

Series L9 UL489 Miniature Circuit Breakers

Industrial Circuit
Breakers for Branch
Circuit Protection
up to 63 Amps



Sprecher+Schuh includes a line of circuit breakers approved for branch circuit applications in the United States and Canada and certified as a Miniature Circuit Breaker for IEC applications.

Broad product range & flexibility

The Sprecher + Schuh L9 Miniature Circuit Breakers provide a variety of product configurations by offering current ranges of 0.5A to 63A with voltage ranges of 240V AC and 480Y/277V AC. The Series L9 DIN Rail-mounted circuit breakers are similar in width and current range to supplementary protectors with the added benefit of providing listed branch circuit protection for US/Canada applications.

Also available for control circuit applications are add-on auxiliary and signal contacts plus shunt trip modules to provide modern control circuit applications. A lock-off attachment is available for applications requiring that feature.

Safety features provide enhanced protection

The series L9 Miniature Circuit Breakers feature finger-safe IP20 from the front of the circuit breaker to guard against accidental contact with live parts.

To aid troubleshooting, a color-coded indicator provides positive visual indication of the device status (green for OFF, red for ON and isolation function).

The Series L9 also incorporate a trip free mechanism - ensuring that the device operation cannot be defeated by holding the operator in the ON position.

Easy installation

The Series L9 Miniature Circuit Breakers mount on a standard 35mm DIN-rail. Wire terminals accept multiple conductors. In addition, power to the circuit breakers can be fed from the line or load side.

Global approvals for worldwide acceptance

The Sprecher + Schuh L9 Circuit Breakers are UL489 listed, CSA 22.2 No. 5.1 approved and meets IEC 60 947-2. The Series L9 also have an HACR rating (heating and air conditioning) as well as a "Switching Duty" (SWD) rating from 0.5 to 20A. Switching Duty ratings are related to fluorescent light applications only, not High intensity discharge (HID) lights or any other types of loads. Advanced features and global approvals make the Series L9 an ideal product for use in industrial equipment installed throughout the world.

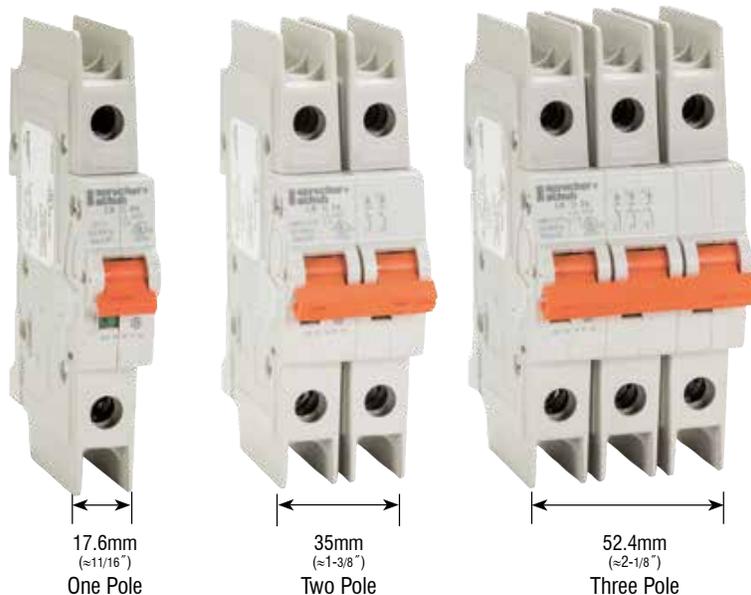


L9 Circuit Breakers

See online white paper

Methods
of Applying
Circuit Protection

M20



Product Design & Application

The Series L9 products are thermal-magnetic (inverse time) circuit breakers offering the benefits of a modern circuit breaker design in a compact size. The L9 is used mainly in control circuit applications where branch circuit approved circuit breakers are required.

Because of its range of protection (from 0.5 to 63A) many customers may use this product for protection of load devices where fuses or other supplementary protector devices previously were used in the U.S. and Canada.

Protection of PLC I/O, solenoids, power supplies and control transformers along with providing the listed branch circuit protection is available in one device.

Description

L9 Circuit Breakers for Branch Circuit protection are available in one (1)-, two (2)-, and three (3-) pole construction and are rated 0.5 to 63A at 240V AC and 0.5 to 40A at 480Y/277V AC for North American applications (UL

489 and CSA 22.2 No. 5.1). For IEC applications, the products are rated 415V AC 0.5 to 40A.

Continuous Current Rating

Standard current ratings are: 0.5A, 1A, 1.6A, 2A, 3A, 4A, 5A, 6A, 7A, 8A, 10A, 15A, 16A, 20A, 25A, 30A, 32A, 35A, 40A, 50A, 60A and 63A.

The L9 circuit breakers are rated in RMS amperes at 40°C (104°F) ambient temperature per the UL 489 (CSA 22.2 No. 5.1) standard. This temperature is generally used as the average temperature within an industrial enclosure. If a circuit breaker is applied in a temperature that exceeds 40°C (104°F) ambient, then the circuit breaker should be derated. For IEC 60 947-2 standard, the products carry an ambient rating of 30° C. Follow standard IEC application considerations for temperature rating in different ambient temperatures.

Detailed characteristic trip curves are shown in our online white paper, Methods of Applying Circuit Protection. The trip bands shown for each breaker represent current tripping limits for a circuit breaker and are within the limits established



by UL. For a specific current at 40°C (104°F), a circuit breaker will open (“clear the circuit”) automatically at some total time that will be within the “Minimum” and “Maximum” time shown on the curves.

Example: The L9 time-current graph on page M28 shows that a one-pole, 15 A, L9 circuit breaker trips in not less than 10 sec, and not more than 120 sec. on a 30 A current. Because the UL standard defines this time spread, users should not specify exact tripping time. The lower current portion of the curves (upper left) depict the time to trip due to thermal action and reflect overload protection of the wire and connect load. The higher current portion of the curves (lower right) depicts the trip due to the magnetic action of the circuit breaker and reflects protection due to short circuit level currents.

Compare these advanced features

- Box lug terminals accept #18...#4 AWG wire as standard
- Current limiting and interrupting capacity of 10kA at 480Y/277V AC.
- Amp rating and trip curve characteristic clearly marked on the device for easy identification.
- Trip-free mechanism; device operation cannot be defeated by holding the operator in the ON position
- Available in one, two and three pole
- Line and load side terminals designed with dual terminals which allows the connection of two wires, or both a wire and a bus bar.
- Guarded No.2 pozidrive terminal screws with finger-safe IP20 protection
- Accepts right-mounted shunt trips, auxiliary and signal contacts.
- Devices install on standard 35mm DIN-rail (EN 50022)
- Color coded indicator provides visual indication of the device status and isolation function
- Magnetic trip elements provide Type C and D trip characteristics (IEC and EN 60947-2), while bimetallic elements protect against slight overloads.



L9 Circuit Breakers

Trip Characteristic C (5~10 x I_N) – Inductive loads

① UL/CSA Max. Volt.	Interrupt Rating (kA)	Rated Current (A)	1 Pole ②			2 Pole ③			3 Pole		
			Catalog Number	Price Each	Std. Pkg.	Catalog Number	Price Each	Std. Pkg.	Catalog Number	Price Each	Std. Pkg.
480Y/277	10	0.5	L9-0.5/1/C	93.69	2	L9-0.5/2/C	175.67	1	L9-0.5/3/C	241.68	1
		1	L9-1/1/C	93.69	2	L9-1/2/C	175.67	1	L9-1/3/C	241.68	1
		1.6	L9-1.6/1/C	93.69	2	L9-1.6/2/C	175.67	1	L9-1.6/3/C	241.68	1
		2	L9-2/1/C	93.69	2	L9-2/2/C	175.67	1	L9-2/3/C	241.68	1
		3	L9-3/1/C	93.69	2	L9-3/2/C	175.67	1	L9-3/3/C	241.68	1
		4	L9-4/1/C	93.69	2	L9-4/2/C	175.67	1	L9-4/3/C	241.68	1
		5	L9-5/1/C	93.69	2	L9-5/2/C	175.67	1	L9-5/3/C	241.68	1
		6	L9-6/1/C	93.69	2	L9-6/2/C	175.67	1	L9-6/3/C	241.68	1
		7	L9-7/1/C	93.69	2	L9-7/2/C	175.67	1	L9-7/3/C	241.68	1
		8	L9-8/1/C	93.69	2	L9-8/2/C	175.67	1	L9-8/3/C	241.68	1
		10	L9-10/1/C	93.69	2	L9-10/2/C	175.67	1	L9-10/3/C	241.68	1
		13	L9-13/1/C	93.69	2	L9-13/2/C	175.67	1	L9-13/3/C	241.68	1
		15	L9-15/1/C	93.69	2	L9-15/2/C	175.67	1	L9-15/3/C	241.68	1
		16	L9-16/1/C	93.69	2	L9-16/2/C	175.67	1	L9-16/3/C	241.68	1
		20	L9-20/1/C	93.69	2	L9-20/2/C	175.67	1	L9-20/3/C	241.68	1
		25	L9-25/1/C	102.85	2	L9-25/2/C	190.59	1	L9-25/3/C	241.68	1
30	L9-30/1/C	106.37	2	L9-30/2/C	203.37	1	L9-30/3/C	269.37	1		
32	L9-32/1/C	106.37	2	L9-32/2/C	203.37	1	L9-32/3/C	269.37	1		
35	L9-35/1/C ④	106.37	2	L9-35/2/C ④	203.37	1	L9-35/3/C ④	269.37	1		
40	L9-40/1/C ④	110.73	2	L9-40/2/C ④	219.33	1	L9-40/3/C ④	280.00	1		
240	10	50	L9-50/1/C	125.64	2	L9-50/2/C	244.88	1	L9-50/3/C	334.31	1
		60	L9-60/1/C	125.64	2	L9-60/2/C	244.88	1	L9-60/3/C	334.31	1
		63	L9-63/1/C	125.64	2	L9-63/2/C	244.88	1	L9-63/3/C	334.31	1

L9 Miniature Circuit Breaker Features:

- UL-489 listed for Branch Circuit protection and CSA 22.2 No. 5.1 Approved
- Thermal magnetic protection
- Trip characteristic based on 40°C ambient for UL/CSA
- All ratings are HACR rated (SWD rated up to 20 A)
- Finger safe design (front)
- DIN rail mounting

① See page M26 for IEC 60947-2 miniature circuit breaker ratings.
 ② 1-Pole 277V AC 0.5...40A; 240V AC 50...63A, 48V DC 0.5...63A
 ③ 2-Pole (series) 96V DC 0.5...63A
 ④ Rated 480Y/277VAC.

Trip Characteristic D (10~20 x I_N) – Highly inductive loads

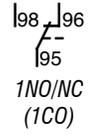
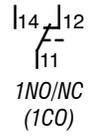
● UL/CSA Max. Volt.	Interrupt Rating (kA)	Rated Current (A)	1 Pole ②			2 Pole ③			3 Pole		
			Catalog Number	Price Each	Std. Pkg.	Catalog Number	Price Each	Std. Pkg.	Catalog Number	Price Each	Std. Pkg.
480Y/277	10	0.5	L9-0.5/1/D	93.69	2	L9-0.5/2/D	179.93	1	L9-0.5/3/D	248.08	1
		1	L9-1/1/D	93.69	2	L9-1/2/D	179.93	1	L9-1/3/D	248.08	1
		1.6	L9-1.6/1/D	93.69	2	L9-1.6/2/D	179.93	1	L9-1.6/3/D	248.08	1
		2	L9-2/1/D	93.69	2	L9-2/2/D	179.93	1	L9-2/3/D	248.08	1
		3	L9-3/1/D	93.69	2	L9-3/2/D	179.93	1	L9-3/3/D	248.08	1
		4	L9-4/1/D	93.69	2	L9-4/2/D	179.93	1	L9-4/3/D	248.08	1
		5	L9-5/1/D	93.69	2	L9-5/2/D	179.93	1	L9-5/3/D	248.08	1
		6	L9-6/1/D	93.69	2	L9-6/2/D	179.93	1	L9-6/3/D	248.08	1
		7	L9-7/1/D	93.69	2	L9-7/2/D	179.93	1	L9-7/3/D	244.61	1
		8	L9-8/1/D	93.69	2	L9-8/2/D	179.93	1	L9-8/3/D	248.08	1
		10	L9-10/1/D	93.69	2	L9-10/2/D	179.93	1	L9-10/3/D	248.08	1
		13	L9-13/1/D	93.69	2	L9-13/2/D	179.93	1	L9-13/3/D	248.08	1
		15	L9-15/1/D	93.69	2	L9-15/2/D	179.93	1	L9-15/3/D	248.08	1
		16	L9-16/1/D	93.69	2	L9-16/2/D	179.93	1	L9-16/3/D	248.08	1
		20	L9-20/1/D	93.69	2	L9-20/2/D	179.93	1	L9-20/3/D	248.08	1
25	L9-25/1/D	102.85	2	L9-25/2/D	191.64	1	L9-25/3/D	274.69	1		
30	L9-30/1/D	106.37	2	L9-30/2/D	191.64	1	L9-30/3/D	274.69	1		
32	L9-32/1/D	106.37	2	L9-32/2/D	191.64	1	L9-32/3/D	274.69	1		
35	L9-35/1/D ④	106.37	2	L9-35/2/D ④	191.64	1	L9-35/3/D ④	274.69	1		
240	10	40	L9-40/1/D	110.73	2	L9-40/2/D	204.42	1	L9-40/3/D	300.23	1
		50	L9-50/1/D	132.02	2	L9-50/2/D	250.20	1	L9-50/3/D	358.80	1
		60	L9-60/1/D	132.02	2	L9-60/2/D	250.20	1	L9-60/3/D	358.80	1
		63	L9-63/1/D	132.02	2	L9-63/2/D	250.20	1	L9-63/3/D	358.80	1

L9 Miniature Circuit Breaker Features:

- UL-489 listed for Branch Circuit protection and CSA 22.2 No. 5.1 Approved
- Thermal magnetic protection
- Trip characteristic based on 40°C ambient for UL/CSA
- All ratings are HACR rated (SWD rated up to 20 A)
- Finger safe design (front)
- DIN rail mounting

● See page M26 for IEC 60947-2 miniature circuit breaker ratings.
 ② 1-Pole 277V AC 0.5...35A; 240V AC 40...63A, 48V DC 0.5...63A
 ③ 2-Pole (series) 96V DC 0.5...63A
 ④ Rated 480Y/277VAC.

Accessories ①②

Module	Description	For use with...	UL/CSA Max. Current/Voltage	IEC Ratings Current/Voltage	Connection Diagrams	Catalog Number	Price Each
	<p>Signal Contact</p> <ul style="list-style-type: none"> Mounts on right side of L9 (series B only) Contacts change state only during an electrical (or tripped) operation. 	All L9 Series B & Shunt Trips	1A @ 480V AC 2A @ 277V AC 1.5A @ 125V DC 2A @ 60V DC 4A @ 24V DC	2A @ 230V (AC-14) 1A @ 400V (AC-14) 1.5A @ 110V (DC-12) 1A @ 220V (DC-12) 4A @ 24V (DC-13) 2A @ 60V (DC-13)	 <p>1NO/NC (1CO)</p>	L9-AMRS3	70.80
	<p>Auxiliary Contact</p> <ul style="list-style-type: none"> Mounts on right side of L9 (series B only) Contacts change state when L9 breaker is operated either manually or electrically. 	All L9 Series B & Shunt Trips	1A @ 480V AC 2A @ 277V AC 1.5A @ 125V DC 2A @ 60V DC 4A @ 24V DC	2A @ 230V (AC-14) 1A @ 400V (AC-14) 1.5A @ 110V (DC-12) 1A @ 220V (DC-12) 4A @ 24V (DC-13) 2A @ 60V (DC-13)	 <p>1NO/NC (1CO)</p>	L9-AMRA3	70.80
	<p>Shunt Trip –</p> <ul style="list-style-type: none"> Remotely trips the device Installs on right side of L9 (Series B only) 	All L9 Series B	110...415V AC 110...250V DC 12...60V AC/DC	~ ~		L9-AMST1 L9-AMST2	149.06 149.06
  <p>1-pole multi-pole</p>	<p>Lock Out Toggle Mount –</p> <ul style="list-style-type: none"> Fits securely over switch toggle. Prevents unauthorized activation of L8 or L9 (series B) during maintenance 				L8 or L9 1-pole L8 or L9 Multi-pole (Series B only)	L8-ALOA1 L8-ALOA2	See page M8

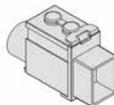


- ① A maximum of one shunt trip, two signal contacts, or two auxiliary contacts may be installed per L9 Circuit Breaker.
- ② A maximum of three accessories may be installed per L9 Circuit Breaker. The shunt trip must be mounted closest to the L9, then the signal contact, then the auxiliary contact(s). For allowed combinations, and installation instructions please contact your local Sprecher + Schuh representative.

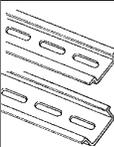
L9 Bus Bars ①②③④⑤

Description	No. of Poles	No. of Phases	Length ø	UL Max. Amps @ 40°C	No. of Circuit Breakers	Catalog Number	Price Each	Pkg Qty
	6	1	106 mm	80	6	L9-AMCL106	65.90	10
	12		12		L9-AMCL112	104.03		
	18		18		L9-AMCL118	141.61		
	6	2	106 mm		3	L9-AMCL206	76.55	
	12		6		L9-AMCL212	121.38		
	18		9		L9-AMCL218	172.47		
	6	3	106 mm		2	L9-AMCL306	88.58	
	12		4		L9-AMCL312	142.67		
	18		6		L9-AMCL318	202.28		

L9 Bus Bar Accessories ①⑤

Accessory	Description	Wire Range	Catalog Number	Price Each	Pkg Qty
	Terminal Lug • 1-pole for circuit breaker termination	#14 ... #2 AWG 2.5 ... 35mm ²	L9-AMCLT35	50.47	10
	Dedicated Power Feed	#14 ... #1 AWG 2.5 ... 50mm ²	L9-AMCLT50D	57.60	10
	Protective Cover • For covering unused terminations • 3 pole set (May be separated)	~	L9-AMCLPS	7.25	10

Other Accessories

Accessory	Description	Catalog Number	
	DIN-rail - 2 meter lengths (6' 6") Top Hat, low profile (price per rail) Top Hat, high profile (price per rail)	3F 3AF	See page N30

- ① cULus, UL508 E56639, EN60947-2, CE Marked.
- ② Total length from Circuit Breaker to Circuit Breaker when mounted on bus bars (not measurement of bus bar length).
- ③ Bus bar can not be cut.
- ④ Use of multiple bus bars permitted with overlap joint. Maximum of two joints permitted.
- ⑤ Sold in complete package only. Order minimum quantity of 10 to receive one package of 10. Price is each. 10 pcs of L9-AMCLT35 is price x 10.

Technical Information

Electrical Ratings

Number of Poles	1, 2, or 3
Tripping Characteristics	C, D
Rated Current I_n	0.5...63A
Rated Frequency f	50/60 Hz
Rated Insulation voltage U _i acc. to IEC/EN 60664-1	Phase-to-ground: 250V AC Phase-to-phase: 440V AC
Overvoltage Category	III
Pollution Degree	3

Data acc. to UL/CSA ④

Rated voltage	AC	1-pole	C Curve	0.5...40 A	277V AC	
			D Curve	50...63 A	240V AC	
		2-pole	C Curve	0.5...35 A	277V AC	
			D Curve	40...63 A	240V AC	
		3-pole	C Curve	0.5...40 A	480Y/277V AC	
			D Curve	50...63 A	240V AC	
	DC	1-pole		48V DC		
		2-pole		96V DC (2-pole in series)		
	Rated interrupting capacity per UL 489					10 kA
	Reference temperature for tripping characteristics					40 °C
Electrical endurance					6,000 operations (AC and DC)	
1 cycle (1s - ON, 9s - OFF)						

Data acc. to IEC/EN 60947-2

Rated operational voltage U_e	1-pole	230V AC	
	2-, 3-pole	400V AC	
Highest supply or utilization voltage U_{max}	AC	1-pole	253/440V AC
		2-, 3-pole	440V AC
	DC ①	1-pole	48V DC
		2-, 3-pole	96V DC
Min. operating voltage			12V AC, 12V DC
Rated ultimate short-circuit breaking capacity I_{cu}			15 kA
Rated service short-circuit breaking capacity I_{cs}			≤40 A: 11.25 kA >40 A: 7.5 kA
Rated impulse withstand voltage U_{imp}			(1.2/50μs) 4 kV (test voltage 6.2kV at sea level, 5kV at 2,000m)
Dielectric test voltage			2 kV (50/60Hz, 1 min.)
Reference temperature for tripping characteristics			30 °C
Electrical endurance			
1 cycle (2s - ON, 13s - OFF, I _n ≤ 32A)	I _n < 30A:	20,000 operations (AC)	
1 cycle (2s - ON, 28s - OFF, I _n > 32A)	I _n ≥ 30A:	10,000 ops. (AC); 1,000 ops. (DC)	

Mechanical Data

Housing	Insulation group II, RAL 7035
Indicator window	red ON/green OFF
Protection degree per EN 60529	IP20, IP40 in enclosure with cover
Mechanical endurance	20,000 operations
Shock resistance per IEC/EN 60068-2-27	25 g - 2 shocks - 13 ms
Vibration resistance per IEC/EN 60068-2-6	5g - 20 cycles at 5...150...5 Hz with load 0.8 In
Environmental conditions (damp heat) per IEC/EN 60068-2-30	°C/RH: 28 cycles with 55°C/90-96% and 25°C/95-100%
Ambient temperature ③	-25...+55°C
Storage temperature	-40...+70°C

Installation

Housing	Terminal Dual terminal
Cross-section of wire solid, stranded (front/back terminal slot) ②	35/35 mm ² 18...4/18...10 AWG
Flexible (front/back terminal slot)	25/10 mm ²
Multi-wire rating per UL/CSA	1 wire; 18...4 AWG 2-4 wires ⑤; 18...10 AWG
Cross-section of bus bars (back terminal slot)	10 mm ² IEC: 2.8 N • m UL/CSA: AWG 18...16: 13.3 in • lb AWG 14...10: 17.7 in • lb AWG 8...4: 39.8 in • lb
Tightening torque	
Screwdriver	No. 2 Pozidrive
Mounting	DIN Rail (EN 60715, 35 mm) with fast clip
Mounting position	Any
Supply	Optional

Approximate Dimensions/Weight

Pole dimensions	H x D x W	111 x 69 x 17.5 mm (4.37" x 2.72" x 0.69")
Pole weight		125 g (4.4 oz)

Combination with Auxiliary Elements

Auxiliary contact	Yes
Signal contact	Yes
Shunt trip	Yes

- ① Self-declared IEC DC ratings.
- ② 35mm self-declared. Not included in IEC/EN approval.
- ③ Refer to Ambient Temperature tables.
- ④ UL file E197878.
- ⑤ Wires must be of like size and stranding. Up to two wires per terminal slot.

Applying L9 UL489 Miniature Circuit Breakers in accordance with UL & NEC Guidelines

The L9 circuit breakers are rated in RMS amperes at a 40 °C (104 °F) ambient temperature per UL 489/CSA C22.2 No. 5. This temperature is used as the ambient temperature external to an industrial enclosure. If a circuit breaker is applied in a temperature that exceeds the 40 °C (104 °F) ambient rating, then the circuit breaker should be derated using the table below. For IEC 60947-2 standard, the products carry an ambient rating of 30 °C. Follow standard IEC application considerations for temperature rating in different ambient temperatures.

Note: Application below 0° C is for non-condensing atmosphere. Care should be taken for applications below 0 °C. These devices are not certified to operate correctly in the presence of ice.

Temperature Derating, UL
Reference temperature = 40 °C

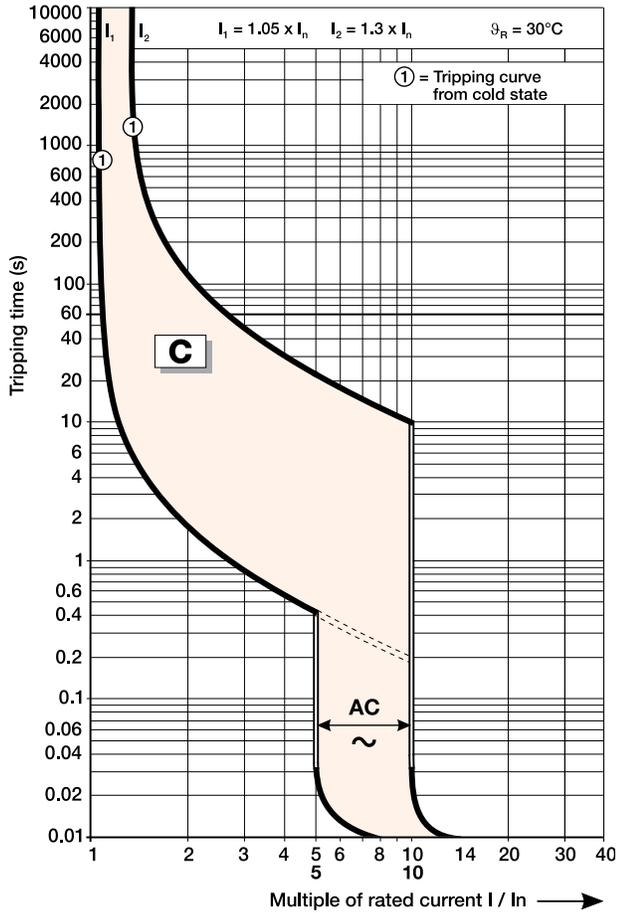
Current Rating [A]	Ambient temperature (°C)									
	-25	-20	-10	0	10	20	30	40	50	55
0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
1	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1	1.0	0.9
1.6	2.0	2.0	1.9	1.8	1.8	1.7	1.7	1.6	1.5	1.5
2	2.5	2.4	2.4	2.3	2.2	2.1	2.1	2	1.9	1.9
3	3.7	3.7	3.6	3.4	3.3	3.2	3.1	3	2.9	2.8
4	5.0	4.9	4.7	4.6	4.4	4.3	4.1	4	3.9	3.8
5	6.2	6.1	5.9	5.7	5.6	5.4	5.2	5	4.8	4.7
6	7.4	7.3	7.1	6.9	6.7	6.4	6.2	6	5.8	5.7
7	8.7	8.6	8.3	8.0	7.8	7.5	7.3	7	6.7	6.6
8	9.9	9.8	9.5	9.2	8.9	8.6	8.3	8	7.7	7.6
10	12.4	12.2	11.9	11.5	11.1	10.7	10.4	10	9.6	9.4
13	16.1	15.9	15.4	14.9	14.4	14.0	13.5	13	12.5	12.3
15	18.6	18.3	17.8	17.2	16.7	16.1	15.6	15	14.4	14.2
16	19.8	19.6	19.0	18.4	17.8	17.2	16.6	16	15.4	15.1
20	24.8	24.4	23.7	23.0	22.2	21.5	20.7	20	19.3	18.9
25	31.0	30.6	29.6	28.7	27.8	26.9	25.9	25	24.1	23.6
30	37.2	36.7	35.6	34.4	33.3	32.2	31.1	30	28.9	28.3
32	39.7	39.1	37.9	36.7	35.6	34.4	33.2	32	30.8	30.2
35	43.4	42.8	41.5	40.2	38.9	37.6	36.3	35	33.7	33.1
40	49.6	48.9	47.4	45.9	44.4	43.0	41.5	40	38.5	37.8
50	62.0	61.1	59.3	57.4	55.6	53.7	51.9	50	48.2	47.2
60	74.4	73.3	71.1	68.9	66.7	64.4	62.2	60	57.8	56.7
63	78.2	77.0	74.7	72.3	70.0	67.7	65.3	63	60.7	59.5

Temperature Derating, IEC
Reference temperature = 30 °C

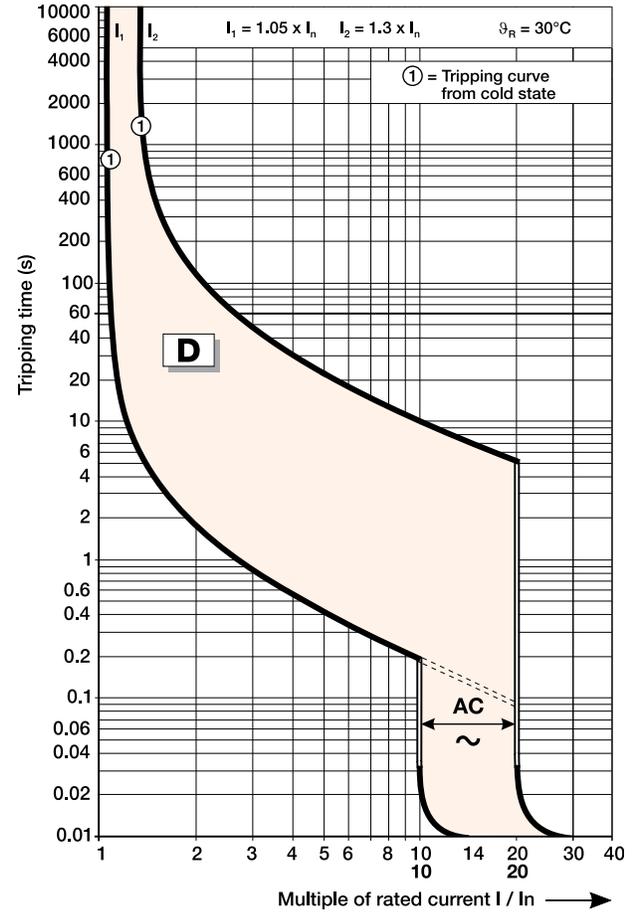
Current Rating [A]	Ambient temperature (°C)									
	-25	-20	-10	0	10	20	30	40	50	55
0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1	1.2	1.2	1.1	1.1	1.1	1.0	1	1.0	0.9	0.9
1.6	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5
2	2.3	2.3	2.2	2.2	2.1	2.1	2	1.9	1.9	1.9
3	3.5	3.5	3.4	3.3	3.2	3.1	3	2.9	2.8	2.8
4	4.7	4.6	4.5	4.4	4.2	4.1	4	3.9	3.8	3.7
5	5.8	5.8	5.6	5.5	5.3	5.2	5	4.9	4.7	4.6
6	7.0	6.9	6.7	6.5	6.4	6.2	6	5.8	5.6	5.6
7	8.2	8.1	7.8	7.6	7.4	7.2	7	6.8	6.6	6.5
8	9.3	9.2	9.0	8.7	8.5	8.2	8	7.8	7.5	7.4
10	11.7	11.5	11.2	10.9	10.6	10.3	10	9.7	9.4	9.3
13	15.1	15.0	14.6	14.2	13.8	13.4	13	12.6	12.2	12.0
15	17.5	17.3	16.8	16.4	15.9	15.5	15	14.6	14.1	13.9
16	18.6	18.4	17.9	17.4	17.0	16.5	16	15.5	15.0	14.8
20	23.3	23.0	22.4	21.8	21.2	20.6	20	19.4	18.8	18.5
25	29.1	28.8	28.0	27.3	26.5	25.8	25	24.3	23.5	23.1
30	35.0	34.5	33.6	32.7	31.8	30.9	30	29.1	28.2	27.8
32	37.3	36.8	35.8	34.9	33.9	33.0	32	31.0	30.1	29.6
35	40.8	40.3	39.2	38.2	37.1	36.1	35	34.0	32.9	32.4
40	46.6	46.0	44.8	43.6	42.4	41.2	40	38.8	37.6	37.0
50	58.3	57.5	56.0	54.5	53.0	51.5	50	48.5	47.0	46.3
60	69.9	69.0	67.2	65.4	63.6	61.8	60	58.2	56.4	55.5
63	73.4	72.5	70.6	68.7	66.8	64.9	63	61.1	59.2	58.3

Tripping Characteristics

C Curve



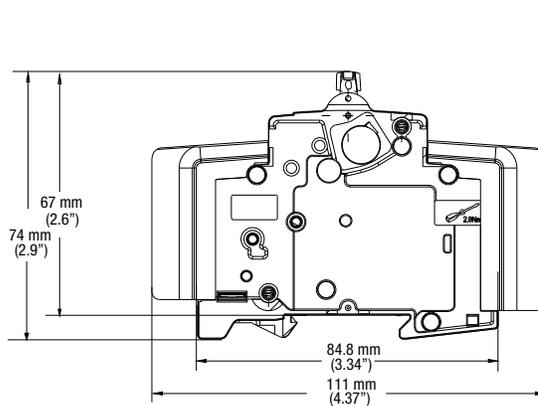
D Curve



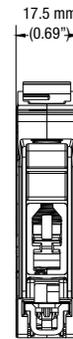
L9 Circuit Breakers

L9 Miniature Circuit Breakers (Series B...Curve C & D)

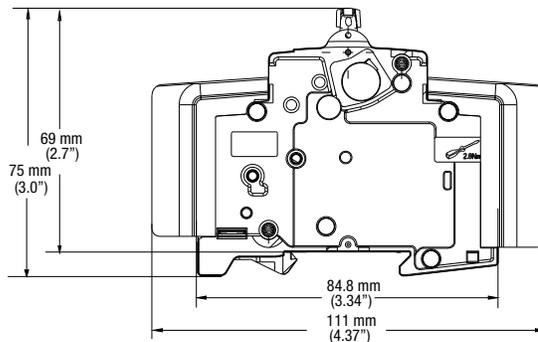
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



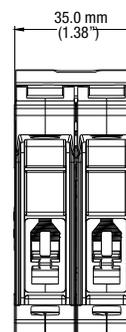
1-Pole



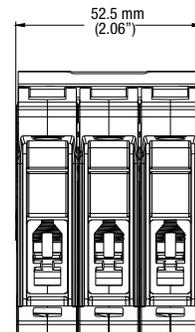
1-Pole



2-, 3-Pole

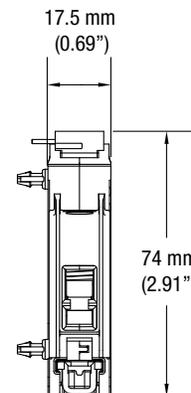
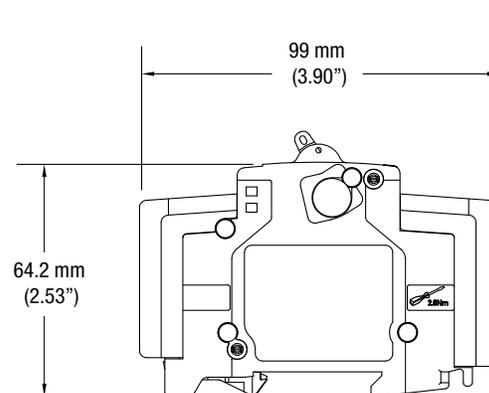


2-Pole



3-Pole

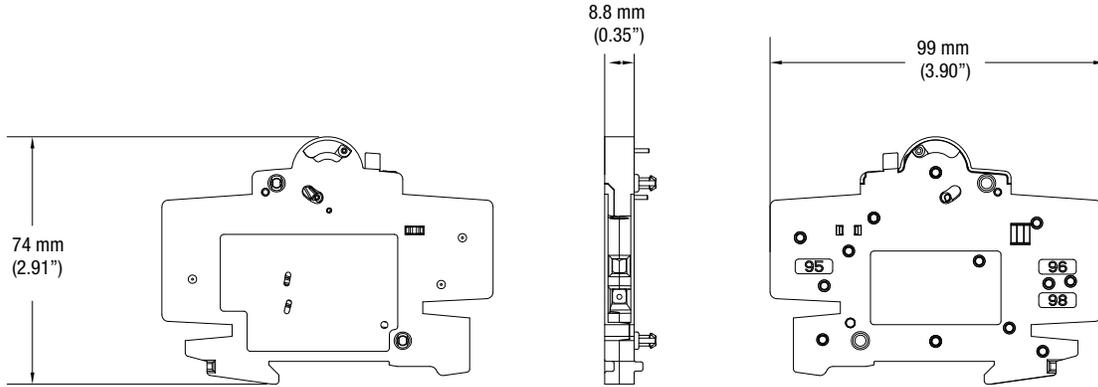
Shunt Trip (L9-AMST1, -AMST2)



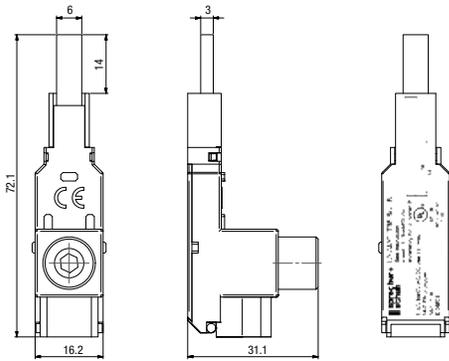
L9 Circuit Breakers

Signal Contact (L9-AMRS3) and Auxiliary Contact (L9-AMRA3)

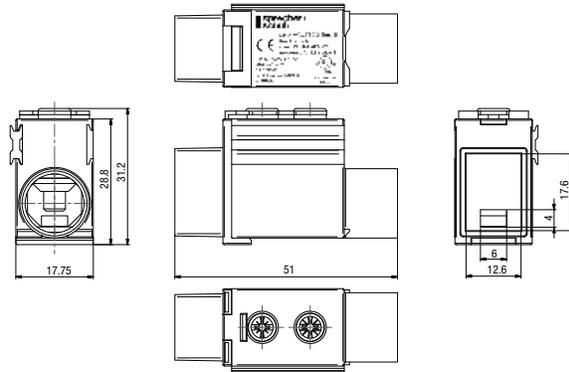
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



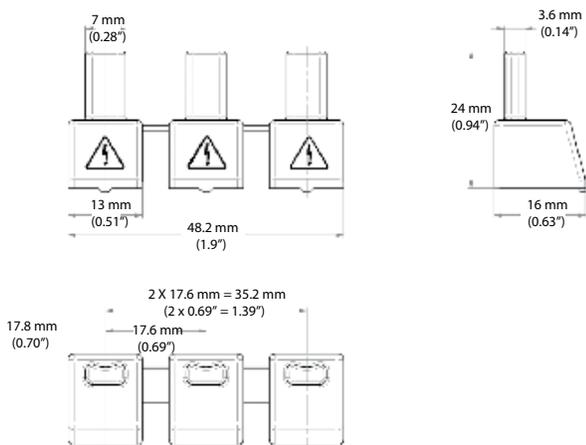
L9-AMCLT35 - Terminal Lug



L9-AMCLT50D - Power Feed



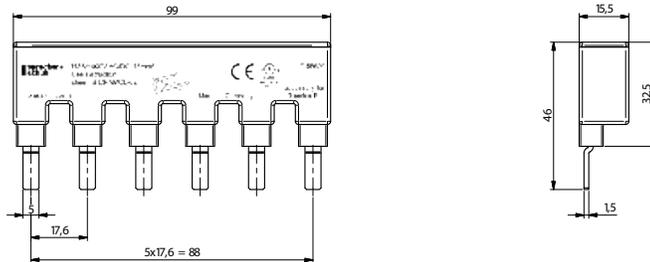
L9-AMCLPS - Protective Cover



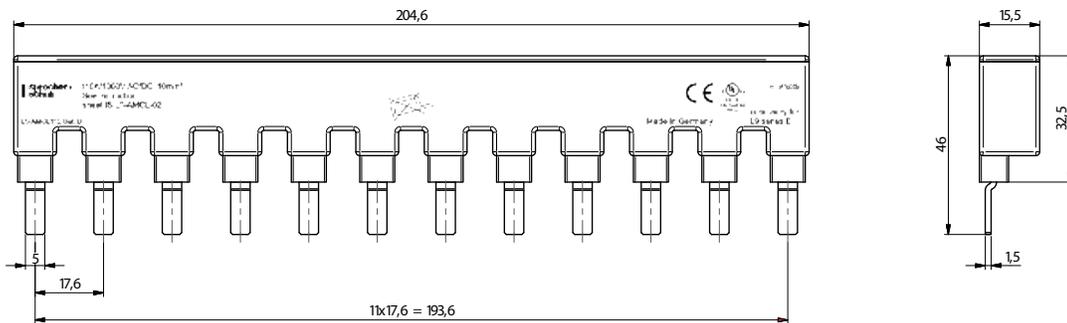
L9 Circuit Breakers

L9-AMCL_06 - 6 Pole Bus Bars

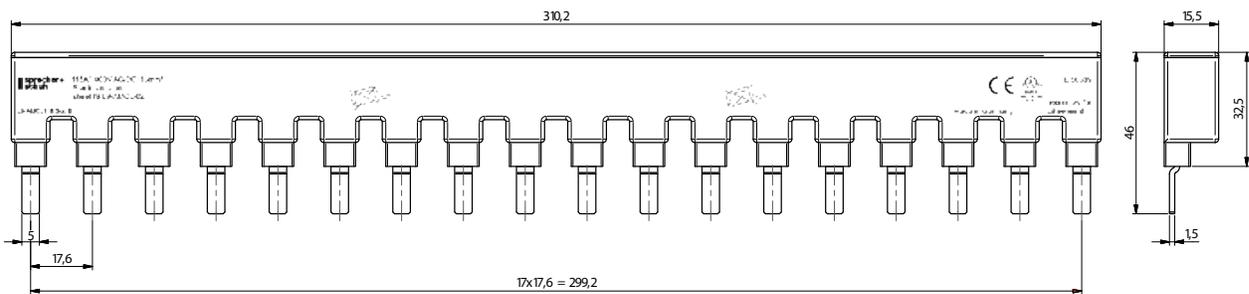
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



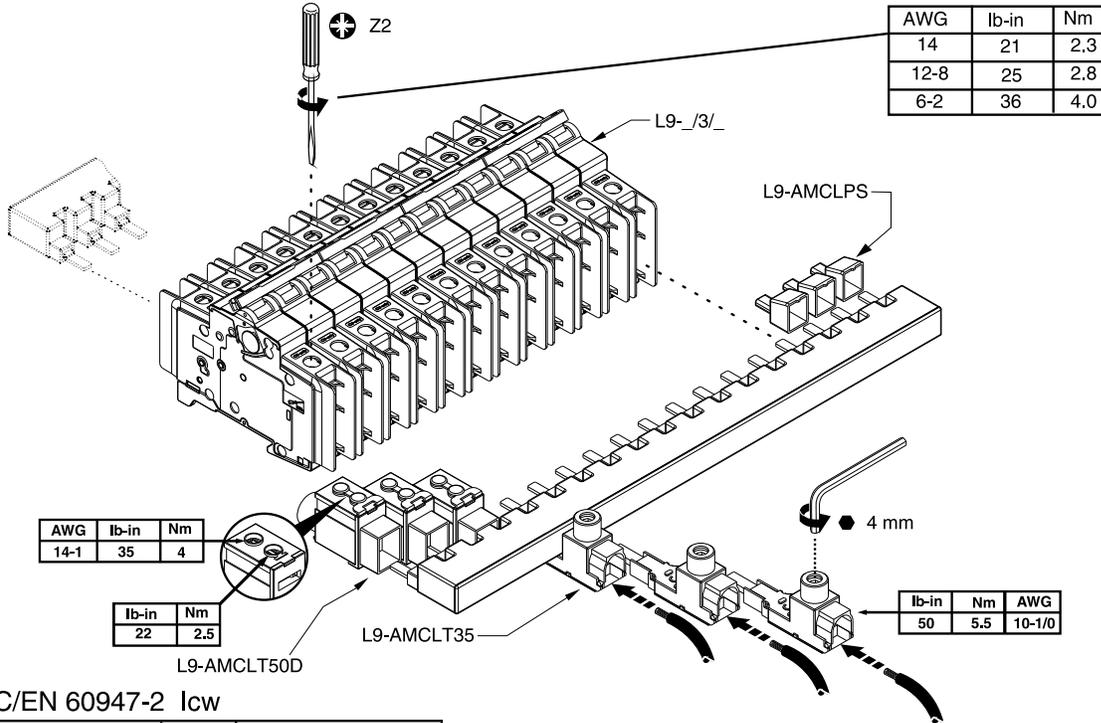
L9-AMCL_12 - 12 Pole Bus Bars



L9-AMCL_18 - 18 Pole Bus Bars



Applying L9 Bus Bars & Accessories



IEC/EN 60947-2 I_{cw}

U _e t = 1s L9-AMCL	U _e VAC	L9-AMCL I _{cw} Amps
	240/ 415	10000

UL SCCR

U _e L9-AMCL	L9-_//_ In Amps	U _e VAC	L9-AMCL SCCR RMS Sym Amps
	0.5-25	480Y/ 277	10000
	30-40	240	10000

	L9-_/1/_	L9-_/2/_	L9-_/3/_
	L9-AMCL106	6	-
	L9-AMCL112	12	-
	L9-AMCL118	18	-
	L9-AMCL206	-	3
	L9-AMCL212	-	6
	L9-AMCL218	-	9
	L9-AMCL306	-	-
	L9-AMCL312	-	2
	L9-AMCL318	-	4
	L9-AMCL35	1	2
	L9-AMCL50D	1	2

NOTE: Do not cut bus bars. Maximum of 3 bus bars allowed in any combination of the same phase configuration. Multiple bus bars must be installed back-to-back.



L9 Circuit Breakers