

TR11 Series



up to 12 Amps

UL1077 Recognized Supplementary Protector/ Circuit Breaker for Equipment

Applications:

Protection of Control Transformers, UPS, Power strips, Solenoids etc., against damage due to overload conditions.



Current Rating	0.5 - 16.0A
Rated Voltage	240V AC, 50/60Hz, 32V DC / 24V DC (VDE)
Initial insulation resistance	> 100 M ohms. (As per EN 60934)
Dielectric strength	1.5 KV for One minute. (As per EN 60934) 6 I _n ~ up to 9.0A
Overload Switching Capacity	4 I _n - up to 12.0A (As per EN 60934) 60A Max. ~ from 10.0A to 12.0A 60A Max. - from 10.0A to 12.0A
Maximum Breaking Capacity	8x I _n for <6.0A 60A MAX. for ≥ 6.0A
Power Loss	1 - 2 Watts
Operating Temperature	Maximum 60°C Ambient
Operational Life at 2xI _n	1000 Cycles
Limited short circuit current	1000 Amps PC 1
Terminals	0.25" Quick connect
Applicable Standards	EN 60934, CSA 22.2 No. 235, UL-1077
Approvals	up to 16.0 A upto 12.0A
Accessories	Dust Cover, DC-TR11 C (see page 20)

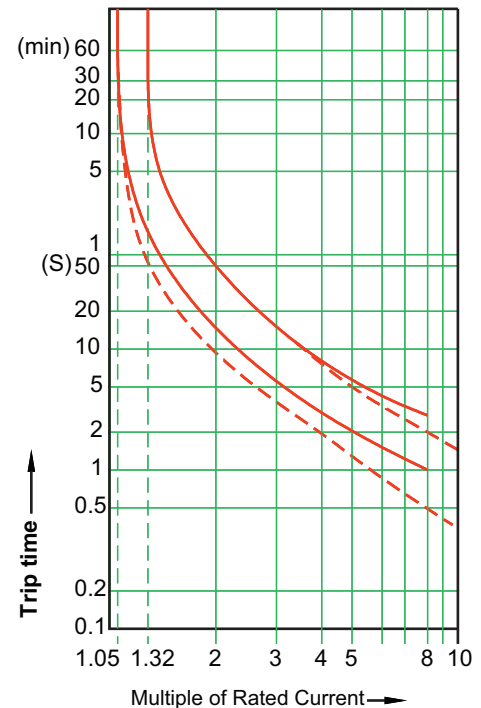
Time Current Characteristics:

The standard characteristic is valid for ambient temperatures of +23°C. If the device is to be used in an ambient temperature other than +23°C, allowances must be made when selecting the current rating according to the following guidelines:

Ambient temp. °C	-20	-5	0	+10	+20	+30	+40	+50	+60
Correction Factor	0.8	0.88	0.9	0.96	1	1.05	1.12	1.2	1.3

Example :
 Normal Continuous Current : 1.8A
 Ambient Temperature : 40°C
 Correction Factor : 1.12
 Recommended Current Rating : 1.8 x 1.12 = 2.016
 Select the nearest : 2.0A

Operating Characteristic



— Rated current < 6 A
- - - Rated current ≥ 6 A
 Ambient Temperature 23°C

TR-11 Characteristics & Mounting Options

Application Examples:

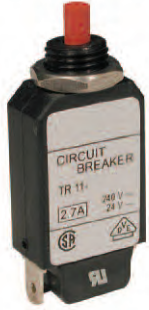
Protection of Control Transformers, UPS, Power strips, Solenoids etc., against damage due to overcurrent conditions.



E209569



up to 12 Amps



Central Mounting

Standard Pack: 10

Weight: 0.27kg (0.6 lb.)

Rated Current	Type/ Cat. No.
0.5A	TR-11CX630.5A
0.9A	TR-11CX630.9A
1.0A	TR-11CX631A
1.2A	TR-11CX631.2A
1.5A	TR-11CX631.5A
1.8A	TR-11CX631.8A
2.0A	TR-11CX632A
2.2A	TR-11CX632.2A
2.5A	TR-11CX632.5A
2.7A	TR-11CX632.7A
3A	TR-11CX633A
3.3A	TR-11CX633.3A
4A	TR-11CX634A
5A	TR-11CX635A
6A	TR-11CX636A
6.5A	TR-11CY636.5A
7A	TR-11CY637A
8A	TR-11CY638A
9A	TR-11CY639A
10A	TR-11CY6310A
12A	TR-11CY6312A
15A	TR-11CY6315A
16A	TR-11CY6316A

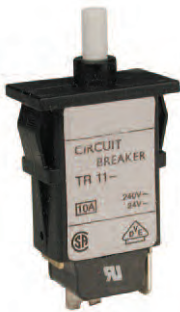


Wing Clips*

Standard Pack: 10

Weight: 0.27kg (0.6 lb.)

Rated Current	Type/ Cat. No.
0.5A	TR-11WX630.5A
0.9A	TR-11WX630.9A
1.0A	TR-11WX631A
1.2A	TR-11WX631.2A
1.5A	TR-11WX631.5A
1.8A	TR-11WX631.8A
2.0A	TR-11WX632A
2.2A	TR-11WX632.2A
2.5A	TR-11WX632.5A
2.7A	TR-11WX632.7A
3A	TR-11WX633A
3.3A	TR-11WX633.3A
4A	TR-11WX634A
5A	TR-11WX635A
6A	TR-11WX636A
6.5A	TR-11WY636.5A
7A	TR-11WY637A
8A	TR-11WY638A
9A	TR-11WY639A
10A	TR-11WY6310A
12A	TR-11WY6312A
15A	TR-11WY6315A
16A	TR-11WY6316A



Snap Fitting*

Standard Pack: 10

Weight: 0.27kg (0.6 lb.)

Rated Current	Type/ Cat. No.
0.5A	TR-11SX630.5A
0.9A	TR-11SX630.9A
1.0A	TR-11SX631A
1.2A	TR-11SX631.2A
1.5A	TR-11SX631.5A
1.8A	TR-11SX631.8A
2.0A	TR-11SX632A
2.2A	TR-11SX632.2A
2.5A	TR-11SX632.5A
2.7A	TR-11SX632.7A
3A	TR-11SX633A
3.3A	TR-11SX633.3A
4A	TR-11SX634A
5A	TR-11SX635A
6A	TR-11SX636A
6.5A	TR-11SY636.5A
7A	TR-11SY637A
8A	TR-11SY638A
9A	TR-11SY639A
10A	TR-11SY6310A
12A	TR-11SY6312A
15A	TR-11SY6315A
16A	TR-11SY6316A



Integral Mounting*

Standard Pack: 10

Weight: 0.27kg (0.6 lb.)

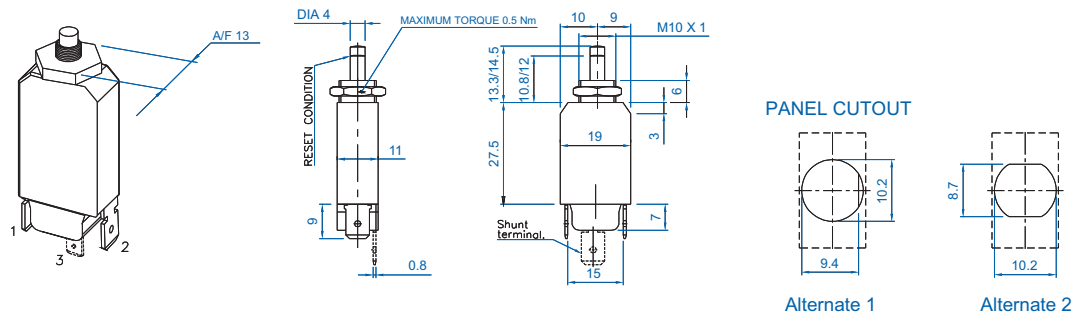
Rated Current	Type/ Cat. No.
0.5A	TR-11BX630.5A
0.9A	TR-11BX630.9A
1.0A	TR-11BX631A
1.2A	TR-11BX631.2A
1.5A	TR-11BX631.5A
1.8A	TR-11BX631.8A
2.0A	TR-11BX632A
2.2A	TR-11BX632.2A
2.5A	TR-11BX632.5A
2.7A	TR-11BX632.7A
3A	TR-11BX633A
3.3A	TR-11BX633.3A
4A	TR-11BX634A
5A	TR-11BX635A
6A	TR-11BX636A
6.5A	TR-11BY636.5A
7A	TR-11BY637A
8A	TR-11BY638A
9A	TR-11BY639A
10A	TR-11BY6310A
12A	TR-11BY6312A
15A	TR-11BY6315A
16A	TR-11BY6316A

* SPECIAL ORDER ONLY. Contact Altech for more details.

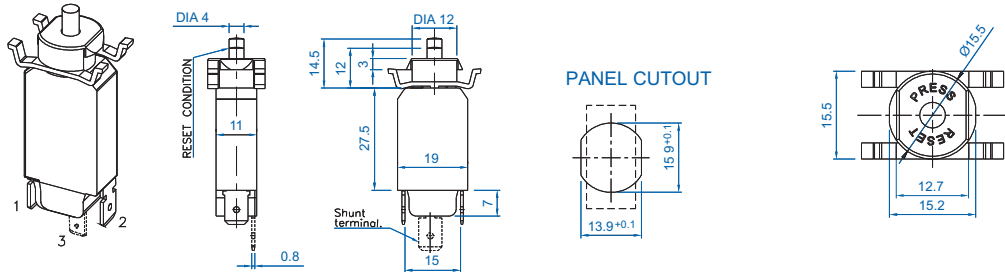
PCB Mounting and additional Shunt Terminal available, please contact Altech.

TR-11 Dimensions & Mounting Options

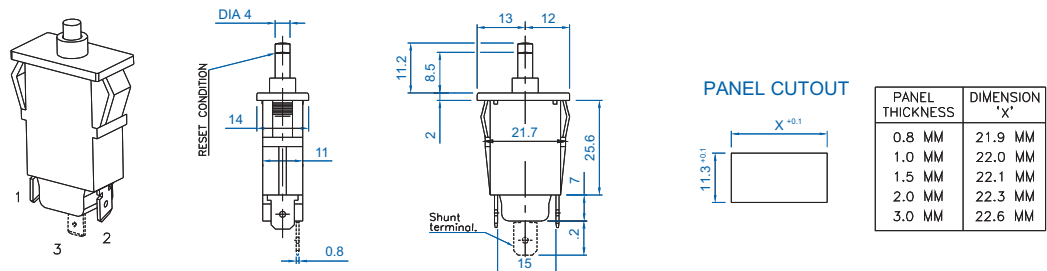
Central Mounting



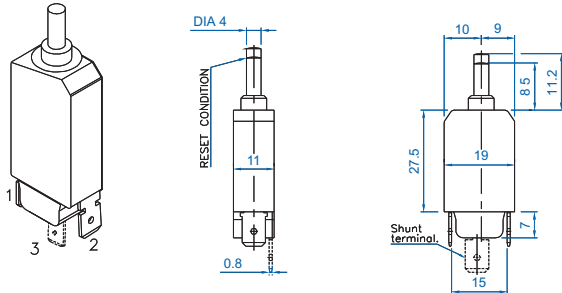
Wing Clips



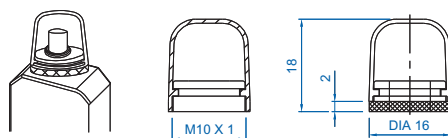
Snap Fitting



Integral Mounting



Dust Cover



Cover is suitable for central mounting type circuit breaker to provide dust & splash protection (IP 54).
Type/Cat. No.: **DC TR11 C**

Dimensions in mm (to convert to inches multiply by 0.03937)

Supplementary Protector / Circuit Breaker for equipment - TR 20

The TR 20 circuit breaker for equipment (CBE) is a single pole, thermally operated, snap action over load protector, with a manual, push-to-reset mechanism, providing reliable 'cycling trip free' operation on overloads & short circuits within maximum capacity specified. A high contact force is maintained till the contacts break due to overload through the snap action bimetal disc.

APPLICATION : Protection against overloads.

OPERATION: The entire mechanism of the circuit breaker is based on the use of a snap action cantilevered, thermo-bimetal disc profile with silver alloy contacts, designed to open in the event of a current flow in excess of the rated current, according to the time/current characteristic of the device. The contacts open and close with a positive snap action and the tripped state is clearly indicated by the extended projection of the reset button.

TIME & CURRENT CHARACTERISTICS :

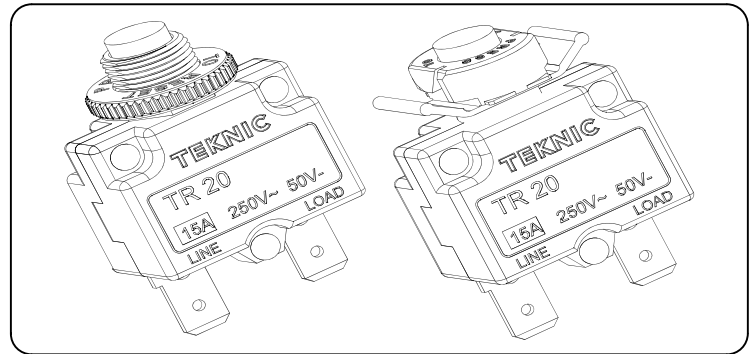
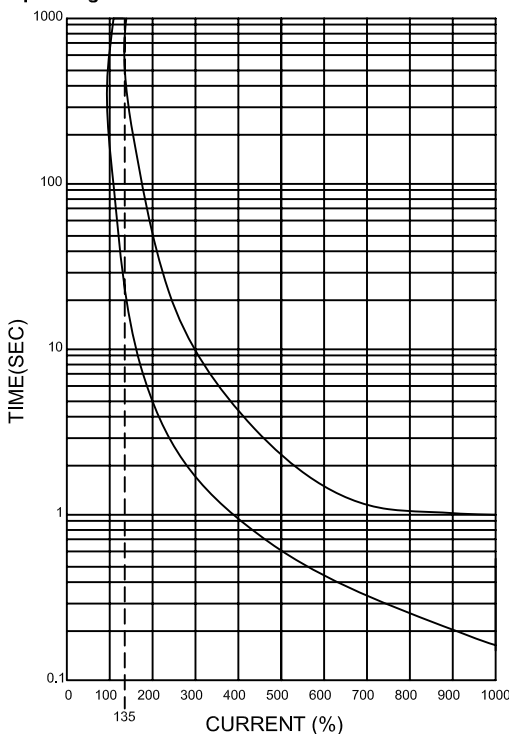
The standard characteristic is valid for an ambient temperature of 25 °C. If the device is to be used in an ambient temperature other than 25°C, allowance must be made when selecting the current rating according to the following guide lines.

Example :




Normal continuous current	: 5.0A
Ambient temperature	: 40°C
Multiplication factor	: 1.1
Selected rated current at +40°C ambient temperature	: 5 X 1.1 =5.5
	: 6.0A (nearest)

AMBIENT MULTIPLE PPLICATION FACTOR	TEMP. (°C)						
	-20°C	-10°C	0°C	10°C	25°C	30°C	35°C
3A to 4A	0.8	0.85	0.9	0.9	1	1	1.1
5A to 20A	0.8	0.85	0.88	0.9	1	1.1	1.3

Operating Characteristics :



Technical Data

Application type	: General Industrial Ref.CSA22.2 No.235-04
Function	: SPST
Standard Current Rating in(Amp)	: 3, 4, 5, 6, 7, 8, 10, 12, 15, 16 & 20 AC-Inductive DC-Resistive.
Rated Voltage	: 125 / 250V AC, 50/60 Hz, 50V DC.
Method of tripping	: Thermal TO Cycling trip - free
Type of actuation	: Reset type 'R'
Initial insulation resistance	: > 100 M Ω (DC500V)
Dielectric strength	: 1500V AC for 1 minute
Impulse withstand voltage	: 2.5kV Ref.: EN 60934
Contact Gap	: Micro disconnection(μ) Ref. : EN60934
Housing Material	: Thermoplastic / Thermoset
Slider Material	: Thermoset
Contact Material	: Silver alloy
Terminal Material	: Copper alloy
Fixing	: By a nut or snap fitting
Resettable over load capacity	: 10 times the rated current
Overload capacity	: 2 times rated current for 50 switching cycles min. Ref. : UL 1077
Rated Short Circuit Capacity I _{cn}	: Min 6 times the rated current (6 I _n) for 250V AC (Inductive) Ref. : EN60934 Min 4 times the rated current (4 I _n) for 50V DC (Resistive)
Rated Conditional Short Circuit Current Capacity I _{nc1} (PC1)	: 1000A 125/250V AC 50V DC SC : 1kA, C1, 125/250V AC, 50V DC Ref.: EN 60934 Ref.: CSA 22.2 No.235-04, UL1077
Tripping current code (TC)	: TC 2 Ref.: CSA 22.2 No.235-04
Over load rating	: OLO 125/250V AC, 50V DC, Ref.: CSA 22.2 No.235-04
Weight	: approx. 17g
Applicable Standards	: UL-1077, CSA 22.2 No. 235-04, EN 60934
Approvals	:   

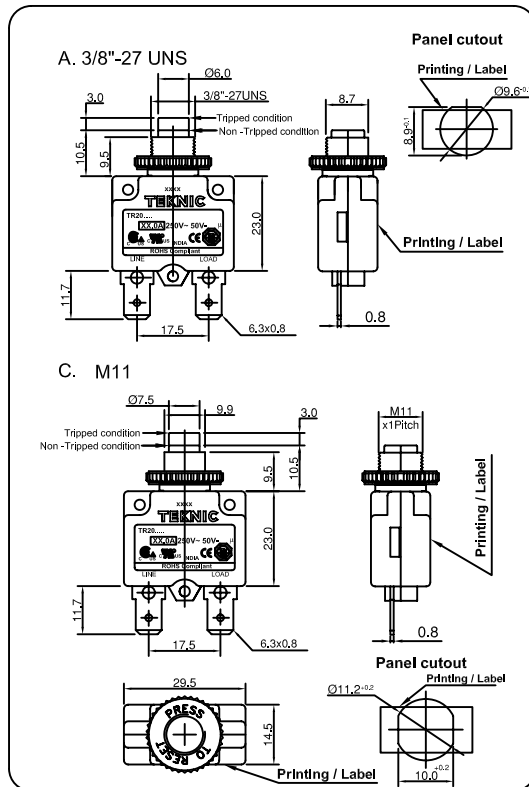
Ordering Example :

TR 20 - C - 63 S - B 1 - A - 7.0A - 2

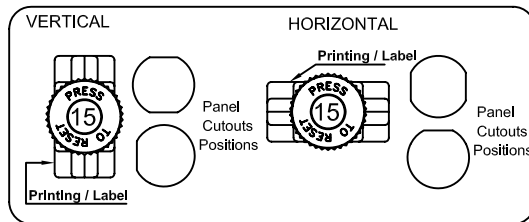
<input checked="" type="checkbox"/> Mounting Bush	<input checked="" type="checkbox"/> Terminal options	<input checked="" type="checkbox"/> Slider Marking	<input checked="" type="checkbox"/> Std. Current Rating
A Plastic 3/8"-27 C Plastic M11 W Wing clip	S Straight L 90° Bend, Left slide R 90° Bend, Right slide	0 None 1 White, Vertical 2 Black, Vertical 3 White, Horizontal 4 Black, Horizontal	3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 10.0, 12.0, 15.0, 16.0, 20.0
<input checked="" type="checkbox"/> Terminal size	<input checked="" type="checkbox"/> Slider Colour	<input checked="" type="checkbox"/> Mounting Nut	<input checked="" type="checkbox"/> Indicator plate
63 6.3 x 0.8mm	B Black WB White with trip indication	N None or wing clip A Plastic knurled B Metal knurled C Metal Hex Nut D Sealing knurled boot	0 None 1 Black letters on Aluminium Background, 2 Silver Letters on Black Background.

Mounting options:

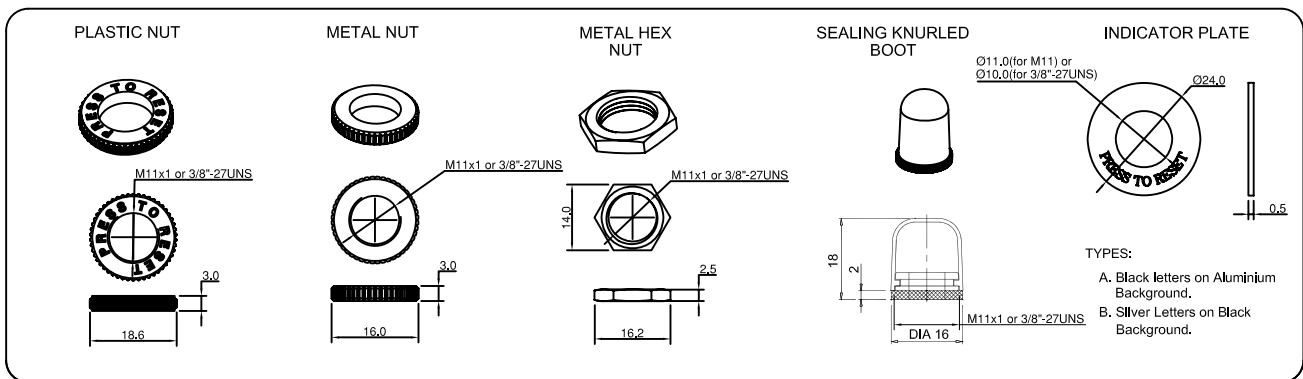
CENTRAL MOUNTING



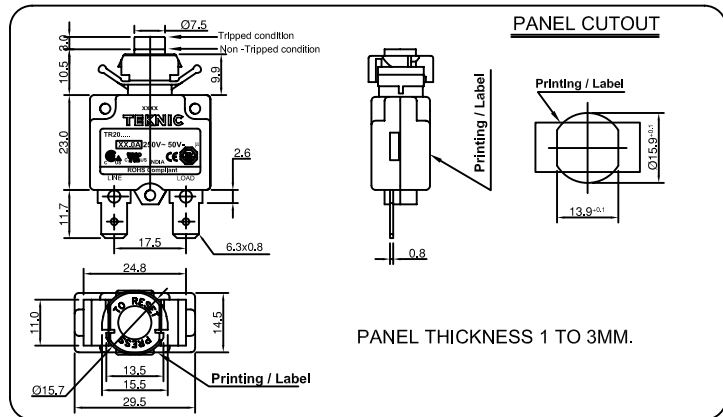
SLIDER PRINTING FOR CURRENT RATING



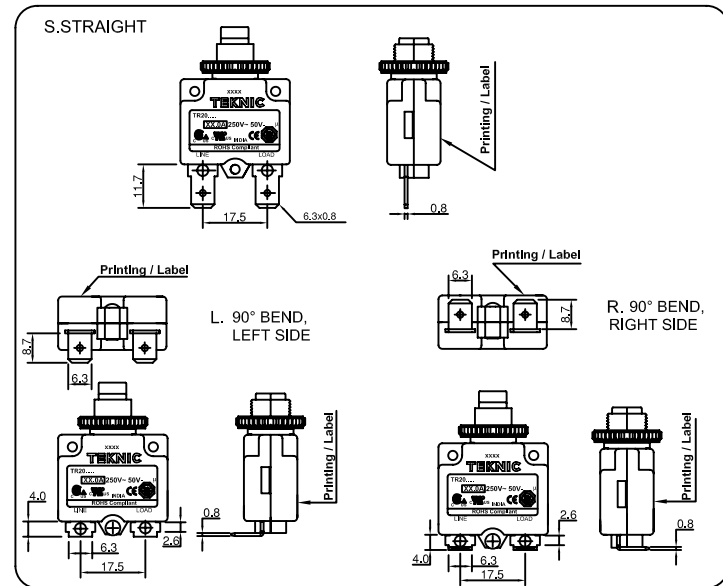
ACCESSORIES :



W. WING CLIP



TERMINAL OPTIONS



For further details, please write to:

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E-MAIL : teknic.ofs@satyam.net.in

Factory : 93, Electronic city, Hosur Road, Bangalore-560 100
Tel. 0091-80-28520472, 28520714. Fax. 0091-80-28520254.
E-MAIL : tepl_wks@satyam.net.in & tepl.wpl@satyammail.com

Head : 703, Madhava, Bandra Kurla Complex, Bandra(East), Mumbai - 400 051.
Office Tel. 0091-22-26592392/94. Fax. 0091-22-26592391
Email : teknic@vsnl.com

Website: www.teknic.co.in

Supplementary Protector / Circuit Breaker for equipment - TR 30

The TR 30 circuit breaker for equipment (CBE) is a single pole, thermally operated, snap action over load protector, with a manual push-to-reset mechanism, providing reliable 'cycling trip free' operation on overloads & short circuits within maximum capacity specified. A high contact force is maintained till the contacts break due to overload through the snap action bimetal disc.

APPLICATION : Protection against overloads.
Used in home appliances, single phase motors/generators, marine products, UPS, power strips, portable gensets.

OPERATION: The entire mechanism of the circuit breaker is based on the use of a snap action cantilevered, thermo-bimetal disc profile with silver alloy contacts, designed to open in the event of a current flow in excess of the rated current, according to the time/current characteristic of the device. The contacts open and close with a positive snap action and the tripped state is clearly indicated by the extended projection of the reset button.

TIME & CURRENT CHARACTERISTICS :

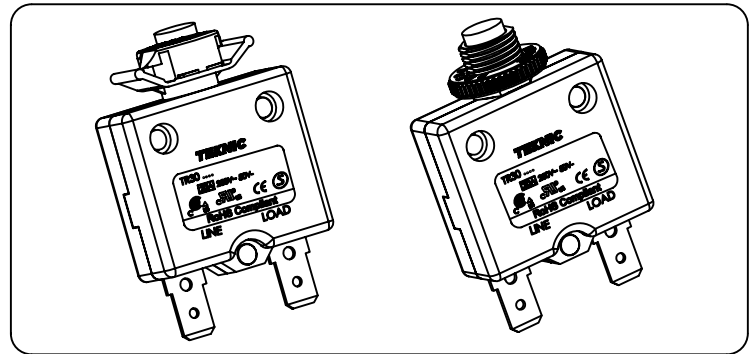
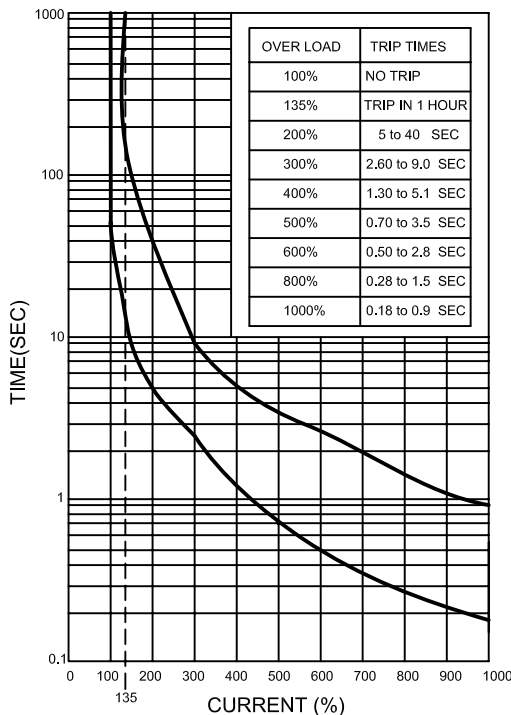
The standard characteristic is valid for an ambient temperature of 25 °C. If the device is to be used in an ambient temperature other than 25°C, allowance must be made when selecting the current rating according to the following guide lines.

Example :

Normal continuous current : 5.0A
Ambient temperature : 40°C
Multiplication factor : 1.15
Selected rated current at +40°C ambient temperature : 5 X 1.15 = 5.75
: 6.0A (nearest)

AMBIENT MULTIPLE FACTOR	TEMP. (°C)								
	-5°C	-0°C	10°C	20°C	25°C	30°C	40°C	50°C	60°C
5A	0.9	0.92	0.95	0.98	1	1.12	1.15	1.25	1.5
6A to 30A	0.9	0.92	0.95	0.98	1	1.05	1.15	1.25	1.35
35A	0.9	0.93	0.95	0.98	1	1.05	1.15	1.32	1.35

Operating Characteristics :



Technical Data

Application type	: General Industrial Ref.CSA22.2 No.235-04
Function	: SPST
Standard Current Rating in(Amp)	: 5A - 35A 5A,6A,7A,10A,12A,15A, 20A, 25A, 30A & 35A
Rated Voltage	: 125 / 250V AC, 50/60 Hz,50V DC.
Method of tripping	: Thermal TO Cycling trip - free
Type of actuation	: Reset type 'R'
Initial insulation resistance	: > 100 MΩ (DC500V)
Dielectric strength	: 1500V AC for 1 minute
Impulse withstand voltage	: 2.5kV Ref.: EN 60934
Contact Gap	: Micro disconnection(μ) Ref. : EN60934
Housing Material	: Thermoset -- UL94-V0 flammability class
Slider Material	: Thermoset -- UL94-V0 flammability class
Contact Material	: Silver alloy
Terminal Material	: Copper alloy
Fixing	: By a nut or snap fitting
Resettable over load capacity	: 10 times the rated current
Rated Short Circuit Capacity I _{cn}	: Min 6 times the rated current (6 I _n) for 250V AC (Inductive) Ref. : EN60934 Min 4 times the rated current (4 I _n) for 50V DC (Resistive)
Rated Conditional Short Circuit Current Capacity I _{nc1} (PC1)	: 1kA , 5 to 15A , 250VAC, 2kA , 20 to 35A , 250VAC, As per EN 60934 1kA , 5 to 35A , 50VDC, As per CSA 22.2 No.235-04 & UL 1077 1kA , C1, 50VDC, - (5-35A) 500A , U3, 125VAC, - (20-35A) 1kA , U1a, 125VAC, - (5-35A) 2kA , C1, 125VAC, - (5-35A) 1kA , C1, 250VAC, - (5-15A) 2kA , C1, 250VAC, - (20-35A)
Tripping current code (TC3)	: TC 3 Ref.: CSA 22.2 No.235-04
Over load rating	: 5 - 35A -- OL0 125/250V AC,50V DC As per CSA 22.2 No.235-04 5 - 35A -- OL1 125V AC 5 - 25A -- OL1 250V AC
Weight	: approx. 25g
Applicable Standards	: UL-1077, CSA 22.2 No. 235-04, EN 60934,UL 1500.
Approvals	:
Ignition Protected	: Compliant as per UL 1500 (Standard for safety for Ignition protection test for Marine products)

Ordering Example :

TR 30 - C - 63 S - W 1 - A - 7.0A - 2

1 Mounthg Bush	4 Terminal options	3 Slider Marking	2 Std. Current Rating
A Plastic 3/8"-27UNS	S Straight	0 None	5A, 6A, 7A, 10A
B Plastic M11	L 90° Bend, Left slide	1 Vertical	12A, 15A, 20A, 25A
C Metal 3/8"-27UNS	R 90 Bend, Right slide	2 Horizontal	30A & 35A
D Metal M11	T Screw type terminal (R8-32NCF pan head screw with external teeth star washer)	Note : (colour of marking is standard) On red /black slider -white marking white slider-black marking)	
E Metal M12			
W Wing clip			
3 Terminal size	5 Slider Colour	7 Mounthg Nut	0 Indicator plate
63 6.3 x 0.8mm	W White	N None or wing clip	0 None
	RB Red slider with white trip band	A Plastic knurled	1 Black letters on Aluminum Background.
	BB Black slider with white trip band	B Metal knurled	2 Silver Letters on Black Background.
		C Metal Hex Nut	
		D Sealling knurled boot	

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