

Electronic Hinge Switch with Auto Test Type: HS-SS-Z and HSM-Z

FEATURES & APPLICATION:



IDEM's HS-SS-Z and HSM-Z Intelligent Series Hinge Switches have been developed to provide and maintain a high level of functional safety.

They will connect to most popular standard Safety Relays to maintain a PLe Safety Level even with switches connected in series.

They have easy to understand LED diagnostic functions and provide auxiliary outputs for extra diagnostic signals to PLCs or computers.

The HS-SS-Z and HSM-Z 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.

Enclosures are protected to IP67 / IP69K with a low profile, hygienic design for washdown.

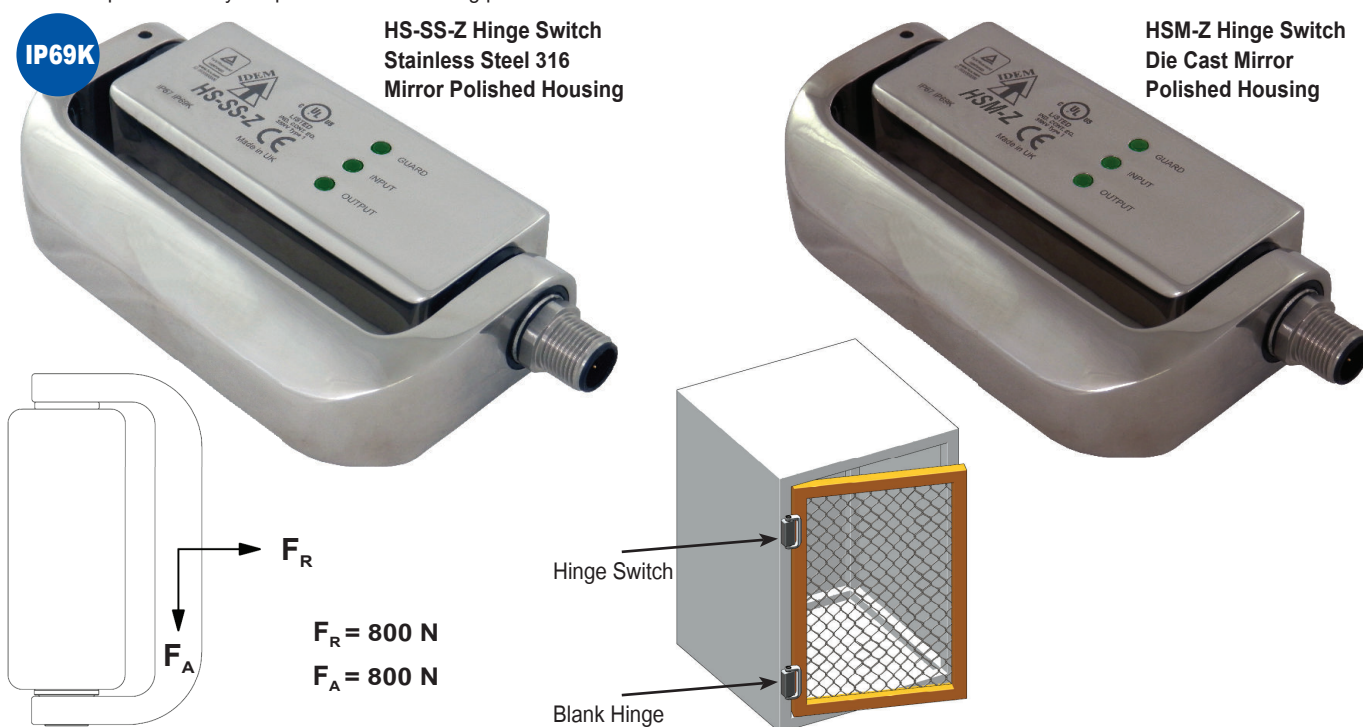
The HS-Z hinge switches must be used in combination with a dual channel safety control device e.g. Safety Relay or Safety Controller. They can provide protection to Ple/Cat.4 to ISO 13849-1, and will maintain Ple with other Idem Z-type switches connected in series due to internal test functions of the switches. In addition, each switch provides input, output and guard state LED's.

A maximum of 30 switches can be connected in series.

Operation is achieved by the rotating action of an enclosed cam profile and sensing components within the switch.

The hinge switch can be adjusted upon installation to provide guard-open output signal anywhere between 0 to 10 degrees.

All HS-Z switches are factory set to provide the guard open output signal at 3 degrees. Once set during installation the HS-Z is permanently pinned in order to provide a fully tamper-resistant switching point.



SAFETY RELIABILITY:

IDEM's HS-SS-Z and HSM-Z Hinge Switches employ two microprocessors and they use IDEM's intelligent system to constantly check all switches.

Safety Reliability up to ISO13849-1 PLe.

MAIN USER BENEFITS:

- Connect up to 30 switches in series.
- Able to connect to most popular Safety Relays without the need for special controllers.
- Ability to connect to other switches and Emergency Stops in series.
- Up to 800N axial force.
- Blank hinges are available.
- Mounting brackets available for ease of fixing.

FUNCTIONAL SPECIFICATION:

High Functional Safety to ISO13849-1 - connects to most Safety Relays to maintain PLe.

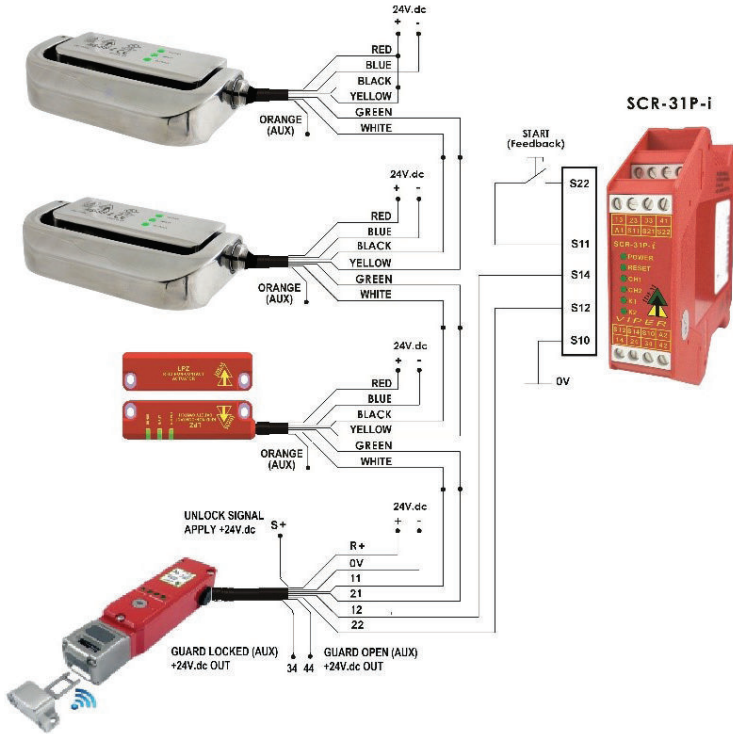
Safety Outputs short circuit protected.

One Auxiliary circuit for indication of door open.

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CONNECTION EXAMPLE:

Multiple switches connected to SCR-31P-i Safety Relay (Viper series)



Standards: ISO 14119 IEC 60947-5-1 EN62061 EN60204-1 ISO 13849-1 UL508

Technical Data:
 Rated Operating Voltage 24 Vdc -15% +10% Use SELV/PELV
 Power Consumption 0.7 W
 Outputs Rated Voltage 24 Vdc
 Outputs Max. Current 0.2 A
 Outputs Min. Current 1 mA
 Outputs Type PNP
 Inputs Rated Voltage 24 Vdc
 Inputs Rated Current 2 mA
 Auxiliary Signalling Output Rated Voltage 24 Vdc
 Auxiliary Signalling Output Max. Current 0.2 A
 Signalling Output Type PNP
 Assured Switching Angles Off 10 Degrees
 Typical Switching Angles Off 0 – 10 Degrees (Adjustable)
 Response Time Guard Open 60ms max.
 Response Time Inputs Off 20ms max.
 Operating Temperature -25 / 55C
 Storage Temperature -25 / 80C
 Dielectric Withstand 250V.ac
 Insulation Resistance 100 Mohms
 Enclosure Protection IP67 / IP69K
 Vibration IEC 68-2-6 10-55Hz+1Hz
 Excursion: 0.35mm, 1 octave/min
 Conduit Entry Various (see sales part numbers)
 Fixing 7 x M5
 Mounting Position Any

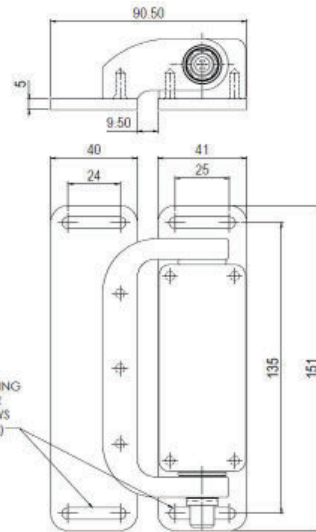
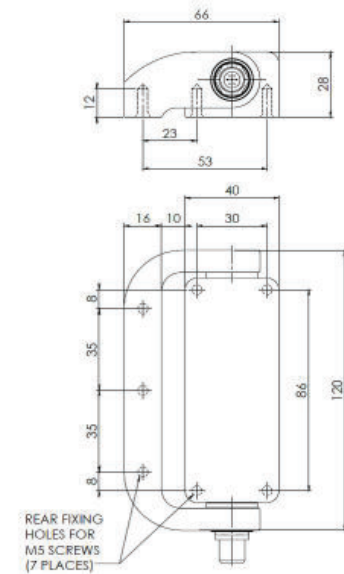
Characteristic Data according to IEC62061 (used as a sub system):

Safety Integrity Level SIL3
 PFH (1/h) 1.0 E-09 Corresponds to 1% of SIL3
 PFD 8.7 E-05 Corresponds to 9% of SIL3
 Proof Test Interval T1 20a

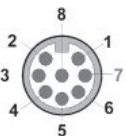
Characteristic Data according to EN ISO13849-1:

Performance Level e
 Category 4
 MTTFd 771a
 Diagnostic Coverage DC High

DIMENSIONS:



Shown with mounting brackets.



140101	Female QC Lead	M12 Female 5m. 8 way
140102	Female QC Lead	M12 Female 10m. 8 way

M12 8 Way Male Plug Pin view from Switch	Flying Lead Colour	Circuit (Actuator Present)
8	Orange	Auxiliary Signal Output +24Vdc
5	Brown	Not used
4	Yellow	Safety Input 1
6	Green	Safety Output 1
7	Black	Safety Input 2
1	White	Safety Output 2
2	Red	Supply +24Vdc
3	Blue	Supply 0Vdc

For all IDEM switches the normally closed (NC) circuits are closed when the guard is closed and the actuator is present.

SALES NUMBER	SWITCH	CABLE LENGTH	ORIENTATION
HS-SS-Z HINGE SWITCH (Stainless Steel 316)			
352001	HS-SS-Z	5m	Right Handed
352002	HS-SS-Z	10m	Right Handed
352003	HS-SS-Z	QC-M12	Right Handed
352004	HS-SS-Z	5m	Left Handed
352005	HS-SS-Z	10m	Left Handed
352006	HS-SS-Z	QC-M12	Left Handed
350020		Blank Hinge Stainless Steel	
HSM-Z HINGE SWITCH (Die Cast Mirror Polished)			
353001	HSM-Z	5m	Right Handed
353002	HSM-Z	10m	Right Handed
353003	HSM-Z	QC-M12	Right Handed
353004	HSM-Z	5m	Left Handed
353005	HSM-Z	10m	Left Handed
353006	HSM-Z	QC-M12	Left Handed
351020		Blank Hinge Die Cast	