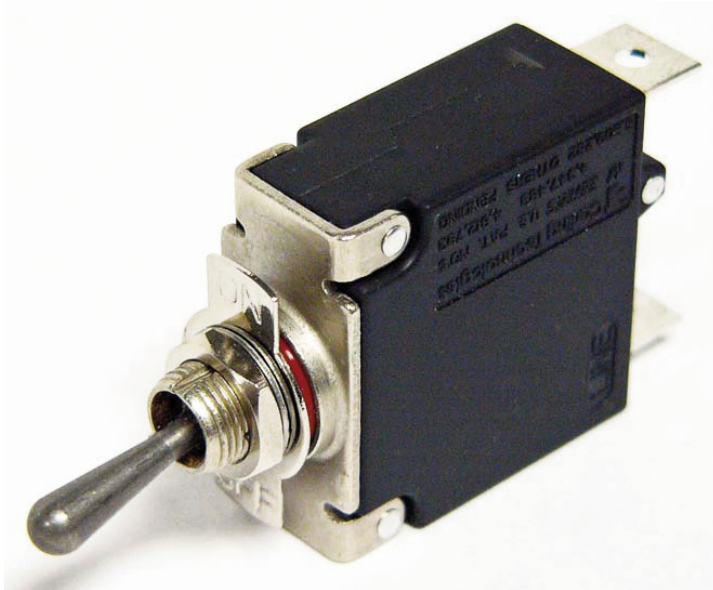


MS-Series: Sealed Toggle Circuit Breaker



Carling Technologies' new MS-Series Sealed Toggle Circuit Breaker was designed and tested to operate flawlessly in the harshest of environments.

Ideally suited for COTS (commercial off the shelf) military applications, the MS-Series features a durable metal and sealed mounting bushing with MIL-PRF-39019F ingress protection when mounted in a panel.



This class-leading, affordable circuit breaker was also designed in accordance with the requirements of MIL-PRF-55629 and MIL STD 202, making it the best choice when the application consideration includes shock, vibration, moisture resistance, salt spray and thermal shock.

The MS-Series' compact size and reliability make it ideal for ruggedized communication equipment and other mission critical equipment.



Carling Technologies®

Innovative Designs. Powerful Solutions.

Product Bulletin #134, July 2011

Carling Technologies Inc

60 Johnson Ave

Plainville, CT 06062

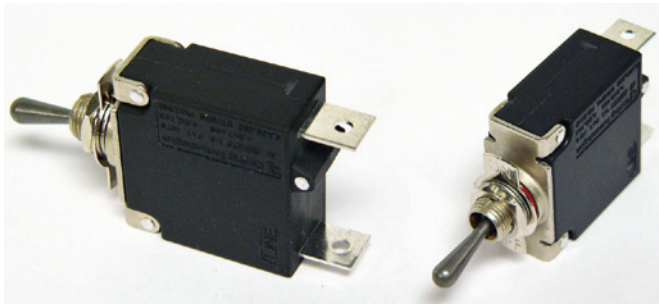
Phone: (860) 793-9281

Fax: (860) 793-9231

email: sales@carlingtech.com

www.carlingtech.com

MS-Series General Specifications



Physical

Number of Poles	1 Pole
Weight	Approximately 1.8 oz (50 G) per pole
Dimensions	See reverse side

Electrical

Current Rating	.2 - 25 Amps
Voltage Rating	32VDC 50VDC (special part # required)
Dielectric Strength	UL,CSA 1500V, 50/60 Hz for one minute between all electrically isolated terminals
Insulation Resistance	Minimum of 100 Megohms @ 500VDC
Resistance	See reverse side
Time Delay	See reverse side

Environmental

Designed in accordance with requirements of specification MIL PRF-55629 & MIL-STD-202G as follows:

Shock	Withstands 100G's, 6ms, saw tooth while carrying rated current per Method 213, Condition I. Instantaneous curves tested at 80% of rated current.
Vibration	Withstands 0.060" excursion from 10-55 Hz, and 10G's 55-500 Hz, at rated current per Method 204C, Test Condition A. Instantaneous curves tested at 80% of rated current.

Mechanical

Endurance	10,000 On-Off operations @ 6 per minute with rated current and voltage
Trip Free	Trips on short circuit, overload, even when actuator is forcibly held in the "On" position
Trip Indication	The operating handle moves positively to the "Off" position when an overload causes the circuit breaker to trip

Salt Spray	Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hrs)
Moisture Resistance	Method 106G
Thermal Shock	Method 107D, Condition A (Five cycles @ -55°C to +25°C to +85°C to +25°C)
Operating Temperature	-40°C to +85°C
Ingress Protection Level	MIL-PRF-55629C when mounted in panel.

Agency Certifications



Pending

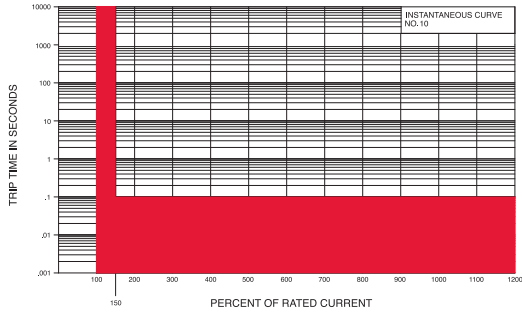
Other	Materials used in this product shall be non-nutrient to fungus growth
-------	---

MS-Series: Sealed Toggle Circuit Breaker

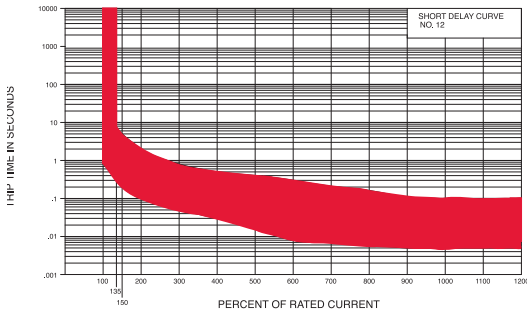
Delay Curves

Dual Rated AC/DC

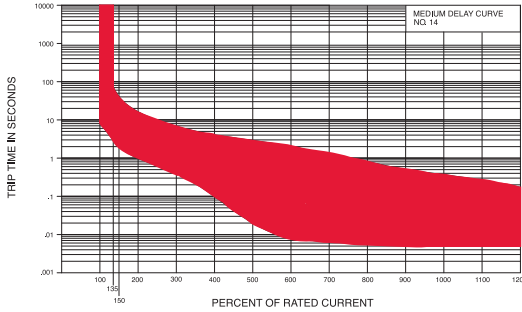
Instantaneous



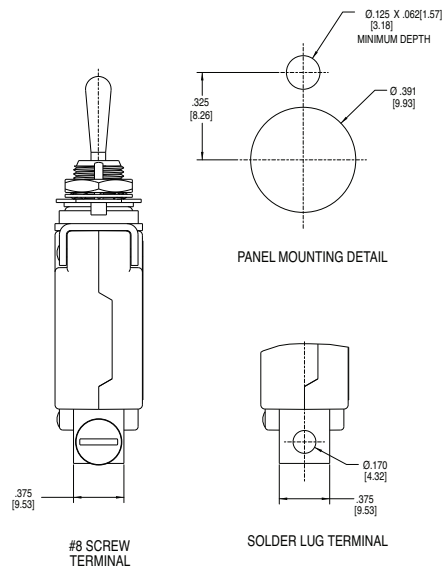
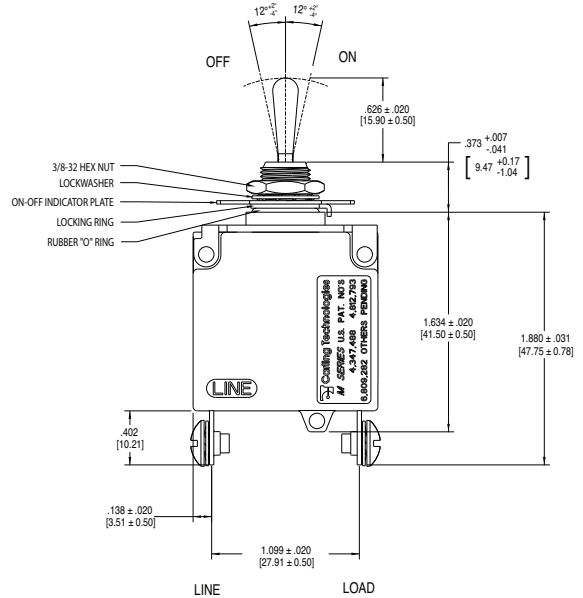
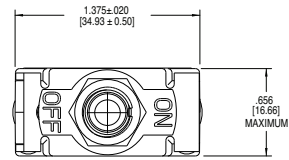
Short



Medium



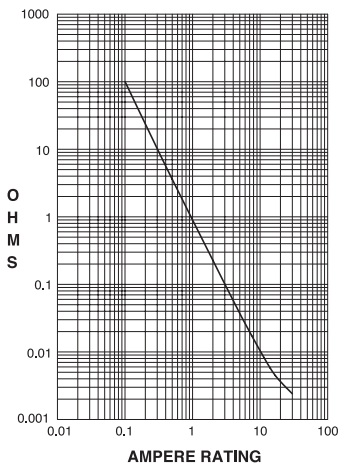
Form & Fit

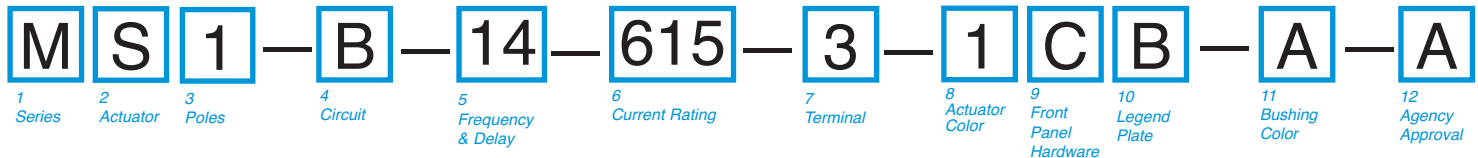


Resistance, Impedance Values

RESISTANCE, IMPEDANCE VALUES
from Line to Load Terminals
(Values Based on Series Trip Circuit Breaker)

CURRENT (AMPS)	TOLERANCE (%)
0.20 - 25.0	25%





1 SERIES
M

2 ACTUATOR*
S Sealed Toggle

3 POLES
1 One

4 CIRCUIT
B Series Trip (Current)

5 FREQUENCY & DELAY
 10 DC Instantaneous
 12 DC Short
 14 DC Medium

6 CURRENT RATING (AMPERES)

220	0.200	425	2.500	613	13.000
225	0.250	527	2.750	614	14.000
230	0.300	430	3.000	615	15.000
235	0.350	435	3.500	616	16.000
240	0.400	440	4.000	617	17.000
245	0.450	445	4.500	717	17.500
250	0.500	450	5.000	618	18.000
255	0.550	455	5.500	619	19.000
260	0.600	460	6.000	620	20.000
265	0.650	465	6.500	622	22.000
270	0.700	470	7.000	624	24.000
275	0.750	475	7.500	625	25.000
280	0.800	480	8.000		
285	0.850	485	8.500		
290	0.900	490	9.000		
295	0.950	495	9.500		
410	1.000	610	10.000		
512	1.250	710	10.500		
415	1.500	611	11.000		
517	1.750	711	11.500		
420	2.000	612	12.000		
522	2.250	712	12.500		

7 TERMINAL
 1 Push-On 0.250 Tab (QC)
 2 Screw 8-32 w/upturned lugs
 3 Screw 8-32 (Bus Type)
 L Solder Lug

8 ACTUATOR COLOR
 1 Dull Metallic

9 FRONT PANEL HARDWARE
 A No Outer Panel Hardware
 B Hex Nut, Nickel Plated
 C Hex Nut, Nickel Plated with Locking Ring
 F Panel Dress Nut, Nickel Plated
 G Panel Dress Nut, Nickel Plated with Locking Ring

10 LEGEND PLATE
 A No Legend Plate
 B On-Off Vertical
 C On-Off Horizontal
 D I-O Vertical
 E I-O Horizontal

11 BUSHING COLOR
 A Nickel Plated

12 AGENCY APPROVAL
 A Without approvals

Note: 32VDC is Standard, 50VDC available under Special Part Number.