



# EK SERIES SAFETY DOOR SWITCH

## Description

The EK series is a tongue (or key) operated safety interlock switch designed to fit at the leading edge of sliding, hinged or lift-off guards. With its dual entry slots and rotatable head, the versatile EK series can offer up to eight different actuator entry options. Operation of the switch is achieved through the insertion of a specially profiled stainless steel key that is permanently mounted to the guard door.

Available with one N.C. safety contact and one N.O. auxiliary contact or two N.C. contacts, the EK series is sealed to IP67 and has various conduit entries. A blanking plug is supplied for the unused key entry. Available accessories include a 90° actuator.

## Features

- Fits on 25mm tubing, ideal for small, light weight guards
- Contacts: Slow action 1N.C./1N.O.; 2N.C.; snap action 1N.C./1N.O.
- Positive opening mechanism 
- Double-insulation structure 
- Eight possible actuator entry points, easy to install
- 90° and straight key
- IP67 enclosure rating
- Robust stainless steel keys



## Specifications

|  |   |
|--|---|
| <b>Standards</b>                         | EN60947-5-1, UL508, EN50047, EN1088,                            |
| <b>Approvals</b>                         | cULus, CE   |
| <b>Positive Opening Operation</b>        | NC Contact  |
| <b>Utilization Category</b>              | AC15 A600   |
| <b>Thermal Current</b>                   | 10A   |
| <b>Rated Insulation Voltage</b>          | 600V AC   |
| <b>Rated Impulse Withstand Volt</b>      | 2500V AC  |
| <b>Insulation Resistance</b>             | 100M $\Omega$ min. (DC 500V)                                    |
| <b>Contact Resistance</b>                | 25m $\Omega$ max. (initial)                                     |
| <b>Travel For Positive Opening</b>       | Various (see Product Selection table)                           |
| <b>Max Actuation Frequency</b>           | 2 cycle/sec   |
| <b>Enclosure Material</b>                | UL approved glass-filled polybutylene terephthalate             |
| <b>Actuator Material</b>                 | Stainless steel   |
| <b>Enclosure Protection</b>              | IP 67   |
| <b>Operating Temperature</b>             | Min -25°C (-18°F) Max 80°C (+176°F)                             |
| <b>Pollution Degree</b>                  | 3   |
| <b>Protection Against Electric Shock</b> | Class II (Double Insulation)                                    |
| <b>Mech. Life Expectancy</b>             | 1 x 10 <sup>7</sup> Cycles min                                  |
| <b>Electrically Life Expectancy</b>      | 150,000 Cycles min  |
| <b>Vibration</b>                         | IEC 68-2-6, 10-55Hz $\pm$ 1 Hz, Excursion: 0.35mm, 1 octave/min |
| <b>Conduit Entry</b>                     | Various (see Product Selection table)                           |
| <b>Fixing</b>                            | 2 x M4  |

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## Structure description

### Head

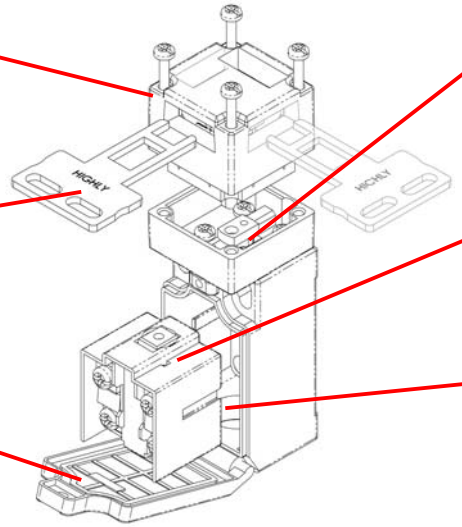
The head can be mounted in four directions. The operation Key can be inserted in five directions including the downward direction.

### Operation Key

The dedicated key prevents operational mistakes and forcibly separates the contacts.

### Cover

The cover, with a hinge on its lower part, can be opened by removing the screw of the cover, which ensures ease of maintenance and wiring.



### Oil Seal

The plunger has an O ring. The switch casing ensures IP67 (except the keyhole, which ensures IP00). Use the EK Series in places where the keyhole is free from oil and metal chips.

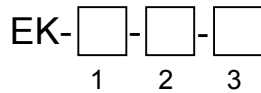
### Contact Block

Has a positive opening mechanism which forcibly separates the NC contacts even if they are welded. The built-in switch incorporates a pair each of NC contacts and NO contacts or two pairs of NC contacts.

### Conduit

Wide switch variations.  
Pg13.5 PG11  
1/2-14NPT  
M16 M20

## Product Selection



### 1. THREAD DIMENSION OF LEAD EXIT

|              |                  |
|--------------|------------------|
| 1:PG13.5 (s) | 5: M16 (c)       |
| 2:1/2NPT (c) | 6: M20 (o)       |
| 4: PG11 (o)  | 7: CONNECTOR (c) |

### 2. CONTACT TYPES

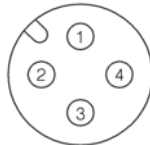
|                                  |
|----------------------------------|
| 15:1NC/1NO SLOW ACTION (BBM) (s) |
| 25:2NC SLOW ACTION (o)           |
| 35:1NC/1NO SNAP ACTION (c)       |

### 3. Key type

|                    |
|--------------------|
| F: Flat (o)        |
| R: Right angle (s) |
| A: Adjustable (c)  |

\*(s):standard (o):option (c): customization

M12 Connector pin arrangement



## Contact Form (Diagrams Show State With Key Inserted)

| TYPE      | CONTACT FORM                        | CONNECTOR PIN ARRANGEMENT | OPERATION DIAGRAMS |      |
|-----------|-------------------------------------|---------------------------|--------------------|------|
|           |                                     |                           | Closed             | Open |
| EK-□-15-□ | Slow action 1NC/1NO<br>(See Note 1) |                           |                    |      |
| EK-□-25-□ | Slow action 2NC<br>(See Note 2)     |                           |                    |      |
| EK-□-35-□ | Snap action 1NC/1NO<br>(See Note 1) |                           |                    |      |

Note: 1. Only NC contact 11-12 has an approved positive opening mechanism.

2. NC contacts 11-12 and 21-22 have an approved positive opening mechanism.

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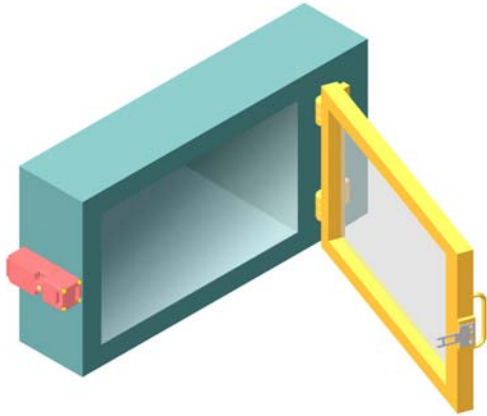
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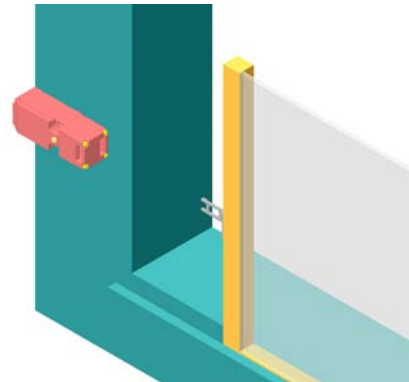


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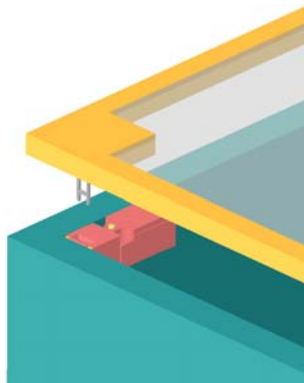
## Typical Applications



Hinged Guard Application



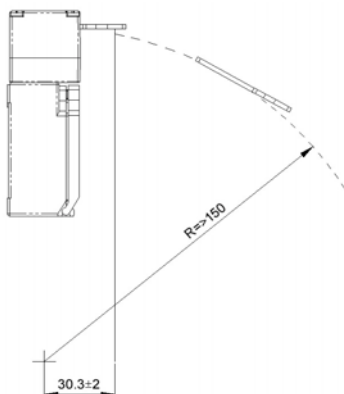
Sliding Guard Application



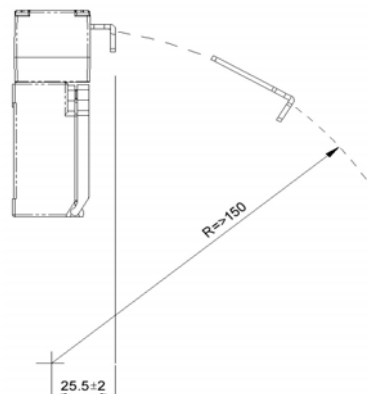
Lift\_off Guard Application

## Actuator Types

Horizontal Mounting



Vertical Mounting



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A18

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