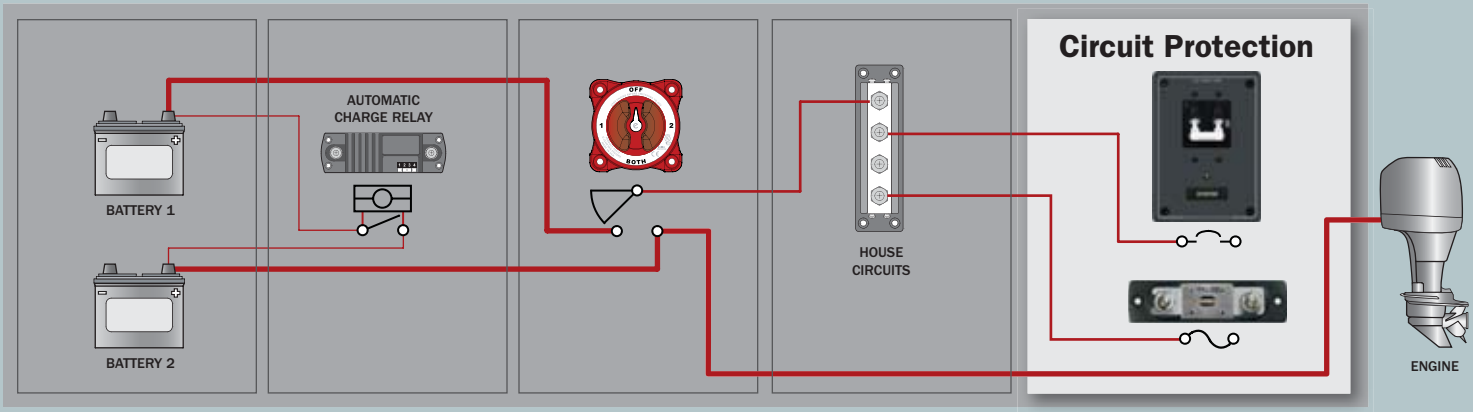
DC Main Circuit Protection - the fuses and circuit breakers that are closest to the batteries



Purpose

Fuses and circuit breakers are used to protect wire insulation from melting and starting fires in the event of over currents or to protect from short circuits which cause more amperage to flow in a wire than that wire is rated to handle. 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

1) Ignition Protection

ABYC E-11.5.1.3 and US Coast Guard regulations require that electrical sources of ignition located in spaces containing gasoline powered machinery, gasoline fuel tanks, locations where fumes from gasoline or LP gas fumes can accumulate, comply with standards for ignition protection. To be ignition protected, these devices must have any spark producing mechanisms sealed and low enough surface temperatures that they will not ignite gas fumes. Even diesel powered vessels have suffered major fires and explosions as a result of fumes from dinghy fuel or stored painting supplies. Switches, circuit breakers, and fuses are all considered to be potential sources of ignition. Many of the circuit protection devices offered by Blue Sea Systems comply with ignition protection standards and are identified on the Circuit Protection Device Comparison Table on page 29 with an IP icon.

2) Mounting Placement

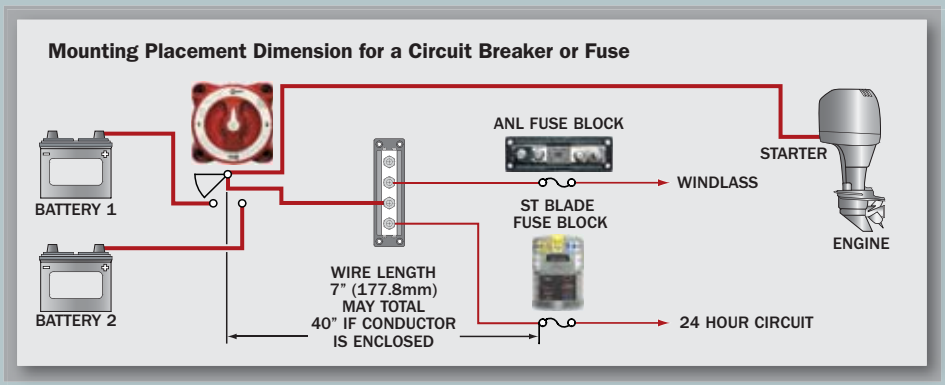
a) Distance from power source

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.

The diagram below shows the required placement of main circuit protection devices. Note that 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.

Mounting placement dimensions for a fuse or circuit breaker:

- 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
- 72” if the conductor is connected directly to the battery and housed in a sheath or enclosure in addition to the wire insulation



b) Above or below deck?

Most circuit protection devices are designed to be used in a protected environment; below deck in a boat with an enclosed cabin, or inside a console or locker in an open boat. There are a number of electrical panels designed for exterior mounting and designated waterproof or water resistant. In some cases, the selection of a circuit protection panel will be made on the basis of the environment where it will be mounted.

c) Wire Installation

Most circuit protection devices suitable for marine use are designed to have wires connected using ring terminals, but a few are designed to accept push-on connectors. Because large wire sizes may be chosen to minimize voltage drop in low voltage DC systems, the wire choice may make one circuit protection device more suitable than another. If large conductors are used, you may want to choose protective devices that can accommodate and support larger wire. In some cases the wire may be so large that it is necessary to place a power post or wire connection point near the circuit protection device and transition from the large wire to a smaller wire to connect to the protection device.

Questions to answer when selecting the type and size of fuse or circuit breaker:

1) Do I need a fuse or circuit breaker?

Fuse advantages:

- Generally lower cost
- Available in higher amperage ratings
- Available in higher interrupt ratings
- Available in greater size ranges

Circuit Breaker advantages:

- Re-settable after opening
- Can be used as a switch
- Available in vaporproof or waterproof models
- A wide range of opening speed characteristics are available

If the application requires the circuit protection device to be in an explosive area, as in a, b, or c below, then an ignition protected circuit breaker or fuse is required:

a) Gasoline engine room or other area susceptible to gasoline fumes
b) Battery compartments
c) Propane lockers

2) What Interrupt Rating or Ampere Interrupt Capacity (AIC) is required?

See the ABYC Interrupt Rating Table on the following page.
Limit the selection to a fuse or circuit breaker type that meets the AIC of each.

3) What type of circuit protection device meets the AIC rating requirements from step 2?

See the Circuit Protection Device Comparison Table on the following page.

4) Does the circuit protection device need to be ignition protected?

See the IP icon on the Circuit Protection Comparison Table on following page.

5) What should the appropriate Amperage rating be for the circuit protection device?

a) The rating must be lower than the ampacity of the smallest wire in the circuit.
See the ABYC Ampacity Rating Table below.
b) The rating must be higher than the maximum continuous current that will flow in the circuit.

* Special considerations should be made for electrical systems that exceed 32 Volts
** There are other issues that may be considered by reading ABYC E-11.12 circuit protection

ABYC Ampacity* Rating Table

Allowable amperage of conductors under 50 Volts with 105°C insulation						
AWG Wire Size	Metric (Sq mm)	AWG CM Area	SAE CM Area	Ohms /1000ft	Ampacity Engine Space	
					Outside	Inside
18	0.8	1,600	1,537	6.385	20	17
16	1	2,600	2,336	4.016	25	21
14	2	4,100	3,702	2.525	35	29
12	3	6,500	5,833	1.588	45	38
10	5	10,500	9,343	0.9989	60	51
8	8	16,800	14,810	0.6282	80	68
6	13	26,600	24,538	0.3951	120	102
4	19	42,000	37,360	0.2485	160	136
2	32	66,500	62,450	0.1563	210	178
1	40	83,690	77,790	0.1239	245	208
0	50	105,600	98,980	0.09827	285	242
2/0	62	133,100	125,100	0.07793	330	280
3/0	81	167,800	158,600	0.06180	385	327
4/0	103	211,600	205,500	0.04901	445	378

* Thermally limited amperage capacity

Selecting DC Main Circuit Protection

DC Main Circuit Protection Devices are characterized by one principal attribute, their Ampere Interrupt Capacity (AIC) rating. Specifications listed in the ABYC standards determine the AIC a Main Circuit Protection Device must have. The total Cold Cranking Amperes (CCA) of the batteries installed that can be connected to the circuit to be protected determine the required AIC rating. See the tables on the following page, for the required AIC ratings.

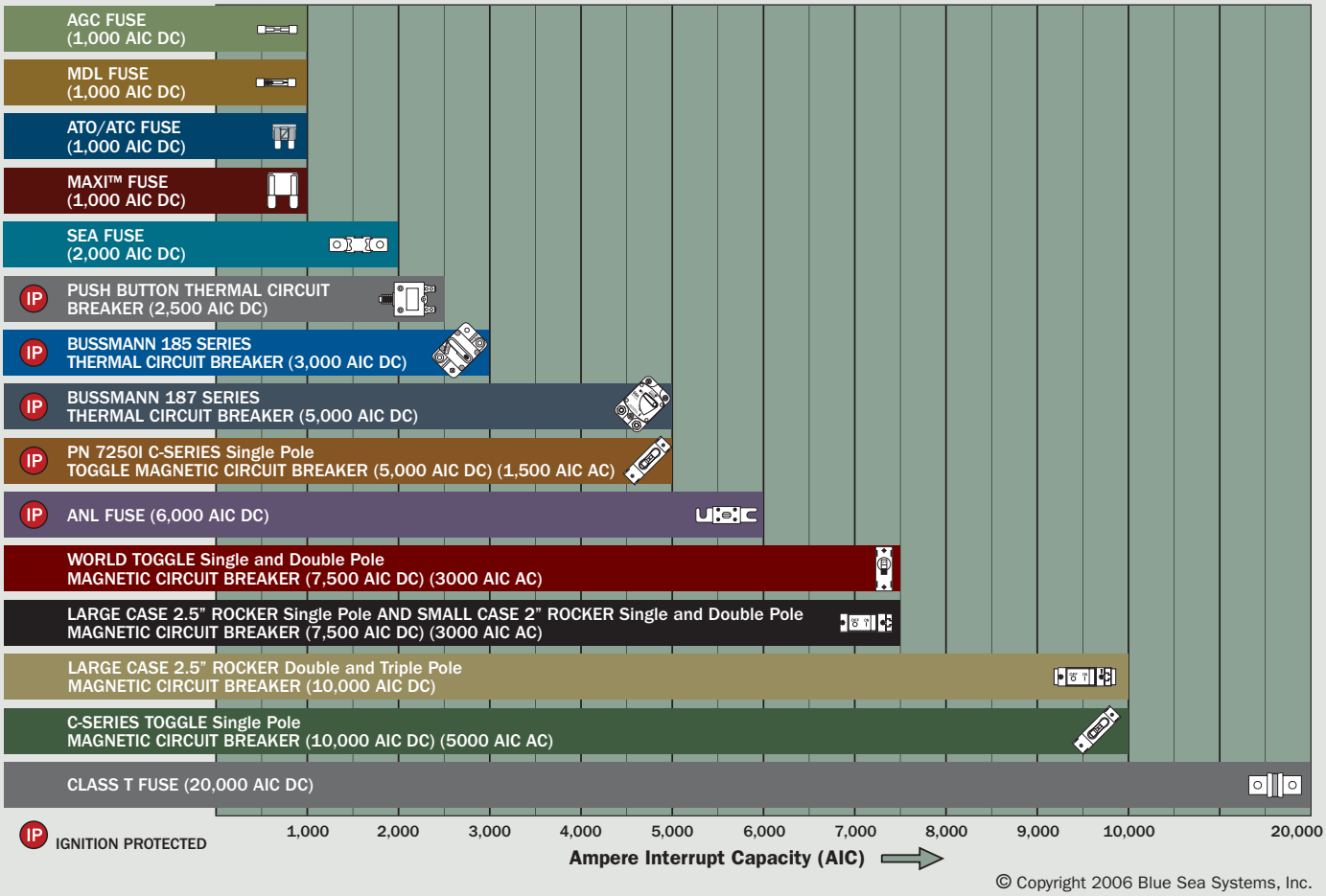
ABYC Interrupt Rating Table

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**
G24 OR G27	650 CCA or Less	1,500 AIC	750 AIC
G24 + G24 OR G27 + G27 OR 4D	651-1,100 CCA	3,000 AIC	1,500 AIC
GOLF CART OR 8D OR 4D + 4D	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 amperes 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. eg. 7.2 Volts for a 12 Volt battery.
The CCA for the batteries represented is an approximation and could be slightly higher or lower. Consult the battery manufacturers specifications for precise CCA ratings.

ABYC standard E-11 requires that only circuit breakers be applied according to the above table and requires that the circuit breaker can be reset and reusable. The standard does not strictly require that fuses be applied in the same way, but it is an issue to consider, especially with high amperage fuses used to protect panel feeders or inverters. Fuses under 10 Ampere rating generally have such a high internal resistance they prevent fault currents from reaching 1000 Amperes in 12 Volt circuits. The apparent contradiction when using these fuses for bilge pumps and other circuits directly off the battery is less 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.

Circuit Protection Device Comparison Table



Bussmann Series 185 Circuit Breakers

- Ignition protected - Safe for installation aboard gasoline powered boats
- All components meet SAE J1171 external ignition protection requirements
- Waterproof
- Combines switching and circuit breaker function into one unit
- "Trip Free" - cannot be held closed after trip

Specifications

Interrupt Capacity	3,000 Amperes DC
Circuit Breaker Type	Thermal
Case Material	Phenolic
Maximum Voltage	42 Volts DC
Delay	See www.bluesea.com

CE marked

See page 29 for ABYC Interrupt Rating Requirements.

IP 7010 Panel Mount

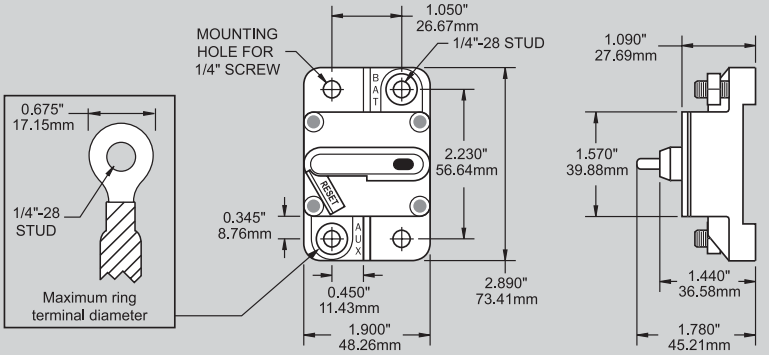
IP 7110 Surface Mount

Panel Mount		
PN	Amperage	Weight Lb (Kg)
7008	25A	0.24 (0.11)
7009	30A	0.24 (0.11)
7010	35A	0.24 (0.11)
7005	40A	0.24 (0.11)
7000	50A	0.24 (0.11)
7011	60A	0.24 (0.11)
7012	70A	0.24 (0.11)

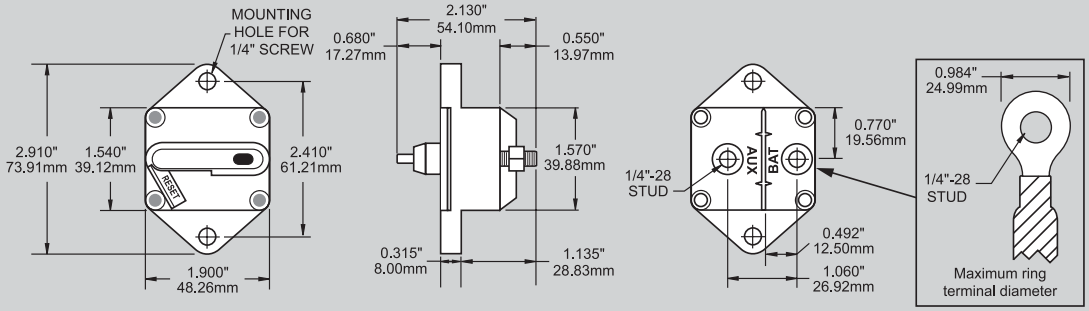
Panel Mount		
PN	Amperage	Weight Lb (Kg)
7014	80A	0.24 (0.11)
7006	90A	0.24 (0.11)
7002	100A	0.24 (0.11)
7007	110A	0.24 (0.11)
7013	120A	0.24 (0.11)
7015	135A	0.24 (0.11)
7004	150A	0.24 (0.11)

Surface Mount		
PN	Amperage	Weight Lb (Kg)
7108	25A	0.30 (0.14)
7109	30A	0.30 (0.14)
7110	35A	0.30 (0.14)
7105	40A	0.30 (0.14)
7100	50A	0.30 (0.14)
7111	60A	0.30 (0.14)
7112	70A	0.30 (0.14)

Surface Mount		
PN	Amperage	Weight Lb (Kg)
7114	80A	0.30 (0.14)
7106	90A	0.30 (0.14)
7102	100A	0.30 (0.14)
7107	110A	0.30 (0.14)
7113	120A	0.30 (0.14)
7115	135A	0.30 (0.14)
7104	150A	0.30 (0.14)



Bussmann Series 185 Thermal Circuit Breaker Surface Mount Dimensions



Bussmann Series 185 Thermal Circuit Breaker Panel Mount Dimensions

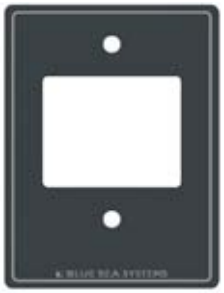
IP IGNITION PROTECTED

Bussmann Series 185 Circuit Breaker Mounting Options

- Used with Bussmann Series 185 Panel Mount Circuit Breakers
- 7199 Heavy 1/8" aluminum 5052 Alloy
- 7199 Two-part polyurethane slate gray finish
- 7198 Self trimming molded rubber bezel

PN	Description	Height in" (mm)	Width in" (mm)	Weight Lb (Kg)
7198	Trim Bezel	3.34 (84.71)	2.44 (61.90)	0.04 (0.02)
7199	Mounting Panel	4.00 (101.60)	3.00 (76.20)	0.12 (0.05)

7198



7199

Self-trimming case eliminates need for mounting panels or trim bezels

Round case for easy installation with standard sized hole saw

IP 7039
Panel Mount

Robust 5/16" terminals provide high torque connections

Large clearance around terminal stud accepts heavy gauge wire lugs

IP 7139
Surface Mount

Bussmann Series 187 MRCB

Marine Rated Circuit Breakers

- Combines switching and circuit protection into a single device
- Clear, single lever operation
- "Trip Free" design cannot be held "ON" during fault current condition
- Vaporproof
- Weatherproof
- Recessed mounting holes for clean appearance
- Large clearance around terminal studs accept heavy gauge wire lugs
- Robust 5/16" M8 terminals provide high torque connections
- Large lever with vertical/horizontal orientation provides indication of trip status
- Ignition protected - Safe for installation aboard gasoline powered boats

Specifications

Circuit Breaker Class	Type III - Switchable/Manual Reset - Trip Free
Type	Thermally Responsive Bi-Metal Blade
Case Material	Thermoset Polyester
Available Amperage	25-150 Amperes
Voltage Rating	48 Volts DC Maximum
Delay	See www.bluesea.com
Interrupt Rating:	5,000 Amperes@12 Volts DC 3,000 Amperes@24 Volts DC 1,500 Amperes@42 Volts DC

Agency Specifications

- All components meet SAE J1171 external ignition protection requirements

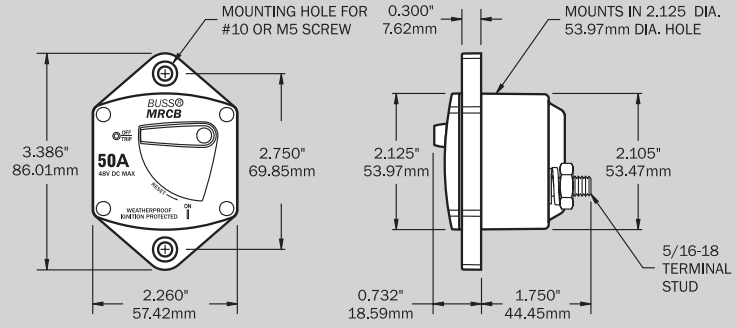
CE marked

▶ See page 29 for ABYC Interrupt Rating Requirements.

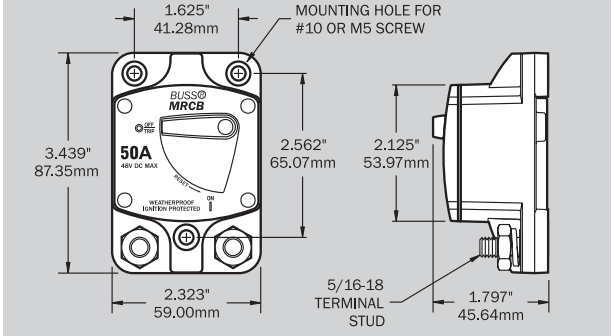
Panel Mount		
PN	**Amperage**	**Weight Lb (Kg)**
7035	25A	0.50 (0.23)
7036	30A	0.50 (0.23)
7037	35A	0.50 (0.23)
7038	40A	0.50 (0.23)
7039	50A	0.50 (0.23)
7040	60A	0.50 (0.23)
7041	70A	0.50 (0.23)
7042	80A	0.50 (0.23)
7043	90A	0.50 (0.23)
7044	100A	0.50 (0.23)
7045	110A	0.50 (0.23)
7046	120A	0.50 (0.23)
7047	135A	0.50 (0.23)
7048	150A	0.50 (0.23)

Surface Mount		
PN	**Amperage**	**Weight Lb (Kg)**
7135	25A	0.58 (0.26)
7136	30A	0.58 (0.26)
7137	35A	0.58 (0.26)
7138	40A	0.58 (0.26)
7139	50A	0.58 (0.26)
7140	60A	0.58 (0.26)
7141	70A	0.58 (0.26)
7142	80A	0.58 (0.26)
7143	90A	0.58 (0.26)
7144	100A	0.58 (0.26)
7145	110A	0.58 (0.26)
7146	120A	0.58 (0.26)
7147	135A	0.58 (0.26)
7148	150A	0.58 (0.26)

IP IGNITION PROTECTED



Bussmann Series 187 MRCB Panel Mount Dimensions



Bussmann Series 187 MRCB Surface Mount Dimensions

Important Information about the Bussmann 187 Series Circuit Breaker

The Cooper Bussmann 187 Series Thermal Circuit Breaker is based on the T-1 Thermal Circuit Breaker that was designed and developed by Blue Sea Systems engineers in 1999. In 2003 Cooper Bussmann purchased the T-1 tooling and patents from Blue Sea Systems. In 2005 Cooper Bussmann introduced the 187 Series Thermal Circuit Breaker based in part on the T-1 design. Using their long experience in thermal circuit breaker design, Cooper Bussmann enhanced the original T-1 internal mechanism & current path via several design changes. The 187 Series retains all the features that made the T-1 so popular – robust construction, easy mounting, large terminal studs and attractive styling.

Cooper Bussmann has certified that the 187 Series Thermal Circuit Breaker meets SAE J1171 for ignition protection and has a 5,000 Ampere interrupt capacity per ABYC E-11 at 12 Volts DC. The yellow handle and text of 187 Thermal Circuit Breaker clearly distinguish it from the T-1 Circuit Breaker's red handle. Please visit our website at www.bluesea.com for information on the T-1 recall initiated in 2003.

C-Series Toggle Circuit Breakers

5 to 300 Ampere DC range provides overcurrent protection previously only available in fuses for inverters, bow thrusters, and windlasses.

- Combines switching and circuit protection into a single device
- "Trip Free"- cannot be held closed after trip
- 7250I Ignition protected - Safe for installation aboard gasoline powered boats
- 7250I All components meet UL 1500 and ISO 8846 external ignition protection requirements

Specifications

Circuit Breaker Type	Magnetic
Body Material	Phenolic
Maximum Voltage	See Interrupt Ratings table below
Rated Switch Cycles	10,000 @ rated amperage and voltage
Delay	See www.bluesea.com

PN	Color	Poles	Amperage	Weight Lb (Kg)
7350	White	1*	5A	0.28 (0.13)
7351	White	1*	10A	0.28 (0.13)
7352	White	1*	15A	0.28 (0.13)
7353	White	1*	20A	0.28 (0.13)
7354	White	1*	25A	0.28 (0.13)
7355	White	1*	30A	0.28 (0.13)
7244	White	1*	50A	0.36 (0.17)
7246	White	1*	60A	0.36 (0.17)
7248	White	1*	80A	0.36 (0.17)
7250	White	1*	100A	0.36 (0.17)
7250I	Red	1*	100A	0.36 (0.17)
7267	White	2	150A	0.64 (0.31)
7268	White	2	175A	0.64 (0.31)
7269	White	2	200A	0.64 (0.31)
7270	White	3	250A	0.93 (0.46)
7271	White	3	300A	0.93 (0.46)

* Single pole circuit breakers are AC/DC rated

▶ See page 33 for Magnetic Circuit Breaker Mounting Panels.

7250

IP 7250I

7267

7270

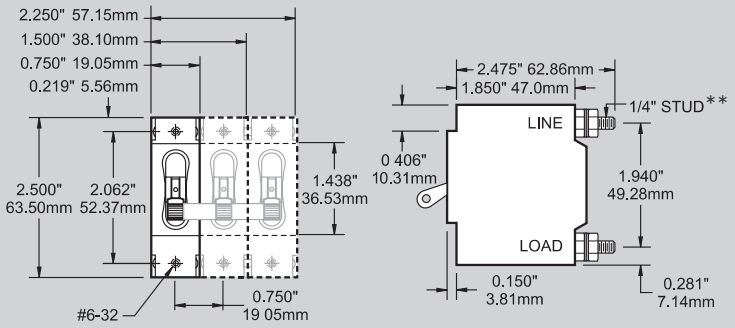
Interrupt Ratings (see ABYC Interrupt Rating Requirements page 29)

C-Series Circuit Breakers - Single Pole			
		UL 1077 - UL/CSA (US/Canada)[1]	EN60934 - TUV (Europe)
Voltage	**Current**	**Interrupt Ratings**	**Interrupt Ratings**
80V DC	5-100A	10,000A	5,000A
125V AC	5-100A	5,000A	5,000A
250V AC	5-100A	5,000A	5,000A

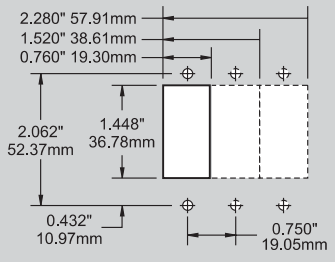
C-Series Circuit Breakers - 7250I Single Pole (Ignition Protected)			
		UL 1077 - UL/CSA (US/Canada)[1]	EN60934 - TUV (Europe)
Voltage	**Current**	**Interrupt Ratings**	**Interrupt Ratings**
48V DC	5-100A	5,000A	5,000A
125V AC	5-100A	1,500A	1,500A

C-Series Circuit Breakers - Double and Triple Pole			
Voltage	**Current**	**Interrupt Ratings**	**Interrupt Ratings**
65V DC	150-300A	5,000A[2]	-

[1] UL Recognized
[2] No Agency Approvals



C-Series Circuit Breaker Dimensions



Panel Cutout Detail

** Multiple pole versions have 5/16" terminal on bus

IP IGNITION PROTECTED

C-Series Magnetic Circuit Breaker Panels

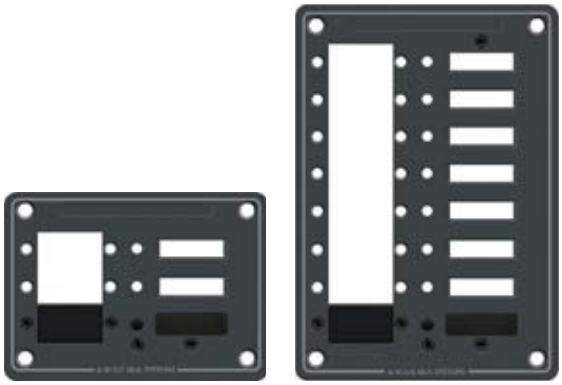
- Heavy 1/8" aluminum 5052 Alloy
- Two-part polyurethane slate gray finish
- LED indicates power "ON"

Specifications

LED Amperage	5 Milliwatts

PN Panel	PN Circuit Breaker Installed	Poles	Amperage	Weight Lb (Kg)
7262	7267	2	150A	0.95 (0.45)
7263	7268	2	175A	0.95 (0.45)
7264	7269	2	200A	0.95 (0.45)
7265	7270	3	250A	1.21 (0.59)
7266	7271	3	300A	1.21 (0.59)

7266



8088 8087

See page 32 for C-Series Magnetic Circuit Breakers.

Magnetic Circuit Breaker Mounting Panels

- Designed for C-Series Magnetic Circuit Breakers
- Heavy 1/8" aluminum 5052 Alloy
- Two-part polyurethane slate gray finish
- Accepts standard Blue Sea Systems backlightable labels
- Accepts standard Blue Sea Systems "ON" indicating LEDs
- Industry standard height and width
- Optional panel plugs can be inserted to fill blank positions
- Optional Panel Plug Kit 8089 includes Circuit Breaker Mounting Screws, panel plug, LED plug, and blank label

PN	Description	Width in" (mm)	Height in" (mm)	Weight Lb (Kg)
8087	8 Position	5.25 (133.35)	7.50 (190.50)	0.40 (0.18)
8088	3 Position	5.25 (133.35)	3.75 (95.25)	0.28 (0.13)
8089	Panel Plug Kit	-	-	0.10 (0.04)

7450

7475

7477

AIRPAX®

Available January, 2006

Large Case 2.5" Rocker Circuit Breakers NEW PRODUCT

- Color actuator indicates "OFF" position
- "Trip Free" design cannot be held "ON" during fault current condition
- Flat actuator protects against accidental switching

Specifications

Circuit Breaker Type	Magnetic Hydraulic - Trip free
Maximum Amperage	See table below
Maximum Voltage	See table below
Rated Switch Cycles	10,000@rated amperage and voltage
Delay	See www.bluesea.com
Mounting screw	#6-32 SS - Recommended torque 6-8 in-lb
Terminal stud	1/4"-20 x 0.545" SS - Recommended torque 40-45 in-lb

CE marked

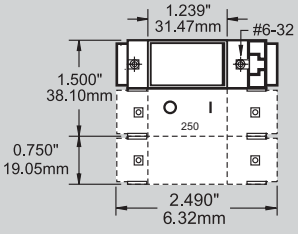
See page 42 for more details

Interrupt Ratings (see ABYC Interrupt rating Requirements page 29)

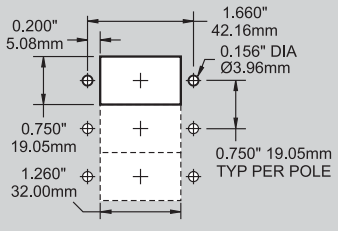
IELBX Rocker Circuit Breakers - Single Pole			
		UL 1077 - UL/CSA (US/Canada)[1]	EN60934 - VDE (Europe)
Voltage	**Current**	**Interrupt Ratings**	**Interrupt Ratings**
65V DC	60-100A	7,500A	-
65V DC	60A	-	4,000A
125V AC	60-100A	3,000A	-
250V AC	60-100A	-	2,000A

CELBX Rocker Circuit Breakers - Double and Triple Pole			
		UL 489A - UL/CSA (US/Canada)[2]	EN60934 - VDE (Europe)
Voltage	**Current**	**Interrupt Ratings**	**Interrupt Ratings**
80V DC	150-250A	10,000A	2,000A

[1] UL Recognized [2] UL Listed



Large Case 2.5" Rocker Circuit Breaker Dimensions



Rocker Panel Cutout Detail

PN	Actuator	Poles	Amperage
7450	Flat	1	60A
7451	Flat	1	80A
7452	Flat	1	100A
7475	Flat	2*	150A
7476	Flat	2*	200A
7477	Flat	3*	250A
4110	Panel Plug Kit	-	-

NEW PRODUCT

* Paralleled Poles

Update Available January, 2006

SEA Fuse Block UPDATED PRODUCT

5001
(SEA Fuse not included)

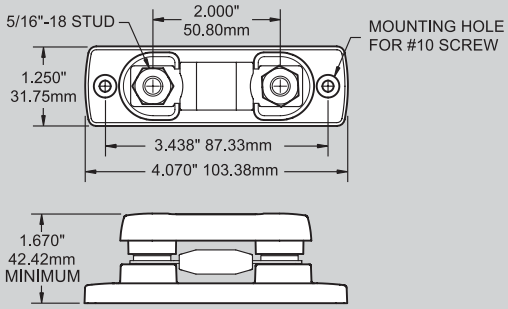
- The most economical system for 100-300 Ampere fusing
- Insulating cover satisfy ABYC/USCG requirements
- For use on systems up to 48 Volts DC
- Large stud terminals accept 5/16" or M8 ring terminals up to 2/0 AWG

Specifications

Base Material	Black Thermoplastic
Cover Material	Clear Thermoplastic
SEA Fuses available	100-300 Amperes DC
Maximum Amperage	300 Amperes DC
Maximum Voltage	48 Volts DC

PN	Description	Amperage	Weight Lb (Kg)
5000	Fuse Block without Cover	100-300A	0.17 (0.07)
5001	Fuse Block with Cover	100-300A	0.20 (0.09)

UPDATED PRODUCT



PN 5001 Dimensions

SEA Fuses

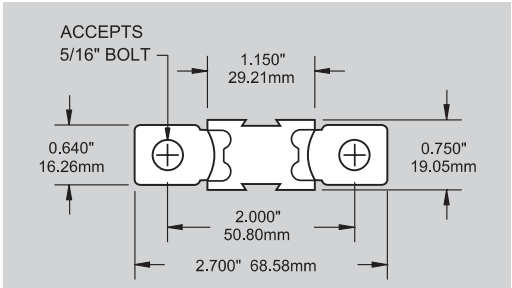
- Most economical fuse for 100-300 Ampere circuit protection

Specifications

Interrupt Capacity	2,000 Amperes DC
Maximum Voltage	48 Volts DC
Delay	See www.bluesea.com

5106

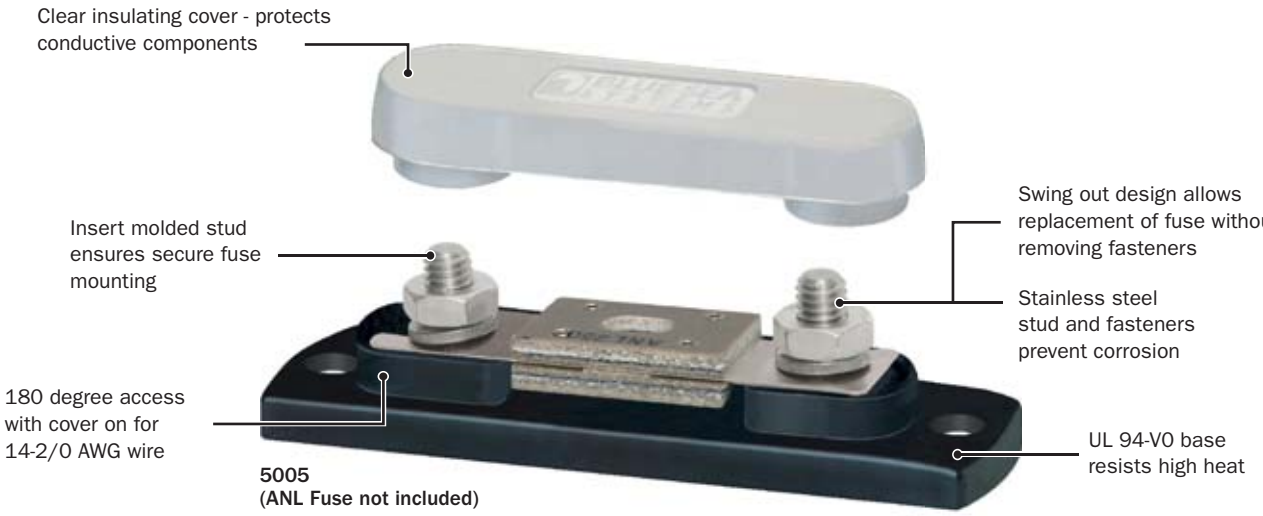
PN	Amperage	Weight Lb (Kg)
5101	100A	0.06 (0.03)
5102	125A	0.06 (0.03)
5103	150A	0.06 (0.03)
5104	175A	0.06 (0.03)
5105	200A	0.06 (0.03)
5106	225A	0.06 (0.03)
5107	250A	0.06 (0.03)
5108	300A	0.06 (0.03)



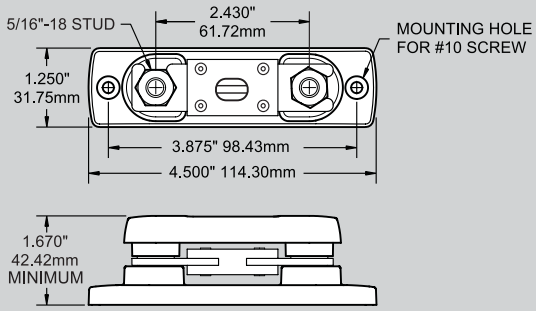
PN 5160 Dimensions

Update Available January, 2006

ANL Light Fuse Block UPDATED PRODUCT



5005
(ANL Fuse not included)



PN 5005 Dimensions

- Insulating cover satisfies ABYC/USCG requirements
- For use on systems up to 48 Volts DC
- Large 5/16" M8 studs accept 5/16" or M8 ring terminals up to 14-2/0 AWG

Specifications

Base Material	Black Thermoplastic
Cover Material	Clear Thermoplastic
Maximum Amperage	300 Amperes DC
Maximum Voltage	48 Volts DC

PN	Description	Amperage	Weight Lb (Kg)
5004	Fuse Block without Cover	35-300A	0.18 (0.08)
5005	Fuse Block with Cover	35-300A	0.21 (0.09)

UPDATED PRODUCT

ANL Fuse

35-300 Ampere ANL Fuses

- Ignition protected (conforming to SAE J1171)
  - Safe for installation aboard gasoline powered boats (35-300 Amperes only)
- Silver-plated connector blades for corrosion resistance
- Visible indication of blown fuse condition
- 6,000 Ampere Interrupt Capacity (AIC) satisfies ABYC requirements for main DC circuit protection on large battery banks

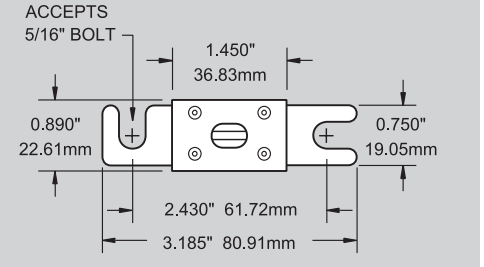
Specifications

Interrupt Capacity	6,000 Amperes DC
Maximum Voltage	48 Volts DC
Delay	See www.bluesea.com

Agency Specifications

- **35-500 Ampere Fuses** meet the requirements of ISO 8846, SAE J1171, ABYC, USCG Title 33 CFR 183.410(a) and UL 1500

▶ **See page 36 for high amperage ANL Fuses.**



ANL Fuse Dimensions

PN		Amperage	Weight Lb (Kg)
5164	IP	35A	0.05 (0.02)
5165	IP	40A	0.05 (0.02)
5122	IP	50A	0.05 (0.02)
5123	IP	60A	0.05 (0.02)
5124	IP	80A	0.05 (0.02)
5125	IP	100A	0.05 (0.02)
5126	IP	130A	0.05 (0.02)

PN		Amperage	Weight Lb (Kg)
5127	IP	150A	0.06 (0.03)
5128	IP	175A	0.06 (0.03)
5129	IP	200A	0.06 (0.03)
5130	IP	225A	0.06 (0.03)
5131	IP	250A	0.07 (0.03)
5132	IP	275A	0.07 (0.03)
5133	IP	300A	0.07 (0.03)

IP IGNITION PROTECTED

ANL Fuse Block

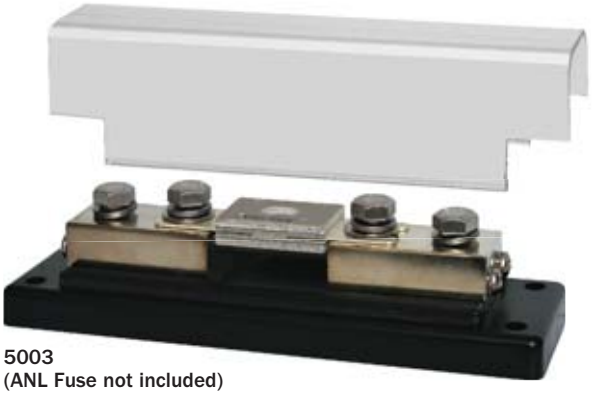
5003 Features

- 750 Ampere rating achieved with large heat dissipating tin-plated copper mounting blocks
- Clear insulating cover satisfies ABYC/USCG requirements
- For use on systems up to 48 Volts DC
- Large terminals accept 5/16" or M8 ring terminals up to 4/0 AWG

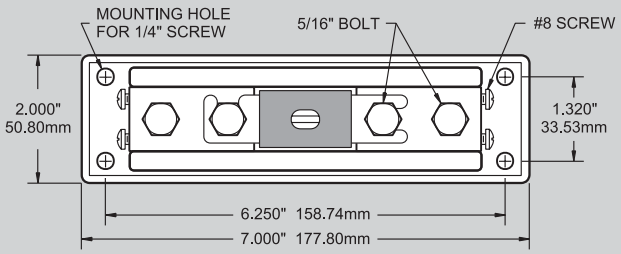
Specifications

Base Material	Black Reinforced Polycarbonate
Cover Material	Clear Reinforced Polycarbonate
Maximum Amperage	750 Amperes DC
Maximum Voltage	48 Volts DC
Fuse Mounting Blocks	Tin-Plated Copper

PN	Amperage	Weight Lb (Kg)
5003	35-750A	1.55 (0.70)



5003
(ANL Fuse not included)



PN 5003 Dimensions

35-750 Ampere ANL Fuses

- Ignition protected (conforming to SAE J1171)
  - Safe for installation aboard gasoline powered boats (35-500 Amperes only)
- Silver-plated connector blades for corrosion resistance
- Visible indication of blown condition
- 6,000 Ampere Interrupt Capacity (AIC) satisfies ABYC requirements for main DC circuit protection on large battery banks

Specifications

Interrupt Capacity	6,000 Amperes DC
Maximum Voltage	48 Volts DC
Delay	See www.bluesea.com

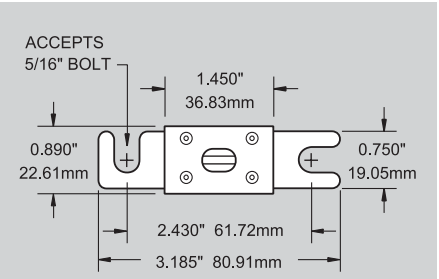
Agency Specifications

- **35-500 Ampere Fuses** meet the requirements of ISO 8846, SAE J1171, ABYC, USCG Title 33 CFR 183.410(a) and UL 1500

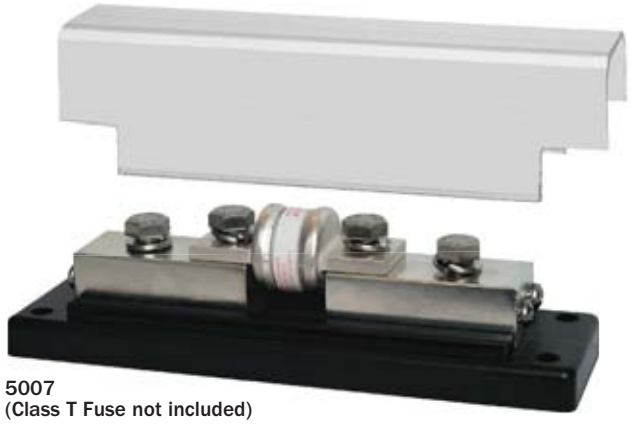
PN		Amperage	Weight Lb (Kg)
5164	IP	35A	0.05 (0.02)
5165	IP	40A	0.05 (0.02)
5122	IP	50A	0.05 (0.02)
5123	IP	60A	0.05 (0.02)
5124	IP	80A	0.05 (0.02)
5125	IP	100A	0.05 (0.02)
5126	IP	130A	0.05 (0.02)
5127	IP	150A	0.06 (0.03)
5128	IP	175A	0.06 (0.03)
5129	IP	200A	0.06 (0.03)
5130	IP	225A	0.06 (0.03)
5131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

IP IGNITION PROTECTED

ANL Fuse



ANL Fuse Dimensions



5007
(Class T Fuse not included)

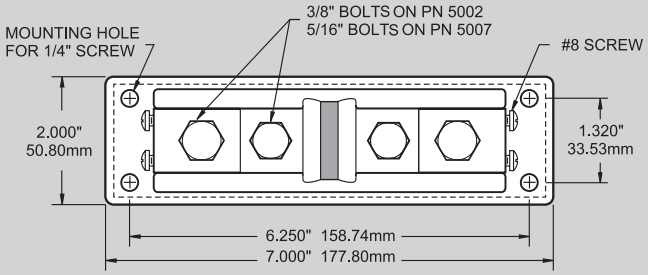
Class T Fuse Blocks

The fuse system recommended by most inverter manufacturers for high speed response to short circuits.

- Clear insulating cover, satisfies ABYC/USCG requirements
- For use on systems up to 160 Volts DC
- Large stud terminals (3/8" on 5002, 5/16" on 5007) accept ring terminals for wire up to 4/0 AWG
- Large heat dissipating tin-plated copper mounting blocks
- Two #8 accessory terminals located on each end

Specifications

Base Material	Black Reinforced Polycarbonate
Cover Material	Clear Reinforced Polycarbonate
Class T Fuses available	110-400 Amperes DC
Maximum Amperage	400 Amperes DC
Maximum Voltage	160 Volts DC
Fuse Mounting Blocks	Tin-Plated Copper



PN 5002 and PN 5007 Dimensions

PN	Amperage	Weight Lb (Kg)	Accepts Fuse PN
5007	110-200A	1.40 (0.64)	5112, 5113, 5114, 5115, 5116
5002	225-400A	1.55 (0.70)	5117, 5118, 5119, 5120, 5121

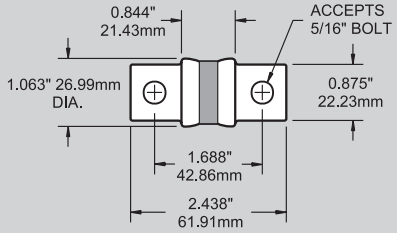
5112

Class T Fuses

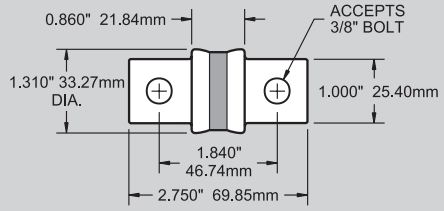
- Extremely fast short-circuit response
- 20,000 Ampere Interrupt Capacity (AIC)
- UL listed to standard 248-15
- DC tested to UL standard 198L

Specifications

Interrupt Capacity	20,000 Amperes DC
Maximum Voltage	160 Volts DC
Delay	See www.bluesea.com



110 to 200 Amperes Dimensions



225 to 400 Amperes Dimensions

PN	Amperage	Weight Lb (Kg)
5112	110A	0.19 (0.09)
5113	125A	0.19 (0.09)
5114	150A	0.19 (0.09)
5115	175A	0.19 (0.09)
5116	200A	0.19 (0.09)
5117	225A	0.29 (0.13)
5118	250A	0.29 (0.13)
5119	300A	0.29 (0.13)
5120	350A	0.29 (0.13)
5121	400A	0.29 (0.13)

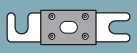
ANL Fuses vs. Class T Fuses

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 (35A - 750A) 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 248-15L listed fuse commonly available in the marine industry
- Fast response to short circuits protects high amperage electronic equipment such as inverters