Brass
Thread	15/32"-32UNS-2A
Weight	0.04 lb (0.02 kg)

Water Resistant Fuse Holder

Replaces fuse holder found on Contura Waterproof Fuse Panels

5021

- Easy to open
- Rated IP66 on front—protected against powerful water jets

Specifications

Vmxo	**Voltage Maximum Operating**	32 Volts DC
Imxo	**Amperage Maximum Operating**	20 Amps
	Mounting Hole	0.50 in (12.70 mm)

PN	Description	Weight lb (kg)
5021	Fuse Holder	0.04 (0.02)
5022	Replacement Cap	0.01 (0.005)

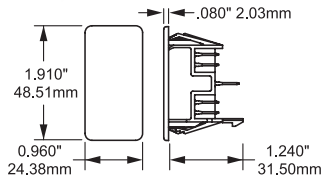
Contura Switch Mounting Panel Plug

Covers Contura Switch mounting hole for future switch installation

- For use with Contura Switch Mounting Panels (see right)

8278

Weight 0.06 lb (0.03 kg)

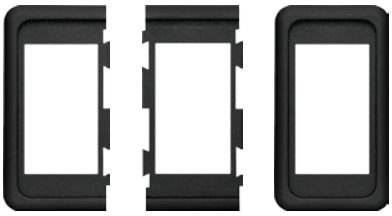


Contura Switch Mounting Panels

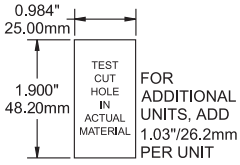
Modular design permits easy assembly in groups of varying sizes and numbers

- Mounting panels available in 1, 3, and 6 fixed position models
- Designed for mounting in 6 different panel thicknesses:

0.06 in (1.57 mm) 0.09 in (2.36 mm) 0.13 in (3.17 mm)
0.19 in (4.75 mm) 0.25 in (6.35 mm) 0.38 in (9.52 mm)



8267 8266 8268



Cutout Dimensions

PN	Description	Width in (mm)	Height in (mm)
8267	End Mounting Panel	1.19 (30.23)	2.30 (58.42)
8266	Center Mounting Panel	1.03 (26.16)	2.30 (58.42)
8268	1 Position Mounting Panel	1.34 (34.04)	2.30 (58.42)
8259	3 Position Mounting Panel	3.40 (86.36)	2.30 (58.42)
8260	6 Position Mounting Panel	6.49 (164.85)	2.30 (58.42)

Contura Switch Actuators

Directly replaces actuators found on all Blue Sea Systems Contura Water Resistant Panels

- Mounts on any Blue Sea Systems Water Resistant Contura Switch

8297

8294

PN Gray	PN Black	Number of Lenses	Embedded LEDs	Weight lb (kg)
8299	8296	-	-	0.03 (0.01)
8297	8294	1	1	0.03 (0.01)
8298	8295	2	2	0.03 (0.01)
8293	Actuator Removal Tool			0.04 (0.02)

8293

Water Resistant Contura Dimmer Switches

Ideal control switch for Blue Sea Systems DeckHand Dimmers page 11

- Mounts in Blue Sea Systems Contura Water Resistant Panels (page 72) and Contura Switch Mounting Panels (see above)
- Legend–BRIGHT and DIM
- Ignition Protected—safe for installation aboard gasoline powered boats

Specifications

Imxo	**Amperage Maximum Operating**	20A @ 12V DC 15A @ 24V DC
	Terminal Size	0.25 in (6.35mm)
	Terminal Type	Quick Connect Tab
	Seals	Internal and External Gasket Panel Seal
	Temperature Rating	-40°C to 85°C
	Mounting Hole	1.45 x 0.83 in (36.83 x 21.08 mm)

8216
Pole/Throw: SPDT
Action: (ON)-OFF-(ON)

8291
Pole/Throw: SPDT
Action: (ON)-OFF-(ON)

Water Resistant Contura Switches

Specifically manufactured for use in Blue Sea Systems Contura Water Resistant Panels.

8230

8282

Use of standard Contura Switches will not maintain the water resistant ingress protection rating of Blue Sea Systems panels.

- Vibration, shock, thermoshock, moisture and salt spray resistant
- Mounts in Blue Sea Systems Contura Waterproof Panels (page 72) and Contura Switch Mounting Panels (see left)

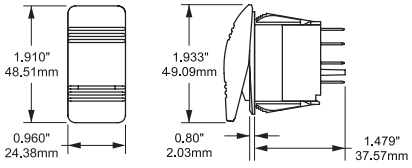
Specifications

Imxo	**Amperage Maximum Operating**	20A @ 12V DC 15A @ 24V DC
Ioc (LED)	**Amperage Operating Current**	18 Milliamps
	Lighted	LED rated 100,000 hours 1/2 life
	Seals	Internal and external gasket panel seal
	Temperature Rating	-40°C to 85°C
	Mounting Hole	1.45 in x 0.83 in (36.83 mm x 21.08 mm)

Regulatory

Meets UL 1500 and ISO 8846 external ignition protection requirements

PN Gray	PN Black	Pole, Throw	Action ( )=momentary	Common Applications	Embedded LEDs	Weight lb (kg)
8230	8282	SPST	OFF-ON	Lights	1	0.09 (0.04)
8231	8292	SPST	OFF-(ON)	Horn or Windshield Wipers	0	0.09 (0.04)
8232	8283	SPDT	ON-OFF-ON	Combining nav lights / anchor light with independent bulbs	2	0.09 (0.04)
8233	8284	SPDT	(ON)-OFF-ON	Bilge pumps; momentary on, off and on for automatic	1	0.09 (0.04)
8234	8285	SPDT	(ON)-OFF-(ON)	Labeled Dimmer	0	0.09 (0.04)
8218	8287	DPST	OFF-ON	Navigational Lights	1	0.09 (0.04)
8219	8288	DPST	OFF-(ON)	Wipers, horn	0	0.09 (0.04)
8220	8286	DPDT	ON-OFF-ON	Combining nav lights with anchor light with shared bulb	2	0.09 (0.04)
8221	8289	DPDT	(ON)-OFF-ON	Dual Wipers	1	0.09 (0.04)
8222	8290	DPDT	(ON)-OFF-(ON)	Positioning is required, power operated hatches	0	0.09 (0.04)
8275	-	DPDT	ON-ON	Switching between shunts or CT's with one meter	2	0.25 (0.11)



LEGEND

- Center terminal switch lever
- Terminal
- Off Position

SPST Single Pole, Single Throw turns a single circuit on and off.
SPDT Single Pole, Double Throw turns one of two circuits on.
DPST Double Pole, Single Throw turns on two circuits at the same time.
DPDT Double Pole, Double Throw controls two functions on two circuits.

See page 27 for ML-Series Remote Battery and ACR (SPDT) Switches
See page 67 for Contura Waterproof Panels

Panel Switches

Mounts in an A-Series toggle circuit breaker aperture to provide multiple throw and switch configurations when circuit protection is provided elsewhere

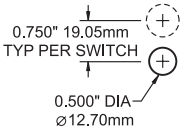
8200

8204

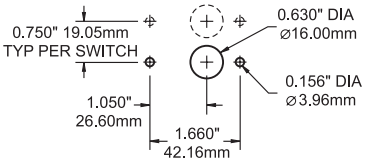
- Ideal for generator starters, bilge pumps, horns, wipers, engine controls and other applications that require switching action other than ON–OFF or different pole configuration separate from circuit protection
- Panel switches mount in Blue Sea Systems A-Series Toggle Circuit Breaker Panels
- For use with A-Series Toggle Circuit Breaker Mounting Panel (page 36)
- Supplied with mounting adapter for standard 5/8" circuit breaker mounting hole
- Nickel-plated brass and phenolic non-corrosive construction

Specifications		Toggle Switches	Push Button Switch
Imxo	Amperage Maximum Operating	10A @ 250V AC	3A @ 250V AC
		15A @ 125V AC	6A @ 125V AC
		15A @ 32V DC	6A @ 32V DC
	Terminal Size	0.25 in (6.35 mm)	0.25 in (6.35 mm)
	Terminal Type	Quick Connect Tab	Quick Connect Tab
	Actuator Color	White	White

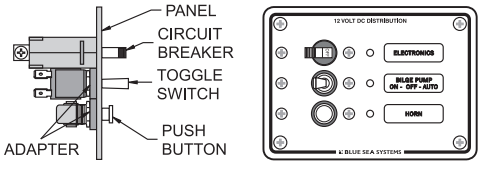
PN	Type	Pole/Throw	Action ( ) = momentary	Weight lb (kg)
8200	Push Button	SPST	OFF-(ON)	0.07 (0.03)
8204	Toggle	SPST	OFF-ON	0.08 (0.04)
8205	Toggle	SPST	OFF-(ON)	0.08 (0.04)
8206	Toggle	SPDT	ON-OFF-ON	0.08 (0.04)
8207	Toggle	SPDT	(ON)-OFF-ON	0.08 (0.04)
8208	Toggle	SPDT	(ON)-OFF-(ON)	0.08 (0.04)
8209	Toggle	DPST*	OFF-ON-(ON) OFF-OFF-(ON)	0.08 (0.04)
8210	Toggle	DPST	OFF-ON	0.08 (0.04)
8211	Toggle	DPDT	ON-OFF-ON	0.08 (0.04)
8212	Toggle	DPDT	(ON)-OFF-ON	0.08 (0.04)



Cutout Dimensions Without Adapter



Cutout Dimensions With Adapter



Panel Switch Mounting Diagram

Circuit Breaker Mounting Screws

Fits all A-Series and C-Series circuit breakers without Toggle Guards or Lockout Slides

- Sold in packages of 6

8035
Type 6-32 x 1/4" Flat Head
Weight 0.03 lb (0.01 kg)

Toggle Circuit Breaker Panel Plug

Black plug fits standard A-Series toggle circuit breaker apertures

- Sold in packages of 6

8037
Weight 0.03 lb (0.01 kg)

Push Button Reset-Only Circuit Breaker Adapter

Provides a method of mounting Push Button Reset-Only Circuit Breakers into the magnetic circuit breaker aperture

- Adapts Push Button Reset-Only Circuit Breaker to panels that incorporate Flat Rocker circuit breakers (page 32)

4111
Weight 0.03 lb (0.01 kg)

* Progressive Two Circuit Switch - maintains circuit one while momentarily switching circuit two

12 Volt Socket-Plug System

Corrosion resistant materials to ensure solid contact and low voltage drop

- Designed to withstand the rigors of wet environments and constant vibration
- Large contact surfaces for good electrical connection
- Twist lock system—plug locks securely into socket
- Internal strain relief and cord seal
- Nickel plated copper alloy used for all current carrying components
- Plug has a sealing ring around the shaft to keep out spray and make it seat firmly in the outlet
- Front panel, rear panel, or surface mount
- Socket features a watertight cap, easy installation and interlocks with plug
- 1012 and 1013 heavy duty 18 gauge wire
- 1012 cord reaches up to 6 feet

Specifications

Vmxo	Voltage Maximum Operating	15V DC
Imxo	Amperage Maximum Operating	15A DC (socket)
Imxo	Amperage Maximum Operating	10A DC (plug)

1010

1011

1012

1014

1013

PN	Description	Weight lb (kg)
1010	Plug	0.08 (0.04)
1011	Socket	0.10 (0.05)
1012	Single Plug with Single Socket Extension	0.54 (0.24)
1013	Single Plug with Dual Socket Extensions	0.50 (0.23)
1014	Mounting Bracket for Socket (1011)*	0.07 (0.03)
1015	Plug and Socket Set - Includes 1010 and 1011	0.20 (0.09)

* Socket not included

360 PANEL SYSTEM

See page 109 for a the 360 Panel 12 Volt DC Socket Mounting Panel.

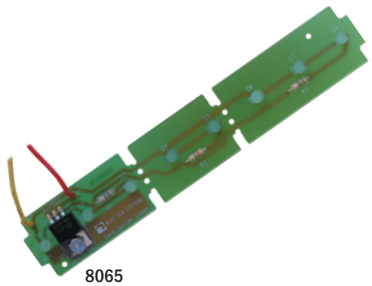
Label Backlight System

Adds label backlighting to Blue Sea Systems Traditional Metal circuit breaker panels

- Designed for 12 or 24 Volt systems
- Connects to sources via two 20 AWG wire leads
- Reverse polarity protection built-in
- 8065 snaps apart for 5 or 3 positions

Specifications

Vmxo	Voltage Maximum Operating	24V DC
Ioc	Amperage Operating Current	<7 mA per label



8065

PN	Description	Weight lb (kg)
8065	8/5/3 Positions	0.08 (0.04)
8384	4 Positions	0.05 (0.02)
8069	10 Positions	0.09 (0.04)
8383	13 Positions	0.11 (0.05)

LED Indicator Lights

Directly replaces all LEDs used in Blue Sea Systems Traditional Metal circuit breaker panels

- Simple push-in installation mounts in any thickness material
- Useful as general indicator and alarm lights

Specifications

Vmxo	**Voltage Maximum Operating**	See table
	Mounting Hole Size	11/64 in (4.36 mm)
	Power Consumption	See table
	Wire Gauge	26 AWG

PN	Color	Nominal Voltage	Current (mA)	Power Consumption (mW)	Circuit	Weight lb (Kg)
8033	Amber	12/24V DC	1.5 @ 12V, 3.1 @ 24V	19 @ 12V, 75 @ 24V	Resistor	0.03 (0.01)
8171	Red	12/24V DC	1.5 @ 12V, 3.2 @ 24V	19 @ 12V, 77 @ 24V	Resistor	0.03 (0.01)
8172	Green	12/24V DC	1.5 @ 12V, 3.0 @ 24V	19 @ 12V, 73 @ 24V	Resistor	0.03 (0.01)
8169	Amber	120V AC	2.3 @ 120V	278 @ 120V	Resistor	0.03 (0.01)
8066	Red	120V AC	2.7 @ 120V	326 @ 120V	Resistor	0.03 (0.01)
8034	Green	120V AC	2.3 @ 120V	278 @ 120V	Resistor	0.03 (0.01)
8167	Amber	250V AC	1.1 @ 250V	276 @ 250V	Resistor + Diode	0.03 (0.01)
8166	Red	250V AC	1.1 @ 250V	276 @ 250V	Resistor + Diode	0.03 (0.01)
8134	Green	250V AC	1.1 @ 250V	276 @ 250V	Resistor + Diode	0.03 (0.01)

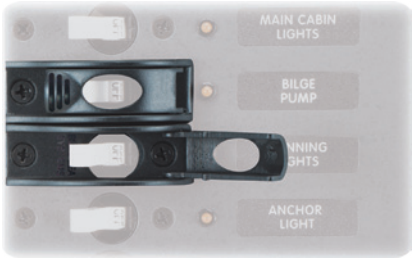
Toggle Guard

Protects toggle circuit breakers from accidental switching

- Fits all A-Series single pole toggle circuit breakers (page 36)
- Fits all panel switches (page 112)
- Can be used on any brand of circuit breaker panel (not including 360 Panel System) using standard toggle type circuit breakers
- Uses circuit breaker mounting screw holes
- Includes mounting screws

Specifications

Mounting #6 Flat Head Screw



4100 (2 shown)
Weight 0.05 lb (0.02 kg)

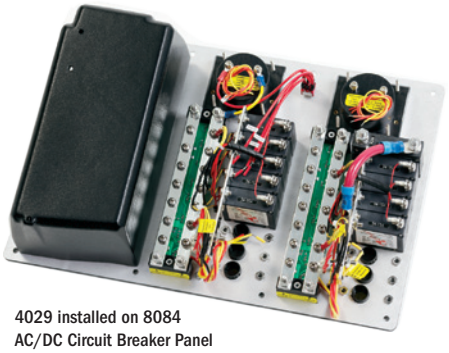
AC Insulating Back Covers

Provides electrical insulation for many of Blue Sea Systems traditional metal circuit breaker panels

- Isolation of panel AC components and circuits from DC system elements
- Provides mechanical protection for panel backs protruding into lockers
- Lightweight material is easily drilled for wire entrance and exit
- Meet ABYC safety requirements for panels with combined AC and DC loads
- 4029 and 4031–Used only for Blue Sea Systems toggle circuit breaker panels

Specifications

Material UL-94 V0 Thermoplastic



4029 installed on 8084 AC/DC Circuit Breaker Panel (page 90)

PN	Description	Weight lb (kg)
4026	Cover for 5-1/4" x 3-3/4"	0.12 (0.05)
4027	Cover for 5-1/4" x 7-1/2"	0.20 (0.09)
4028	Cover for 10-1/2" x 7-1/2"	0.50 (0.23)
4029	Cover for 1 Column x 8 Position + Meter	0.24 (0.11)
4031	Cover for 2 Column x 10 Position + Meter	0.38 (0.17)

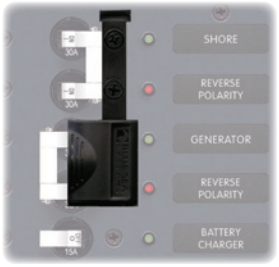
AC A-Series Circuit Breaker Lockout Slide

Enables safe management of multiple AC sources which use double pole circuit breakers

- Allows only 1 double pole AC circuit breaker to be activated at a time
- Guarantees that AC power from 2 or more sources (shore power, genset, or inverter) will not be mixed
- Fits all double pole A-Series Toggle Circuit Breakers (page 36)
- Uses circuit breaker mounting screw holes
- Includes mounting screws
- Do not use with DPST breakers

Specifications

Mounting #6 Flat Head Screw



4125

4126

PN	Poles	AC Sources	Weight lb (kg)
4125	2	2	0.04 (0.02)
4126	2	3	0.06 (0.03)

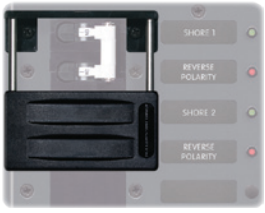
AC C-Series Toggle Circuit Breaker Lockout Slide

Enables safe management of multiple AC sources which use double or triple pole circuit breakers

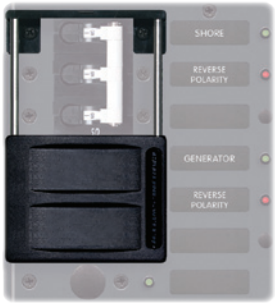
- Allows only 1 of a pair of double pole or triple pole AC circuit breakers to be activated at a time
- Guarantees that AC power from 2 sources (shore power, genset, or inverter) will not be mixed
- Fits all double or triple pole C-Series Toggle Circuit Breakers (page 38)
- Uses circuit breaker mounting screw holes
- Requires no special panel modification
- Includes mounting screws

Specifications

Mounting #6 Pan Head Screw
AC Sources 2



4130

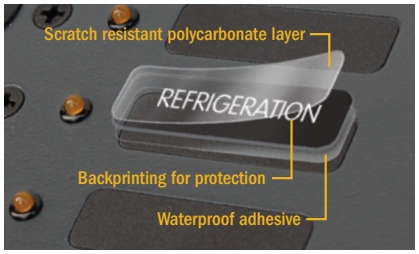


4131

PN	Poles	AC Sources	Weight lb (kg)
4130	2	2	0.06 (0.03)
4131	3	2	0.17 (0.08)

Labels

Blue Sea Systems offers labels with standard and custom text for all panel formats. Custom labels ship rapidly due to an in-house printing facility, and over 500 standard labels are ready to order. All labels are made using a high quality polycarbonate material, waterproof adhesive, and are backprinted for scratch resistance. To order standard labels online or download a custom label order form, go to bluesea.com/labels.



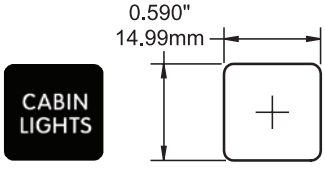
Square Format Labels

Used with 360 Panel System (pages 74), Battery Management (pages 20–21) and WeatherDeck™ Panels (pages 70–71)

- Reinforced, weatherproof material
- Available for purchase in sets or individually (pages 116–118)
- For a list of labels included see (page 118)

PN	Color	Description	Quantity
4215	Black	DC Labels	30 Labels
4218	Black	DC Labels	30 Labels
4216	Black	DC Labels	60 Labels
4217	Black	DC Labels	120 Labels
4205	Black	DC Panel Basic	30 Labels
4206	Black	AC Panel Basic	30 Labels
4207	Black	DC Panel Extended	120 Labels
4208	Black	AC Panel Extended	120 Labels

4215



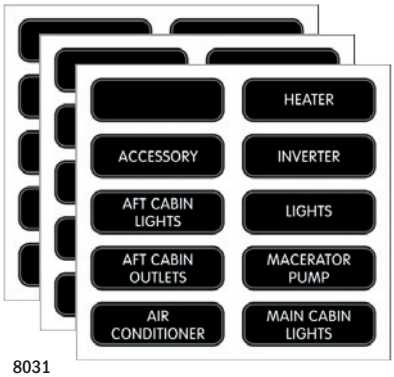
Large Format Labels

Used on Traditional Metal Panels, ST Glass Fuse Block and selected Contura Waterproof Panels

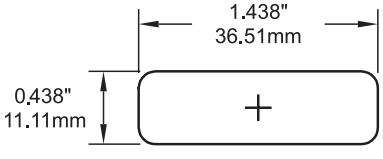
- Reinforced, weatherproof material
- Used on Contura Water Resistant Fuse Panels 8053, 8054 (page 72)
- Available for purchase in sets or individually (page 116–118)
- For a list of labels included see (page 116)

PN	Color	Description	Quantity
8031	Black	AC Panel Basic	30 Labels
8067	Black	AC Panel Extended	120 Labels
8030	Black	DC Panel Basic	30 Labels
8039	Black	DC Panel Extended	120 Labels
6398	Black	AC Panel Extended (French)	120 Labels
6399	Black	DC Panel Extended (French)	120 Labels

NOTE: 6398 is based on 8067 and 6399 is based on 8039



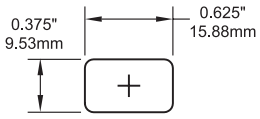
8031



Small Format Labels

Used with most Blue Sea Systems Contura Switch Water Resistant Panels (pages 72-73) or ST Blade Fuse Block (page 51)

- Reinforced, weatherproof material
- For a list of labels included see (page 116)



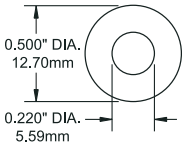
8214 Quantity: 60 labels
Color: Black (shown)

8217 Quantity: 60 labels
Color: Gray

24-Hour Round Label

Fits around any Blue Sea Systems panel LED

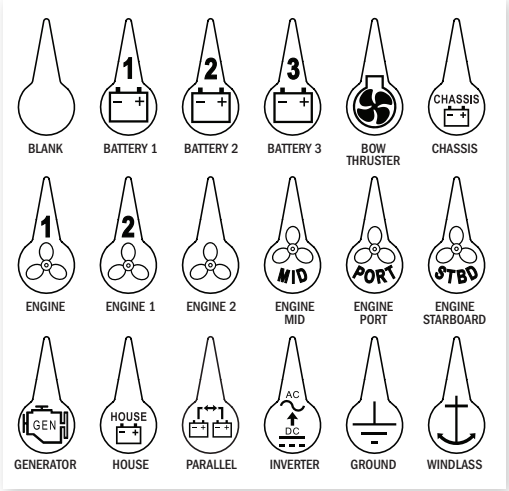
- Reinforced, weatherproof material
- Sold in packages of 12
- Can be used on any standard panel
- Included with Traditional Metal Battery Bank Management Panels (page 20–21)



4140

ICON Circuit Identification Label Kit

Used on any m-Series, e-Series and HD-Series battery switches (pages 115–117)



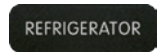
7902
Color White
Quantity 18 labels

Individual Square and Large Format Panel Labels

To order individual labels, please indicate the Part No. (6520 or 8063) and the Label No.

Example:
Square Format
6520-0044

Large Format
8063-0356



Label No.	Label Text
0001	LABEL #1
0002	LABEL #2
0003	(BLANK)
0005	12 VOLT DC
0004	12 VOLT DC OUTLETS
0499	12 VOLT OUTLETS INSIDE
0500	12 VOLT OUTLETS OUTSIDE
0502	120 VOLT / 60 HZ SHORE POWER
0007	120 VOLT AC / 60 HZ
0006	120 VOLT AC OUTLETS
0516	120/240V 60 HZ
0517	120/240V 60 HZ SHORE POWER
0526	230 VOLTS AC 50 HZ
0010	24 VOLT DC
0009	24 VOLT DC OUTLET
0008	240 VOLTS AC
0460	240 VOLTS AC / 60 HZ
0515	250 VOLT 50HZ SHORE POWER
0468	250 VOLTS AC / 50 HZ
0462	AC BUS 1
0011	AC COMPRESSOR
0012	AC FAN
0013	AC MAIN
0014	AC PANEL
0015	AC POWER
0016	AC REFRIGERATOR
0017	AC SUB PANEL
0532	ACCENT LIGHT
0018	ACCESSORY
0019	ADF
0020	AERATOR
0021	AFT CABIN
0022	AFT CABIN LIGHTS
0023	AFT CABIN OUTLETS
0536	AFT CABIN SUMP
0530	AFT DISCHARGE PUMP
0024	AFT HEAD
0025	AIR COMPRESSOR
0026	AIR CONDITIONER
0027	AIR CONDITIONER 2
0028	AIR CONDITIONER 3
0029	AIR CONDITIONER 4
0030	AIR CONDITIONER PUMP
0031	AIR HORN
0573	AIS
0544	ALARM
0032	ALARM SYSTEM
0461	ALTERNATOR
0033	ALTERNATOR DISCONNECT
0034	AMPLIFIER
0035	ANCHOR LIGHT
0036	ANCHOR LIGHT MAIN
0037	ANCHOR LIGHT MIZZEN
0038	ANCHOR WASH DOWN
0039	APPLIANCES
0040	ARCH LIGHTS
0041	AUDIO/VIDEO SYSTEM
0525	AUTO FILL
0042	AUTO/MAN
0555	AUTO/MAN
0524	AUTOMATIC CHARGING RELAY
0043	AUTOPILOT
0044	BAIT PUMP
0045	BAITWELL
0046	BALLAST CONTROLS
0047	BALLAST PUMP
0048	BAR
0481	BATHROOM
0049	BATTERY
0473	BATTERY 1
0474	BATTERY 2
0050	BATTERY CHARGER
0051	BATTERY CHARGER 2
0052	BATTERY COMPARTMENT
0053	BATTERY PARALLEL
0560	BATTERY SWITCH
0054	BEACON
0480	BEDROOM
0485	BEDROOM SLIDEOUT
0055	BILGE
0056	BILGE ALARM
0057	BILGE ALARM 2
0058	BILGE ALARM 3
0059	BILGE ALARM 4
0060	BILGE LIGHTS
0061	BILGE PUMP
0062	BILGE PUMP 2
0063	BILGE PUMP 3
0064	BILGE PUMP 4
0453	BILGE PUMP ON-OFF-AUTO
0559	BLANK WHITE WRITABLE
0065	BLOWER
0066	BOAT DAVIT
0067	BOOM LIGHT
0068	BOW LIGHT
0069	BOW THRUSTER
0070	BRIDGE
0071	BRIDGE INSTRUMENTS
0072	BRIDGE LIGHTS
0073	BRIDGE OUTLETS
0074	CABIN
0075	CABIN 2
0501	CABIN 2 FAN
0076	CABIN 2 LIGHTS
0077	CABIN 2 OUTLETS
0078	CABIN 3
0079	CABIN 3 LIGHTS
0080	CABIN 3 OUTLETS
0081	CABIN 4
0082	CABIN 4 LIGHTS
0083	CABIN 4 OUTLETS
0084	CABIN FAN
0085	CABIN HEATER
0086	CABIN LIGHTS
0087	CABIN OUTLETS
0088	CABLEMASTER
0089	CASSETTE PLAYER
0090	CB RADIO
0091	CCTV
0092	CD PLAYER
0093	CELLULAR PHONE
0537	CENTER LIVEWELL
0094	CHARGER/INVERTER
0095	CHART LIGHT
0096	CHART PLOTTER
0097	CHOKE
0098	CIRCULATOR PUMP
0508	CLOCK
0099	CLOSET LIGHT
0575	CO DETECTOR
0100	COCKPIT LIGHTS
0101	COCKPIT REFRIG
0102	COLOR SOUNDER
0103	COMM ELECTRONICS
0104	COMPARTMENT HEATER
0105	COMPARTMENT LIGHT
0106	COMPASS LIGHT
0107	COMPUTER
0514	COMPUTER DISPLAY
0108	CONDENSER PUMP
0109	CONSOLE LIGHT
0110	CONVERTER
0111	COOKING GRILL
0112	COOKTOP
0113	COOLING PUMP
0114	COURTESY LIGHTS
0115	CREW LIGHTS
0116	CREW QUARTERS
0117	DAVIT
0118	DC LIGHTS
0119	DC MAIN
0120	DC OUTLETS
0121	DC REFRIGERATOR
0122	DC SUB PANEL
0123	DECK
0124	DECK LIGHTS
0125	DECK LIGHTS AFT
0126	DECK LIGHTS FWD
0127	DECK LIGHTS PORT
0128	DECK LIGHTS STBD
0129	DEFROSTER
0130	DEPTH RECORDER
0131	DEPTH SOUNDER
0132	DEPTH/SPEED
0133	DESALINATOR
0134	DIMMER
0135	DINING AREA LIGHTS
0136	DINING AREA OUTLETS
0137	DISCHARGE PUMP
0567	DISCHARGE PUMP 2
0568	DISCHARGE PUMP 3
0138	DISHWASHER
0139	DISPOSAL
0140	DIVE COMPRESSOR
0141	DOCKING LIGHT PORT
0142	DOCKING LIGHT STBD
0143	DOCKING LIGHTS
0144	DOWN RIGGER
0145	DRYER
0146	DUMP VALVES
0566	ECU
0580	ELCI
0147	ELECTRIC HATCH
0469	ELECTRONIC CONTROL UNIT
0148	ELECTRONICS
0149	EMERGENCY BACKUP SYS
0150	EMERGENCY LIGHTS
0151	EMERGENCY PUMPS
0545	ENGINE
0581	ENGINE 1
0562	ENGINE 2
0547	ENG 1/ENG 2
0158	ENGINE ALARM
0159	ENGINE BLOCK HEATER
0160	ENGINE CONTROL PORT
0161	ENGINE CONTROL STBD
0162	ENGINE CONTROLS
0163	ENGINE DRIVEN REFRIG
0164	ENGINE EXHAUST FAN
0165	ENGINE HATCH
0166	ENGINE HEATER PORT
0167	ENGINE HEATER STBD
0168	ENGINE INSTRUMENTS
0169	ENGINE OIL PAN PUMP
0152	ENGINE ROOM BILGE ALARM
0153	ENGINE ROOM BLOWER
0154	ENGINE ROOM HEATER
0155	ENGINE ROOM LIGHTS
0156	ENGINE ROOM OUTLETS
0157	ENGINE ROOM PANEL MAIN
0170	ENGINE SHUTDOWN
0171	ENGINE TEMP
0546	ENGINES
0172	ENTERTAINMENT CENTER
0173	ENTRANCE DOOR
0174	ENTRY STEP
0175	EXHAUST FAN
0176	EXHAUST TEMP
0177	EXTERIOR
0178	EXTERIOR LIGHTS
0179	FAN
0180	FAN 2
0181	FAN 3
0182	FAN 4
0183	FAX
0184	FILLING PUMP
0185	FIRE ALARM
0186	FIRE EXT
0187	FIRE HORN
0459	FISH FINDER
0538	FISHBOX DRAIN
0188	FISHBOX ICEMAKER
0520	FISHBOX PUMP
0521	FISHBOX REFRIGERATOR
0189	FISHING LIGHT
0487	FISHWELL PUMP
0488	FISHWELL PUMP 2
0576	FLOAT SWITCH
0190	FLOOD LIGHTS
0191	FLOSCAN
0192	FLYBRIDGE
0193	FLYBRIDGE ELECTRONICS
0194	FLYBRIDGE LIGHTS
0195	FLYBRIDGE OUTLETS
0196	FOG LIGHTS
0197	FOREDECK LIGHT
0539	FORWARD BILGE
0198	FREEZER
0199	FRESH WATER
0200	FRESH WATER PUMP
0201	FRESH WATER PUMP 2
0202	FRESH WATER PUMP 3
0203	FRESH WATER PUMP 4
0204	FRESH WATER WASH DOWN
0482	FRONT SLIDEOUT
0561	FUEL GAUGE
0205	FUEL PRIMER PUMP
0206	FUEL PUMP
0207	FUEL PUMP 2
0208	FUEL PUMP 3
0209	FUEL PUMP 4
0210	FUEL TANK HEATER
0211	FUEL TRANSFER
0507	FUME DETECTOR
0212	FURLER JIB
0213	FURLER MAINSAIL
0214	FURLER SPINNAKER
0215	FURNACE
0216	FWD CABIN
0217	FWD CABIN LIGHTS
0218	FWD CABIN OUTLETS
0529	FWD DISCHARGE PUMP
0528	FWD HEAD
0219	GALLEY
0220	GALLEY APPLIANCES
0221	GALLEY DRAIN
0222	GALLEY FAN
0223	GALLEY LIGHTS
0224	GALLEY OUTLETS
0490	GALVANIC ISOLATOR
0225	GARBAGE DISPOSAL
0226	GAS ALARM
0227	GENERAL PURPOSE
0523	GENERATOR
0228	GENERATOR 1
0229	GENERATOR 2
0454	GENERATOR OFF ON START
0230	GENERATOR ROOM BLOWER
0466	GENERATOR RUNNING
0455	GENERATOR STOP
0578	GFCI
0231	GFI OUTLET
0232	GPS
0233	GPS/LORAN
0234	GPS/PLOTTER
0510	GUN LOCKS
0235	GYRO COMPASS
0236	HAILER
0237	HALLWAY LIGHTS
0238	HALON FIRE SYSTEM
0239	HAM RADIO
0240	HEAD
0241	HEAD 2
0242	HEAD 2 FAN
0243	HEAD 2 OUTLETS
0244	HEAD 3
0245	HEAD 3 FAN
0246	HEAD 3 OUTLETS
0247	HEAD 4
0248	HEAD 4 FAN
0249	HEAD 4 OUTLETS
0250	HEAD FAN

Individual Square and Large Format Panel Labels

To order individual labels, please indicate the Part No. (6520 or 8063) and the Label No.

Example:
Square Format 6520-0044 BAIT PUMP **Large Format** 8063-0356 REFRIGERATOR

Label No.	Label Text
0251	HEAD LIGHTS
0252	HEAD LIGHTS 2
0253	HEAD LIGHTS 3
0254	HEAD LIGHTS 4
0255	HEAD OUTLETS
0256	HEADLIGHTS
0257	HEATER
0519	HEATER & AIR CONDITIONER
0258	HEATER 2
0259	HEATER 3
0260	HEATER 4
0261	HELM ELECTRONICS
0262	HELM GAUGES
0263	HELM INSTRUMENTS
0264	HIGH WATER ALARM
0265	HOLDING TANK
0266	HOLDING TANK ALARM
0267	HOLDING TANK PUMP
0268	HOOD FAN
0269	HOOD LIGHT
0270	HORN
0475	HOT TUB
0271	HOT WATER PUMP
0548	HOUSE
0549	HOUSE/ENG
0550	HOUSE/GEN
0272	HYDRAULIC ALARM
0273	HYDRAULIC SYSTEM
0274	HYDRAULIC TANK ALARM
0570	HYDRAULIC VALVE
0275	ICE MAKER
0276	IGNITION
0277	IGNITION PORT
0278	IGNITION STBD
0279	INSTRUMENT LIGHTS
0280	INSTRUMENTS
0281	INTERCOM
0282	INTERCOM HAILER
0283	INTERCOM/TELEPHONE
0284	INTERIOR LIGHTS
0556	INTERNET
0285	INVERTER
0467	INVERTER 2
0476	INVERTER AC BUS
0471	INVERTER AC SUPPLY
0470	INVERTER DC SUPPLY
0286	INVERTER OUTLET
0287	ISOLATION TRANSFORMER
0479	KITCHEN
0484	KITCHEN SLIDEOUT
0288	KNOTMETER
0289	LAZARETTE LIGHTS
0290	LECTRASAN
0291	LIGHTER
0292	LIGHTS
0293	LIGHTS 2
0294	LIGHTS 3
0295	LIGHTS 4
0296	LIGHTS AFT
0494	LIGHTS AFT CABIN
0297	LIGHTS FWD
0493	LIGHTS MASTER CABIN
0495	LIGHTS PANTRY
0492	LIGHTS PILOTHOUSE
0298	LIGHTS PORT
0491	LIGHTS SETTEE
0299	LIGHTS STBD
0300	LIVEWELL
0301	LIVEWELL INPUT
0302	LIVEWELL OUTPUT
0303	LOCKER LIGHTS
0304	LOG
0305	LORAN
0306	LPG CONTROL
0307	LUBE OIL PUMP
0308	MACERATOR PUMP
0309	MAIN
0310	MAIN BREAKER
0311	MAIN CABIN
0312	MAIN CABIN LIGHTS
0313	MAIN CABIN OUTLETS
0314	MAIN SAIL FURLING
0315	MAP LIGHT
0572	MARINE SANITATION DEVICE
0316	MAST LIGHTS
0317	MASTHEAD LIGHT
0551	MEMORY
0574	MERCATHODE
0318	MICROWAVE
0319	MINI DISC PLAYER
0320	MIZZEN FLOOD
0456	NAV LIGHT ANCHOR OFF NAV
0321	NAV STATION ELECTRONICS
0322	NAV STATION GAUGES
0323	NAV STATION INSTRUMENTS
0324	NAV STATION LIGHTS
0325	NAVIGATION ELECTRONICS
0326	NAVIGATION INSTRUMENTS
0327	NAVIGATION LIGHTS
0565	NETWORK
0328	NIGHT LIGHTS
0329	OFF
0331	OIL CHANGE PUMP
0563	OIL GAUGE
0332	ON
0330	ON-OFF
0333	OUTLETS
0334	OUTLETS 2
0335	OUTLETS 3
0336	OUTLETS 4
0505	OUTLETS AFT
0337	OUTLETS DECK
0506	OUTLETS ENGINE ROOM
0338	OUTLETS EXTERIOR
0503	OUTLETS FORWARD
0339	OUTLETS INTERIOR
0504	OUTLETS PILOT HOUSE
0458	PANEL LIGHTS
0496	PILOT HOUSE FAN
0340	PORT
0540	PORT FISHBOX
0534	PORT LIVEWELL
0341	PORT THRUSTER
0552	PORT/STBD ENG
0342	POWER
0343	POWER WASHER
0457	PRE-HEAT
0344	PRIMARY WINCHES
0345	PRINTER
0346	PUMP
0497	PUMP BLACK WATER
0498	PUMP GRAY WATER
0554	PUMPOUT
0347	RACK LIGHTS
0348	RACK OUTLETS
0349	RADAR
0350	RADAR ARCH LIGHTS
0351	RADIO
0352	RANGE
0579	RCBO
0353	RDF
0483	REAR SLIDEOUT
0354	RECEIVER
0355	RECEPTACLE
0356	REFRIGERATOR
0357	REFRIGERATOR PUMP
0358	REFRIGERATOR/FREEZER
0359	REGULATOR
0360	REVERSE POLARITY
0361	ROD LOCKER
0489	RUDDER ANGLE INDICATOR
0362	RUNNING LIGHTS
0363	SAILING CONTROLS
0364	SAILING INSTRUMENTS
0365	SALOON
0366	SALOON HEATER
0367	SALOON LIGHTS
0368	SALOON OUTLETS
0369	SALT WATER PUMP
0370	SAT/COM
0371	SAT/NAV
0372	SATELLITE DISH
0373	SCRUBBER
0374	SEARCHLIGHT
0375	SEARCHLIGHT HAND HELD
0376	SEARCHLIGHT REMOTE
0377	SEAWATER TEMP
0378	SEAWATER WASH DOWN
0379	SECURITY SYSTEM
0380	SHIP
0381	SHORE
0463	SHORE 1
0464	SHORE 2
0382	SHORE CORD REEL
0383	SHORE POWER
0384	SHORE POWER CORD
0385	SHOWER SUMP PUMP
0386	SINK DRAIN
0486	SLIDEOUT
0387	SOLAR PANEL
0388	SONAR
0542	SONAR/ACC
0389	SPARE
0390	SPEED/LOG
0391	SPREADER LIGHTS
0392	SPREADER LT MIZZEN
0393	SSB
0394	STABILIZER
0558	STAIR LIGHT
0395	STARBOARD
0396	START
0398	START PORT
0399	START STBD
0397	START-STOP
0541	STBD FISHBOX
0533	STBD LIVEWELL
0400	STBD THRUSTER
0401	STEAMING LIGHT
0569	STEERING VALVE
0402	STEP LIGHT
0403	STEREO
0577	STEREO MEMORY
0404	STERN LIGHT
0509	STERN THRUSTER
0405	STOP
0406	STOVE
0407	STOVE/MICROWAVE
0408	STROBE LIGHT
0409	SUB PANEL
0410	SUMP PUMP
0411	SUMP PUMP 2
0412	SYNCHRO
0564	TANK GAUGE
0413	TAPE DECK
0414	TELEPHONE SYSTEM
0415	TEST
0416	TOWING LIGHTS
0417	TRACK LIGHTS
0465	TRANSFER
0418	TRANSFER PUMP
0419	TRANSFORMER
0518	TRANSFORMER SECONDARY
0420	TRASH COMPACTOR
0478	TRAVEL LOCKS
0421	TRICOLOR LIGHT
0422	TRIM TABS
0527	TROLLING MOTOR
0423	TV
0424	TV ANTENNA
0425	TV/STEREO
0426	TV/VCR
0535	UNDERWATER LIGHT
0427	UPS SYSTEM
0428	UTILITY
0429	VACUUM
0430	VACUUM PUMP
0431	VCR
0432	VHF
0511	VHF 1
0512	VHF 2
0433	VIDEO PLOTTER
0434	VIDEO SYSTEM
0543	WASHDOWN
0513	WASHDOWN PUMP
0435	WASHER
0436	WASHER/DRYER
0437	WATER ALARM
0562	WATER GAUGE
0438	WATER HEATER
0439	WATER LEVEL
0440	WATER MAKER
0441	WATER PRESSURE
0442	WATER PUMP
0443	WEATHER FAX
0444	WEATHER INSTRUMENT
0571	WIFI
0553	WINCH
0445	WINCHES
0477	WIND GENERATOR
0446	WIND INSTRUMENTS
0522	WIND SHIELD VENT
0447	WINDEX LIGHT
0448	WINDLASS
0449	WINDSHIELD WASHER
0472	WIPER CENTER
0450	WIPER PORT
0451	WIPER STBD
0452	WIPERS
0557	WIRELESS

Labels Included in Sets

4215

ACCESSORY
AERATOR
ANCHOR LIGHT
AUTOPILOT
BAIT PUMP
BILGE PUMP
BLOWER
CABIN LIGHTS
DEPTH SOUNDER
ELECTRONICS
GPS
HORN
INSTRUMENTS
KNOTMETER
NAV LIGHTS
RADAR
REFRIGERATOR
RUNNING LIGHTS
SEARCH LIGHT
SPARE
SPREADER LIGHTS
STEAMING LIGHT
STEREO
TRIM TABS
VHF
WASH DOWN
WATER PRESSURE
WATER PUMP
WINDLASS
WIPERS

4206 and 8031

(BLANK)
ACCESSORY
AFT CABIN LIGHTS
AFT CABIN OUTLETS
AIR CONDITIONER
AIR CONDITIONER 2
APPLIANCES
BATTERY CHARGER
CABIN OUTLETS
COMPUTER
ENTERTAINMENT CENTER
FWD CABIN LIGHTS
FWD CABIN OUTLETS
GALLEY
GALLEY OUTLETS
HEATER
INVERTER
LIGHTS
MACERATOR PUMP
MAIN CABIN LIGHTS
MAIN CABIN OUTLETS
MICROWAVE
OUTLETS
REFRIGERATOR
SPARE
STOVE
TV/STEREO
VCR
WASHER/DRYER
WATER HEATER

4217

(BLANK)	DC OUTLETS	FOREDECK LIGHT	ON-OFF
12 VOLT DC	DC SUB PANEL	FRESH WATER PUMP	OUTLETS
12 VOLT DC OUTLETS	DECK LIGHTS	FRESH WATER WASH DOWN	PUMP
24 VOLT DC	DEFROSTER	FUEL PUMP	PUMPOUT
AIR HORN	DEPTH/SPEED	FUEL TRANSFER	RADIO
ANCHOR LIGHT MAIN	DIMMER	FURLER JIB	ROD LOCKER
ANCHOR LIGHT MIZZEN	DISCHARGE PUMP	FURLER MAINSAIL	RUDDER ANGLE INDICATOR
ANCHOR WASH DOWN	DOCKING LIGHT PORT	GALLEY	SAILING CONTROLS
APPLIANCES	DOCKING LIGHT STBD	GAS ALARM	SAILING INSTRUMENTS
ARCH LIGHTS	DOCKING LIGHTS	GPS/PLOTTER	SALT WATER PUMP
AUTO/MAN	DOWN RIGGER	HAILER	SEAWATER WASH DOWN
BAITWELL	ELECTRIC HATCH	HAM RADIO	SHOWER SUMP PUMP
BATTERY	ENGINE HATCH	HEAD	SOLAR PANEL
BATTERY PARALLEL	ENGINE INSTRUMENTS	HEATER	SSB
BILGE ALARM	ENGINE ROOM BLOWER	IGNITION	START-STOP
BILGE PUMP 2	ENGINE ROOM LIGHTS	INSTRUMENT LIGHTS	STERN LIGHT
BILGE PUMP ON-OFF-AUTO	ENGINE SHUTDOWN	INTERCOM HAILER	STROBE LIGHT
BOW LIGHT	ENTRY STEP	LAZARETTE LIGHTS	SUMP PUMP
BOW THRUSTER	FAN	LIGHTER	TRANSFER
BRIDGE INSTRUMENTS	FAN 2	LIGHTS	TRICOLOR LIGHT
BRIDGE LIGHTS	FIRE ALARM	LIVEWELL	TROLLING MOTOR
CABIN	FIRE EXT	LOCKER LIGHTS	WASHDOWN PUMP
CB RADIO	FISH FINDER	LPG CONTROL	WASHDOWN
CD PLAYER	FISHING LIGHT	MAIN	WINCHES
CHART LIGHT	FISHWELL PUMP	MAST LIGHTS	WIND GENERATOR
CHART PLOTTER	FLOOD LIGHTS	MASTHEAD LIGHT	WIND INSTRUMENTS
COCKPIT LIGHTS	FLYBRIDGE	MIZZEN FLOOD	WINDSHIELD WASHER
COMPASS LIGHT	FLYBRIDGE ELECTRONICS	NAVIGATION ELECTRONICS	WIPER CENTER
COURTESY LIGHTS	FLYBRIDGE LIGHTS	NAVIGATION INSTRUMENTS	WIPER PORT
DAVIT	FOG LIGHTS	NAV LIGHT ANCHOR OFF NAV	WIPER STBD

8214 and 8217

(BLANK)
12 VOLT DC
24 VOLT DC
ACCESSORY
AERATOR
ANCHOR LIGHT
AUTO PILOT
BAIT PUMP
BAITWELL
BATTERY
BATTERY CHARGER
BILGE
BILGE PUMP
BLOWER
BOW LIGHT
CABIN
CABIN LIGHTS
CB RADIO
CELLULAR PHONE
CHARGER INVERTER
CHART PLOTTER
DECK LIGHTS
DEPTH SOUNDER
DOWN RIGGER
ELECTRONICS
FAN
FISH FINDER
FISHING LIGHT
FLOOD LIGHTS
FUEL PUMP
GAS ALARM
GPS
HORN
IGNITION
INSTR. LIGHTS
INVERTER
KNOT METER
LIGHTS
LIVEWELL
NAV LIGHTS
OUTLETS
RADIO
RADAR
REFRIGERATION
RUNNING LIGHTS
SEARCH LIGHT
SPARE
SPREADER LIGHTS
STEAMING LIGHT
STEREO
STROBE LIGHT
TRICOLOR LIGHT
TRIM TABS
VHF
WASH DOWN
WATER PRESSURE
WATER PUMP
WINCHES
WINDLASS
WIPERS

4218

12 VOLT DC
24 VOLT DC
ALARM
BILGE PUMP
BILGE PUMP 2
BILGE PUMP 3
BILGE PUMP 4
BOW THRUSTER
CLOCK
DC MAIN
DC SUB PANEL
ELECTRONICS
ENGINE
ENGINES
ENG 1/ENG 2
GENERATOR
HOUSE
HOUSE/ENG
HOUSE/GEN
INVERTER
LIGHTS
MEMORY
PORT/STBD ENG
RADAR
RADIO
SOLAR PANEL
VHF
WINCH
WINDLASS
Blank (Write On)

4216

(BLANK)
12 VOLT DC
12 VOLT DC OUTLETS
ANCHOR WASH DOWN
BAITWELL
BATTERY
BATTERY PARALLEL
BILGE
BILGE PUMP 2
BILGE PUMP ON-OFF-AUTO
BOW LIGHT
CABIN
CB RADIO
CELLULAR PHONE
CHART LIGHT
CHART PLOTTER
COCKPIT LIGHTS
COMPASS LIGHT
COURTESY LIGHTS
DAVIT
DC OUTLETS
DC SUB PANEL
DECK LIGHTS
DOCKING LIGHTS
DOWN RIGGER
ELECTRIC HATCH
ENGINE ROOM BLOWER
ENGINE ROOM LIGHTS
FAN
FISH FINDER
FISHING LIGHT
FISHWELL PUMP
FLOOD LIGHTS
FRESH WATER PUMP
FUEL PUMP
GALLEY OUTLETS
GAS ALARM
GPS/PLOTTER
HEAD
IGNITION
INSTRUMENT LIGHTS
LIGHTS
LIVEWELL
MACERATOR PUMP
NAV LIGHT ANCHOR-OFF-NAV
OUTLETS
PUMPOUT
RADIO
SEAWATER WASH DOWN
SHOWER SUMP PUMP
SSB
STERN LIGHT
STROBE LIGHT
TRICOLOR LIGHT
TROLLING MOTOR
WASHDOWN
WATER MAKER
WINCHES
WIPER PORT
WIPER STBD

4207 and 8039

(BLANK)	DECK LIGHTS FWD	HELM GAUGES	SATELLITE DISH
12 VOLT DC	DEPTH RECORDER	HELM INSTRUMENTS	SEARCHLIGHT
12 VOLT DC OUTLETS	DEPTH/SPEED	HIGH WATER ALARM	SEAWATER TEMP
AFT CABIN	DESALINATOR	HOLDING TANK	SEAWATER WASH DOWN
AFT HEAD	DIMMER	HOLDING TANK ALARM	SECURITY SYSTEM
ALARM SYSTEM	DINING AREA LIGHTS	HOLDING TANK PUMP	SHOWER SUMP PUMP
ANCHOR WASH DOWN	DOCKING LIGHTS	INSTRUMENT LIGHTS	SONAR
BAIT PUMP	EMERGENCY LIGHTS	INSTRUMENTS	SPEED/LOG
BILGE ALARM	ENGINE ROOM BILGE ALARM	INTERCOM	SSB
BILGE PUMP 2	ENGINE ROOM LIGHTS	INTERIOR LIGHTS	SUB PANEL
BRIDGE INSTRUMENTS	ENGINE ROOM PANEL MAIN	LIGHTS 2	SUMP PUMP
CABIN 2 LIGHTS	ENGINE ALARM	LIVEWELL	TELEPHONE SYSTEM
CABIN 3 LIGHTS	EXTERIOR LIGHTS	LOG	TRACK LIGHTS
CABIN 4 LIGHTS	FAN 2	LORAN	TRANSFER PUMP
CABIN FANS	FIRE ALARM	MAIN CABIN	TRIM TABS
CABIN LIGHTS	FISHING LIGHT	MAP LIGHT	TV
CB RADIO	FLOOD LIGHTS	MAST LIGHTS	TV/VCR
CELLULAR PHONE	FLYBRIDGE ELECTRONICS	NAV STATION ELECTRONICS	UTILITY
CHART LIGHT	FLYBRIDGE LIGHTS	NAV STATION GAUGES	VIDEO PLOTTER
CHART PLOTTER	FRESH WATER PUMP	NAV STATION INSTRUMENTS	WATER ALARM
COCKPIT LIGHTS	FRESH WATER WASH DOWN	NAV STATION LIGHTS	WATER MAKER
COLOR SOUNDER	GALLEY LIGHTS	NAVIGATION ELECTRONICS	WATER PUMP
COMM ELECTRONICS	GPS/PLOTTER	NAVIGATION INSTRUMENTS	WEATHER FAX
DC LIGHTS	HAILER	NAVIGATION LIGHTS	WEATHER INSTRUMENT
DC MAIN	HAM RADIO	RACK LIGHTS	WINCHES
DC OUTLETS	HEAD	RADIO	WIND INSTRUMENTS
DC REFRIGERATOR	HEAD LIGHTS	SALOON	WINDEX LIGHT
DC SUB PANEL	HEAD LIGHTS 2	SALOON LIGHTS	WIPER PORT
DECK LIGHTS	HEATER 2	SAT/COM	WIPER STBD
DECK LIGHTS AFT	HELM ELECTRONICS	SAT/NAV	WIPERS

4205 and 8030

ACCESSORY
ANCHOR LIGHT
AUTOPILOT
BILGE PUMP
BLOWER
COMPASS LIGHT
DEPTH SOUNDER
ELECTRONICS
ENGINE INSTRUMENTS
FAN
FOREDECK LIGHT
FWD CABIN LIGHTS
GPS
HORN
KNOTMETER
LIGHTS
MACERATOR PUMP
MAIN CABIN LIGHTS
RADAR
REFRIGERATOR
RUNNING LIGHTS
SAILING INSTRUMENTS
SPARE
SPREADER LIGHTS
STEAMING LIGHT
STEREO
STROBE LIGHT
TRICOLOR LIGHT
VHF
WATER PRESSURE

4208 and 8067

(BLANK)	CABIN HEATER	GFI OUTLET	OUTLETS 2
120 VOLT AC OUTLETS	CABIN LIGHTS	HALLWAY LIGHTS	OUTLETS 3
120 VOLTS AC / 60 HZ	CHARGER/INVERTER	HEAD 2 OUTLETS	OUTLETS 4
AC COMPRESSOR	COCKPIT LIGHTS	HEAD 3 OUTLETS	OUTLETS DECK
AC FAN	COCKPIT REFRIGERATOR	HEAD 4 OUTLETS	OUTLETS EXTERIOR
AC MAIN	COMPARTMENT LIGHT	HEAD LIGHTS	OUTLETS INTERIOR
AC PANEL	COOKTOP	HEAD LIGHTS 2	RACK OUTLETS
AC POWER	DECK LIGHTS	HEAD LIGHTS 3	RANGE
AC REFRIGERATOR	DIMMER	HEAD LIGHTS 4	REFRIGERATOR/FREEZER
AC SUB PANEL	DINING AREA LIGHTS	HEAD OUTLETS	REVERSE POLARITY
AFT CABIN	DINING AREA OUTLETS	HEADLIGHTS	SALOON
AFT HEAD	DISHWASHER	HEATER 2	SALOON HEATER
AIR CONDITIONER 3	DISPOSAL	HEATER 3	SALOON LIGHTS
AIR CONDITIONER 4	DRYER	HEATER 4	SALOON OUTLETS
ALARM SYSTEM	EMERGENCY LIGHTS	HOOD FAN	SATELLITE DISH
AMPLIFIER	ENGINE ROOM LIGHTS	ICEMAKER	SHIP
AUDIO/VIDEO SYSTEM	ENGINE ROOM OUTLETS	INTERIOR LIGHTS	SHORE
BATTERY CHARGER 2	EXHAUST FAN	INVERTER OUTLET	SHORE POWER
BRIDGE LIGHTS	EXTERIOR LIGHTS	ISOLATION TRANSFORMER	STEREO
BRIDGE OUTLETS	FAN	LAZARETTE LIGHTS	STOVE/MICROWAVE
CABIN	FAN 2	LECTRASAN	SUB PANEL
CABIN 2	FAN 3	LIGHTS 2	TELEPHONE SYSTEM
CABIN 2 LIGHTS	FAN 4	LIGHTS 3	TRACK LIGHTS
CABIN 2 OUTLETS	FLOOD LIGHTS	LIGHTS 4	TRASH COMPACTOR
CABIN 3	FREEZER	LIGHTS AFT	TV
CABIN 3 LIGHTS	FURNACE	LIGHTS FWD	UPS SYSTEM
CABIN 3 OUTLETS	GALLEY APPLIANCES	MAIN	VACUUM
CABIN 4	GALLEY LIGHTS	MAIN BREAKER	VIDEO SYSTEM
CABIN 4 LIGHTS	GARBAGE DISPOSAL	MAIN CABIN	WASHER
CABIN 4 OUTLETS	GENERATOR 1	NAV STATION LIGHTS	WATER MAKER

DC

DC Main Circuit Protection and Branch Circuit Protection

Purpose

Fuses and circuit breakers are used to protect wire insulation from melting and starting fires in the event of overcurrents or short circuits which cause more amperage to flow in a wire than that wire is rated to carry. It is important to note that, except for those wires that are intended to carry starting currents, *every positive wire* in the DC Main Power Distribution System must be protected by a fuse or circuit breaker.

Considerations for DC Main Circuit Protection

Mounting Placement–distance from power source.

The DC Main circuit protection system uses circuit breakers or fuses to protect the wires of the DC Main distribution system. The American Boat and Yacht Council (ABYC) publishes voluntary standards for the type and placement of the fuse or circuit breaker to be used as a DC Main circuit protection device. Wire intended to carry engine starting currents between the batteries, the switch, and the starter is not required to have main circuit protection devices installed. Maximum mounting placement dimensions for a fuse or circuit breaker are 7" if the conductor is not housed in a sheath or enclosure in addition to the wire insulation, 40" if the conductor is housed in a sheath or enclosure in addition to the wire insulation, and 72" if the conductor is connected directly to the battery and housed in a sheath or enclosure in addition to the wire insulation.

Selecting DC Main Circuit Protection.

The principal attribute of a DC Main circuit protection device is its Ampere Interrupt Capacity (AIC) rating. Specifications listed in the ABYC standards determine the AIC a DC Main circuit protection device must have. The required AIC rating is determined by the total CCA of the batteries connected to the circuit. See the tables at right for the required AIC ratings.

Wire selection for DC applications on boats is usually based on voltage drop requirements. However, there is a maximum continuous current that the wire can withstand without overheating. Higher grade marine wires are rated for service up to 105°C (221°F)—the ABYC wire capacity table for 105°C is most frequently quoted. The 105°C table accurately reflects the capacity of single conductors exposed to freely circulating cooling air. However, other factors, such as covering bundles of wire in outer jackets to form a cable, or use of conduits or structural voids to protect wires, can reduce the cooling and reduce the safe capacity of the wire. A more conservative strategy is to use the 105°C wire, but treat it according to the 75°C table above when selecting circuit protection unless the wire is openly exposed for cooling.

See the Blue Sea Systems Circuit Wizard on our Web site at circuitwizard.bluesea.com or pages 120-122 for more assistance with wire and circuit protection selection.

ABYC Interrupt Rating Table

Total Connected Battery Cold Cranking Amperes (CCA) *		Ampere Interrupt Capacity	
12 VOLTS AND 24 VOLTS			
The white boxes identify two batteries, of the same size, placed in parallel configuration.		DC MAIN	DC BRANCH
	650 CCA or Less	1,500 AIC	750 AIC
	651–1,100 CCA	3,000 AIC	1,500 AIC
	Over 1,100 CCA	5,000 AIC	2,500 AIC
32 VOLTS			
	1,250 CCA or Less	3,000 AIC	1,500 AIC
	Over 1,250 CCA	5,000 AIC	2,500 AIC

* Battery cold cranking performance rating at -17.8°C (0°F): The discharge load in amps that a battery at -17.8°C (0°F) can deliver for 30 seconds, and maintain a voltage of 1.2 Volts per cell or higher, (e.g. 7.2 Volts for a 12 Volt battery). The CCA for the battery icons in this chart is an approximation and could be slightly higher or lower. Consult the battery manufacturer's specifications for precise CCA ratings. A battery rated in MCA will have a CCA capacity approximately 80% of MCA

ABYC E-11 requires the use of circuit breakers that can be reused and reset and that they be applied as per the table above. The standard does not strictly require that fuses be applied in the same way, but it is an issue to consider, especially with high amp fuses used to protect panel feeders or inverters. Fuses under 10 Amp rating generally have such a high internal resistance they prevent fault currents from reaching 1000 Amps in 12 Volt circuits. The apparent contradiction when using these fuses for bilge pumps and other circuits directly off the battery is less of an issue than it might seem. If a fuse blows, and the case appears to be cracked or metal has been ejected, the fuse holder should be replaced.

ABYC Ampacity Rating Table at 30°C

WIRE SIZE		TEMPERATURE RATING OF CONDUCTOR INSULATION										REFERENCE DATA		
Standard	Metric	75°C		90°C		105°C		75°C		90°C		105°C				
AWG	mm^2		EngRm		EngRm		EngRm		EngRm		EngRm		EngRm	mm dia	Ohms /1000ft	Ohms /1000m
	0.75	9.5	7	19	15.5	19	16	6.6	5.0	13	11	13	11	0.98	7.29	23.92
18	0.82	10	8	20	16	20	17	7	5	14	12	14	12	1.02	6.67	21.88
	1.0	13	10	21	17	21	18	9	7	15	12	15	13	1.13	5.47	17.94
16	1.3	15	11	25	21	25	21	11	8	18	14	18	15	1.29	4.17	13.70
	1.5	16	12	24	20	29	24	11	9	17	14	20	17	1.38	3.65	11.96
14	2.1	20	15	30	25	35	30	14	11	21	17	25	21	1.63	2.63	8.63
	2.5	21	16	34	28	38	32	15	11	23	19	26	22	1.78	2.19	7.18
12	3.3	25	19	40	33	45	38	18	13	28	23	32	27	2.05	1.65	5.42
	4.0	34	25	46	38	51	43	24	18	32	27	35	30	2.26	1.37	4.49
10	5.3	40	30	55	45	60	51	28	21	39	32	42	36	2.59	1.04	3.41
	6.0	53	40	57	47	65	55	37	28	40	33	45	39	2.76	0.91	2.99
8	8.4	65	49	70	57	80	68	46	34	49	40	56	48	3.27	0.65	2.14
	10.0	79	60	84	69	100	85	56	42	59	48	70	60	3.6	0.55	1.79
6	13.3	95	71	100	82	120	102	67	50	70	57	84	71	4.1	0.41	1.35
	16.0	105	79	113	93	134	114	73	55	79	65	94	80	4.5	0.34	1.12
4	21	125	94	135	111	160	136	88	66	95	78	112	95	5.2	0.26	0.85
	25	141	106	150	123	175	148	99	74	105	86	122	104	5.6	0.22	0.72
3	27	145	109	155	127	180	153	102	76	109	89	126	107	5.8	0.21	0.67
2	34	170	128	180	148	210	179	119	89	126	103	147	125	6.5	0.16	0.53
	35	173	130	186	153	217	185	121	91	130	107	152	129	6.7	0.16	0.51
1	42	195	146	210	172	245	208	137	102	147	121	172	146	7.3	0.13	0.42
	50	220	165	235	193	273	232	154	116	164	135	191	163	8.0	0.109	0.36
0	54	230	173	245	201	285	242	161	121	172	141	200	170	8.3	0.102	0.34
00	68	265	199	285	234	330	281	186	139	200	164	231	196	9.3	0.081	0.27
	70	274	206	292	239	341	289	192	144	204	168	238	203	9.4	0.078	0.26
000	85	310	233	330	271	385	327	217	163	231	189	270	229	10.4	0.064	0.21
	95	334	251	357	293	413	351	234	175	250	205	289	246	11.0	0.058	0.19
0000	107	360	270	385	316	445	378	252	189	270	221	312	265	11.7	0.051	0.17
	120	387	290	414	339	478	406	271	203	290	237	335	284	12.4	0.046	0.15
	150	445	333	476	390	550	467	311	233	333	273	385	327	13.8	0.036	0.12

Data based on E-11 Table VI-A (Single Conductors in Free Air)

Data based on E-11 Table VI-B (Up to three conductors in a sheath, conduit or bundle)

SAE conductors are smaller than equivalent AWG by 5% to 12% with current capacity typically less by 7%. ISO Ratings for metric wire are slightly less than these values derived from ABYC VI-A ratings.

- For bundles of 4 to 6 conductors multiply by 0.857
- For bundles of 7 to 24 conductors multiply by 0.714
- For bundles of 25 or more, conductors multiply by 0.571

Wires counted in bundles need not include:

1. Wires carrying intermittent currents no more than rating per VI-A and for less than one minute per mm of diameter, and not repeating more often than a delay of 5X times active duration.
2. Wires carrying load currents at less than 50% of the wire rating per table VI-B.

† Thermally limited amperage capacity

Protect Your Boat
With the Correct Size Wire and Fuse

STEP 1 Choose the Correct Wire

A Locate the **CURRENT FLOW IN AMPS** of your circuit along the top of the **WIRE SELECTION CHART**.

B Select the **CIRCUIT TYPE**.
- **Non-critical circuits with 10% allowable voltage drop include:** general lighting, windlasses, bait pumps, general appliances
- **Critical circuits with 3% allowable voltage drop include:** panel main feeders, bilge blowers, electronics, navigation lights

C Find the **CIRCUIT LENGTH** along the left side of the **WIRE SELECTION CHART**.
- **The circuit length** is the length of the negative wire added to the length of the positive wire.
- **Calculations are based on 105°C wire.** For wire rated at 90°C or lower, or for wire that passes through an engine room, the first row of the chart, in gray, does not apply.

D Intersect the **CURRENT FLOW IN AMPS** with **CIRCUIT LENGTH** to identify the correct wire size.

Example: A windlass rated 80A is 25 ft. from the battery. The circuit length is the total length of the positive and negative wire added together, which in this example is 50 ft. The circuit type is 'non-critical', and the correct wire size is 4 AWG.

WIRE SELECTION CHART

Calculations are based on 105°C wire.
For more detailed calculations, consult the Circuit Wizard at www.circuitwizard.bluesea.com

CIRCUIT TYPE		CURRENT FLOW IN AMPS														
Non-Critical 10% VOLTAGE DROP	Critical 3% VOLTAGE DROP	5A	10A	15A	20A	25A	30A	40A	50A	60A	70A	80A	90A	100A	120A	150A	200A
CIRCUIT LENGTH																	
0 to 20 ft	0 to 6 ft	16 AWG	16 AWG	14 AWG	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	1 AWG	2|0 AWG
30 ft	10 ft		14 AWG	12 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	0 AWG	
50 ft	15 ft		12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	1 AWG	1 AWG	0 AWG	2|0 AWG	3|0 AWG
65 ft	20 ft	14 AWG	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG	1 AWG	1 AWG	0 AWG	0 AWG	0 AWG	2|0 AWG	3|0 AWG	4|0 AWG
80 ft	25 ft	12 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	0 AWG	0 AWG	2|0 AWG	2|0 AWG	2|0 AWG	3|0 AWG	4|0 AWG	
100 ft	30 ft	10 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2|0 AWG	2|0 AWG	3|0 AWG	3|0 AWG	3|0 AWG	3|0 AWG	4|0 AWG		
130 ft	40 ft	8 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2|0 AWG	3|0 AWG	3|0 AWG	4|0 AWG	4|0 AWG	4|0 AWG	4|0 AWG			
165 ft	50 ft	6 AWG	2 AWG	1 AWG	1 AWG	0 AWG	2|0 AWG	3|0 AWG	4|0 AWG	4|0 AWG							
200 ft	60 ft																
	70 ft																
	80 ft																
	90 ft																
	100 ft																
	110 ft																
	120 ft																
	130 ft																

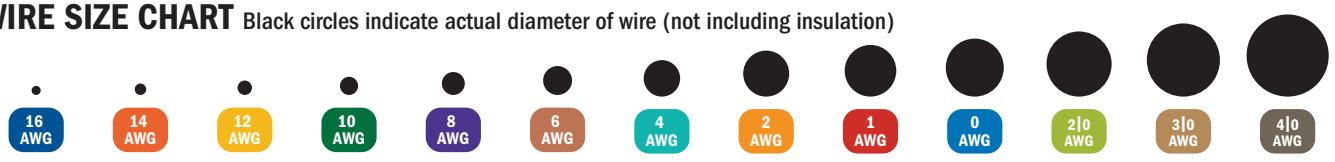
Standard and Metric Wire Comparison Table

Available Wire Size AWG	Available Wire Size Metric
16	1.5
14	2.5
12	4
10	6
8	10
6	16
4	25
2	35
1	50
0	
2|0	70
3|0	95
4|0	120

KEY: AWG WIRE SIZE — CLOSEST EQUIVALENT IN METRIC

WIRE SIZE CHART

Black circles indicate actual diameter of wire (not including insulation)



U.S. Coast Guard and other regulatory agencies require all circuits, except the starting circuit, to be protected with a circuit breaker or a fuse.
For additional informaiton consult the Circuit Wizard at www.circuitwizard.bluesea.com

STEP 2 Choose the Correct Fuse and Fuse Amperage

A Choose a fuse from the list on the top of the **FUSE SELECTION CHART** by following along the line of the **AWG WIRE SIZE** determined from Step 1. Appropriate fuses will have a gray bar that intersects the line.

B The appropriate fuse amperage will be found in one of the four gray bars below the selected fuse type.

Single Wire, Outside Engine Room = First column dark gray bar

Single Wire, Inside Engine Room = First column light gray bar

Bundled Wire, Outside Engine Room = Second column dark gray bar

Bundled Wire, Inside Engine Room = Second column light gray bar

Calculations are based on 105°C wire. For wire rated at 80°C or lower, use the fuse amperage for the next smaller wire size.

Example: For a 4 AWG single 105°C rated wire outside an engine room, the fuse amperage is 150A

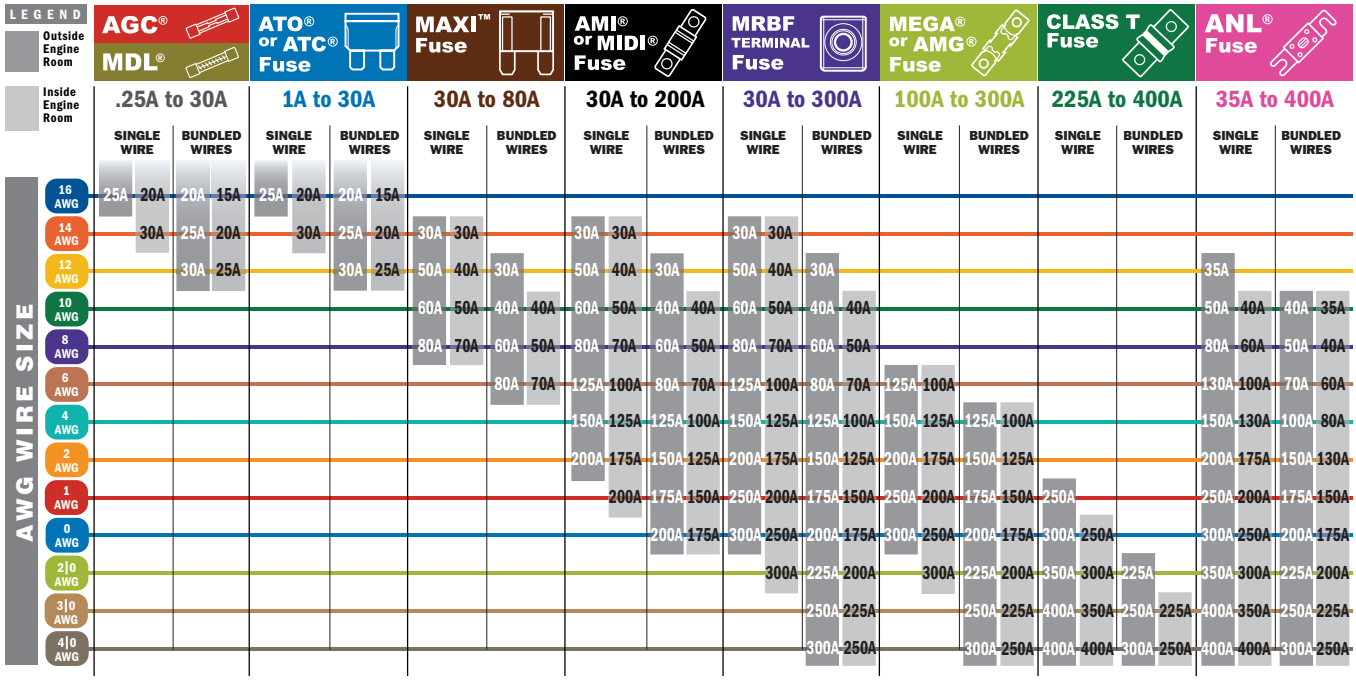
Note:

Possible fuse amperages for a circuit can fall between a range of maximum and minimum fuse amperages. The procedure above calculates the maximum fuse amperage which reduces nuisance blows but may offer less protection than a lower amperage fuse. The minimum fuse amperage is calculated by multiplying the current flow in amps by 125%.

If the product instructions specify a fuse amperage, use that value if it is under the maximum amperage found in the above procedure. If the specified fuse amperage is over the maximum suggested, move down the column and choose the wire size that intersects with the specified fuse amperage.

FUSE SELECTION CHART

Calculations are based on 105°C wire.
For lower temperature rated wire, consult the Circuit Wizard at www.circuitwizard.bluesea.com



Additional replacement fuses available from Blue Sea Systems:

- GMA® Fuse — 1A to 10A
- AGA® Fuse — 20A
- ATM® Fuse — 5A to 30A

STEP 3 Choose the Fuse Holder

A Using the same colored headings as in the **FUSE SELECTION CHART** (step 2), follow the columns down to find fuse holders or fuse blocks that meet your specific requirements.

B **Consider environmental factors:**

- Ignition protection is required where flammable vapors may accumulate.

  Example: Engine room and propane locker

  Consult American Boat and Yacht Council (ABYC) E-11.5.3 for Ignition Protection

  ● **Ignition protection**

- Ingress protection protects fuses from spray, washdown, and humidity.

  IP66-protected against powerful water jets

  ● **Ingress protection**

C **Decide between an in-line fuse holder or a fuse block:**

- In-line fuse holders are compact and hold a single low-amperage fuse.
- Fuse blocks mount to a solid surface and may hold a single fuse or multiple fuses.

FUSE HOLDER SELECTION CHART

MDL® AGC®

Crimpable In-Line Fuse Holder

5060

Waterproof In-Line Fuse Holders

5061 ●

5062 ●

Heavy Duty In-Line Fuse Holder

5063

ST Glass Fuse Blocks

5015
5018

ATO® or ATC® Fuse

ATO® or ATC® In-Line Fuse Holders

5064

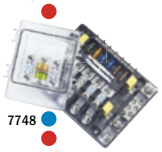
5065

ST Blade Fuse Blocks

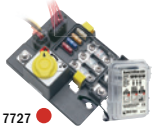
5025
5026
5028
5029

SafetyHub Fuse Blocks

7725 ● ●



7748 ● ●



7727 ●

MAXI™ Fuse

MAXI™ Fuse Block

5006

AMI® or MIDI® Fuse

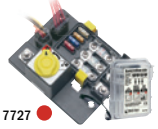
AMI® or MIDI® Safety Fuse Block

7720 ● ●

SafetyHub Fuse Blocks

7725 ● ●

7748 ● ●



7727 ●

MRBF TERMINAL Fuse

Terminal MRBF Fuse Blocks

5191 ●

2151 ●

MEGA® or AMG® Fuse

MEGA® or AMG® Safety Fuse Block

7721 ● ●

CLASS T Fuse

CLASS T Fuse Block

5502

ANL® Fuse

ANL® Fuse Blocks

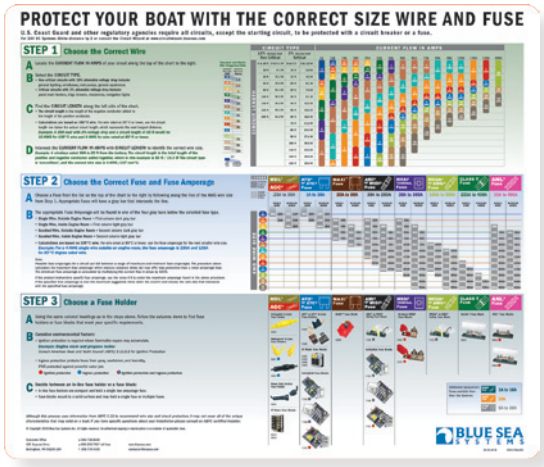
5005 ●

5503 ●

Although this process uses information from ABYC E-11 to recommend wire size and circuit protection, it may not cover all of the unique characteristics that may exist on a boat. If you have specific questions about your installation please consult an ABYC certified installer.

LEGEND

● Ingress protection
● Ignition protection



Order these selection guides on page 124

AC~

AC Main Power Distribution and Circuit Protection

Purpose

- Provide a path for delivering power from the ship's sources of AC power to the AC branch distribution system
- Provide a path for returning fault currents to ground via the green safety ground wire
- Provide a means for disconnecting AC power when the boat is not in use or in emergencies
- Provide electrical separation to insure that two sources of AC power are never connected
- Provide circuit protection for neutral and line wires in the AC main system
- Provide ground fault protection
- Provide ELCI overload or leakage fault protection

AC Wire Systems

The three most common AC systems used on boats are shown here. In all cases the ground, sometimes called safety ground to clarify its purpose and differentiate it from the DC ground or negative, is said to be a "normally non-current carrying wire." Its purpose is to provide the lowest resistance path for AC currents that have strayed from their proper containment in the normally current carrying hot and neutral wires. The ground wire is connected to the exterior conductive parts of AC devices that could be touched by a person during normal operation, and it conducts errant AC currents safely to ground rather than passing them through a human body. The ground wire is never passed through a circuit breaker.

120 Volt–60 Hz	120/240 Volt–60 Hz	230 Volt–50 Hz
Hot	Hot 1	Hot
Neutral	Hot 2	Neutral
Ground	Neutral	Ground
	Ground	

Devices Qualifying as AC Main Circuit Breakers

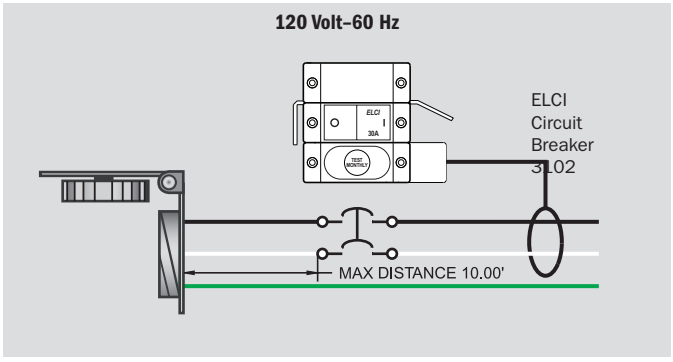
In order to qualify as an AC main circuit breaker, these characteristics must be present:

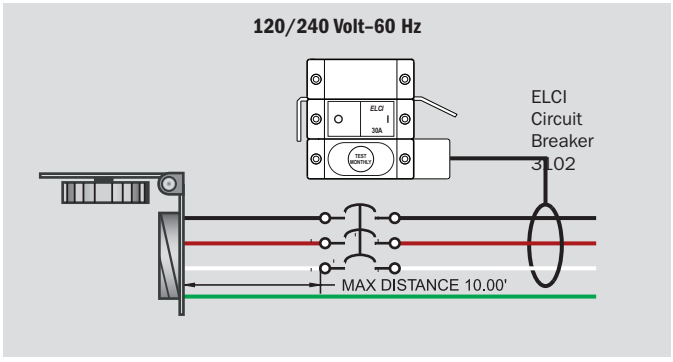
1. The circuit breaker must have an Amperage Interrupt Capacity (AIC) meeting the requirements of the following tables.
2. The circuit breaker must be multiple pole, usually 2 or 3 (see AC Wire Systems).
3. The circuit breaker must be rated for the appropriate AC system voltage in which it will be used.
4. The circuit breaker must be available in amperages appropriate to the design amperage of the system. In the USA, this is generally 30A and 50A, while European systems are generally 16A and 32A.
5. The ELCI shall have a leakage trip mechanism that trips below 30mA when current leaks to ground.

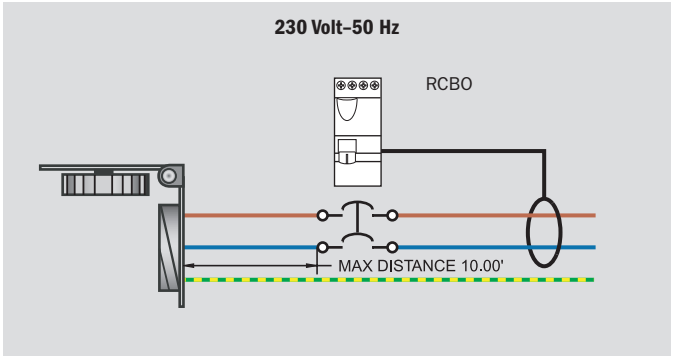
AC Shore Power Source	Main Circuit Breaker	Branch Circuit Breaker
120V - 30A	3,000	3,000
120V - 50A	3,000	3,000
120/240V - 50A	5,000	3,000
240V - 50A	5,000	3,000

Sources of AC power, whether shore power or onboard generators and inverters, should always have a circuit breaker near the power source. This circuit breaker is designated the AC main circuit breaker. The AC main circuit breaker should always have a pole for each of the hot and neutral wires in the circuit assuring that circuit protection functions are not compromised in reverse polarity situations.

Beginning in July 2010 ABYC Standards require that an Equipment Leakage Circuit Interrupter (ELCI) with a 30mA leakage trip be installed in shore power applications as the first protective device after the power inlet. ELCIs respond to leakage of electrical current outside of the intended current path, and provide overload and short circuit protection. They serve as the main AC circuit breaker for the system. These devices will open all energized conductors and the neutral when opened manually or tripping on an overload or leakage fault. For a more complete discussion of ELCIs, see page 40–41.





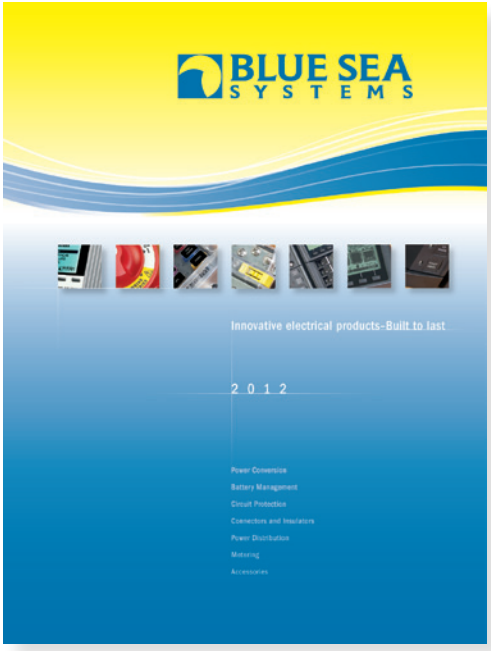


Marketing Materials

Blue Sea Systems offers sales and marketing materials that assist in the merchandising, promotion, and selection of products and the Blue Sea Systems brand. A selection of materials are shown on this page. For updated information and new marketing and sales materials, visit www.bluesea.com/resources/134.

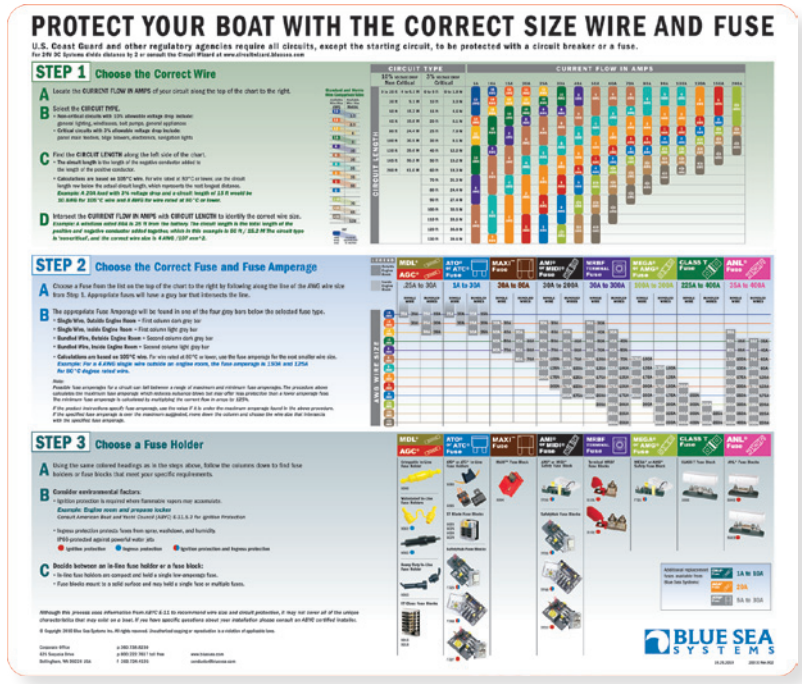
20003 Navy Blue
20004 Stone

Blue Sea Systems Hat
- Heavyweight 100% brushed cotton
- Adjustable strap
- One size fits all



20012
2012 Blue Sea Systems Catalog
- 128 pages
- 36 catalogs per case
- Order individually

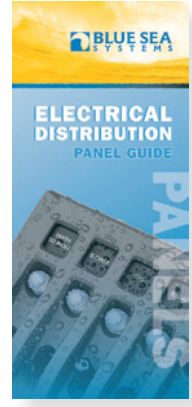
20002 Front Back
Blue Sea Systems VSM 422 Hang Tag
- Showcases the features and benefits of the VSM 422
- Card merchandises on two pegs
- 20 cards per pack



20010
Blue Sea Systems 20" x 17" Deskmat
Protect Your Boat with the Correct Size Wire and Fuse

20008
Blue Sea Systems You Can Do It
Protect Your Boat with the Correct Size Wire and Fuse guides
- 20 guides per pack

20009
Blue Sea Systems You Can Do It
Add-A-Battery guides
- 20 guides per pack



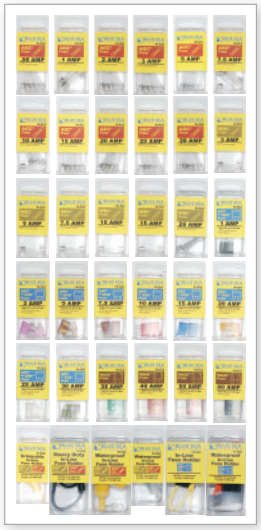
20001
Blue Sea Systems Panel Guide
- Consumer marketing tool
- Outlines above and below deck panels and accessories
- 20 guides per pack

20006
Blue Sea Systems 22" x 7" Logo Display Header

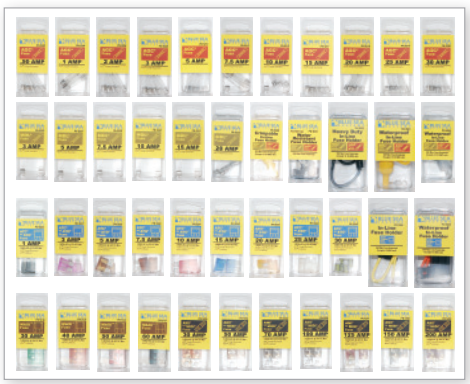
Merchandising Plans

Blue Sea Systems provides merchandising plans to assist with organizing the visual presentation of the product. The plans are available in different sizes to suit the needs of the dealer. A sample of the plans is shown on this page. Additional merchandising plans and specific information of each plan is available at: www.bluesea.com/resources/134.

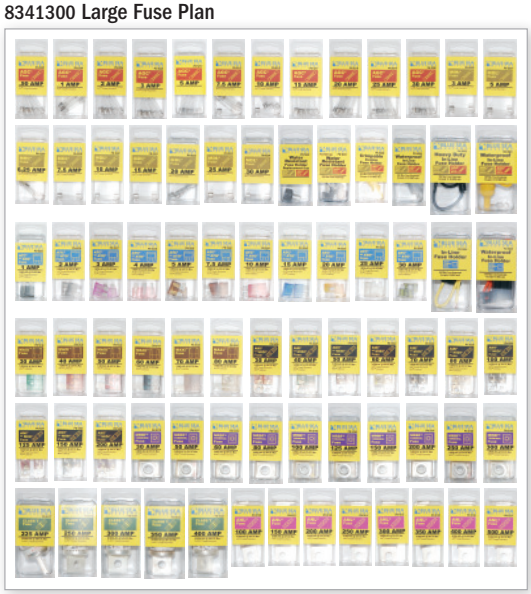
8341100 Small Fuse Plan



8341200 Medium Fuse Plan



8341300 Large Fuse Plan

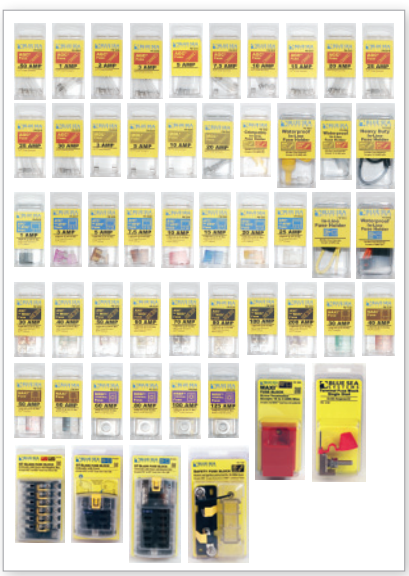


8342100 Small Fuse Block Plan

8342200 Medium Fuse Block Plan

8342300 Large Fuse Block Plan

8331100 Small Mixed Plan



8343100
Small Battery Management Plan

8343200
Medium Battery Management Plan

8343300
Large Battery Management Plan

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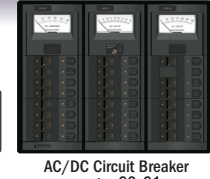
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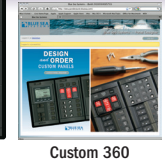
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