

Safety Interlock Switch

MKey5

Approvals:



Application:

Gates
Hatches

Features:

2NC + 1NO (actuator in)
4 actuating positions
Actuator 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 MKey5 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

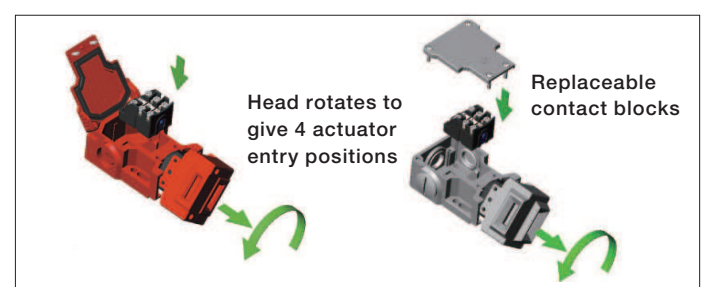
or be held in a normally closed position, due to failure of the spring mechanism or that welding/sticking of the contacts can occur.

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.

Regulations and Standards

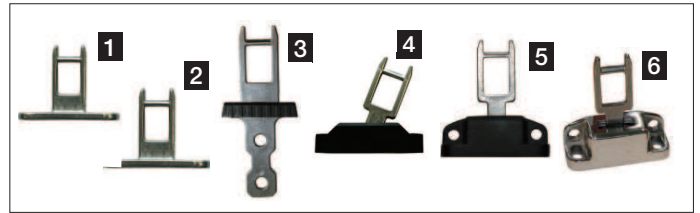
The MKey5 is designed and approved in accordance to relevant standards. Examples of relevant standards are EN1088, IEC/EN60947-5-1, EN60204-1, EN ISO13849-1, EN62061 and UL508.



Note! The switch should not be used as an end stop!

Technical data – MKey5 series

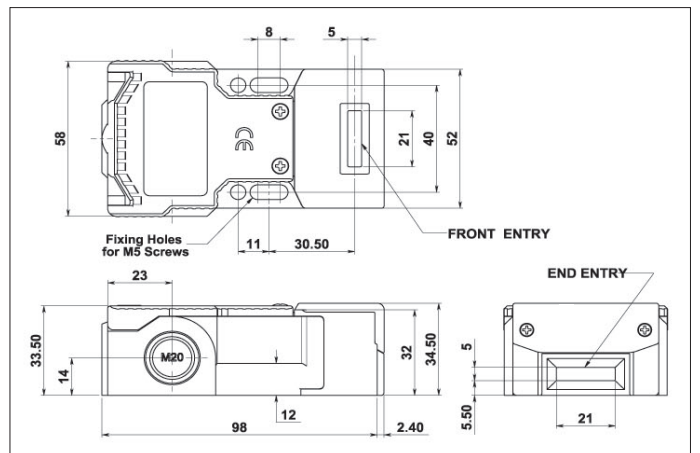
Supplier	ABB AB Jokab Safety, Sweden
Article number/ Ordering data Standard	
MKey5 - 12N	2TLA050003R0100
Mkey5+ - 40N	2TLA050003R0101
Stainless steel head	
MKey5 - 12N	2TLA050003R0110
MKey5+ - 40N	2TLA050003R0111
Full stainless steel	
MKey5Z - 12N	2TLA050003R0120
MKey5+Z - 40N	2TLA050003R0121
EN ISO13849-1	Up to PL e, Cat. 4 depending upon system architecture
EN62061	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) $MTTF_d$	35 years 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 actuator 100 mm heavy duty actuator
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	IP69K, IP67
Operating temperature	-25°C to +80°C
Conduit entries	3 x M20
Material	
MKey5	Polyester or/and stainless steel 316
MKey5Z	Stainless steel 316
Colour	Red or stainless steel
Mounting position	Any
Mounting bolts	Body 2 x M5, actuator 2 x M5



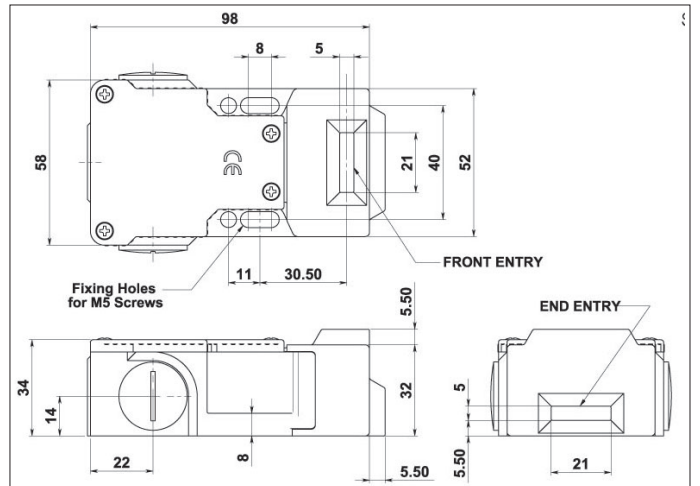
Actuator

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)

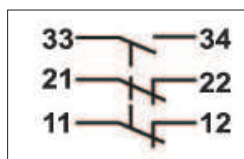


Dimension MKey5



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 2NC, 1NO

Contacts at withdrawal of actuator