

Pacer



Thermal & Marine Breakers

Thermal and marine breakers are ideal for use in a variety of environments. These breakers include thermal breakers, Bussman breakers, and Push-to-reset breakers. Each style has its particular uses and functions and excels in a particular application. Panel mount thermal breakers protect against overcurrent. Ideal for use in road vehicles, boats, and battery powered machines. Bussman breakers are typically used in auxiliary and accessory circuits in truck, buses, RVs, and marine systems. Other uses include battery chargers and DC audio systems. Series 185 are sealed for engine compartment and bilge area applications. Push-to-reset breakers are used for wire harness protection for heavy trucks, buses, construction equipment, off-road vehicles, and RVs.



Function

Breakers protect electrical systems from excess electricity

Benefits

- Multiple Mount Options
- Multiple Amperages
- Repeatable Usage
- Simple to Install
- Multiple Styles

Pacer is a Proud Member of:



Applications

- Commercial Usage
- Residential Usage
- Industrial Usage
- Marine Usage



PANEL MOUNT THERMAL BREAKERS

SERIES TYPE	658 1658	45 2-5700	41 (<30 AMPS)	41 (30 AMPS-70 AMPS)
DESCRIPTION	Series Trip	Series Trip, Push-ON, push OFF switching, B&W reset button for trip indication	Series Trip, Push-pull ON-OFF switching	Series Trip, Push-pull, ON-OFF switching
CURRENT RATINGS	5 - 30 AMPS	5 - 30 AMPS	15 - 25 AMPS	30 - 70 AMPS
MAXIMUM VOLTAGE RATINGS	AC 240V or DC 28V	AC 240V or DC 28V	AC 115V or DC 28V	AC 115V or DC 28V
INTERRUPTING CAPACITY	2000 AMPS @ 120V AC, 2500 AMPS @ 32V DC, 2000 AMPS @ 28V DC	2000 AMPS @ 250 VAC, 2500 AMPS @ 50 VDC	6000 AMPS	6000 AMPS
LIFE	1000 Operations	5000 Operations	4000 cycles at 200% rated current	2000 cycles at rated current
TERMINALS	.250 quick connect	Screw Terminals	Screw Terminals	Screw Terminals
APPROVALS	UL 1077 up to 15 AMPS CSA up to 16 AMPS VDE	UL 1077 up to 20A CSA up to 20 AMPS VDE	MIL-E-5272C	MIL-E-5272C
DESIGN NOTES	N/A	N/A	Melamine housing, corrosion, humidity and fungus resistant	Melamine housing, corrosion, humidity and fungus resistant
RATED AMPS	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER
5	ETS658-5	ETS45-5	-	-
10	ETS658-10	ETS45-10	-	-
15	ETS658-15	ETS45-15	ETS41-15	-
20	ETS658-20	ETS45-20	ETS41-20	-
25	ETS658-25*	ETS45-25	ETS41-25	-
30	ETS658-30*	ETS45-30	-	ETS41-30
40	-	-	-	ETS41-40
50	-	-	-	ETS41-50
60	-	-	-	ETS41-60
70	-	-	-	ETS41-70
CAP P/N				
	ES-PBCAP ES-PBCVR or ES-PBCVR-BK	ES-PBLCAP	ES-PB41CAP	



ETS658



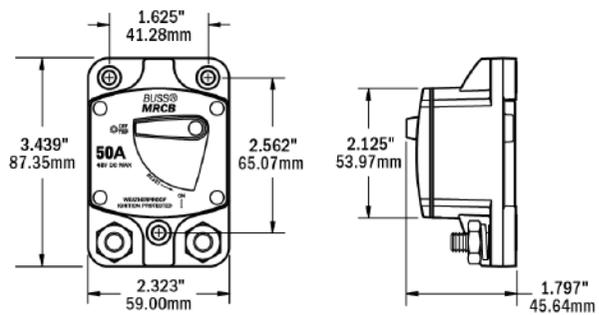
ETS45



ETS41

BUSSMANN SERIES 187 MANUAL RESET CIRCUIT BREAKERS WITH SWITCH FUNCTION

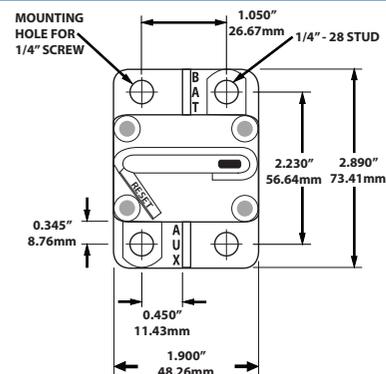
RATED AMPS	PART NUMBER	STUD SIZE
25	EMRCB-25	5/16" - 18
30	EMRCB-30	5/16" - 18
50	EMRCB-50	5/16" - 18
60	EMRCB-60	5/16" - 18
80	EMRCB-80	5/16" - 18
100	EMRCB-100	5/16" - 18
120	EMRCB-120	5/16" - 18
150	EMRCB-150	5/16" - 18



Surface Mount Dimensions

BUSSMANN SERIES 185 MANUAL & SWITCHABLE RESET CIRCUIT BREAKERS

RATED AMPS	PART NUMBER	RATED AMPS	PART NUMBER
30	ESM-30	70	ESM-70
40	ESM-40	80	ESM-80
50	ESM-50	100	ESM-100
60	ESM-60	150	ESM-150



KLIXON® THERMAL CIRCUIT PROTECTORS

RATED AMPS	PART NUMBER Style 1	PART NUMBER Style 2	PART NUMBER Style 3
5	EPTR-5	-	-
10	EPTR-10	-	-
15	EPTR-15	-	-
20	EPTR-20	-	-
25	EPTR-25	-	-
30	EPTR-30	-	-
40	EPTR-40	-	-
50	-	EPTR-50	-
60	-	-	EPTR-60
70	-	-	EPTR-70
80	-	-	EPTR-80
90	-	-	EPTR-90
105	-	-	EPTR-105
120	-	-	EPTR-120
150	-	-	EPTR-150



Style 1



Style 2



Style 3



THERMAL BREAKERS - Facts and Details

FEATURES: TYPE: 1658

- *Very cost effective design to meet international requirements
- *No potential current carrying exposed metal parts, except for terminals.
- *Cycling trip free mechanism
- *Manual reset
- *UL, CSA, VDE and EN 60934 (IEC 60934) approved
- *Extremely small and lightweight

FEATURES: TYPE: 2-5700 (Series 45)

- *Single pole thermal circuit breaker with press-to-reset, tease-free, trip-free, snap action mechanism
- *Approved to CBE standard EN 60934 (IEC 60934)
- *Threadneck panel mounting
- *Push-push switch/circuit breaker

FEATURES: TYPE: 412 & 413

- *Single pole high performance thermal circuit breaker with tease-free, trip-free, snap action mechanism and push/pull on/off manual actuation
- *An indicator band on the push button clearly shows the tripped/off position.
- *Threadneck panel mounted

BUSSMAN 185 BREAKERS - Facts and Details

Rating: 25-150 AMPS, 48V DC **Interrupt Rating:** 3000 AMPS **Operating Temperature Rating:** -25°F (-32°C) to 180°F (82°C)
Termination: 1/4-28 threaded studs **Ingress Protection Rating:** IP67

- FEATURES:** *Single pole thermal surface mount breaker *Manual & switchable reset circuit breakers *Ignition protection
 *Series 185 has a unique reset mechanism which provides visual indication of tripped condition. *Series 185 features a push-to-trip option

APPLICATIONS: These breakers are typically used in auxiliary and accessory circuits in truck, bus, RV and marine systems. Other uses include battery chargers and DC audio systems. Series 185 are sealed for engine compartment and bilge area applications.

COMPLIANCES: *SAE J1171 (ignition protected)

BUSSMAN 187 BREAKERS - Facts and Details

Rating: 25-150 AMPS, 48V DC **Marking:** Standard marking includes amp/volt ratings **Terminal Stud Size:** 5/16" - 18
Interrupt Rating: Main Breaker Protection Interrupt Rating (5,000 AMPS @ 12V DC, 3,000 AMPS @ 24V DC and 1,500 AMPS @ 42V DC)
Operating Temp. Rating: -40°F (-40°C) to 185°F (85°C) **Storage Temperature Rating:** -40°F (-40°C) to 260°F (125°C)
Materials: Black UL-rated 94V-0 thermo-set plastic body. Cover/lever are UL-rated 94V-0 thermoplastic **Ingress Protection Rating:** IP66

- FEATURES:** *A manual reset circuit breaker with On-Off switch capability *"Trip-Free" design cannot be held on during fault current conditions
 *Ignition protected, all components meet SAE 1171 external circuit protection requirements *Large clearance around terminals accepts heavy gauge wire lugs
COMPLIANCES: *ABYC E-11; CE; SAE J1171 (ignition protected)

APPLICATIONS: These breakers are typically used in DC power systems in marine applications.

KLIXON - PUSH-TO-RESET BREAKERS - Facts and Details

Interrupt Capacity: *Style 1: Per SAE J553 & ABYC E-11 *Style 2: Per SAE J553 & ABYC E-11 *Style 3: Per SAE J1625 & ABYC E-11

TERMINALS: *Style 1: #8-32x1/4" Screw Terminals *Style 2: #10-32x5/8" Threaded Posts *Style 3: 1/4-28x9/16" Threaded Posts

MOUNTING METHOD: Panel with eyelet #10 screw **SHOCK RESISTANCE:** In excess of 10 g

FEATURES: *Current: AC/DC

APPLICATIONS: *Wire harness protection for heavy trucks, buses, construction equipment, off-road vehicles and RVs. *Marine applications requiring ignition protected devices *Battery protection in electric vehicles



1658



2-5700



412 & 413



185



187



Klixon