# Safety Interlock Switch

**Operating Instructions** 





# **IMPORTANT NOTE:**

Read and understand these instructions before installing, operating, or maintaining this equipment. The product is designed to be a component of a customised safety orientated control system. It is the responsibility of the user to ensure the correct overall functionality of its systems and machines. IDEM, its subsidiaries and affiliates, are not in a position to guarantee all of the characteristics of a given system or product not designed by IDEM.

IDIS-1

#### Application:

IDIS-1 Tongue Interlock Switches are designed to be mounted for interlock position sensing of hinged moving guards.

They can be fitted to the leading edge of sliding, hinged or lift off guards.

They have positive opening contacts in accordance with IEC 60947-5-1 and the switch design offers a tamper resistant actuator key. They are available with either an angled or flat actuator fixing to cover most fixing positions and contact blocks are available in slow make/break 2NC 1NO, 3NC or 1NC 1NO snap action. Enclosures are protected to IP67.

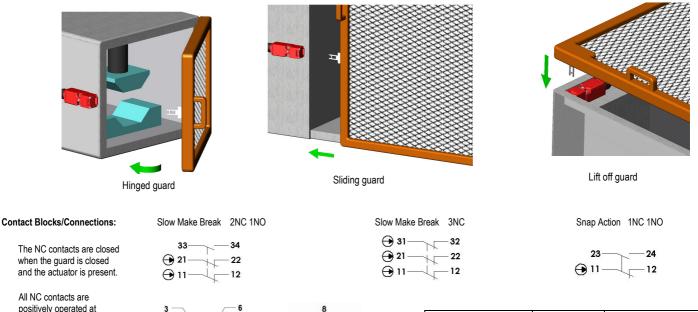
#### Operation:

Operation of the switches is achieved by withdrawing the actuator key from the switch to cause deflection of the switch plunger. Positive actuation of the contacts is achieved at 6mm withdrawal of the actuator.

### Installation guide:

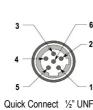
Correct Mounting of Interlock Switches is critical to obtain optimum performance and ensure safety reliability. Installation of all switches must be in accordance with a risk assessment for the individual application. Installation must only be carried out by competent personnel and in accordance with these instructions.

- 1 Never use the switch as a mechanical stop.
- To ensure that the actuator and switch are protected from mechanical shock, guides and stops must be used to prevent mechanical damage. 2.
- The heads of the switch can be rotated to obtain the best switch orientation by removing the 4 head screws and rotating the head through 90 degrees. Always ensure the 4 head 3. screws are tightened to 1Nm to ensure switch robustness. Always fit the blanking plug (supplied) to the unused actuator entry aperture.
- 4 When mounting to the guard door align and fix the switch body and actuator using 2 x M4 mounting bolts tightened at 1.5Nm.
- Typical applications: 5.
- 6. Always ensure that when fitting electrical conductors that they are routed correctly and do not interfere with the switch cover during fitting.
- Recommended conductor size is 1.5 2.5sq.mm, contact terminal tightening torque is 0.8Nm.
- Tightening torque for the lid screw and cable glands is1Nm to maintain IP rating. 7
- 8. Check that the machine is stopped and cannot be started when the interlocked quard is open.
- 9. After installation apply tamper resistance paint or compound to the actuator and switch mounting bolts.



positively operated at withdrawal of actuator

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Quick Connect (QC) ½" UNF 6 Way Male (Connector length 14mm) Pin view from switch	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 5	11/12	1 7
2 6	21/22 or 23/24	65
3 4	33/34 or 31/32	4 3

# Safety Interlock Switch

# IMPORTANT:

The Risk Assessment for the particular application should include the risk of spare actuators. Spare actuators should not be readily available and must be securely controlled. Application consideration must be given to the fixing of the actuator which has to be in a way that prevents disassembly by easy means. The safety functions and mechanics must be tested regularly. For applications were infrequent guard access is foreseeable, the system must have a manual function test to dete

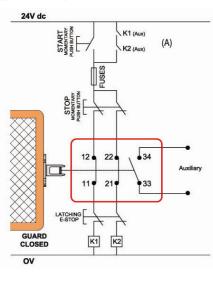
The safety functions and mechanics must be tested regularly. For applications were infrequent guard access is foreseeable, the system must have a manual function test to detect a possible accumulation of faults. At least once per month for PLe Cat3/4 or once per year for PLd Cat3 (ISO13849-1). Where possible it is recommended that the control system of the machine demands and monitors these tests, and stops or prevents the machine from starting if the test is not done. (See ISO14119).

## Maintenance:

Every Month: Check the switch actuator and body for signs of mechanical damage and wear. Replace any switch showing damage.

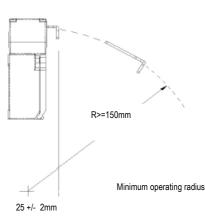
Every 6 Months: Check for mechanical damage to switch body or actuator. Replace any switch showing damage. Isolate power and remove cover. Check screw terminal tightness and check for signs of moisture ingress. Never attempt to repair any switch. These requirements form part of the product warranty.

### Application Example: Door Interlock - Dual Channel non-monitored.



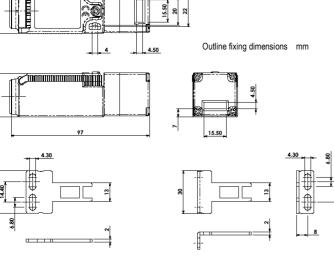
This system shows interlock switch circuits 11-12 and 21-22 configured to allow dual circuit direct feeds to contactor coils K1 and K2. When the start button is pressed and then released, the auxiliary contacts (A) of contactors K1 and K2 maintain the feed to the contactor coils. Opening of the Interlock Switch or depressing the E Stop will isolate power to the contactor coils. Re-start can only occur providing the Guard is closed and the E Stop is reset.

System is shown with the guards closed and the machine able to start.



# Contact operation at withdrawal of actuator

0	mm 🗧	3NC	6.0	0 mm
		11/12	Open	
		21/22	Open	
en		31/32	Open	



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WARNING: DO NOT DEFEAT, TAMPER, OR BYPASS THE SAFETY FUNCTION. FAILURE TO DO SO CAN RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSMENT: NE PAS DESACTIVER, MODIFIER, RETIRER, OU CONTOURNER CETI INTERVERROUILLAGE IL PEUT EN RESULTER DES BLESSURES GRAVES DU PERSONNEL UTILISATEUR.

# **Original Instructions.**

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2NC 1NO	6.	8	6.0	01
11/12	Open			
21/22	Open			
33/34			Open	

1NC 1NO (S	SNAP) 6	6.5 0	mr
11/12	Open		
23/24		Open	

ISO14119,	EN50047,	IEC60947-5-	-1, EN60204-1
ISO 13849	-1, UL6094	47-5-1.	

2.5 x 106 operations at 100mA load

Safety Classification & Reliability Data:		
Mechanical Reliability B10d		
ISO 13849-1		
EN62061		
Safety Data – Annual Usage		

Standards

Utilization Category Overload protection fuse (fuse externally) Thermal Current (Ith) Rated Insulation/Withstand Voltages Actuator Travel/Force for Positive Opening Actuator Entry Minimum Radius Maximum Approach Withdrawal Speed Body Material Enclosure Protection Operating Temperature Vibration

#### Up to PLe depending upon system architecture Up to SIL3 depending upon system architecture 8 cycles per hour/24 hours per day/365 days MTTFd 356 years AC15 A300 240V. 3A Pilot Duty 10A. (FF). 10A 600VAC/2500VAC 6mm/12N 175mm Standard 100mm Flexible 600mm/s Polyester IP67 -25C +80C

IEC 68-2-6 10-55Hz+1Hz Excursion: 0.35mm, 1 octave/min Various (see sales part numbers) 2 x M4

#### Information with regard to UL Standards: Type 1 Enclosures.

Use 16 - 12AWG stranded copper insulated conductors rated 90°C minimum. (75C. ampacity). Terminal tightening torque 7ibs ins (0.8Nm). Intended for same polarity use and one polymeric conduit connection. Not suitable for connection to a rigid metal conduit system. Electrical Rating: Pilot Duty A300 240V.ac 3A. 6,000 cycles. Maximum ambient temperature 40°C.

Fixing

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Doc: 102503 Jan. 2019