

Read and understand these instructions before installing, operating, or maintaining this equipment.

These products are 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.

Application:

HS-SS and HSM Hinge Switches are designed to be mounted for interlock position sensing of hinged moving guards. They have been designed to be fitted to the hinged axis of machine guard doors and provide a robust hinge function in addition to interlock position sensing. They have positive opening contacts in accordance with IEC 60947-5-1 and after fitting the switch offers a very high degree of antitamper. The hinge switch shall be used to mount the machine guard door into the machine guard frame and contact blocks are available in slow make/break 3NC 1NO, or 2NC 2NO. Enclosures are protected to IP67 / IP69K with a low profile, hygienic design for washdown.

Operation:

Operation of the switches is achieved by the rotating action of a cam and actuator to cause deflection of the switch plunger. Positive actuation of the contacts is achieved at only 6 degrees of opening of the guard and can be adjusted up to 12 degrees if required upon installation.

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.
- The hinge switch can be mounted in any orientation depending upon the opening direction of the guard.
- The hinge switch can be supplied in left and right-handed variants, and can be mounted with the cable entry either in the top or bottom orientation. Tightening torque for the cable gland to be 2Nm.
- 4. All hinge switches are factory set to 6 degrees positive break. This should be sufficient for the majority of applications. However, should the installer require a large switching angle, this can be achieved upon installation via adjustment of the internal cam. See step 5.
- IMPORTANT: If the hinge switch activation angle is adjusted during installation, the cam locking screw must be re-tightened to a torque of 2Nm. See Fig.1 opposite. Ensure rear cover and gasket are refitted correctly using M3 screws provided (tightening torque 1Nm).
- Check that the machine is stopped and cannot be started when the interlocked guard is open.
- After installation apply tamper resistance paint or compound to the hinge (or bracket) mounting bolts.
- All mounting hardware is supplied by the user. Fasteners must be of sufficient strength to guard against breakage or loosening of the hinge and guard.
- The mounting holes on the rear of the switch accept M5 screws, the mounting slots on the front of the optional fixing bracket accept M6 screws
- (see dimensional drawings and specification page 2).
- 10. Excessive force must not be exerted by the weight and swing of the guard door (see limits in specification page 2).
- 11. If hinges are used in pairs for larger guard doors (or with a separately supplied Idem Blank Hinge) the hinges must be mounted co-axially. This can typically be ensured by mounting onto the same flat profile, and using a flat edge to ensure the hinges are parallel and aligned either vertically or horizontally (depending on installation orientation).
- 12. After mounting of the hinge(s) check the rotation and swing of the guard for misalignment and potential binding.



Warning: Do not use the hinge switch as an end stop. The hinge will rotate freely through 360 degrees. If the operating angle needs to be limited, this must be done so through a separate outer end stop within the guard.

Every Month:

- 1. Check the switch body for signs of mechanical damage and wear.
- 2. Replace any switch showing damage.
- 3. Check that the machine is stopped and cannot be started when the interlocked guard is open.
- 4. Check for signs of moisture ingress.
- 5. Never attempt to repair any switch.

Contact Blocks / Connections:

Function	M12 8 way Male (Pin view from switch)	Conductor Colours (8 Core)
NC3 or NO2 (optional)	2	Red
NC3 or NO2 (optional)	3	Blue
NO (auxiliary)	5	Brown
NO (auxiliary)	8	Orange
NC 1	7	Black
NC 1	1	White
NC 2	4	Yellow
NC 2	6	Green



Fig.1: (If Required) Positive Opening Angle Adjustment during Installation

Warning: Do not defeat, bypass or tamper with this switch, severe injury may result.

Important: 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).

Wiring circuits for pre-wired Explosion Proof Versions:

Important: Specific conditions of use for Ex versions: The integral cable shall be suitably protected from physical damage and abrasion. (See specific Datasheet).





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