

# EFM SERIES MINIATURE METAL SAFETY LIMIT SWITCH


## Description

The EFM series have been tested and approved to meet the requirements of the Low Voltage directive and positive opening safety contacts per IEC/EN 60947-5-1-3.

Typical applications for these switches would use the roller plunger in conjunction with cams on doors with hinges .

A rang of panel mounting or top mounting versions are also available to ensure that the switch can be simply installed in small space or difficult mounting.

## Features

- Conforms to EN (TUV) standards corresponding to the CE marking
- Positive opening operation of NC (Normally Closed) contacts conforming to IEC /EN 60947-5-1 
- Wide standard operating temperature range: -25°C to 70°C
- Full range of actuator heads and levers suitable for safety applications
- Sealing up to IP 67
- International conduit sizes



## Specifications

### Safety Ratings

Standards	EN 945-1,ISO 13849-1,IEC/EN 60204-1,NFPA 79,EN 1088,ISO 14119, IEC/EN 60947-5-1,ANSI B11.19 AS 4024.1
Safety Classification	Cat. 1 Device per EN 945-1 Dual channel limit switch suitable for Cat 3 or 4 systems
Certifications	TUV and CE ,marked for all applicable directives

### Outputs

Safety Contacts	1 N.C. snap acting
Auxiliary Contacts	1 N.O
Thermal Current (Ith)	10A
Rated Insulation Voltage (ui)	300 AV
Short Circuit Protection	10A max. fast acting IEC 60269 type gG or equivalent

### Operating Characteristics

Actuation Speed. Max.	250 mm/s
Actuation Speed. Min.	100 mm/min
Actuation Frequency, Max	6000 operation per hour
Mechanical life	1 x 10 <sup>7</sup> operation at room temperature

### Environmental

Enclosure Type Rating	NEMA 1,IP66 and IP67
Operating Temperature [C (F)]	2....+70°(35.6....+158°)
Pollution Degree	3

### Physical Characteristics

Housing Material	Die Cast Alloy
Actuator Material	Various polymers and metals
Mounting	2 x M4, Any position
Vibration	IEC 68-2-6 (10....55Hz,0.35 mm amplitude)
Shock	IEC 68-2-7(30 Gn 3 pulses per axis)
Connection	2 m(6.5 ft) cable
Enclosure Color	Red body/black head

## Contact Ratings

### Maximum AC Contact Rating Per Pole (50/60Hz)-Same Polarity

NEMA Rating Designation	Max. Voltage	Amperes		Continuous Carrying Current(Amp.)	Voltamperes	
		Make	Break		Make	Break
AC-15/B300	120	30	3.0	5	3600	360
AC-15/B300	240	15	1.5	5	3600	360

### Maximum DC Contact Rating Per Pole

DC-13/Q300	240	0.27	0.27	2.5	69	69
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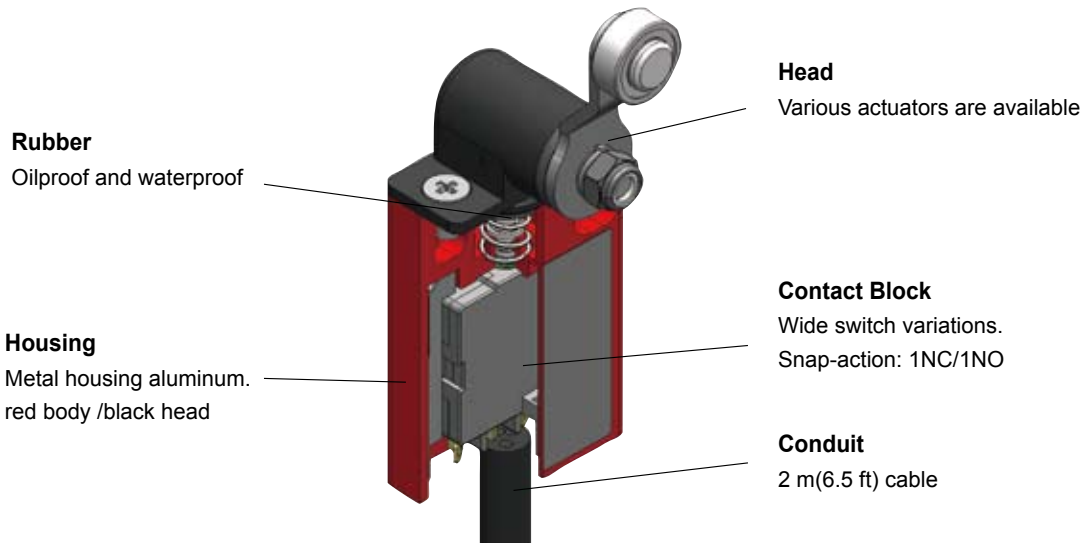
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Design, specifications are subject to change without notice.

# EFM SERIES MINIATURE METAL SAFETY LIMIT SWITCH

## Structure Description



## Product Selection

EFM-□-□-□

1 2 3

### 1. CABLE ENTRY

L: Cable on the side

V: Cable on the bottom

### 2. CONTACT TYPES

3: 1NC/1NO SNAP ACTION

### 3. HEAD AND ACTUATOR

20 : Short Lever type

31 : Dome plunger type

32 : Roller plunger type

321: Cross roller plunger type

51 : Panel mount dome plunger type

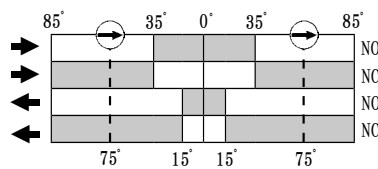
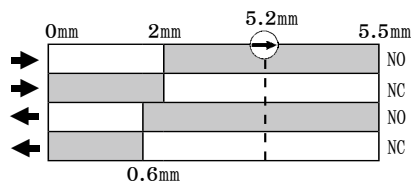
52 : Panel mount roller plunger type

521: Panel mount cross roller plunger type

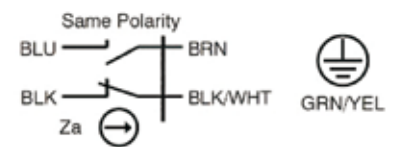
## Contact Block Form

□ Oper    ■ losed

⊕ Positive Opening Point



## Wiring Diagram



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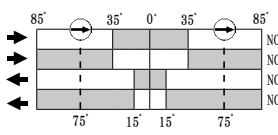
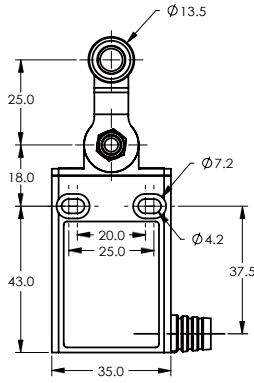
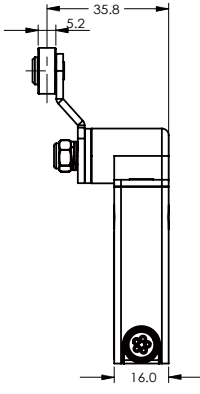

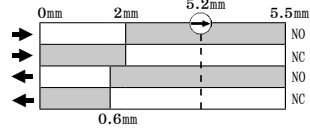
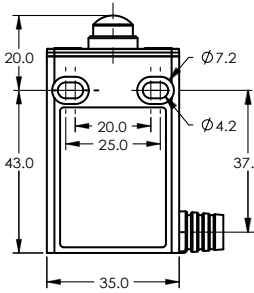
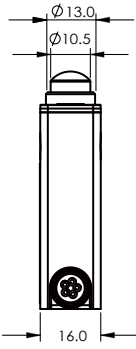

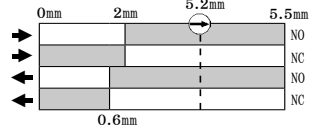
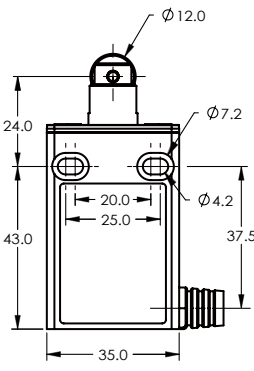
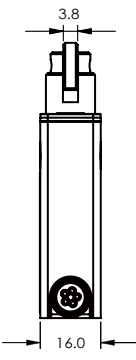

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# EFM SERIES MINIATURE METAL SAFETY LIMIT SWITCH

Unit: mm

## Operating Characteristics

Item	Operating Characteristics	Dimensions	
<p><b>EFM-□-3-20</b> Short Lever Type</p> 	<p>Snap Action 1NC\1NO EFM_-3-20</p> 		
<p><b>EFM-□-3-31</b> Dome Plunger Type</p> 	<p>Snap Action 1NC\1NO EFM_-3-31</p> 		
<p><b>EFM-□-3-32</b> Roller Plunger Type</p> 	<p>Snap Action 1NC\1NO EFM_-3-32</p> 		
<p><b>EFM-□-3-321</b> Cross Roller Plunger Type</p> 	<p>Snap Action 1NC\1NO EFM_-3-321</p> 