



9 Series

Final level of protection in electrical distribution

M9/Multi 9

Multistandard protection for OEMs,
residential and industry

www.altech-elec.com

Schneider
Electric

spectre

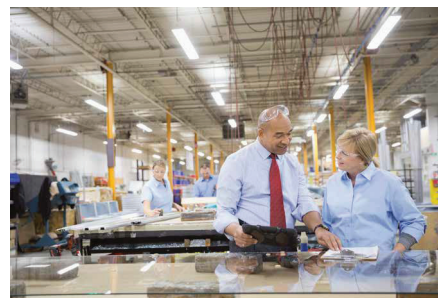
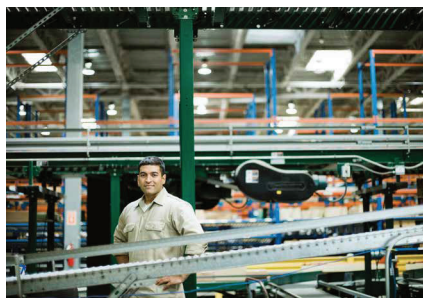


M9/Multi9

Modular protection for OEMs, residential and industry

M9 (the same old Multi9™ by Schneider Electric) is a range of DIN rail modular devices, a solution offering great performance. M9 (Multi9) is a Spectre Electric offer dedicated to OEMs and all residential and industrial sectors, meeting the major standards for industry applications.

Designed to meet your needs for most types of panels and machines, offering a wide range of modular devices it provides protection, signaling functions and accessories.



Miniature Circuit Breakers

IEC/EN 60947-2: 10 kA, IEC 60898: **6000 A**
C60N - B and C curves



C60N 1P



C60N 2P



C60N 3P



C60N 4P



Function

- The circuit-breakers combine the following functions:
 - protection of circuits against short-circuit currents
 - protection of circuits against overload currents
 - control
 - isolation
 - protection of persons against indirect contact with TN and IT neutral systems.
- C60N circuit breakers are used in the tertiary and industrial sectors.

Tripping curves

B curve

When the short-circuit currents are weak (generators, long cables).

- Power circuit:
 - ratings: 2 to 63 A set at 30 °C
 - tripping curve: the magnetic trip units operate between 3 and 5 In.

C curve

Cables feeding conventional loads.

- Power circuit:
 - ratings: 2 to 63 A set at 30 °C
 - tripping curve: the magnetic trip units operate between 5 and 10 In.

Technical data according to IEC 60898

- Power circuit:
 - voltage rating (Ue): 440 V AC
 - breaking capacity:
 - according to IEC 60898, Icn ultimate breaking capacity (O-CO cycle):

Rating (A)	Type	Voltage (V)	Breaking capacity Icn (A)
2...63	1P	230/400	6000
	2P, 3P, 3P+N, 4P	400	6000

- limitation class (IEC 60898): 3.

Technical data according to IEC 60947-2

- Power circuit:
 - voltage rating (Ue): 440 V AC
 - impulse voltage (Uimp): 6 kV
 - insulation voltage (Ui): 500 V AC
 - breaking capacity:
 - according to IEC 60947-2, Icu ultimate breaking capacity (O-CO cycle):

Rating (A)	Type	Voltage (V)	Breaking capacity Icn (A)
2...63	1P	230...240	10
		400...415	3 ⁽¹⁾
	2P, 3P, 3P+N, 4P	230...240	20
		400...415	10

(1) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

General technical data



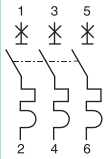
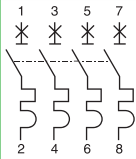
- Fast closing: allows the high inrush currents of some loads to be better held.
- Isolation with positive break indication: opening is indicated by a green strip on the device operating handle. This indicator shows opening contacts of all the poles.
- Number of cycles (O-C): 20000.
- Environment:
 - tropicalisation: treatment 2 (relative humidity: 95 % at 55 °C) according to IEC 60068-1
- Connection: tunnel terminals for the following cables:
 - 16 mm² flexible or 25 mm² rigid up to 25 A ratings
 - 25 mm² flexible or 35 mm² rigid for 32 to 63 A ratings.

Miniature Circuit Breakers



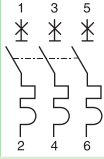
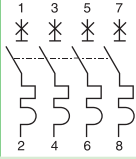
IEC/EN 60947-2: 10 kA, IEC 60898: **6000 A**
C60N - B and C curves (cont.)

Catalogue numbers

spectre

C60N circuit breaker									Spectre Electric
Type	1P		2P		3P		4P		
E45092			E45094 		E45095 		E45097 		
Rating (In)	Curve		Curve		Curve		Curve		
	B	C	B	C	B	C	B	C	
2 A	-	24396-SE	-	24332-SE	-	24345-SE	-	24358-SE	
4 A	-	24398-SE	-	24334-SE	-	24347-SE	-	24360-SE	
6 A	24049-SE	24399-SE	24075-SE	24335-SE	24088-SE	24348-SE	24101-SE	24361-SE	
10 A	24050-SE	24401-SE	24076-SE	24336-SE	24089-SE	24349-SE	24102-SE	24362-SE	
16 A	24051-SE	24403-SE	24077-SE	24337-SE	24090-SE	24350-SE	24103-SE	24363-SE	
20 A	24052-SE	24404-SE	24078-SE	24338-SE	24091-SE	24351-SE	24104-SE	24364-SE	
25 A	24053-SE	24405-SE	24079-SE	24339-SE	24092-SE	24352-SE	24105-SE	24365-SE	
32 A	24054-SE	24406-SE	24080-SE	24340-SE	24093-SE	24353-SE	24106-SE	24366-SE	
40 A	24055-SE	24407-SE	24081-SE	24341-SE	24094-SE	24354-SE	24107-SE	24367-SE	
50 A	-	24408-SE	-	24342-SE	-	24355-SE	-	24368-SE	
63 A	-	24409-SE	-	24343-SE	-	24356-SE	-	24369-SE	
Width in 9-mm modules	2		4		6		8		

Schneider Electric

C60N circuit breaker									Schneider Electric
Type	1P		2P		3P		4P		
E45092			E45094 		E45095 		E45097 		
Rating (In)	Curve		Curve		Curve		Curve		
	B	C	B	C	B	C	B	C	
2 A	24046	24396	24072	24332	24085	24345	24098	24358	
4 A	24048	24398	24074	24334	24087	24347	24100	24360	
6 A	24049	24399	24075	24335	24088	24348	24101	24361	
10 A	24050	24401	24076	24336	24089	24349	24102	24362	
16 A	24051	24403	24077	24337	24090	24350	24103	24363	
20 A	24052	24404	24078	24338	24091	24351	24104	24364	
25 A	24053	24405	24079	24339	24092	24352	24105	24365	
32 A	24054	24406	24080	24340	24093	24353	24106	24366	
40 A	24055	24407	24081	24341	24094	24354	24107	24367	
50 A	24056	24408	24082	24342	24095	24355	24108	24368	
63 A	24057	24409	24083	24343	24096	24356	24109	24369	
Width in 9-mm modules	2		4		6		8		

***NOTE: Items in light grey are not produced in Iran.

Miniature Circuit Breakers

IEC/EN 60947-2: 15 kA, IEC 60898: **10000 A**

C60H - B and C curves



spectre



C60H 1P



C60H 2P



C60H 3P



C60H 4P

Function

- The circuit-breakers combine the following functions:
 - protection of circuits against short-circuit currents
 - protection of circuits against overload currents
 - control
 - isolation
 - protection of persons against indirect contact with TN and IT neutral systems.
- C60H circuit breakers are used in the tertiary and industrial sectors.

Tripping curves

B curve

When the short-circuit currents are weak (generators, long cables).

- Power circuit:
 - ratings: 2 to 63 A set at 30 °C
 - tripping curve: the magnetic trip units operate between 3 and 5 In.

C curve

Cables feeding conventional loads.

- Power circuit:
 - ratings: 2 to 63 A set at 30 °C
 - tripping curve: the magnetic trip units operate between 5 and 10 In.

Technical data according to IEC 60898

- Power circuit:
 - voltage rating (Ue): 440 V AC
 - breaking capacity:
 - according to IEC 60898, Icn ultimate breaking capacity (O-CO cycle):

Rating (A)	Type	Voltage (V)	Breaking capacity Icn (A)
2...63	1P	230/400	10000
	2P, 3P, 4P	400	10000

- limitation class (IEC 60898): 3.

Technical data according to IEC 60947-2

- Power circuit:
 - voltage rating (Ue): 440 V AC
 - impulse voltage (Uimp): 6 kV
 - insulation voltage (Ui): 500 V AC
 - breaking capacity:
 - according to IEC 60947-2, Icu ultimate breaking capacity (O-CO cycle):

Rating (A)	Type	Voltage (V)	Breaking capacity Icn (kA)
2...63	1P	130	30
		230...240	15
		400...415	4 ⁽¹⁾
	2P, 3P, 4P	230...240	30
		400...415	15
		440	10

(1) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

General technical data



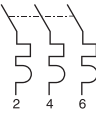
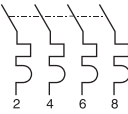
- Fast closing: allows the high inrush currents of some loads to be better held.
- Isolation with positive break indication: opening is indicated by a green strip on the device operating handle. This indicator shows opening contacts of all the poles.
- Number of cycles (O-C): 20000.
- Environment:
 - tropicalisation: treatment 2 (relative humidity: 95 % at 55 °C) according to IEC 60068-1
- Connection: tunnel terminals for the following cables:
 - 16 mm² flexible or 25 mm² rigid up to 25 A ratings
 - 25 mm² flexible or 35 mm² rigid for 32 to 63 A ratings.

Miniature Circuit Breakers

IEC/EN 60947-2: 15 kA, IEC 60898: 10000 A
 C60H - B and C curves (cont.)

Catalogue numbers

spectre

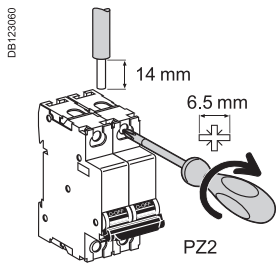
C60H circuit breaker										Spectre Electric			
Type	1P			2P			3P			4P			
E450902	1 ✱  2	E450904			1 3 ✱ ✱  2 4	E450905			1 3 5 ✱ ✱ ✱  2 4 6	E450907			1 3 5 7 ✱ ✱ ✱ ✱  2 4 6 8
Rating (In)	Curve		Curve		Curve		Curve		Curve		Curve		
	B	C	B	C	B	C	B	C	B	C	B	C	
2 A	-	24969-SE	-	24982-SE	-	24995-SE	-	25008-SE					
4 A	-	24971-SE	-	24984-SE	-	24997-SE	-	25010-SE					
6 A	24643-SE	24972-SE	24725-SE	24985-SE	24738-SE	24998-SE	24751-SE	25011-SE					
10 A	24644-SE	24973-SE	24726-SE	24986-SE	24739-SE	24999-SE	24752-SE	25012-SE					
16 A	24646-SE	24974-SE	24727-SE	24987-SE	24740-SE	25000-SE	24753-SE	25013-SE					
20 A	24647-SE	24975-SE	24728-SE	24988-SE	24741-SE	25001-SE	24754-SE	25014-SE					
25 A	24648-SE	24976-SE	24729-SE	24989-SE	24742-SE	25002-SE	24755-SE	25015-SE					
32 A	24649-SE	24977-SE	24730-SE	24990-SE	24743-SE	25003-SE	24756-SE	25016-SE					
40 A	24650-SE	24978-SE	24731-SE	24991-SE	24744-SE	25004-SE	24757-SE	25017-SE					
50 A	-	24979-SE	-	24992-SE	-	25005-SE	-	25018-SE					
63 A	-	24980-SE	-	24993-SE	-	25006-SE	-	25019-SE					
Width in 9-mm modules	2			4			6			8			



Miniature Circuit Breakers

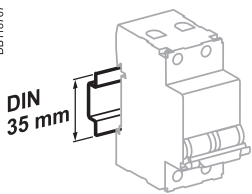
IEC/EN 60947-2: 10 kA, IEC 60898: **6000 A**
 C60N - B and C curves

IEC/EN 60947-2: 15 kA, IEC 60898: **10000 A**
 C60H - B and C curves

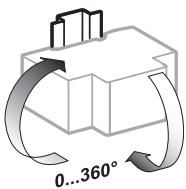
Connection



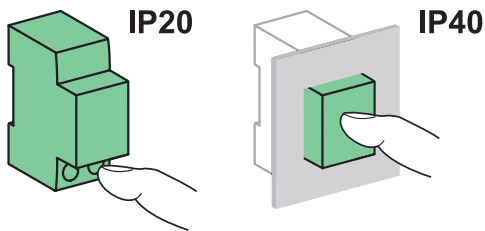
Rating		Tightening torque	Without accessory	
			Copper cables	
			Rigid, flexible or with ferrule	
2 to 25 A		2.5 N.m (22 lb.in)		
32 to 63 A		3.5 N.m (31 lb.in)		



Clip on DIN rail 35 mm.



Indifferent position of installation.



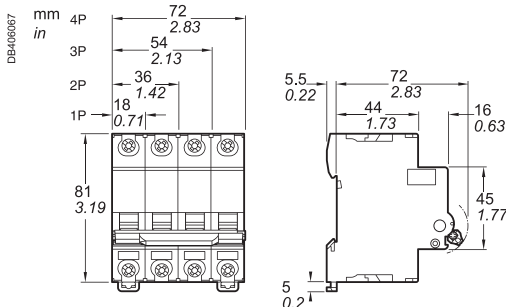
Technical data

According to IEC/EN 60947-2			
Insulation voltage (Ui)	500 V AC		
Pollution degree	3		
Rated impulse withstand voltage (Uimp)	6 kV		
Thermal tripping	Reference temperature	50°C / 122°F	
Magnetic tripping (Ii)	B curve	in alternative current	4 In ± 20 %
		in direct current	5.7 In (± 20 %)
	C curve	in alternative current	8.5 In ± 20 %
		in direct current	12 In (± 20 %)
According to current frequency		50/60 Hz	
Utilization category	A		
Additional characteristics			
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40	
		Insulation class II	
Endurance (O-C)	Electrical	10,000 cycles	
	Mechanical	20,000 cycles	
Service temperature	-30°C to +70°C / -22°F to 158°F		
Storage temperature	-40°C to +80°C / -40°F to 176°F		
Tropicalization (IEC 60068-1)	Treatment 2 (relative humidity 95 % at 55°C / 131°F)		

Weight (g / oz)

Circuit-breaker	
Type	C60N , C60H
1P	120 g / 4.23 oz
2P	240 g / 8.46 oz
3P	360 g / 12.70 oz
4P	480 g / 16.93 oz

Dimensions (mm / inches)



Residual Current Devices

IEC/EN

RCCB ID - IEC/EN 61008-1 – Residual Current Circuit Breakers – AC type

IEC 61008-1



IEC/EN 61008-1

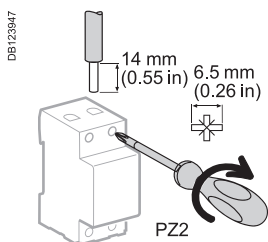
As per the above standard:

- RCCB-ID residual current circuit breakers offer the following functions:
 - protection of persons against electric shock by direct contact (30 mA),
 - protection of persons against electric shock by indirect contact (300 mA),
 - protection of installations against fire risks (300 mA).

Catalogue numbers

RCCB-ID residual current circuit breakers							
Type	AC						Width in 9-mm modules
		Spectre Electric			Schneider Electric		
2P 		Sensitivity	30 mA	100 mA	300 mA	30 mA	300 mA
	Rating	25 A	M9R11225-S	M9R12225-S	M9R14225-S	M9R11225	-
		32 A	M9R11232-S	M9R12232-S	M9R14232-S	-	-
		40 A	M9R11240-S	M9R12240-S	M9R14240-S	M9R11240	M9R14240
		63 A	M9R11263-S	M9R12263-S	M9R14263-S	-	-
4P 		Sensitivity	30 mA	100 mA	300 mA	30 mA	300 mA
	Rating	25 A	M9R11425-S	M9R12425-S	M9R14425-S	-	-
		32 A	M9R11432-S	M9R12432-S	M9R14432-S	-	-
		40 A	M9R11440-S	M9R12440-S	M9R14440-S	M9R11440	M9R14440
		63 A	M9R11463-S	M9R12463-S	M9R14463-S	M9R11463	M9R14463
Voltage rating (Ue)	2P	230 - 240 V					
	4P	400 - 415 V					
Operating frequency	50 Hz						

Connection

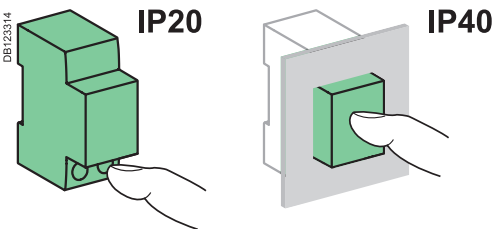
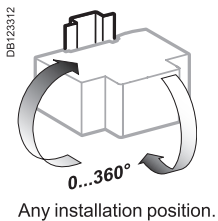
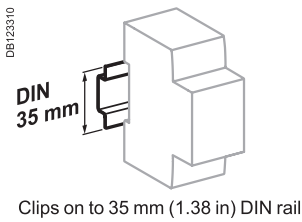
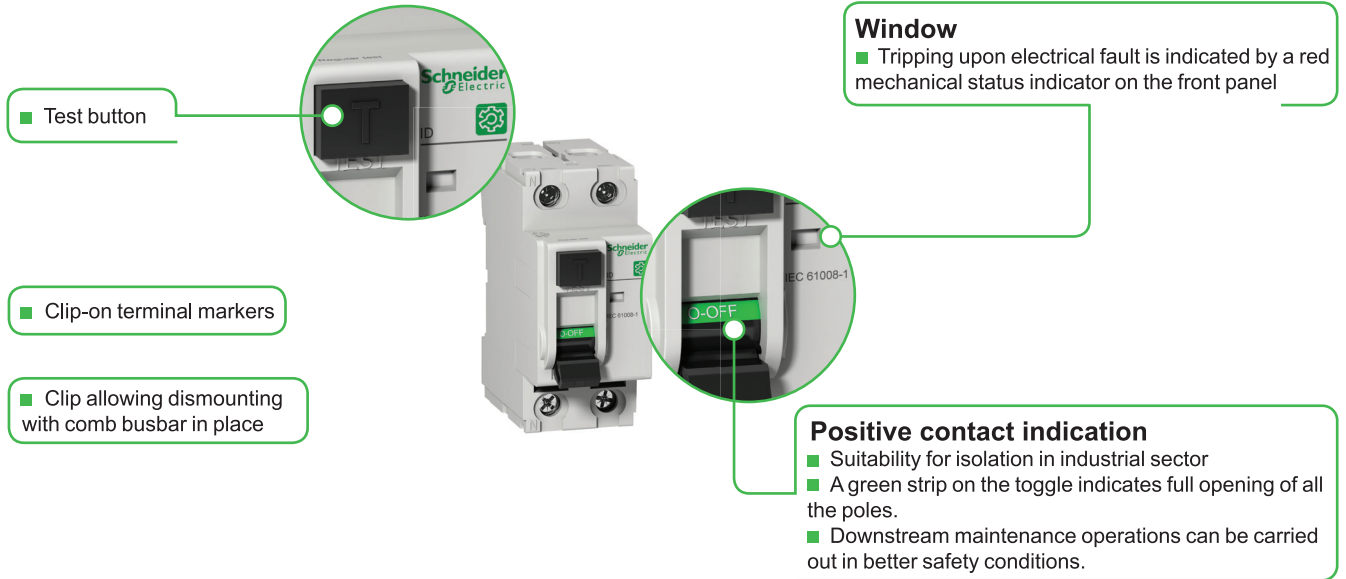


Rating	Tightening torque	Copper cables (*)			
		Rigid		Flexible or with ferrule	
25 to 63 A	3.5 N.m / 31 lb.in				
		1 to 35 mm ²	AWG #18 to #2	1 to 25 mm ²	AWG #18 to #4

Residual Current Devices

IEC/EN


RCCB ID - IEC/EN 61008-1 – Residual Current Circuit Breakers – AC type (cont.)



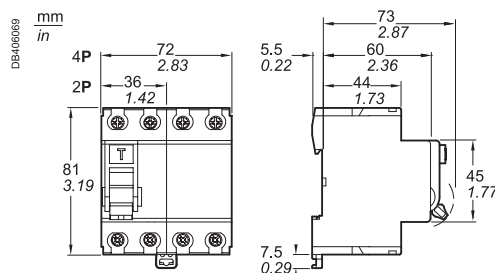
Weight (g / oz)

Residual current circuit breakers	
Type	ID
2P	230 g / 8.11 oz
4P	450 g / 15.87 oz

Technical data

Main characteristics		
Insulation voltage (U _i)		440 V
Pollution degree		3
Rated impulse withstand voltage (U _{imp})		6 kV
According to IEC/EN 61008-1		
Making and breaking capacity (I _m /I _{Δm})		10 In
Impulse current withstand (8/20 μs) without tripping		250 Å
Rated conditional short-circuit current (I _{nc} /I _{Δc})	With fuse	10,000 A
Behaviour in case of voltage drop		 Residual current protection down to 0 V according to IEC/EN 61008-1 § 3.3.4
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40
		Insulation class II
Endurance (O-C)	Electrical	2000 cycles
	Mechanical	20,000 cycles
Operating temperature		-5°C to +40°C / 23°F to 104°F
Storage temperature		-40°C to +60°C / -40°F to 140°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)

Dimensions (mm / inches)



Auxiliaries and accessories

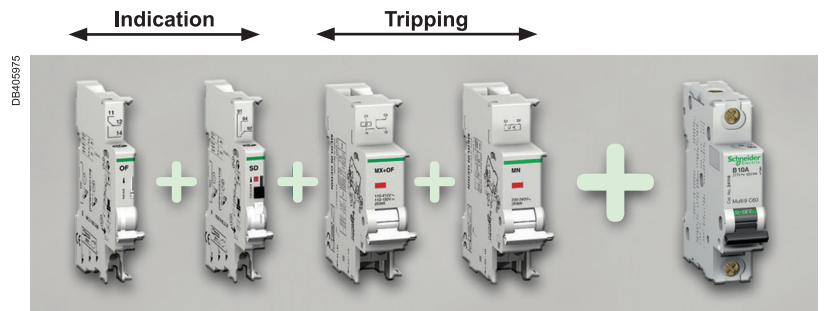
Electrical auxiliaries for MCB






Compliance with electrical auxiliaries standards

- For UL 489 Branch circuit protection File #E215117.
- For CSA C22.2 No. 5 Branch circuit protection File #179014.
- For UL 1077 Supplementary Protection File #E90509.
- For CSA C22.2 No. 235 Supplementary Protection File #179014.
- For IEC 60947-1 and IEC 60947-5-1 circuit breakers.
- CE Marked.

- The electrical auxiliaries provide the remote tripping or position (open/closed/tripped) indication functions of these devices in the event of an electrical fault.
- They clip on (no tool required) to the left-hand side of the associated device.
- The SD+OF auxiliary is a two-in-one product: a mechanical selector switch is used to select one of two contacts: SD or OF.



Combination table

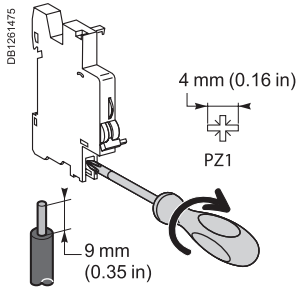
Indication auxiliaries	Tripping auxiliaries	Devices
 3	 2	 C60
1 SD+OF maxi	1 SD+OF maxi	
1 OF maxi	1 (SD+OF or SD or OF) maxi	2 maxi






Tripping devices must be installed first.
If two tripping devices are used: the MN undervoltage release must be installed first
Indication auxiliaries: install the SD auxiliary first

Auxiliaries and accessories

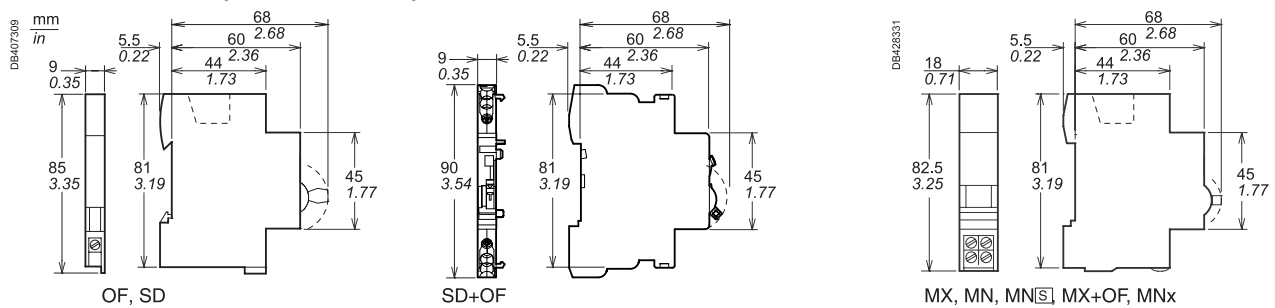
Electrical auxiliaries for MCB



Connection

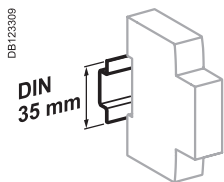
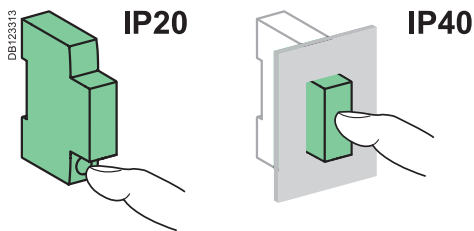
Type	Tightening torque	Copper cables
Indication and tripping auxiliaries	1 N.m / 9 lb.in	Rigid
		DB122946  2 cables, 1.5 mm ² / #16 AWG  or DB405990  1 cable, 2.5 mm ² / #14 AWG

Dimensions (mm / inches)

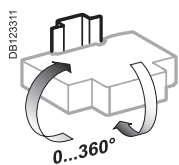


Weight (g / oz)

Electrical auxiliaries	
Type	
MN	66 g / 2.32 oz
MN with a square symbol	66 g / 2.32 oz
MNx	73 g / 2.57 oz
MX	60 g / 2.32 oz
MX+OF	65 g / 2.12 oz
OF (Spectre)	33 g / 1.16 oz
OF (Schneider Electric)	30 g / 1.06 oz
SD	30 g / 1.06 oz
SD+OF	38 g / 1.34 oz











Clip on DIN rail 35 mm (1.38 in)



Indifferent position of installation







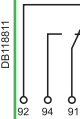

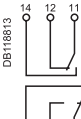
Auxiliaries and accessories

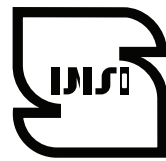
Electrical auxiliaries for MCB

		Tripping					
Auxiliaries	MN	MN					MN
Type	Undervoltage release						
	Instantaneous						Delayed
							
Function	<ul style="list-style-type: none"> Causes the device with which it is associated to trip when its input voltage decreases (between 70 % and 35 % of U_n). Prevents the device from closing until its input voltage has been restored 					<ul style="list-style-type: none"> No tripping in the event of transient voltage dips (up to 0.2 s) 	
Wiring diagrams							
Utilization	<ul style="list-style-type: none"> Emergency stop via a normally-closed pushbutton Improves the safety of the power supply circuits of several machines by preventing "uncontrolled" restarting 						
Catalog numbers	M9A27108	M9A27107	M9A26960	M9A26961	M9A26959	M9A26963	
Technical specifications							
Rated voltage (U_e)	V AC	24	120	220...240	48	115	220...240
	V DC	24			48		—
Operating frequency	Hz	50/60				400	50/60
Pollution degree		3					3
Mechanical state indicator light, red		On front face					On front face
Test function		—					—
Width in 9 mm (0.35 in) modules		2					2
Operating current		—					—
Number of contacts		—					—
Operating temperature		-25...+50°C / -13...122°F					-25...+50°C / -13...122°F
Storage temperature		-40...+85°C / -40...185°F					-40...+85°C / -40...185°F
Standards							
IEC/EN 60947-1		■					■
IEC/EN 60947-5-1		—					—
EN 60947-2		■					■
EN 62019-2		—					—
		■					■
		■					■
		■					■
		—					—
		■					■

Auxiliaries and accessories

Electrical auxiliaries for MCB

	Spectre		Schneider Electric	
Auxiliaries	OF	OF	SD	SD+OF
Type	Open/closed auxiliary contact	Open/closed auxiliary contact	Electrical fault indicating contact	Double open/closed or fault indicating contact
				
Function	<ul style="list-style-type: none"> Changeover contact indicating the "open" or "closed" position of the associated device 	<ul style="list-style-type: none"> Changeover contact indicating the "open" or "closed" position of the associated device 	<ul style="list-style-type: none"> Changeover contact indicating the position of the associated device in the event of: <ul style="list-style-type: none"> electrical fault action on the tripping auxiliary 	<ul style="list-style-type: none"> The SD+OF auxiliary is a two-in-one product: choice of OF or SD contact via the selector switch
Wiring diagrams				 
Utilization	<ul style="list-style-type: none"> Remote indication of the position of the associated device 	<ul style="list-style-type: none"> Remote indication of the position of the associated device 	<ul style="list-style-type: none"> Remote electrical fault tripping indication of the associated device 	<ul style="list-style-type: none"> Remote position and/or fault tripping indication of the associated device
Catalogue numbers	M9A26924-S	M9A26924	M9A26927	M9A26929
Technical specifications				
Rated voltage (Ue)	V AC 240...415 V DC 24...130	240...415 24...130	240...415 24...130	240...415 24...130
Operating frequency	50/60 Hz	50/60	50/60	50/60
Pollution degree	3	3	3	3
Mechanical state indicator light, red	–	–	On front face	On front face
Test function	On front face	On front face	On front face	On front face
Width in 9 mm (0.35 in) modules	1	1	1	1
Operating current	3 A/415 V AC 6 A/≤240 V AC	3 A/415 V AC 6 A/≤240 V AC		
Number of contacts	1 NO/NC	1 NO/NC	1 NO/NC	1 NO/NC + 1 NO/NC
Operating temperature	-25...+50°C / -13°F...122°F	-25...+50°C / -13°F...122°F	-25...+50°C / -13°F...122°F	-25...+50°C / -13°F...122°F
Storage temperature	-40...+85°C / -40°F...185°F	-40...+85°C / -40°F...185°F	-40...+85°C / -40°F...185°F	-40...+85°C / -40°F...185°F
Standards				
IEC/EN 60947-1	–	–	–	–
IEC/EN 60947-5-1	■	■	■	■
EN 60947-2	–	–	–	–
EN 62019-2	–	■	■	■
UL	–	■	■	■
SP SP	–	■	■	■
RU	–	■	■	■
CCC	–	■	■	■
ERC	–	■	■	■



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Micro graphics Altech Electric text unrecognizable with unarmied eyes

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Previous design




New design


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