salzer®



Miniature Circuit Breakers



The sole Indian MCB brand to be UL-certified

c UL us c UL us CE

www.salzergroup.com

Longer Strides. Wider Reach.

SALZER ELECTRONICS is one among India's foremost names in Electrical installations with a bouquet of internationally accepted products and market presence in over 40 countries, including U.S. and European nations.

Started off as a pioneer in cam-operated rotary switches, SALZER stays ahead setting high quality bench marks and exploring frontier advancements through technology tie-ups, innovations and R & D.

The Miniature Circuit Breakers (MCBs) and Supplementary Protectors from SALZER ELECTRONICS are UL-listed, EC-approved and RoHS compliant.

Sheer merit of quality keeps them moving ahead fast in a highly competitive Western market.

Miniature Circuit Breakers



UL 489 Ideal for Motor load & Industrial applications

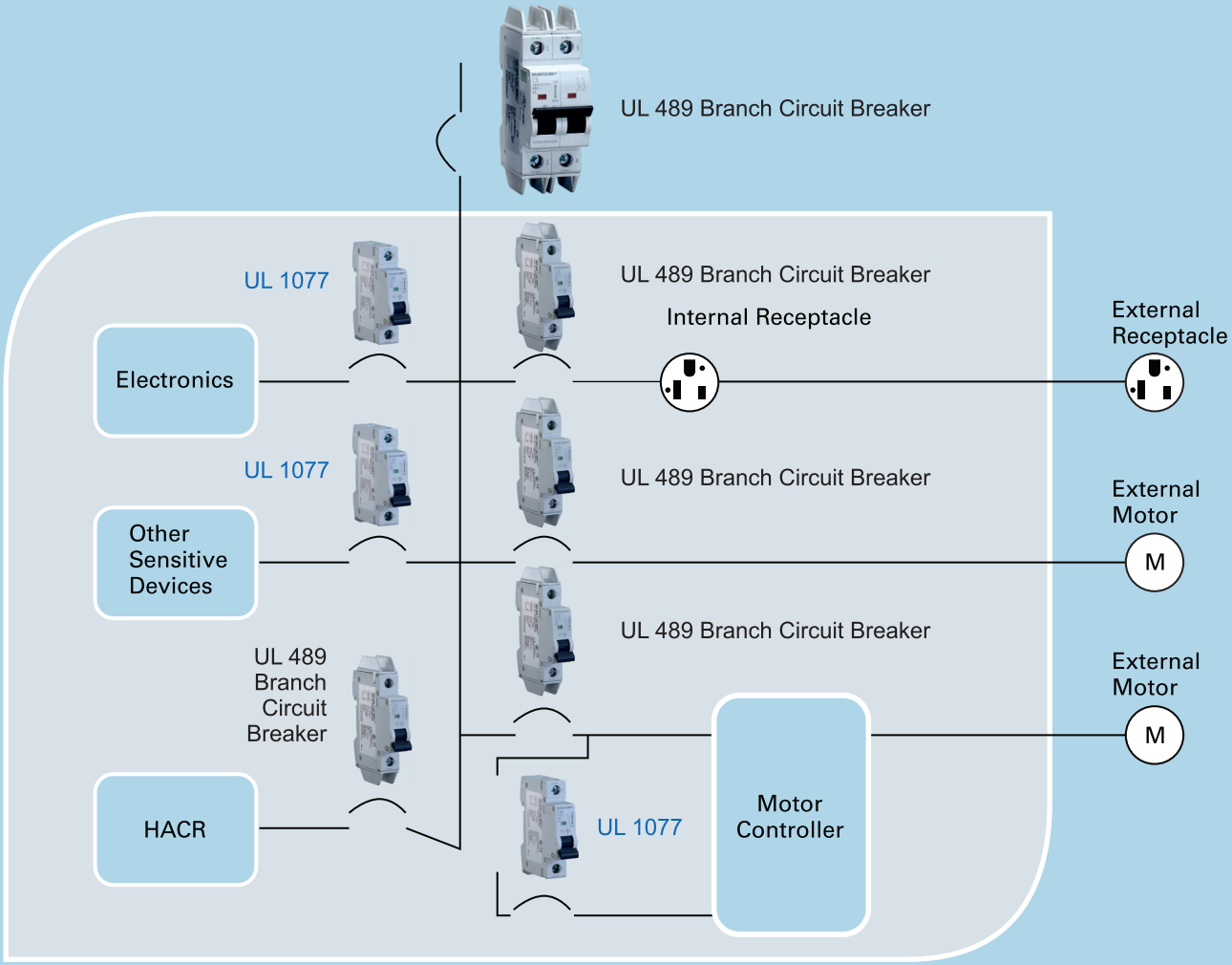


UL 1077 Ideal for Domestic & Commercial applications

Advantages

- 10 KA Short Circuit Rating
- High performance
- Easy installation
- Flame retardant and non-toxic
- Visible Markings
- Line / Load wiring can be reversible
- Compact
- Added Safety
- Captive Screws

Application guidelines for UL 489 Branch Circuit Breakers and UL 1077 Supplementary Protectors



Example of UL 489 Branch Circuit Breaker UL 1077 Supplementary Protectors Application

UL 489 Branch Circuit Breaker
Used for branch circuit protection internal/external receptacles external motors and HACR equipment (heating, air conditioning and refrigeration).

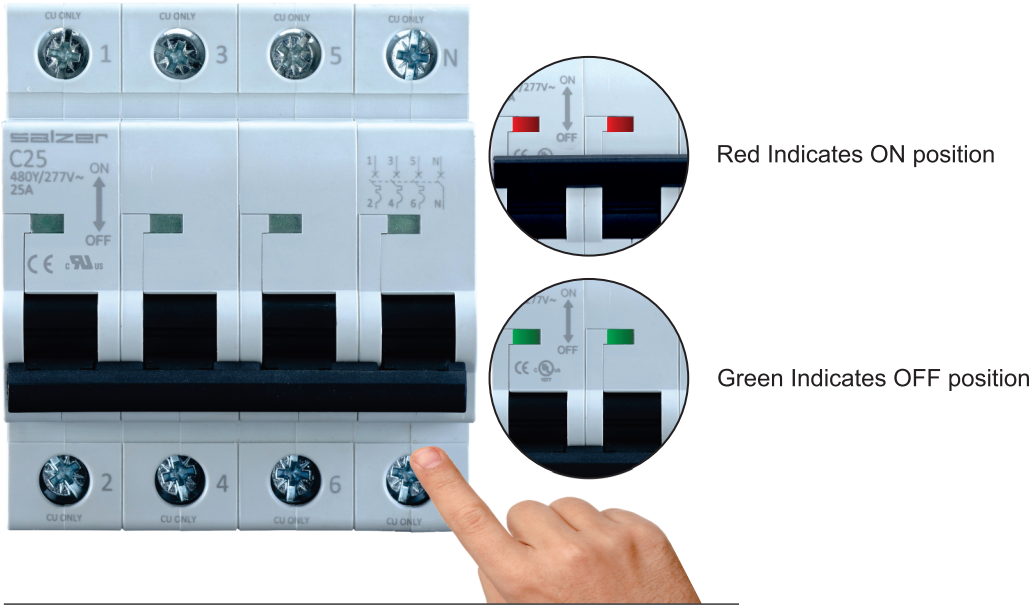
UL 1077 Supplementary Protectors
Used for overcurrent / short circuit protection for appliances or electrical equipment, where branch circuit protection is already provided or not required.

Features

Easy Wiring



Safety



IP 20 Finger Protected Terminals
prevents Accidental contact

Range

Wide Range



Available in 1 Pole, 1 Pole + Neutral, 2 Pole, 3 Pole, 3 Pole + Neutral in B,C,D Curves

Accessories



side Mounted Auxiliary. 1 No /1 NC



Shunt Trip Module

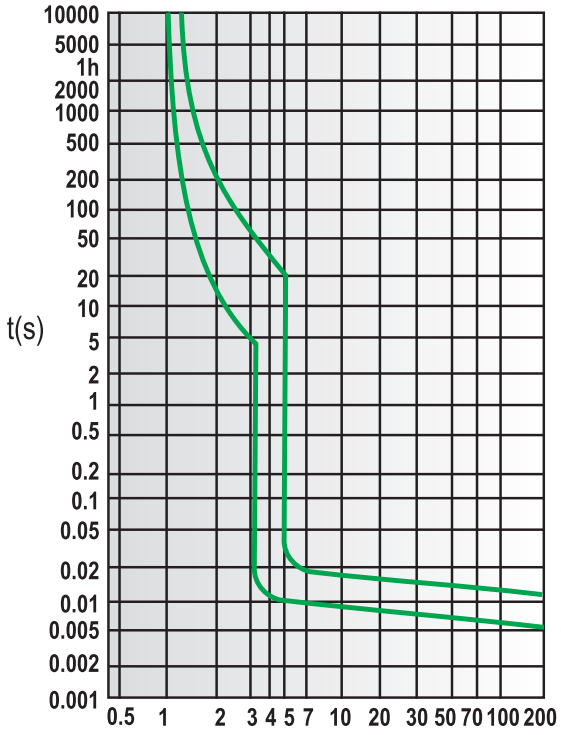


MCB - Undervoltage / Over Voltage Module

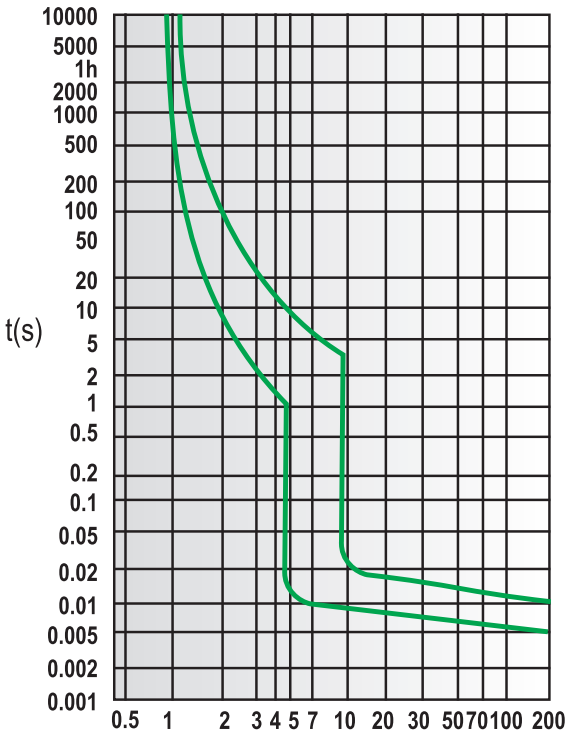


Lock-of Adapter

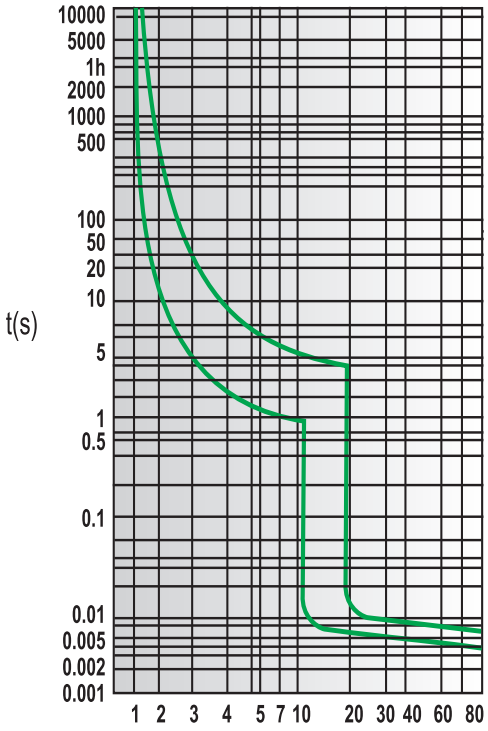
Trip Characteristics



I/In B curve



I/In C curve

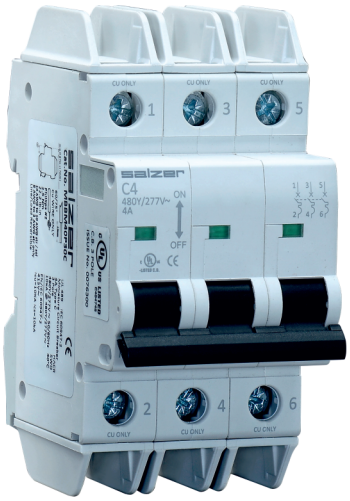


I/In D curve

UL 489

Branch Circuit Breakers









Configuration
1 Pole
1 Pole + Neutral
2 Pole
3 Pole
3 Pole + Neutral

SALZER MBB Series Miniature Circuit Breakers include both thermal and magnetic trip elements for overload and short circuit protection. Our New MBB Series circuit breakers provide branch circuit protection complies to UL 489 circuit breaker standards. They are available in one, one + neutral, two, three and three + neutral configurations with current ratings from 0.5A to 63A. In addition c UL us and CE Markings make them suitable for use anywhere in the world.

Product features include:

- Line/load reversible construction makes field wiring error-proof.
- Combination head terminal screws allow the use of "straight", "phillips", or "posidrive" screwdrivers for fast and reliable wiring.
- Compact 17.5mm width per pole construction reduces panel size and mounts onto 35mm DIN rail.
- Dual style terminals accept stranded wire 1.0mm^2 -6.0 mm^2 (#18-#4 AWG) and busbar stabs, and are IP20 guarded against accidental contact with live parts.
- Trip-free design provides assurance that holding the operating handle in the ON position will not prevent the miniature circuit breaker from tripping.
- Up to 22 unique current rating configurations from 0.5 to 63A for a broad range of applications.
- Flexible for use in both alternating current and direct current applications.
- Suitable for use per IEC 60947-2 and UL 489
- Dual trip curve offering (Trip Curves C& D) provides protection for a broad range of AC applications, C trip curves have a low thermal trip delay and a mid-range magnetic trip function to protect low inrush motors, resistive loads, and control circuits. D trip curves have a high thermal trip delay and a very high magnetic trip point to protect high inrush motors, heaters, transformers, and reactive loads while preventing nuisance tripping. DC applications include uninterruptable power supplies (UPS), computer hardware, and telecommunication equipment.

Technical Data / UL 489

UI 489 Supplementary Protectors Electrical Specifications						
	Units	**1 Pole**	**1 + N Pole**	**2 Pole**	**3 Pole**	**3 + N Pole**
ELECTRICAL GENERAL						
Rated Operating Current	A	0.5 ~63A				
Rated Operating Frequency	Hz	50 / 60				
Electrical Life	Ops	6,000				
Line & Load Wiring		Suitable for reverse feed				
ELECTRICAL UL/CSA APPLICATIONS						
Conformity Standards		UL 489, CSA C22.2 No.235				
AC Rated Operating Voltage	VAC	277		480Y277		
DC Rated Operating Voltage (wired in series)	VDC	60		125	-	-
MAXIMUM SHORT CIRCUIT RATING						
@ 120 VAC	kA	10				
@ 240 VAC	kA	10				
@ 277 VAC	kA	10				
@ 480Y / 277 VAC	kA	10				
@ 48 VDC	kA	10	10	10	-	-
@ 96VDC (wired in series)	kA		-	10	-	-
ELECTRICAL IEC APPLICATIONS						
Conformity to Standards		IEC 60947 - 2				
ULTIMATE SHORT CIRCUIT BREAKING						
@ 240 VAC	kA	10				
@ 415 VAC	kA	10				
ULTIMATE SHORT CIRCUIT BREAKING CAPACITY (Ics)						
@ 240 VAC	kA	10				
@ 415 VAC	kA	10				

UI 489 Supplementary Protectors Mechanical, Environmental & Constructional Specifications						
	Units	**1 Pole**	**1 + N Pole**	**2 Pole**	**3 Pole**	**3 + N Pole**
MECHANICAL						
Mechanical Endurance	Ops.	20,000				
ENVIRONMENTAL						
Ambient Operating Temperature	^{0}C / ^{0}F	-25 to 55 / -13 to 131				
Ambient Storage Temperature	^{0}C / ^{0}F	-25 to 80 / -13 to 176				
Calibration Temperature	^{0}C / ^{0}F	40 / 104				
Altitude	m / ft.	2,000 / 6,562				
Shock	G	15				
CONSTRUCTION						
INGRESS PROTECTION						
Line & Load Terminations	IP	20				
WEIGHT		0.125	0.25	0.25	0.37	0.50
	lbs	0.275	0.55	0.55	0.825	1.10
CONDUCTOR SIZE						
UL/CSA	AWG	1 x #18 ~ #3				
Solid, Stranded, Fine Stranded	mm2	1 x 0.82 ~ 26.7				
TERMINAL WIRING CONNECTION						
Wire Type		Copper wire only, 60 / 75^{0}C				
TERMINAL TORQUE						
	Nm/lb-in	2.5 / 22.2				
ROHS COMPLIANCE		For RoHS compliance documentation by product refer to www.salzer@salzergroup.com				

UL 1077

Supplementary Protectors



Configuration
1 Pole
1 Pole + Neutral
2 Pole
3 Pole
3 Pole + Neutral

SALZER MBS Series Miniature Circuit Breakers include both thermal and magnetic trip elements for overload and short circuit protection. Our New MBS circuit breakers provide downstream device protection and fully meet UL 1077 supplementary protector standards. They are available in one, one + neutral, two, three and three + neutral configurations with current ratings from 0.5A to 63A. In addition c UL us and CE Markings make them suitable for use anywhere in the world.

Product features include:

- Line/load reversible construction makes field wiring error-proof.
- Combination head terminal screws allow the use of "straight", "phillips", or "posidrive" screwdrivers for fast and reliable wiring.
- Compact 17.5mm width per pole construction reduces panel size and mounts onto 35mm DIN rail.
- Dual style terminals accept stranded wire 1.0mm^2 -6.0 mm^2 (#18-#4 AWG) and busbar

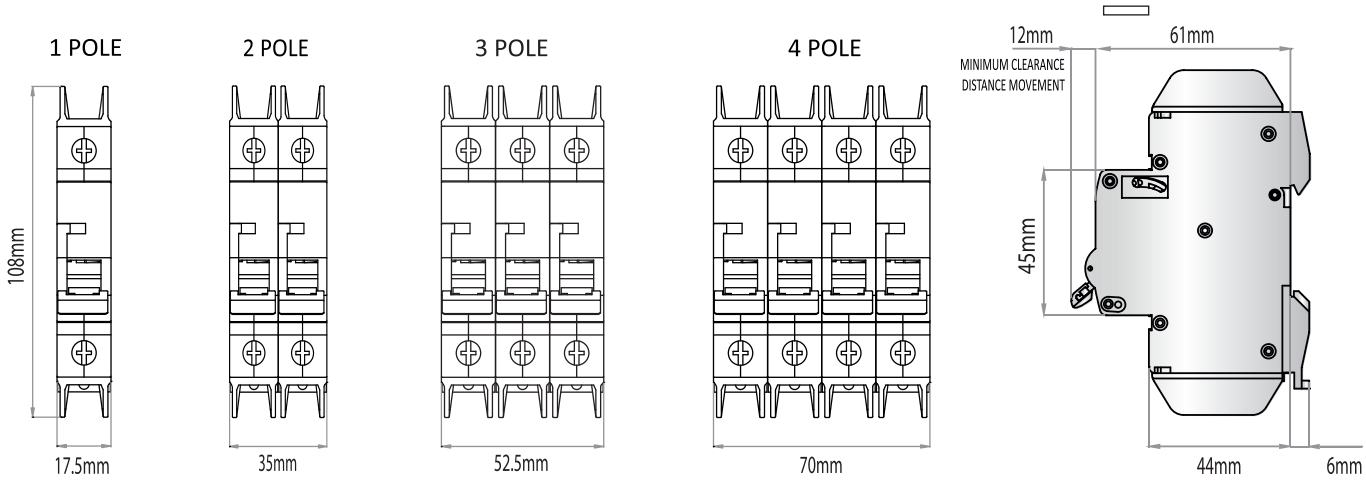
Technical Data / UL 1077

UI 1077 Supplementary Protectors Electrical Specifications						
	Units	**1 Pole**	**1 + N Pole**	**2 Pole**	**3 Pole**	**3 + N Pole**
ELECTRICAL GENERAL						
Rated Operating Current	A	0.5 ~63A				
Rated Operating Frequency	Hz	50 / 60				
Electrical Life	Ops	6,000				
Line & Load Wiring		Suitable for reverse feed				
ELECTRICAL UL/CSA APPLICATIONS						
Conformity Standards		UL 1077, CSA C22.2 No.235				
AC Rated Operating Voltage	VAC	277		480Y277		
DC Rated Operating Voltage (wired in series)	VDC	60		125	-	-
MAXIMUM SHORT CIRCUIT RATING						
@ 120 VAC	kA	10				
@ 240 VAC	kA	10				
@ 277 VAC	kA	10				
@ 480Y / 277 VAC	kA	10				
@ 48 VDC	kA	10	10	10	-	-
@ 96VDC (wired in series)	kA	-	-	10	-	-
ELECTRICAL IEC APPLICATIONS						
Conformity to Standards		IEC 60947 - 2				
ULTIMATE SHORT CIRCUIT BREAKING						
@ 240 VAC	kA	10				
@ 415 VAC	kA	10				
ULTIMATE SHORT CIRCUIT BREAKING CAPACITY (Ics)						
@ 240 VAC	kA	10				
@ 415 VAC	kA	10				

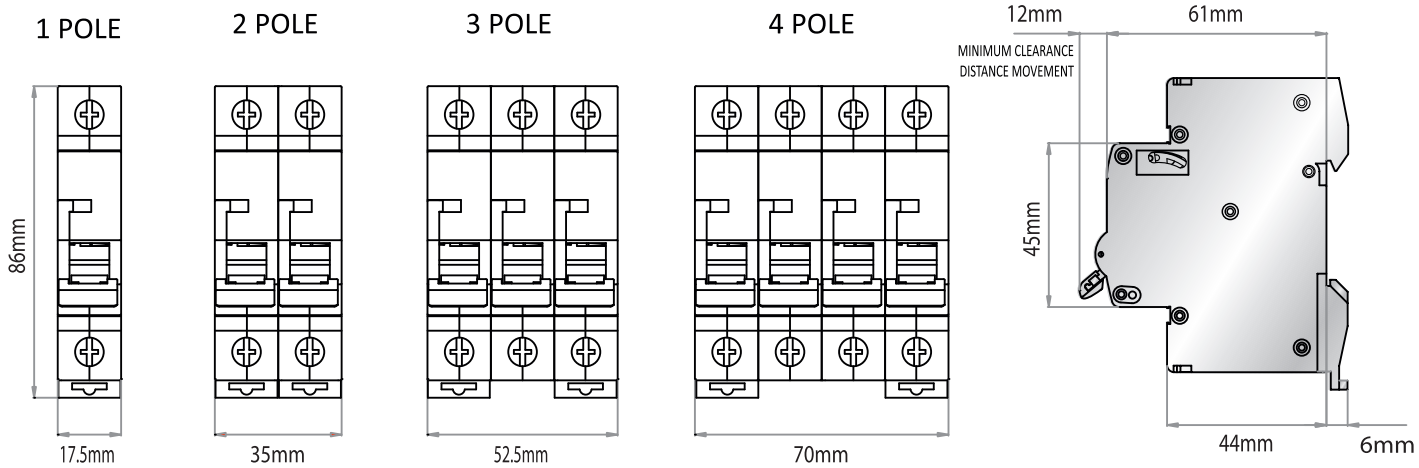
UI 1077 Supplementary Protectors Mechanical, Environmental & Constructional Specifications						
	Units	**1 Pole**	**1 + N Pole**	**2 Pole**	**3 Pole**	**3 + N Pole**
MECHANICAL						
Mechanical Endurance	Ops.	20,000				
ENVIRONMENTAL						
Ambient Operating Temperature	°C / °F	-25 to 55 / -13 to 131				
Ambient Storage Temperature	°C / °F	-25 to 80 / -13 to 176				
Calibration Temperature	°C / °F	40 / 104				
Altitude	m / ft.	2,000 / 6,562				
Shock	G	15				
CONSTRUCTION						
INGRESS PROTECTION						
Line & Load Terminations	IP	20				
WEIGHT		0.125	0.25	0.25	0.37	0.50
	lbs	0.275	0.55	0.55	0.825	1.10
CONDUCTOR SIZE						
UL/CSA	AWG	1 x #18 ~ #3				
Solid, Stranded, Fine Stranded	mm2	1 x 0.82 ~ 26.7				
TERMINAL WIRING CONNECTION						
Wire Type		Copper wire only, 60 / 75°C				
TERMINAL TORQUE						
	Nm/lb-in	2.5 / 22.2				
ROHS COMPLIANCE		For RoHS compliance documentation by product refer to www.salzer@salzergroup.com				

Dimensional Drawings

UL 489 Dimensional Drawing



UL 1077 SUPPLEMENTARY PROTECTOR DIMENSION



MCB Accessories

UL recognized

Name of the product	Cat Number	Ratings	Pole Configuration
 MCB - 2 Pole side Mounted Auxiliary. 1 No /1 NC	**MBSA11**	6A @ 240V AC 1A @ 130V DC 2A @ 48V DC 6A @ 24V DC	2 Pole (1 NO / 1 NC)
MCB - Auxiliary with Alarm / signal, 2 Pole Side Mounted, 1 No /1 NC	**MBSA11AL**	3A @ 400V AC 6A @ 230V AC	2 Pole (1 NO / 1 NC)
 MCB - Shunt Trip Module, Side Mounted, 110V 50/60Hz	**MBSST110B**	110V AC 50/60Hz	-
MCB - Shunt Trip Module, Side Mounted, 230V 50/60Hz	**MBSST230B**	230V AC 50/60Hz	-
 MCB - Undervoltage / Over Voltage Module Side Mounted, 110V 50/60Hz	**MBSUV110B**	110V AC 50/60Hz	-
MCB - Undervoltage / Over Voltage Module Side Mounted, 230V 50/60Hz	**MBSUV230B**	230V AC 50/60Hz	-
 MCB - Lock-of Adapter	**MBLO**	-	-

MINIATURE CIRCUIT BREAKERS

PRODUCT SELECTION / UL 489 / UL 1077

BRANCH CIRCUIT BREAKERS / SUPPLEMENTARY PROTECTORS

MB	B			
I +	II +	III +	IV +	V

I. PRODUCT TYPE

CODE	DESCRIPTION
MB	Miniature Circuit Breaker

II. DEVICE TYPE

CODE		DESCRIPTION
	B	UL 489 Circuit Breaker
	S	UL 1077 Supplementary Protector

III. OPERATING CURRENT

CODE	DESCRIPTION
L50	0.5A
M10	1A
M16	1.6A
M20	2A
M30	3A
M40	4A
M50	5A
M60	6A
M70	7A
M80	8A
H10	10A

CODE	DESCRIPTION
H13	13A
H15	15A
H16	16A
H20	20A
H25	25A
H30	30A
H32	32A
H40	40A
H50	50A
H60	60A
H63	63A

IV. NUMBER OF POLES

CODE	DESCRIPTION
10	1 Pole
11	1 Pole + Neutral
20	2 Pole
30	3 Pole
31	3 Pole + Neutral

V. TRIP CHARACTERISTICS

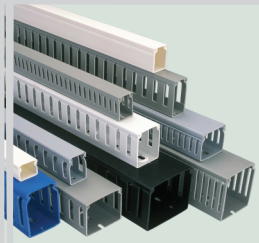
CODE	DESCRIPTION
B	Trip Curve B
C	Trip Curve C
D	Trip Curve D

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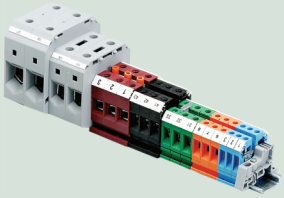
Other products











- Cam Operated Rotary Switches
- Load Break Switches
- Terminal Connectors
- General Purpose Relays
- Toroidal Transformers
- Three-phase Transformers, Chokes, Filters & Inductors
- Modular Switches
- Wires & Cables
- Wire Harness
- Motor Control Products
- Limit & Foot Switches
- Control Panels
- Wiring Ducts
- Sensors

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