

UL 1077 DIN Rail Supplementary Protectors



Powering Business Worldwide

UL 1077 DIN Rail Supplementary Protectors

Product Overview	2
Product Selection	
WMZS — B Curve (3 – 5X I_n Current Rating)	4
WMZS — C Curve (5 – 10X I_n Current Rating)	5
WMZS — D Curve (10 – 20X I_n Current Rating)	6
Accessories	7
Technical Data	10

UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

PRODUCT OVERVIEW



Eaton's WMZS line of miniature circuit breakers includes a broad range of devices defined as "supplementary protectors." These breakers comply with UL® 1077 and CSA® 22.2 No. 235 regulations defining supplementary overcurrent protection. In these applications, branch circuit protection is not required, or is provided by a separate device like a fuse or molded case circuit breaker.

WMZS Supplementary Protectors are typically used for control circuits, lighting, business equipment, appliances and a range of other applications where "closer" protection is desired than that offered by a branch circuit protection device.

Extensive Product Range

Eaton's Supplementary Protectors are available in 1-, 2- and 3-pole configurations and 20 different current ratings from 0.5A to 63A. Three different trip characteristics, including B, C and D curves, give you the ability to configure the exact protection scheme you require. Devices can be used in applications up to 480 Vac and 48 Vdc with short-circuit ratings up to 10 kA.

Ease of Installation

All breakers mount on a standard 35 mm DIN rail. Each device has box terminals that accept multiple conductors. Bus connectors and feeder terminals facilitate mounting and wiring of multiple miniature circuit breaker arrays in control panel assemblies. Power to the circuit breakers can also be fed from the line or load side.

Standard Features

WMZS breaker terminals provide finger and back-of-hand protection to guard against accidental contact with live parts.

A color-coded red/green indicator provides immediate visual indication of device status (green for OFF, red for ON) and isolation function.

All WMZS breakers also incorporate a "trip-free" mechanism. This prevents the trip function from being defeated by holding the operator in the ON position.

Worldwide Acceptance

WMZS Supplementary Protectors are UL Recognized for use in the United States in accordance with NFPA® 70 (NEC®). The devices comply with UL 1077 and CSA 22.2 No. 235, meeting the requirements for supplementary protectors. These devices also comply with IEC 60947-2 and are CE marked.



UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

PRODUCT OVERVIEW

Discover These Advanced Features

Breakers install on standard DIN rail

Available in 1-, 2- and 3-pole models

Color-coded indicator provides breaker status for easy troubleshooting



Captive posidrive terminal screws with finger and back-of-hand protection (IP20)

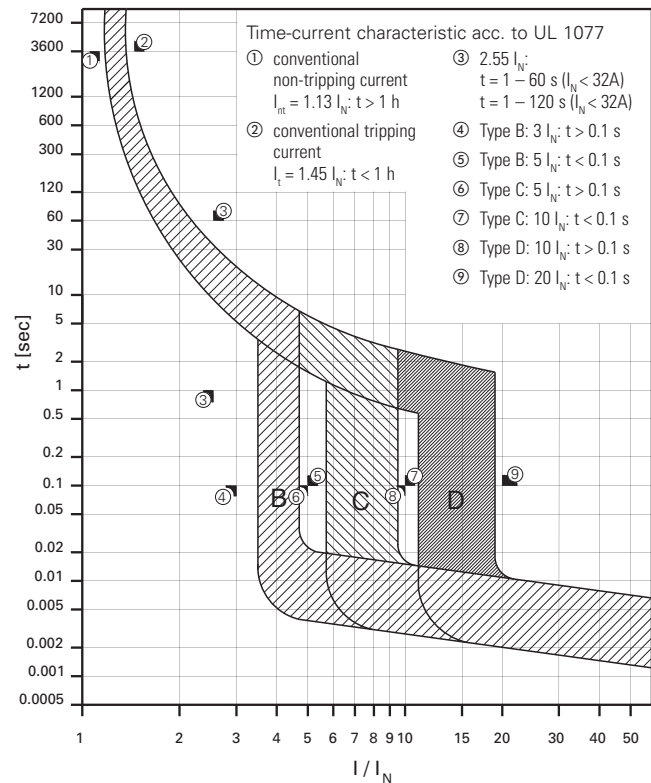
Trip-free design; breaker cannot be defeated by holding the handle in the ON position

Breaker information printed on the front of the device for quick identification

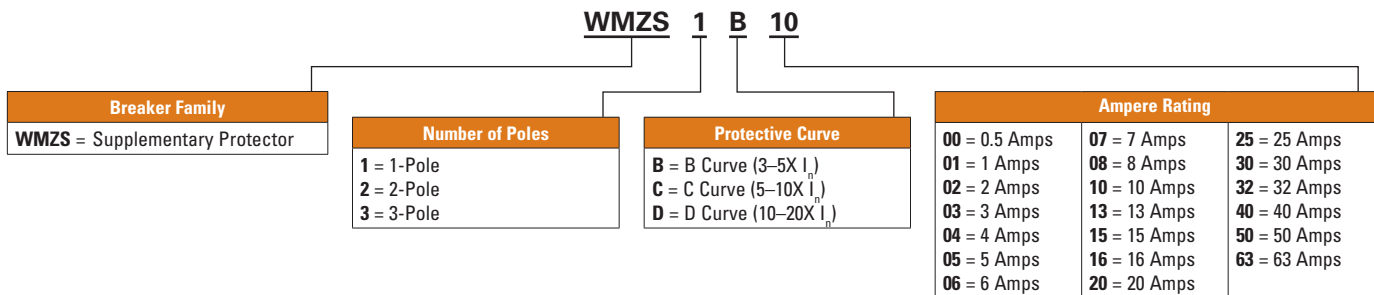
Three Tripping Curves to Choose

Eaton WMZS Supplementary Protectors are available with three different tripping characteristics, including Type B, C and D. Definitions for each trip curve are contained on the ordering pages and can be used to determine the optimal characteristic for your application. For example, low level short-circuit faults in control wiring, such as PLCs, are best protected by devices with Type B trip characteristics (3 to 5X continuous rating of the device (I_n)).

Even though not required by NEC or CEC for Supplementary Protectors, Eaton's WMZS devices are current limiting, which means they interrupt fault currents within one half cycle. Current limiting devices offer superior protection by reducing peak let-through current and energy.



Catalog Numbering System



UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

PRODUCT SELECTION

WMZS Product Selection — B Curve (3 – 5X I_N Current Rating)

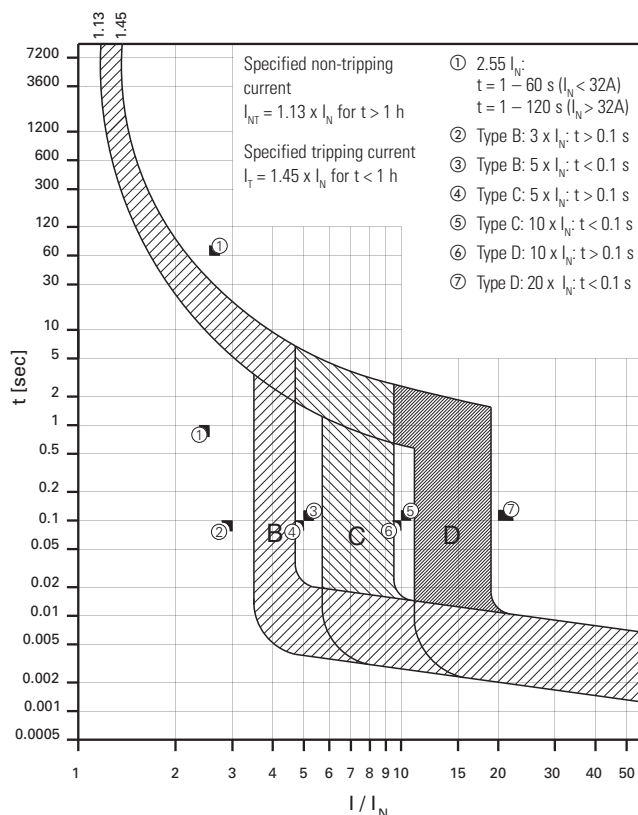
- Designed for resistive or slightly inductive loads
- Response time of instantaneous trip: 3 – 5X I_N current rating
- UL Recognized and CSA Certified as Supplementary Protectors
- For international and domestic use (conform to IEC 60947-2)

Suitable for applications where protection against low level short circuit faults in control wiring is desired. Instantaneous trip is 3 – 5X continuous rating of device (I_N). Applications include PLC wiring, business equipment, lighting, appliances and some motors. Low magnetic trip point.

B Curve (3 – 5X I_N Current Rating) — Designed for Resistive or Slightly Inductive Loads ^①

			
	1-Pole	2-Pole	3-Pole
Amperes	Catalog Number	Catalog Number	Catalog Number
6	WMZS1B06	WMZS2B06	WMZS3B06
7	WMZS1B07	WMZS2B07	WMZS3B07
8	WMZS1B08	WMZS2B08	WMZS3B08
10	WMZS1B10	WMZS2B10	WMZS3B10
13	WMZS1B13	WMZS2B13	WMZS3B13
15	WMZS1B15	WMZS2B15	WMZS3B15
16	WMZS1B16	WMZS2B16	WMZS3B16
20	WMZS1B20	WMZS2B20	WMZS3B20
25	WMZS1B25	WMZS2B25	WMZS3B25
30	WMZS1B30	WMZS2B30	WMZS3B30
32	WMZS1B32	WMZS2B32	WMZS3B32
40	WMZS1B40	WMZS2B40	WMZS3B40
50	WMZS1B50	WMZS2B50	WMZS3B50
63	WMZS1B63	WMZS2B63	WMZS3B63

^① In North America, these switches are UL recognized and CSA certified as Supplementary Protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.



UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers




PRODUCT SELECTION

WMZS Product Selection — C Curve (5 – 10X I_n Current Rating)

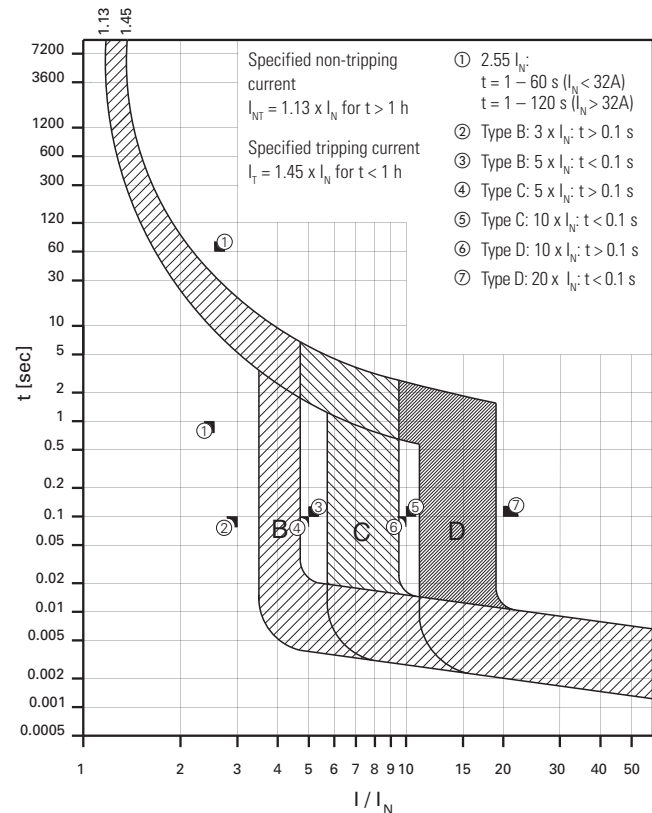
- Designed for inductive loads
- Response time of instantaneous trip: 5 – 10X I_n current rating
- UL Recognized and CSA Certified as Supplementary Protectors
- For international and domestic use (conform to IEC 60947-2)

Suitable for applications where medium levels of inrush current are expected. Instantaneous trip is 5 – 10X rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits, and coils. Medium magnetic trip point.

C Curve (5 – 10X I_n Current Rating) — Designed for Inductive Loads ①

			
Amperes	1-Pole Catalog Number	2-Pole Catalog Number	3-Pole Catalog Number
0.5	WMZS1C00	WMZS2C00	WMZS3C00
1	WMZS1C01	WMZS2C01	WMZS3C01
2	WMZS1C02	WMZS2C02	WMZS3C02
3	WMZS1C03	WMZS2C03	WMZS3C03
4	WMZS1C04	WMZS2C04	WMZS3C04
5	WMZS1C05	WMZS2C05	WMZS3C05
6	WMZS1C06	WMZS2C06	WMZS3C06
7	WMZS1C07	WMZS2C07	WMZS3C07
8	WMZS1C08	WMZS2C08	WMZS3C08
10	WMZS1C10	WMZS2C10	WMZS3C10
13	WMZS1C13	WMZS2C13	WMZS3C13
15	WMZS1C15	WMZS2C15	WMZS3C15
16	WMZS1C16	WMZS2C16	WMZS3C16
20	WMZS1C20	WMZS2C20	WMZS3C20
25	WMZS1C25	WMZS2C25	WMZS3C25
30	WMZS1C30	WMZS2C30	WMZS3C30
32	WMZS1C32	WMZS2C32	WMZS3C32
40	WMZS1C40	WMZS2C40	WMZS3C40
50	WMZS1C50	WMZS2C50	WMZS3C50
63	WMZS1C63	WMZS2C63	WMZS3C63

① In North America, these switches are UL recognized and CSA certified as Supplementary Protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.



UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

PRODUCT SELECTION

WMZS Product Selection — D Curve (10 – 20X I_N Current Rating)

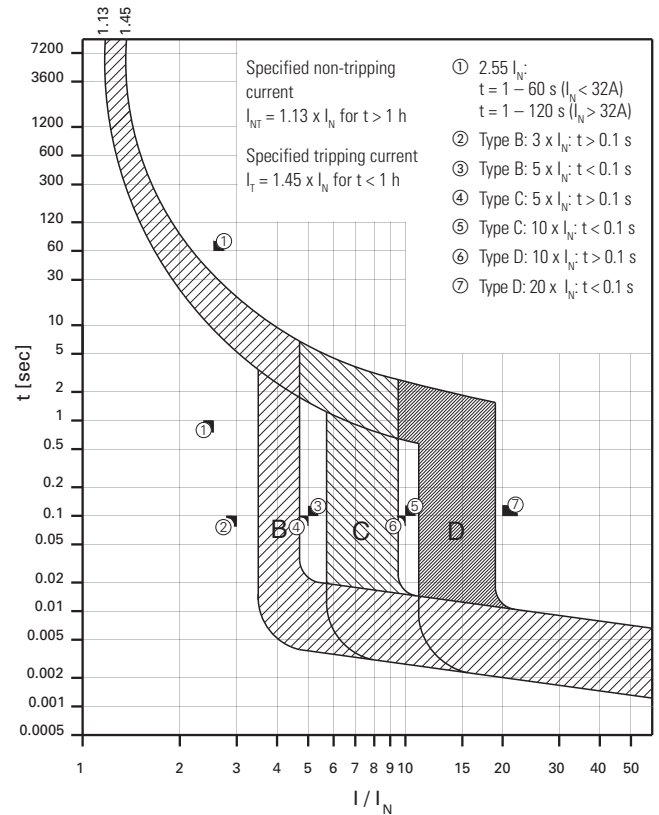
- Designed for highly inductive loads
- Response time of instantaneous trip: 10 – 20X I_N current rating
- UL Recognized and CSA Certified as Supplementary Protectors
- For international and domestic use (conform to IEC 60947-2)

Suitable for applications where high levels of inrush current are expected. Instantaneous trip is 10 – 20X rating of device (I_N). The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.

D Curve (10 – 20X I_N Current Rating) — Designed for Inductive Loads ①

			
Amperes	1-Pole Catalog Number	2-Pole Catalog Number	3-Pole Catalog Number
0.5	WMZS1D00	WMZS2D00	WMZS3D00
1	WMZS1D01	WMZS2D01	WMZS3D01
2	WMZS1D02	WMZS2D02	WMZS3D02
3	WMZS1D03	WMZS2D03	WMZS3D03
4	WMZS1D04	WMZS2D04	WMZS3D04
5	WMZS1D05	WMZS2D05	WMZS3D05
6	WMZS1D06	WMZS2D06	WMZS3D06
7	WMZS1D07	WMZS2D07	WMZS3D07
8	WMZS1D08	WMZS2D08	WMZS3D08
10	WMZS1D10	WMZS2D10	WMZS3D10
13	WMZS1D13	WMZS2D13	WMZS3D13
15	WMZS1D15	WMZS2D15	WMZS3D15
16	WMZS1D16	WMZS2D16	WMZS3D16
20	WMZS1D20	WMZS2D20	WMZS3D20
25	WMZS1D25	WMZS2D25	WMZS3D25
30	WMZS1D30	WMZS2D30	WMZS3D30
32	WMZS1D32	WMZS2D32	WMZS3D32
40	WMZS1D40	WMZS2D40	WMZS3D40

① In North America, these switches are UL recognized and CSA certified as Supplementary Protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.


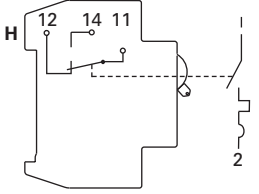


UL 1077 DIN Rail Supplementary Protectors


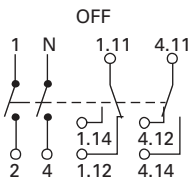
WMZS Circuit Breakers

ACCESSORIES



Auxiliary Contacts and Voltage Trips

Module	Circuit Diagram	Description	Rated Operational Voltage	Catalog Number
		<ul style="list-style-type: none"> 1NO / 1NC Installs on Left Side of WMZS or Shunt Trip Max. One per WMZS (1077) Device Switches When WMZS is Tripped Electrically or Manually 	230 Vac	WMZSAUX



Auxiliary / Trip Indicating Contact

		<ul style="list-style-type: none"> Small Selector Screw Changes Mode Two Form C (Changeover) Contacts Installs on Left Side of WMZS or Shunt Trip Auxiliary Contacts Switch When WMZS is Tripped Electrically or Manually Trip Indicating Contact Switches Only When WMZS is Tripped Electrically 	230 Vac	WMZSAUXTRIP
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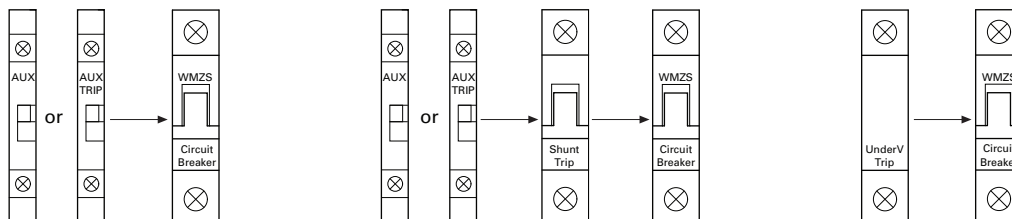
Undervoltage Trip

		<ul style="list-style-type: none"> Prevents WMZS from Operating Unless Voltage is Present Installs on Left Side of WMZS Includes Test Button 	115 Vac	WMZSUVR115
			230 Vac	WMZSUVR230
			400 Vac	WMZSUVR400

Shunt Trip

		<ul style="list-style-type: none"> Allows Remote Trip of WMZS Installs on Left Side of WMZS 	110 – 415 Vac 110 – 230 Vdc	WMZSST415
			12 – 110 Vac 12 – 60 Vdc	WMZSST110

Allowable Combinations of Accessories

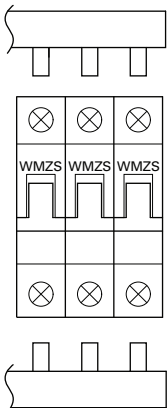


UL 1077 DIN Rail Supplementary Protectors

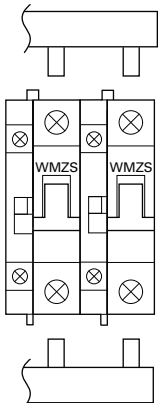
WMZS Circuit Breakers

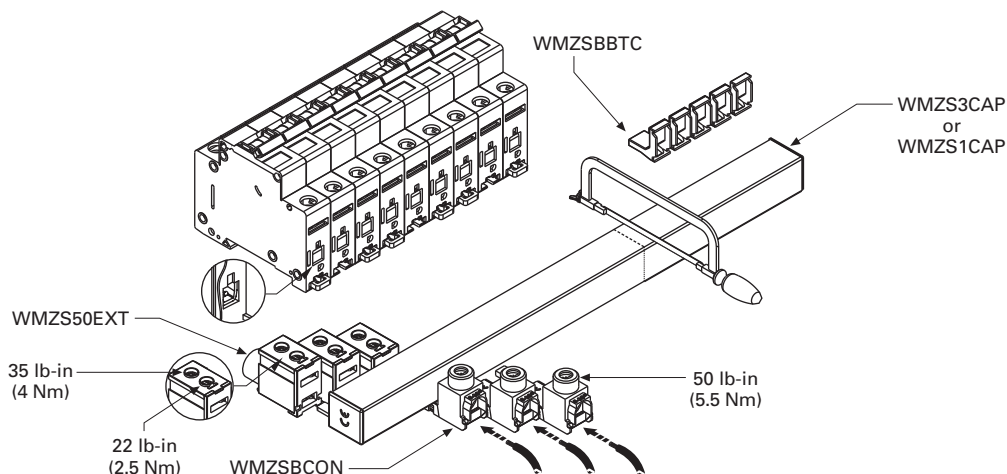
ACCESSORIES

Bus Bar System

Description	Rated Operational Current (A)	Number of Poles per Device	Number of Terminals	Catalog Number
Without Auxiliary Contacts				
<p>For connecting WMZS Supplementary Protectors without auxiliary contacts. May be fed from line or load side.</p> 	80	1	57	WMZS1P57T
		2	56	WMZS2P56T
		3	57	WMZS3P57T
	100	1	57	WMZS1P57T25
		2	56	WMZS2P56T25
		3	57	WMZS3P57T25

Auxiliary / Trip Indicating Contact

<p>For connecting WMZS Supplementary Protectors with auxiliary contacts. May be fed from line or load side.</p> 	80	1	37	WMZS1P37TAUX
		2	46	WMZS2P46TAUX
		3	48	WMZS3P48TAUX
	100	1	37	WMZS1P37T25AUX
		2	46	WMZS2P46T25AUX
		3	48	WMZS3P48T25AUX

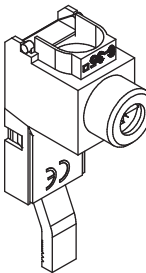


UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

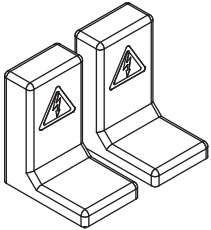
ACCESSORIES

Pin Type Incoming Supply Terminals ①

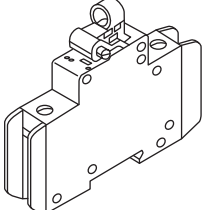
Accessories	Description	Installation	Catalog Number
Incoming Terminal			
	<ul style="list-style-type: none"> Accommodates Conductors Up to 25 mm² (~ AWG 4) Finger-Safe Connection 		WMZSBCON

① IEC rated only.

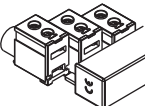
Protective Accessories

Accessories	Description	Catalog Number
Bus Bar Terminal Cover		
	For Covering Unused Terminals	WMZSBBTC

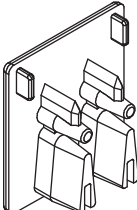
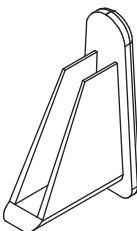
Padlock Hasp

	<ul style="list-style-type: none"> Prevents Reactivation of the Device During Maintenance Holds One Padlock 	WMZPLK
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Bus Incoming Supply Terminals

Accessories	Description	Installation	Catalog Number
Incoming Terminal			
	<ul style="list-style-type: none"> 50 mm² #14–1 AWG 75 Deg Wire 115 A/Y, 480V UL 160 A/Y 690V IEC 		WMZS50EXT

Bus Bar End Cap

Accessories	Description	Poles	Catalog Number
Fork Connector			
	<ul style="list-style-type: none"> Install After Cutting Bus Bar Protects End of Bus Bar 	2 & 3	WMZS3CAP
		1	WMZS1CAP

Accessories

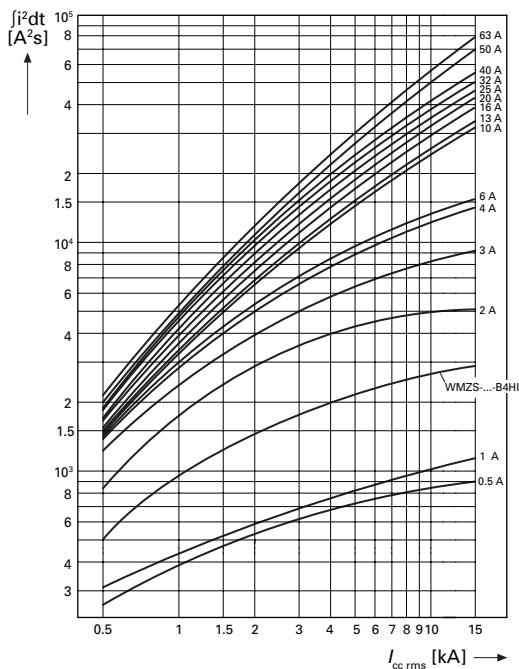
UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

TECHNICAL DATA

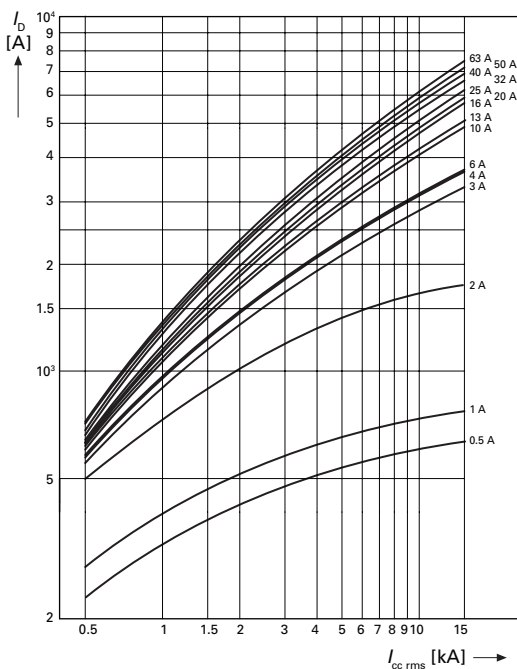
Let-Through Energy I^2t

Characteristic B and C

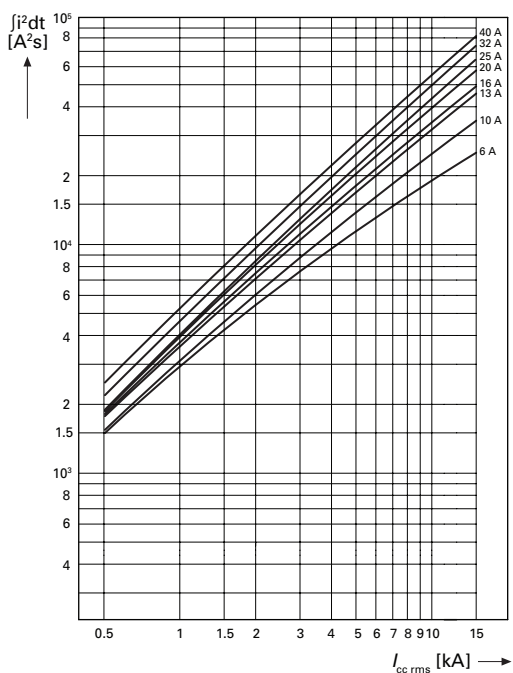


Let-Through Current I_D

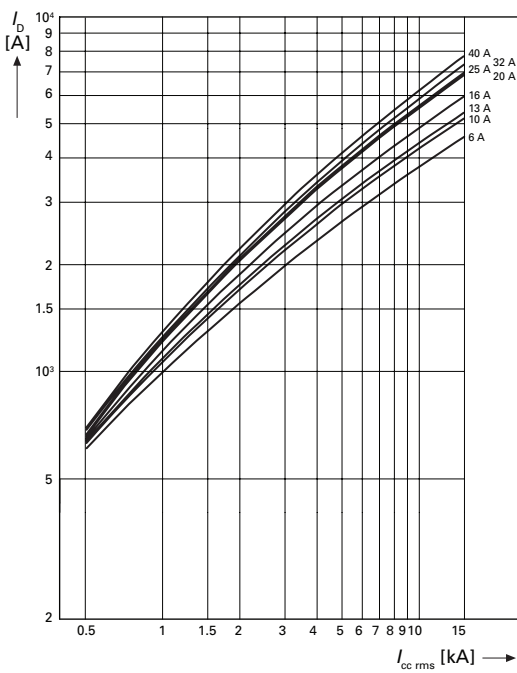
Characteristic B and C



Characteristic D



Characteristic D



UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

TECHNICAL DATA

Technical Data

Description	B Curve	C Curve	D Curve
Approvals	UR (UL 1077), CSA (CSA 22.2 No. 235), CE		
Standards	IEC/EN 60947-2		
Short-Circuit Trip Response	$3 \times 5 I_n$	$5 \times 10 I_n$	$10 \times 20 I_n$

Supplementary Protectors — UL / CSA

Current Range	6 – 63A	0.5 – 63A	0.5 – 40A
Maximum Voltage Ratings — UL / CSA			
1-Pole	277 Vac 48 Vdc	277 Vac 48 Vdc	277 Vac 48 Vdc
2-, 3-Pole	480Y/277 Vac	480Y/277 Vac	480Y/277 Vac
2 Poles in Series	125 Vdc	125 Vdc	125 Vdc
Thermal Tripping Characteristics			
Single-Pole	$1.35 \times I_n @ 40^\circ\text{C}$	$1.35 \times I_n @ 40^\circ\text{C}$	$1.35 \times I_n @ 40^\circ\text{C}$
Multi-Pole	$1.45 \times I_n @ 40^\circ\text{C}$	$1.45 \times I_n @ 40^\circ\text{C}$	$1.45 \times I_n @ 40^\circ\text{C}$
Short-Circuit Ratings (at Max. Voltage)			
1-Pole	10 kA (5 kA for 40–63A Device)	10 kA (5 kA for 40–63A Device)	5 kA
2-, 3-Pole	10 kA (5 kA for 40–63A Device)	10 kA (5 kA for 40–63A Device)	5 kA
1-Pole	10 kA @ 48 Vdc	10 kA @ 48 Vdc	10 kA @ 48 Vdc
2 Poles in Series	10 kA @ 125 Vdc	10 kA @ 125 Vdc	10 kA @ 125 Vdc

Miniature Circuit Breaker — IEC

Current Range	6 – 63A	0.5 – 63A	0.5 – 40A
Maximum Voltage Ratings — IEC 60947-2			
1-Pole	230 Vac 48 Vdc	230 Vac 48 Vdc	230 Vac 48 Vdc
2-, 3-Pole	230/400 Vac	230/400 Vac	230/400 Vac
Maximum Voltage Ratings — IEC 60898			
1-Pole	240 Vac 48 Vdc	240 Vac 48 Vdc	240 Vac 48 Vdc
2-, 3-Pole	240/415 Vac	240/415 Vac	240/415 Vac
Thermal Tripping Characteristics			
Single-Pole	$> 1 \text{ Hour} @ 1.05 \times I_n$	$> 1 \text{ Hour} @ 1.05 \times I_n$	$> 1 \text{ Hour} @ 1.05 \times I_n$
Multi-pole	$< 1 \text{ Hour} @ 1.3 \times I_n$	$< 1 \text{ Hour} @ 1.3 \times I_n$	$< 1 \text{ Hour} @ 1.3 \times I_n$
Interrupt Ratings (at Max. Voltage)			
IEC 60947-2	15 kA	15 kA	15 kA
IEC 60898	10 kA	10 kA	10 kA
Operational Switching Capacity	7.5 kA	7.5 kA	7.5 kA
Max. Back-Up Fuse [gL/gG]	125A	125A	125A
Rated Impulse Withstand— U_{imp}	4000 Vac	4000 Vac	4000 Vac
Rated Insulation Voltage— U_i	440 Vac	440 Vac	440 Vac

Environmental / General

Selectivity Class	3	3	3
Lifespan (Operations)	> 10000 (1 operation = ON/OFF)	> 10000 (1 operation = ON/OFF)	> 10000 (1 operation = ON/OFF)
Shock (IEC 68-2-22)	10g–120 ms	10g–120 ms	10g–120 ms
Operating Temperature Range	+23 – +104°F (-5 – +40°C)	+23 – +104°F (-5 – +40°C)	+23 – +104°F (-5 – +40°C)
Shipment & Short-Term Storage	-40 – +185°F (-40 – +85°C)	-40 – +185°F (-40 – +85°C)	-40 – +185°F (-40 – +85°C)
Housing Material	Nylon	Nylon	Nylon

Mechanical

Standard Front Dimension	80 mm	80 mm	80 mm
Device Height	Finger and Back-of-Hand Proof to IEC 536	Finger and Back-of-Hand Proof to IEC 536	Finger and Back-of-Hand Proof to IEC 536
Terminal Protection	17.7 mm	17.7 mm	17.7 mm
Mounting Width per Pole			
Mounting	IEC/EN 60715 Top-Hat Rail	IEC/EN 60715 Top-Hat Rail	IEC/EN 60715 Top-Hat Rail
Degree of Protection	IP20	IP20	IP20
Terminals Top and Bottom	Twin-Purpose Terminals	Twin-Purpose Terminals	Twin-Purpose Terminals
Supply Connection	Line or Load Side	Line or Load Side	Line or Load Side
Terminal Capacity [mm ²]	1 x 25 (AWG 4 – 18) / 2 x 10 (AWG 8 – 18)	1 x 25 (AWG 4 – 18) / 2 x 10 (AWG 8 – 18)	1 x 25 (AWG 4 – 18) / 2 x 10 (AWG 8 – 18)
Torque	2.4 Nm	2.4 Nm	2.4 Nm
Imperial Torque	21 lb-in (AWG 18 – 12), 25 lb-in (AWG 10 – 8), 36 lb-in (AWG 6 – 4)	21 lb-in (AWG 18 – 12), 25 lb-in (AWG 10 – 8), 36 lb-in (AWG 6 – 4)	21 lb-in (AWG 18 – 12), 25 lb-in (AWG 10 – 8), 36 lb-in (AWG 6 – 4)
Thickness of Bus Bar Material	0.8 – 2 mm	0.8 – 2 mm	0.8 – 2 mm
Mounting Position	As Required	As Required	As Required

UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

TECHNICAL DATA

Technical Data

Description	WMZSAUX WMZSAUXTRIP	WMZSST	WMZSUVR
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Electrical

Contact Function	1A + 1B 2 C/O	— —	— —
Rated Operational Voltage U_n	250 Vac	—	115 Vac — WMZSUVR115 230 Vac — WMZSUVR230 400 Vac — WMZSUVR400
Voltage Range WMZSST110	—	12 – 110 Vac 12 – 60 Vdc	—
Voltage Range WMZSST415	—	110 – 415 Vac 110 – 230 Vdc	—
Closing Threshold [$\times U_n$]	—	—	0.8
Tripping Threshold [$\times U_n$]	—	—	0.5
Rated Frequency f	50/60 Hz	50/60 Hz	50/60 Hz
General Use (UL / CSA) AC—230/240 Vac DC—110/120 Vdc	2 / 2A 0.5 / 0.5A	— —	— —
Pilot Duty	A600 / Q600	—	—
Conventional Free Air Thermal Current I_{th}	4A	—	—
Rated Operational current AC-13 I_e AC-15 I_e DC-13 I_e	3A (250 Vac) 2A (250 Vac) 0.5A (110 Vdc)	— — —	— — —
Rated Insulation Voltage U_i	250 Vac	—	—
Minimum Operating Voltage per Contract U_{min}	5 Vdc	—	—
Rated Impulse Withstand Voltage (1.2/50 μ) U_{imp}	2.5 kV	—	—
Rated Conditional Short-Circuit Current with 6A Back-Up Fuse I_{sc}	1 kA	—	—
Max. Admissible Back-Up Fuse	4A gL	—	—

Mechanical

Standard Front Dimension	45 mm	45 mm	45 mm
Device Height	80 mm	80 mm	80 mm
Mounting Width	8.8 mm	17.6 mm	17.8 mm
Mounting	On MCB	IEC/EN 60715 Top-Hat Rail	IEC/EN 60715 Top-Hat Rail
Degree of Protection Enclosed	IP40	IP40	IP40
Terminal Protection	Protection Against Electric Shock to IEC 536	Protection Against Electric Shock to IEC 536	Protection Against Electric Shock to IEC 536
Terminals	Lift Terminals	Twin-Purpose Terminals	Twin-Purpose Terminals
Terminal Capacity Solid Flexible	0.5 – 2.5 mm ² 0.5 – 2.5 mm ²	1 – 2.5 mm ² 1 – 2.5 mm ²	2 x (1 – 2.5) mm ² 2 x (1 – 2.5) mm ²
Tightening Torque of Terminal Screws	0.8 – 1.0 Nm (7 – 9 lb-in)	2.4 Nm (21 lb-in)	0.8 Nm (7 lb-in)

UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

TECHNICAL DATA

Influence of the Ambient Temperature on the Thermal Tripping Behavior

Corrected values of the rated current dependent on the ambient temperature

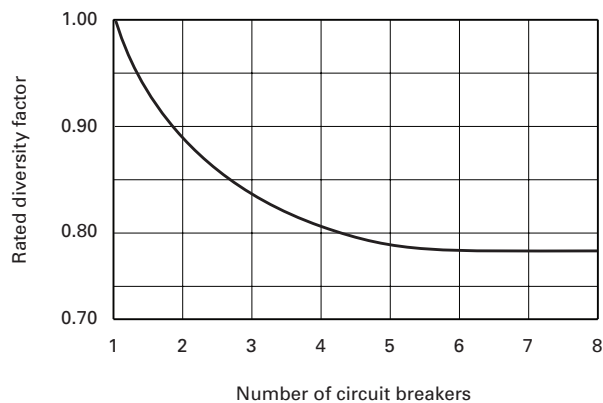
I _n (A)	Ambient Temperature T												
	-25°C	-20°C	-10°C	0°C	10°C	20°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
0.16	0.20	0.19	0.19	0.18	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.14	0.14
0.25	0.31	0.30	0.29	0.28	0.27	0.26	0.25	0.25	0.24	0.24	0.23	0.23	0.22
0.5	0.61	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.48	0.47	0.46	0.45	0.44
0.75	0.92	0.90	0.87	0.84	0.81	0.78	0.75	0.74	0.73	0.71	0.69	0.68	0.66
1	1.2	1.2	1.2	1.1	1.1	1.0	1.0	0.99	0.97	0.95	0.93	0.90	0.89
1.5	1.8	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3
1.6	2.0	1.9	1.9	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4
2	2.4	2.4	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.8	1.8
2.5	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.2
3	3.7	3.6	3.5	3.4	3.3	3.1	3.0	3.0	2.9	2.8	2.8	2.7	2.7
3.5	4.3	4.2	4.1	3.9	3.8	3.7	3.5	3.4	3.4	3.3	3.2	3.2	3.1
4	4.9	4.8	4.7	4.5	4.3	4.2	4.0	3.9	3.9	3.8	3.7	3.6	3.5
5	6.1	6.0	5.8	5.6	5.4	5.2	5.0	4.9	4.8	4.7	4.6	4.5	4.4
6	7.3	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8	5.7	5.6	5.4	5.3
7	8.6	8.4	8.1	7.9	7.6	7.4	7	6.9	6.8	6.7	6.6	6.4	6.3
8	9.8	9.6	9.3	9.0	8.7	8.4	8.0	7.9	7.7	7.6	7.4	7.2	7.1
10	12	12	12	11	11	10	10	9.9	9.7	9.5	9.3	9.0	8.9
12	15	14	14	13	13	13	12	12	12	11	11	11	11
13	16	16	15	15	14	14	13	13	13	12	12	12	12
15	18	18	17	17	16	16	15	15	15	14	14	14	13
16	20	19	19	18	17	17	16	16	15	15	15	14	14
20	24	24	23	22	22	21	20	20	19	19	19	18	18
25	31	30	29	28	27	26	25	25	24	24	23	23	22
32	39	38	37	36	35	33	32	32	31	30	30	29	28
40	49	48	47	45	43	42	40	39	39	38	37	36	35
50	61	60	58	56	54	52	50	49	48	47	46	45	44
63	77	76	73	71	68	66	63	62	61	60	58	57	56

Influence of the Mains Frequency

Influence of the mains frequency on the tripping behavior I_{MA} of the instantaneous release

	Mains Frequency f [Hz]						
	16 2/3	50	60	100	200	300	400
$I_{MA}(f)/I_{MA}(50 \text{ Hz})$ [%]	91	100	101	106	115	134	141

Load Carrying Capacity of Adjoining Miniature Circuit Breakers



UL 1077 DIN Rail Supplementary Protectors

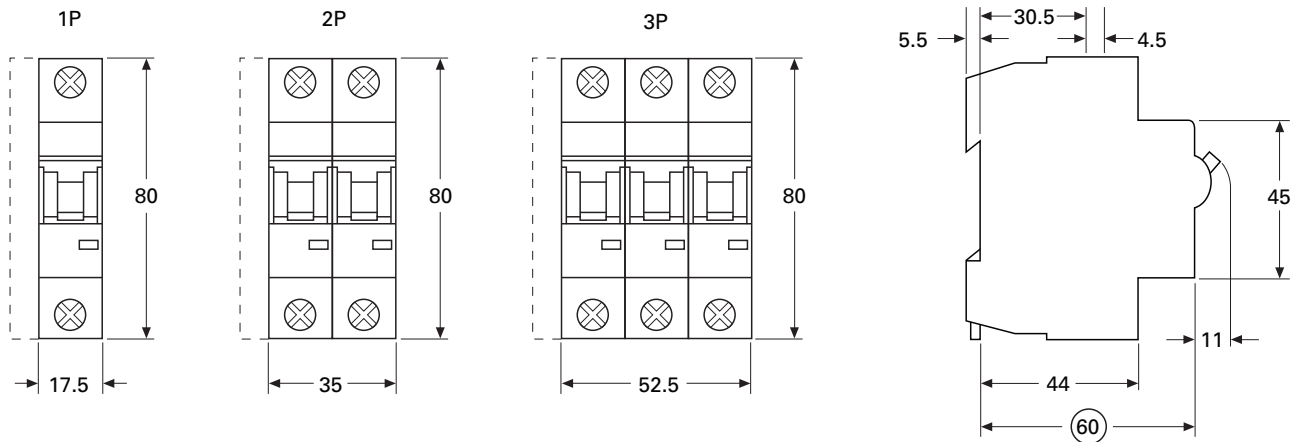
WMZS Circuit Breakers

TECHNICAL DATA

Dimensions

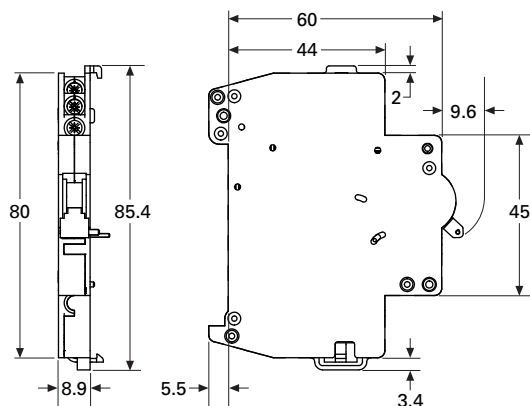
Miniature Circuit Breakers

WMZS



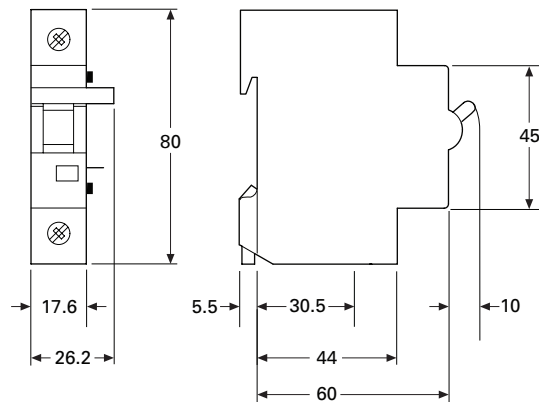
Auxiliary Contacts

WMZSAUX

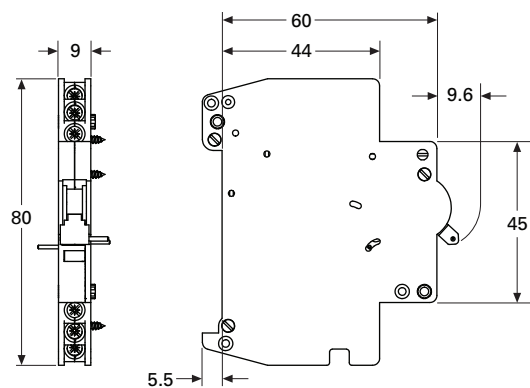


Shunt Releases

WMZSST

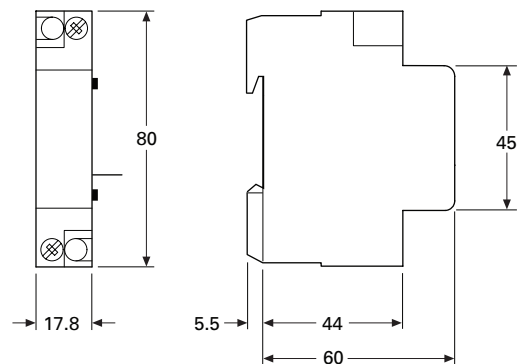


WMZSAUXTRIP



Undervoltage Releases

WMZSUVR



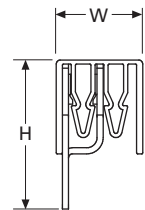
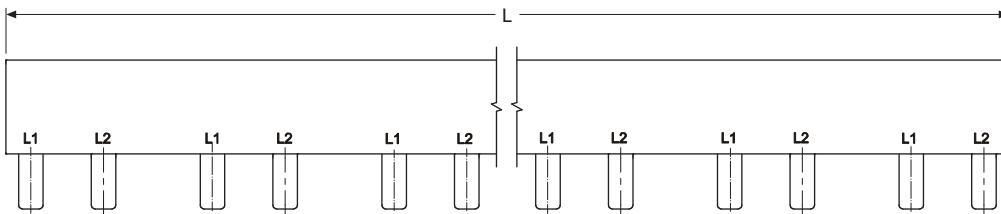
UL 1077 DIN Rail Supplementary Protectors

WMZS Circuit Breakers

TECHNICAL DATA

Bus Bar & Accessory Weights and Dimensions

Catalog Number	Unit Weight (kg)	Length (mm)	Width (mm)	Height (mm)
WMZS1P57T	0.29	1009	15	15
WMZS2P56T	0.64	991	22	37
WMZS3P57T	0.83	1009	22	37
WMZS1P37TAUX	0.26	985	15	15
WMZS2P46TAUX	0.63	1009	22	37
WMZS3P48TAUX	0.79	982	22	37
WMZS1P57T25	0.36	1009	15	15
WMZS2P56T25	0.79	991	22	37
WMZS3P57T25	1.04	1009	22	37
WMZS1P37T25AUX	0.31	985	15	15
WMZS2P46T25AUX	0.73	1009	22	37
WMZS3P48T25AUX	0.97	982	22	37
WMZSBC0N	0.03	60	17	29
WMZS50EXT	0.03	40	18	30
WMZSBBTC	0.003	85	12	24
WMZS1CAP	0.001	14	5	10
WMZS3CAP	0.001	24	22	10



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