BLUEWATER

# Thermal Circuit Breaker

## 48 Series

## Technical Data

| | |
|---|---|
| •Current rating range | 3~50A |
| •Input voltage rating | 125/250VAC; 32/50VDC |
| •Interrupting Capacity | 125/250VAC x 1,000A(UL 1077) |
| •Typical life | 1,000 operations at 200% overload. |
| •Insulation co-ordination | Rated impulse withstand voltage 2.5kV |
| •Dielectric Strength | > 1,500VAC/min. |
| •Insulation Resistance | >100MOHM (DC 500V) |

## Mechanical/Environmental Data

•Operating Ambient Temperature: -10℃ to +60℃

•Termination: 250"(6.35mm） quick connects or solder terminals

•Mounting: Various options. See Ordering Information and drawings

## Compliance with Rohs

The product accords with the requirement of ROHS( 2011/65/EU)

Contacts use Exempted item of RoHS Directive 2010/571/EU 8(a)

## Compliance with REACH, PAHS, PH1, PH2, PH3

• Ignition Proof — UL Standard 1500
Protectors, Supplimentary for Marine Electrical & Fuel System (Guide PEQZ2,File 466099)

## Typical applications

Tarnsforms, Motors, Battery chargers, Power supplies, appliances, extra low voltage systems, machinery.

## Calibration (at 25°C)

| | |
|---|---|
| •100% of Rated Current: | Hold , No Trip |
| •150% of Rated Current: | Trip Within 1 Hour. |
| •200% of Rated Current: | 5-30 sec Trip |
| •300% of Rated Current: | 1.5-5.0 sec Trip |

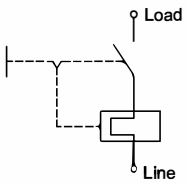
## Approval

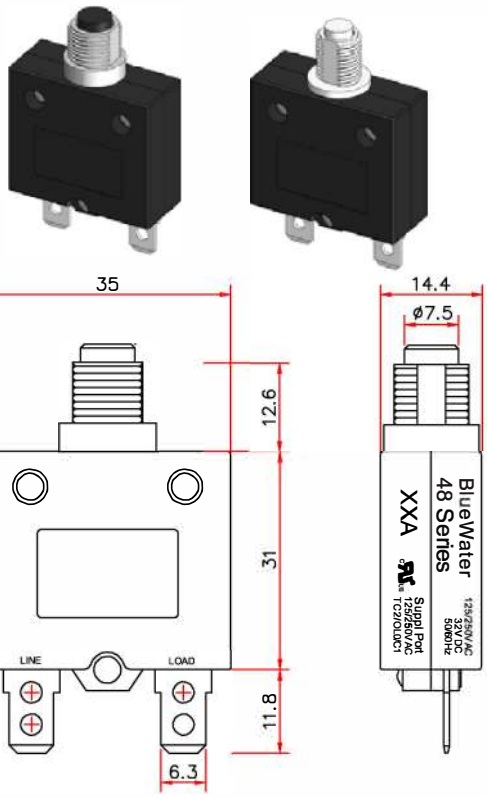
| •Approval & File No. | Rated current | Rated voltage |
|---|---|---|
| •CUL UL E466099 | 3~50A | 125/250VAC; 50VDC |

## Max. Internal Resistance

| Amp rating | Max resistance |
|---|---|
| 3.0 - 5.0Amp | <0.225 Ohms |
| 6.0 - 8.0Amp | <0.175 Ohm |
| 9.0 - 11.0Amp | <0.125 Ohm |
| 12.0 - 13.0Amp | <0.050 Ohm |
| 14.0 - 17.0Amp | <0.040 Ohm |
| 18.0 - 24.0Amp | <0.030 Ohm |
| 25.0 - 35.0Amp | < 0.020 Ohm |
| 36.0 - 50.0Amp | < 0.010 Ohm |

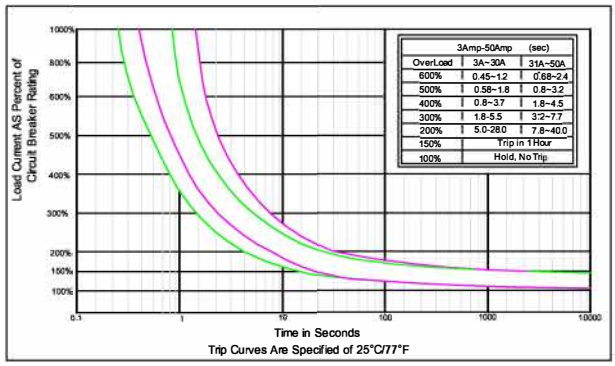
•Internal connection diagram




* Dimension in mm:

•48Series 3A-50A Trip Time Curves




•Ambient Temperature Correction Factor

| Ambient temperature | -10°C | 0°C | 10°C | 25°C | 35°C | 40°C | 50°C | 60°C |
|---|---|---|---|---|---|---|---|---|
| Multiplication factor | *1.30 | *1.20 | *1.10 | 1.00 | *0.94 | *0.85 | *0.73 | *0.68 |

The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping. Please multiply the circuit breaker current ratings by the derating factor shown below.

Example : Normal Continuous Current = 10A
Ambient Temperature = 45°C
Multiplication Factor = 0.85
Recommended Rating= 10A/0.85=11.8A
Select the Nearest Rating = 12A

* The specification subject to change without notice. The drawing is for reference only.

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| Order Guide | 48- | 12- | A1 | B | 1 | 4- | P | 0 | 0 | N | B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Series No. | | | | | | | | | | | |
| Amp Rating. | (Table A) | | | | | | | | | | |
| Bushing Type. | (Table B) | | | | | | | | | | |
| Color of Button. | (Table C) | | | | | | | | | | |
| Terminal Type. | (Table D) | | | | | | | | | | |
| Voltage. | 1=UL& CSA 125Vac, 2=TUV & CCC 250Vac, 3=1+2 125/250Vac, 4=UL+TUV+CCC 125/250Vac;32Vdc, 5=Client designation 6=UL 125/250Vac;50Vdc. 8=VDE 125/250Vac, 9=CSA 125Vac U3type | | | | | | | | | | |
| Mounting Nut Type. | (Table E) | | | | | | | | | | |
| Waterproof Type. | (Table F) | | | | | | | | | | |
| Nameplate Type. | (Table G) | | | | | | | | | | |
| Terminal Finish. | S=Plate with Tin N=Plate with Nickel 0=No plate | | | | | | | | | | |
| Body Type. | B=Black W=White | | | | | | | | | | |

| Standard Rating (Table A) | |
|---|---|
| 03= 3.0A | 13= 13.0A |
| 3.5= 3.5A | 15= 15.0A |
| 04= 4.0A | 16= 16.0A |
| 05= 5.0A | 17= 17.0A |
| 06= 6.0A | 18= 18.0A |
| 07= 7.0A | 20= 20.0A |
| 08= 8.0A | 25= 25.0A |
| 09= 9.0A | 30= 30.0A |
| 10= 10.0A | 35= 35.0A |
| 11= 11.0A | 40= 40.0A |
| 12= 12.0A | 50= 50.0A |

## Bushing Type (Table B)

P1 Plastic M11XP1.0 — P2 Plastic M12XP1.0 — P3 Plastic 3/8"-27T — PL Plastic No thread

KF Plastic Snap in — PS Plastic Snap in — AW (White) AB (Black) Plastic No thread — P0 Plastic No thread

A1 Metal M11XP1.0 — B1 Metal M11XP1.0 — A3 Metal 3/8"-27T — B3 Metal 3/8"-27T

### Panel Hole

P1,A1,B1 — A2,P2 — P3,A3,B3 — AW/AB — P0 — PS,KF

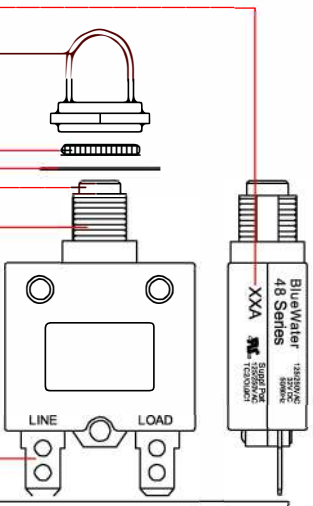
## Mounting Nut Type (Table E)

| 0 | P | Q | A | B | C | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| None | Plastic Integrated Knurl nut | Plastic Knurl nut | Metal Knurl nut | Metal Hexnut M11 H=14 M12 H=15 | A Metal / B Metal | Q Plastic / B Metal | A Metal / P Plastic | B Metal / P Plastic |

## Waterproof Type (Table F)

| 0 | R | M | V | F | T | U |
|---|---|---|---|---|---|---|
| None | ø12.0±0.5 | ø10.5±0.5 | ø12.0±0.5 | ø13.0±0.5 | ø12.0±0.5 | ø9.5±0.5 |
| | R11=M11xP1.0 Clean R12=M12xP1.0 Clean R7=7/16"-28T Clean | M3=3/8"-27T Clean Only | V11=M11xP1.0 Clean Only | F11=M11xP1.0 Clean F12=M12xP1.0 Clean F3=3/8"-27T Clean F7=7/16"-28T Clean | T11=M11xP1.0 Clean Only | U3B=3/8"-27t Black U3C=3/8"-27t Clean |

Table A Standard Rating
Table F Waterproof Type
Table E Mounting Nut Type
Table G Nameplate Type
Table C Button Type
Table B Bushing Type
Table D Terminal Type




## Button Type (Table C)

B = Black button — W = White button — R = Red button

Normal Amp stamp Amps=white / Normal Amp stamp Amps=black / NORMAL AMP STAMP Amps=white

1 — 5 — 6

7 — 8 — 9

X — Y — Z

## Nameplate Type (Table G)

| 0 | B | A | S | C | L |
|---|---|---|---|---|---|
| None | W White plate | Black plate | X White plate | Black plate For 3/8"-27t | Black plate For Waterproof |
| | ø24 | ø22.5 | ø24 | ø22.5 | ø26 |

CIRCUIT BREAKER PRESS TO RESET / SUPPL. PROT. PRESS TO RESET

## Terminal Type (Table D)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | X | F | L | J | G | K | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight 11.8mm | 90° bend | 90° bend | Line pin Straight Load pin 90° bend | Line pin 90° bend Load pin Straight | Straight 8.0mm | Line pin 90° bend down Load pin bend up | 45° bend up | 45° bend down | Straight 4.0mm | Screw #8-32 Straight | Screw #8-32 90° bend up | Screw #8-32 90° bend down | Line pin Screw #8-32 90° bend Load pin SQ.25 Straight | Line pin SQ.25 Straight Load pin Screw #8-32 90° bend | Line pin Screw #8-32 90° bend Load pin Screw #8-32 Straight |

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