

Safety Interlock Switch MKey5



Approvals:



Application:

- Gates
- Hatches

Features:

- 2NC + 1NO (actuator in)
- 4 actuating positions
- Holding force 12 or 40N
- Up to PL e/Cat.4
- Plastic, Plastic with stainless steel head or stainless steel

Switch operational description

MKey5 Interlock switches are designed to provide position interlock detection for moving guards. They are designed to fit the leading edge of sliding, hinged or lift off machine guards. The actuator is fitted to the moving part of the guard and is aligned to the switch entry aperture.

The head can be rotated to provide four given actuator entry positions. When the actuator is inserted into the switch the safety contacts close and allow the machine start circuit to be enabled. MKey5 has two versions regarding holding force, 12N and 40N. MKey5 has several types of actuators as an option. A standard actuator key is always delivered with interlock switches.

Material

Depending on the environment where the switch will be used, different material can be chosen on the Mkey5. The basic version is in a full plastic body (polyester) and in cases where the demands are higher on the interlock switch head, there is a version with a plastic body and with a stainless steel head. Both these types give the MKey5 interlock switch a rating of IP67.

In harsh applications as for food processing and chemical industry there is a MKey5Z Interlock switch with a total rugged stainless steel 316 body. This version has IP69K enclosure protection (maintained by a double seal lid gasket) and can be high pressure hosed with detergent at high temperature.

Positive forced disconnected contacts

A positive forced contact provides a forced disconnect of the safety contacts at the withdrawal of the actuator. The design of the MKey5 ensures that the contacts will not fail or be held in a normally closed position, due to failure of the spring mechanism or that welding/sticking of the contacts can occur.

Safety level

The positive forced disconnect contacts gives a high safety level and the interlock switch has an anti-tamper mechanism. By combining the MKey5 with one of our suitable safety control module, for example a safety relay from the RT-series, Pluto safety-PLC or Vital module, the requirements for both hatch and gate switch supervision can be fulfilled. To obtain the highest level of safety, two switches per gate are required.

Explosion Proof version (X)

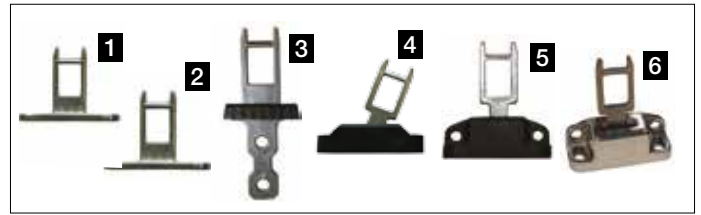
MKey5 also exist in versions with certified explosion proof contact block (X-versions). MKey5ZX is in stainless steel and can be used in European Zone 1, 2, 21,22 environments (Gas and Dust). Preassembled with 3 meter cable.

Regulations and Standards

The MKey5 is designed and approved in accordance to relevant standards. Examples of relevant standards are EN 1088, IEC/EN 60947-5-1, EN 60204-1, EN ISO 13849-1, EN 62061 and UL 508.

Technical data – MKey5 series

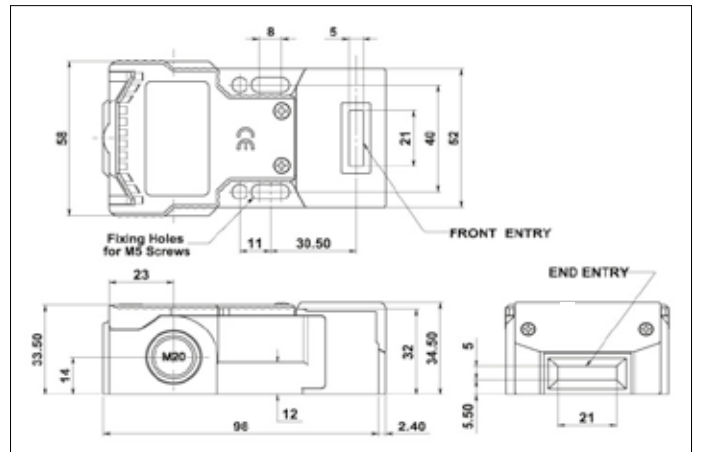
Article number	
Standard	
MKey5 - 12N	2TLA050003R0100
Mkey5+ - 40N	2TLA050003R0101
Stainless steel head	
MKey5 - 12N	2TLA050003R0110
MKey5+ - 40N	2TLA050003R0111
Full stainless steel	
MKey5Z - 12N	2TLA050003R0120
MKey5+Z - 40N	2TLA050003R0121
MKey5ZX (EX)	2TLA050003R0125
Level of safety	
EN ISO 13849-1	Up to PL e/Cat. 4 depending upon system architecture
EN 62061	Up to SIL3 depending upon system architecture
Safety data	
Mechanical reliability B_{10d}	2.5×10^6 operations at 100mA load
Proof test interval (life)	35 years
MTTF _d	356 years (8 cycles per hour/24 hours per day/365 days)
Utilisation category	AC15 A300 3A
Force/travel for positive opening	6 mm
Acuator entry mini. radius	175 mm Standard Key 100 mm Flexible Key
Max. approached/withdrawal speed	600 mm/s
Actuator	Stainless steel
Mechanical life	1 million switch operations
Rated insulation/withstand voltage	500VAC / 2500VAC
Vibration resistance	IEC 68-2-6, 10-55Hz+1Hz, excursion: 0.35 mm, 1 octave/min
Contacts (actuator key inserted)	2NC + 1NO (NC are direct opening action)
Thermal current (Ith)	10A
Enclosure protection	
MKey5	IP67
MKey5Z(X)	IP69K and IP67
Operating temperature	-25°C to +80°C
Conduit entries	3 x M20
Material	
MKey5	Polyester or/and stainless steel 316
MKey5Z(X)	Stainless steel 316
Colour	Red or stainless steel
Mounting position	Any
Mounting bolts	Body 2 x M5, actuator 2 x M5
Explosion Proof version (X)	
Classification	Ex d IIC T6 (-20°C ≤ Ta ≤ +60°C) Gb Ex tb IIIC T85°C (-20°C ≤ Ta ≤ +60°C) Db
Rated Voltage	250V AC/DC
Rated Current	2 pole 4A 4 pole 2.5A



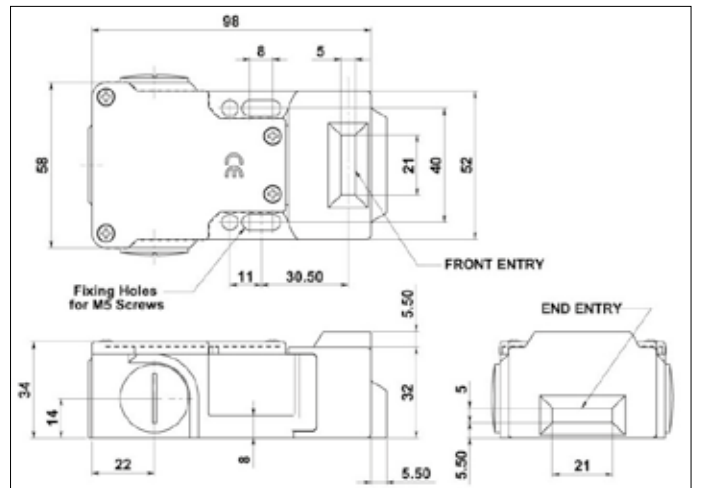
Actuator

1. Standard Key for plastic head	2TLA050040R0201
2. Standard Key for SS head	2TLA050040R0202
3. Flat Key	2TLA050040R0220
4. Flexible Key with plastic housing	2TLA050040R0221
5. Flexible Key with metal housing	2TLA050040R0203
6. Flexible Key with SS housing	2TLA050040R0204

(Key always in Stainless steel)

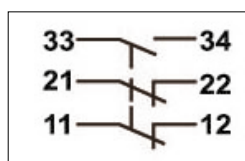


Dimension MKey5



Dimension MKey5Z

For all MKey the normally closed (NC) circuits are closed when the guard is closed (actuators inserted).



2 NC 1 NC 6.80 6 0 mm		
11/12	Open	
21/22	Open	
33/44		Open

Contact block configuration on 2NC, 1NO

Contacts at withdrawal of actuator