

# Предохранительные выключатели для петель FR, FX, FK

## Технические характеристики

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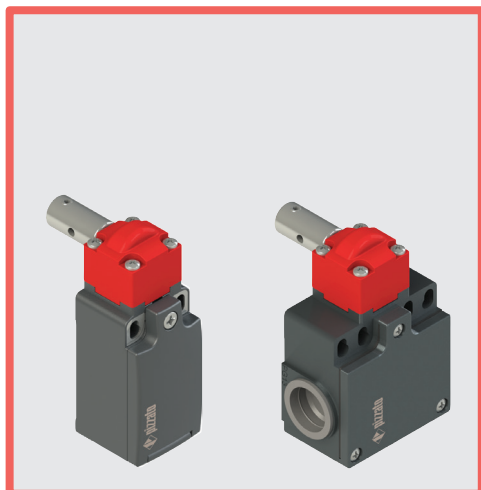
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### Main features

- Metal housing or technopolymer housing, from one to two conduit entries
- Hinged cover, fixed with single captive screw (FR, FM, FK, FX)
- Metal plates on mounting holes of the housing (FR, FX, FK)
- Protection degree IP 67 and IP69K
- 12 contact blocks available
- Versions with M12 connector
- Versions with gold-plated silver contacts
- Versions with stainless steel external metallic parts

### Quality marks:



IMQ approval: EG610  
 UL approval: E131787  
 CCC approval: 2021000305000101  
 EAC approval: RU C-IT.YT03.B.00035/19

### Technical data

#### Housing

FR, FX and FK series housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:

FM and FZ series: metal housing, baked powder coating.

FR, FM series: one threaded conduit entry: M20x1.5 (standard)

FK series: one threaded conduit entry: M20x1.5 (standard)

FX series: two knock-out threaded conduit entries: M20x1.5 (standard)

FZ series: two threaded conduit entries: M20x1.5 (standard)

Protection degree FR, FM, FK, FX: IP67 acc. to EN 60529 (with cable gland of equal or higher protection degree)

IP69K acc. to ISO 20653 (with cable gland of equal or higher protection degree)

Protection degree FZ: IP67 acc. to EN 60529 (with cable gland of equal or higher protection degree)

#### General data

SIL (SIL CL) up to: SIL 3 acc. to EN 62061

Performance Level (PL) up to: PL e acc. to EN ISO 13849-1

Mechanical interlock, not coded: type 1 acc. to EN ISO 14119

Safety parameters:

$B_{10D}$ : 5,000,000 for NC contacts

Mission time: 20 years

Ambient temperature: -25°C ... +80°C (standard)

-40°C ... +80°C (T6 option)

Max. actuation frequency: 3600 operating cycles/hour

Mechanical endurance: 1 million operating cycles

Max. actuation speed: 180°/s

Min. actuation speed: 2°/s

Tightening torques for installation: see page 443

Wire cross-sections and wire stripping lengths: see page 461

#### In compliance with standards:

IEC 60947-5-1, IEC 60947-1, IEC 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN IEC 63000, UL 508, CSA C22.2 No. 14.

#### Approvals:

EN 60947-5-1, UL 508, CSA C22.2 No. 14, GB/T14048.5

#### Compliance with the requirements of:

Machinery Directive 2006/42/EC, EMC Directive 2014/30/EU,

RoHS Directive 2011/65/EU.

#### Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1.

**⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 443 to 454.**

| Electrical data                  |                                                | Utilization category                                |                                      |     |      |
|----------------------------------|------------------------------------------------|-----------------------------------------------------|--------------------------------------|-----|------|
| without connector                | Thermal current ( $I_{th}$ ):                  | 10 A                                                | Alternating current: AC15 (50÷60 Hz) |     |      |
|                                  | Rated insulation voltage ( $U_i$ ):            | 500 Vac 600 Vdc                                     | $U_e$ (V)                            | 250 | 400  |
|                                  | Rated impulse withstand voltage ( $U_{imp}$ ): | 400 Vac 500 Vdc (contact blocks 20, 21, 22, 33, 34) | $I_e$ (A)                            | 6   | 4    |
|                                  |                                                | 6 kV                                                |                                      |     | 1    |
| with M12 connector, 4 and 5-pole |                                                | 4 kV (contact blocks 20, 21, 22, 33, 34)            | Direct current: DC13                 |     |      |
|                                  | Conditional short circuit current:             | 1000 A acc. to EN 60947-5-1                         | $U_e$ (V)                            | 24  | 125  |
|                                  | Protection against short circuits:             | type aM fuse 10 A 500 V                             | $I_e$ (A)                            | 3   | 0.55 |
|                                  | Pollution degree:                              | 3                                                   |                                      |     | 0.3  |
| with M12 connector, 8-pole       | Thermal current ( $I_{th}$ ):                  | 4 A                                                 | Alternating current: AC15 (50÷60 Hz) |     |      |
|                                  | Rated insulation voltage ( $U_i$ ):            | 250 Vac 300 Vdc                                     | $U_e$ (V)                            | 24  | 120  |
|                                  | Protection against short circuits:             | type gG fuse 4 A 500 V                              | $I_e$ (A)                            | 4   | 4    |
|                                  | Pollution degree:                              | 3                                                   | Direct current: DC13                 |     |      |
| with M12 connector, 8-pole       |                                                |                                                     | $U_e$ (V)                            | 24  | 125  |
|                                  | Conditional short circuit current:             |                                                     | $I_e$ (A)                            | 3   | 0.55 |
|                                  | Protection against short circuits:             |                                                     |                                      |     | 0.3  |
|                                  | Pollution degree:                              |                                                     | Direct current: DC13                 |     |      |
| with M12 connector, 8-pole       | Thermal current ( $I_{th}$ ):                  | 2 A                                                 | Alternating current: AC15 (50÷60 Hz) |     |      |
|                                  | Rated insulation voltage ( $U_i$ ):            | 30 Vac 36 Vdc                                       | $U_e$ (V)                            | 24  |      |
|                                  | Protection against short circuits:             | type gG fuse 2 A 500 V                              | $I_e$ (A)                            | 2   |      |
|                                  | Pollution degree:                              | 3                                                   | Direct current: DC13                 |     |      |
| with M12 connector, 8-pole       |                                                |                                                     | $U_e$ (V)                            | 24  |      |
|                                  |                                                |                                                     | $I_e$ (A)                            | 2   |      |
|                                  |                                                |                                                     | Direct current: DC13                 |     |      |
|                                  |                                                |                                                     | $U_e$ (V)                            | 24  |      |

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