February 2008

Limit Switches
E49 Mini Metal

Contents

Cutler-Hammer® E49 Mini Metal Limit Switches from Eaton's electrical business are designed small and tough, with machinery OEMs in mind. The small size, metal body and mechanical life make this product perfect for switching applications in packaging, material handling, elevators and lifts, electronic assembly equipment, injection molding machinery, and auto-vending machines. The E49 Mini Metal is the ideal switch for those who need a cost-effective, compact solution, but don't want to sacrifice durability in the process.

Approvals

- UL Recognized
- CE

RoHS COMPLIANT

Unless otherwise noted, the products contained in this document are not designed or intended for use in human safety applications.

Tough — Like the E50 Line — But Smaller and Priced Competitively with Plastic IEC DIN Switches

Product Features

- Long life — rated for 10 million operations
- Pre-wired units with custom cable lengths available for high volume customers
- "Fingerproof" terminals protect against accidental shock
- Double-spring mechanism for contact reliability
- Grounding terminal included
- Captive screws on enclosure cover make wiring hassle-free
- SPDT double break

Model Selection — E49 Mini Metal

Operating Head Type	Specifications					Catalog Numbers
	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Assembled Units (Switch Body and Head) 1N.O./1N.C. Contacts
Side Rotary Lever 	20°	12°	70°	750 g	100 g	**E49G31AP3**
Adjustable Side Rotary Lever 	20°	12°	70°	750 g	100 g	**E49G31UP3**
Top Pushbutton 	0.06 in (1.5 mm)	0.04 in (1 mm)	0.22 in (5.5 mm)	900 g	150 g	**E49G31BP3**
Top Push Roller 	0.06 in (1.5 mm)	0.04 in (1 mm)	0.22 in (5.5 mm)	900 g	150 g	**E49G31CP3**
Top Push Roller (90 Degree Roller) 	0.06 in (1.5 mm)	0.04 in (1 mm)	0.22 in (5.5 mm)	900 g	150 g	**E49G31C1P3**
Adjustable Rod Lever 	20°	12°	70°	750 g	100 g	**E49G31DP3**

Stocked product, typical order quantities guaranteed in stock.

Model Selection — E49 Mini Metal (Continued)

Operating Head Type	Specifications					Catalog Numbers
	Travel to Operate Contacts	Travel to Reset Contacts	Total Travel	Force to Operate Contacts	Minimum Return Force	Assembled Units (Switch Body and Head) 1N.O./1N.C. Contacts
Wobble Stick (Nylon Coil) 	1.18 in (30 mm)			150 g	—	**E49G31NP3**
Wobble Stick (Metal Coil) 	1.18 in (30 mm)			150 g	—	**E49G31VP3**
Wobble Stick (Metal Rod) 	1.18 in (30 mm)			150 g	—	**E49G31MP3**
Wobble Stick (Whisker) 	1.18 in (30 mm)			150 g	—	**E49G31XM3**

Stocked product, typical order quantities guaranteed in stock.

Specifications

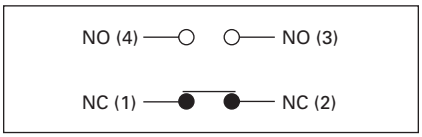
Description	Specification
Operating Speed	0.19 in (5 mm) to 19.7 in/s (50 cm/s)
Operating Frequency	120 operations/min
Contact Resistance	25 mΩ (initial)
Insulation Resistance	100 mΩ min (at 500V DC)
Dielectric Strength	1,000V AC, 50/60 Hz for one minute between non-continuous terminals
	1,500V AC, 50/60 Hz for one minute between current-carrying and non-current-carrying parts and between each terminal and ground
Vibration	10 to 55 Hz, 1.5 mm double amplitude
Shock	Approx. 300 m/s^2 (approx. 30Gs)
Ambient Operating Temperature	-5° to +65° C
Humidity	95% RH max.
Service Life	Mechanical: 10,000,000 operations min.
	Electrical: 500,000 operations min.
Weight	Approx. 130 to 190 g
Degree of Protection	IEC: IP65
Material of Construction	Shaft: Stainless SUS303 Arm: Stainless SUS304 Head and Body: Zinc Alloy Terminal Cover: PC/ABS Plastic Rubber Grommet: NBR Rubber
Approvals	UL Recognized; CE

Ratings

Rated Voltage	Non-inductive Load				Inductive Load ①			
	Resistive Load		Lamp Load ②		Inductive Load		Motor Load	
	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.
125V AC	5	5	1.5	0.7	3	3	2	1
250V AC	5	5	1	0.5	3	3	1.5	0.8
8V DC	5	5	3	3	5	4	3	3
14V DC	5	5	3	3	4	4	3	3
30V DC	5	5	3	3	4	4	3	3
125V DC	0.4	0.4	—	—	—	—	—	—
250V DC	0.2	0.2	—	—	—	—	—	—

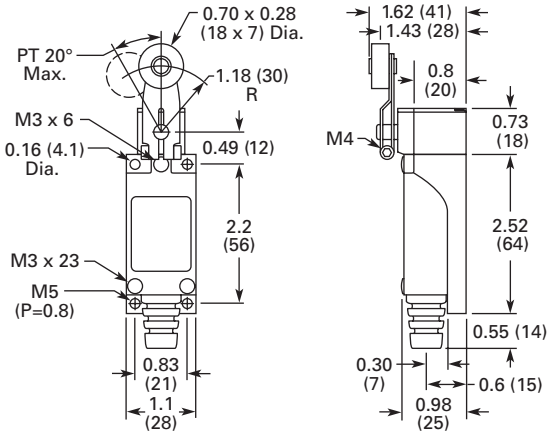
① Inductive load has a power factor of 0.4 min. (AC) and a time constant of 7 msec. max. (DC).
② Lamp load has an inrush current of ten times the steady-state current, while motor load has an inrush current of six times the steady-state current.

Terminal Configuration

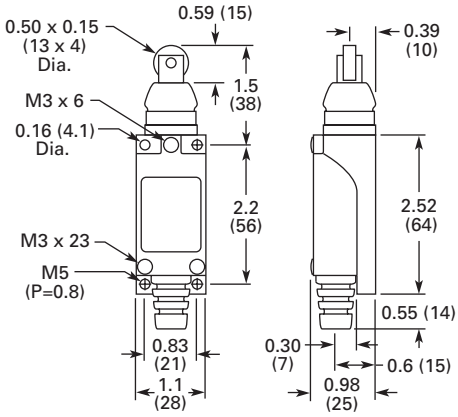


Approximate Dimensions in Inches (mm)

E49G31AP3



E49G31CP3



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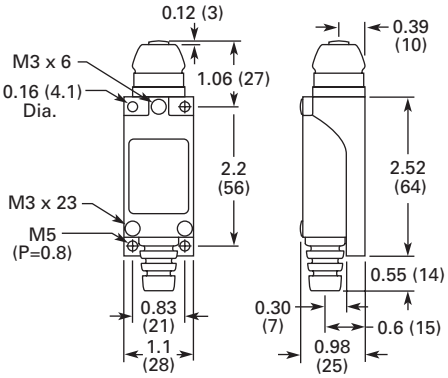
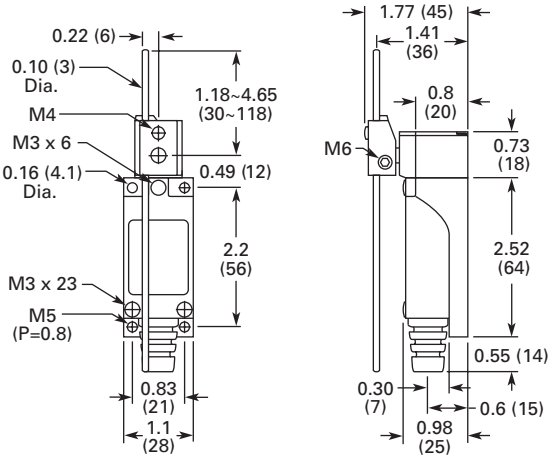


E49G31DP3



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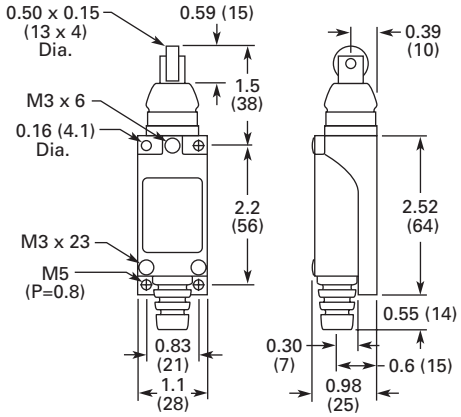
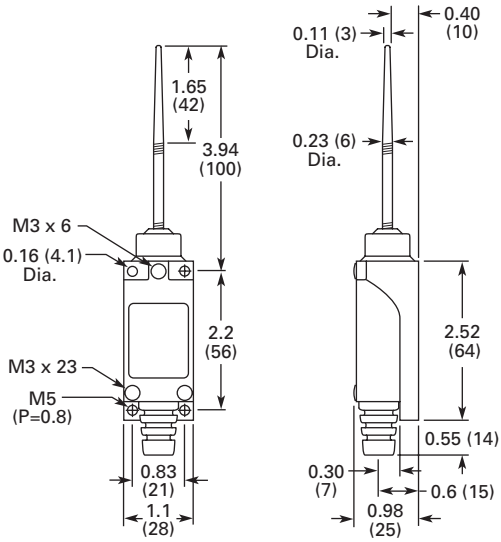
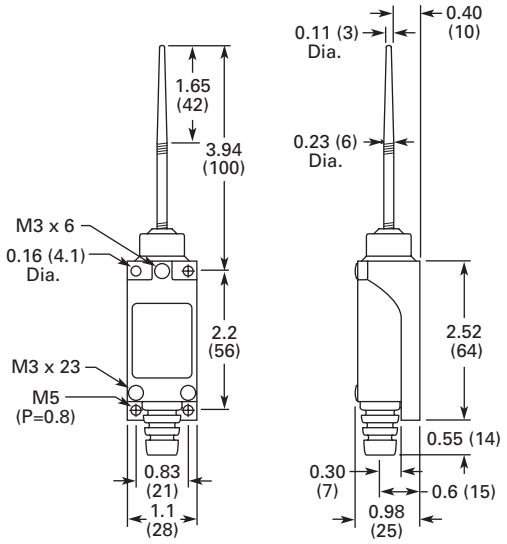


E49G31MP3



Approximate Dimensions in Inches (mm) (Continued)

E49G31NP3



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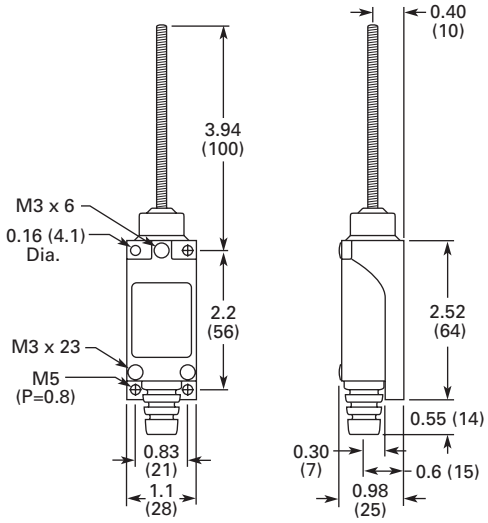

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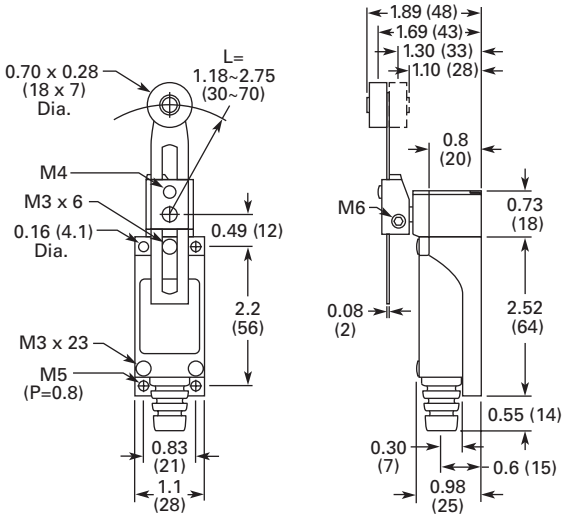

E49G31XM3