

HS1B Full Size Interlock Switches

Key features:

- Rugged aluminum die-cast housing
- Direct Opening Action
- Available with or without an indicator (red or green)
- Flexible Installation: Two actuator entries and three conduit ports are provided
- Select from two circuit configurations (1NO-1NC or 2NC).
- IP67



Part Numbers Body

Model	Contact Configuration	Pilot Light	Part Number
	1NC-1NO	Without	HS1B-11R
		Red LED	HS1B-114R-R
		Green LED	HS1B-114R-G
	2NC	Without	HS1B-02R
		Red LED	HS1B-024R-R
		Green LED	HS1B-024R-G

Standard stock items in bold.

Actuator Keys and Accessories (order separately)

Appearance	Part Number	Description
	HS9Z-A1	Straight Actuator (Mainly for sliding doors)
	HS9Z-A2	Right-angle Actuator (Mainly for rotating doors)
	HS9Z-A3	Adjustable Actuator
	HS9Z-T1	Key Wrench (included with switch)
	HS9Z-P1	Conduit Opening Plug

Actuators are not included and must be ordered separately.

Specifications

Conforming to Standards	IEC60947-5-1, EN60947-5-1, GS-ET-15, UL508, CSA C22.2 No. 14	
Operating Temperature	-20 to +70°C (no freezing)	
Storage Temperature	-40 to +80°C	
Relative Humidity	45 to 85% (no condensation)	
Altitude	2,000m maximum	
Rated Insulation Voltage (U _i)	300V (between LED and ground: 60V)	
Impulse Withstand Voltage (U _{imp})	4 kV (between LED and ground: 2.5 kV)	
Insulation Resistance	Between live and dead metal parts: 100 MΩ minimum Between live metal part and ground: 100 MΩ minimum Between live metal parts: 100 MΩ minimum Between terminals of the same pole: 100 MΩ minimum	
Electric Shock Protection Class	Class I (IEC61140)	
Pollution Degree	3 (IEC60947-5-1)	
Degree of Protection	IP67 (IEC60529)	
Vibration Resistance	Operating Extremes	10 to 55 Hz, amplitude 0.5mm p-p
	Damage Limits	60 m/sec ² (approx. 6G)

Shock Resistance	1,000 m/sec ² (approx. 100G)	
Actuator Operating Speed	0.05 to 1.0m/s	
Direct Opening Travel	11 mm minimum	
Direct Opening Force	20N minimum	
Thermal Current (I _{th})	10A	
Operating Frequency	900 operations/hour	
Mechanical Life	1,000,000 operations	
Electrical Life	100,000 operations (rated load)	
Conditional Short-circuit Current	100A (IEC60947-5-1)	
Recommended Short Circuit Protection	250V, 10A fuse (Type D01 based on IEC60269-1, 60269-2)	
Indicator	Operating Voltage	24V DC
	Current	10 mA
	Light Source	LED lamp
	Lens Color	Red or Green (12 mm dia. Lens)
Weight	Approx. 280g	

Contact Ratings

Rated Operating Current (I _o)		Operating Voltage (U _o)		
		30V	125V	250V
AC	Resistive load (AC12)	10A	10A	6A
	Inductive load (AC15)	10A	5A	3A
DC	Resistive load (DC12)	8A	2.2A	1.1A
	Inductive load (DC13)	4A	1.1A	0.6A

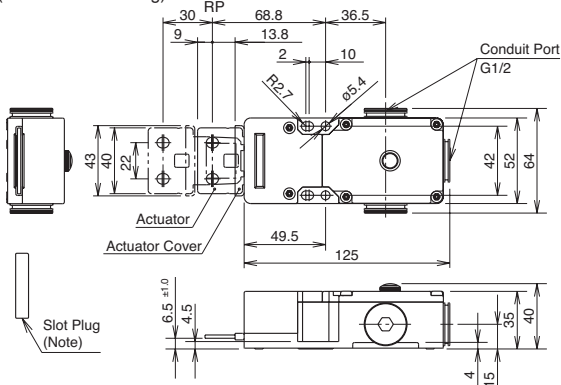
Application Examples and Circuit Diagrams

	Status 1	Status 2		Status 1	Status 2
Door/ Switch Status	Door Closed Machine ready to operate	Door opened Machine cannot be started	Door/ Switch Status	Door Closed Machine ready to operate	Door opened Machine cannot be started
Door			Door/ Switch Status		
HS1B-11 (1NO-1NC) Circuit Diagram			HS1B-02 (2NC) Circuit Diagram		
Main Circuit	3-4: Closed	3-4: Open	Main Circuit	3-4: Closed	3-4: Open
Aux. Circuit	1-2: Open	1-2: Closed	Aux. Circuit	1-2: Closed	1-2: Open

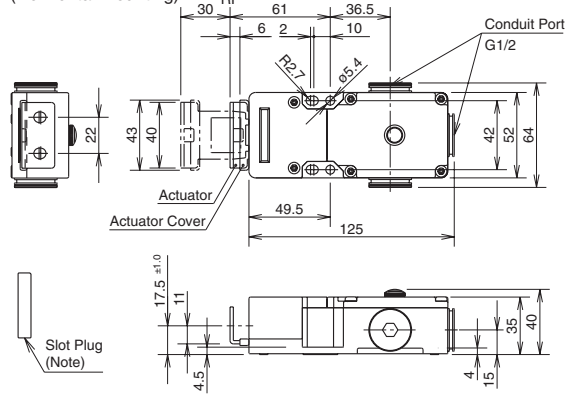
1. Main Circuit: used to enable the machine to start only when the main circuit is closed. Auxiliary Circuit: used to indicate whether the main circuit or door is open or closed.
2. Terminals + and - are used for the LED indicator, and are isolated from door status. Wire the terminals only when needed.

Dimensions (mm)

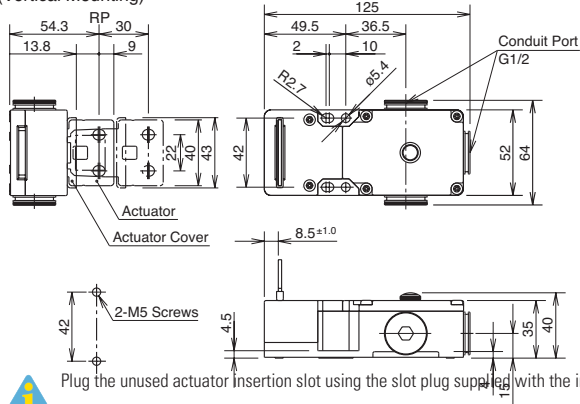
Using the straight actuator (HS9Z-A1)
(Horizontal Mounting)



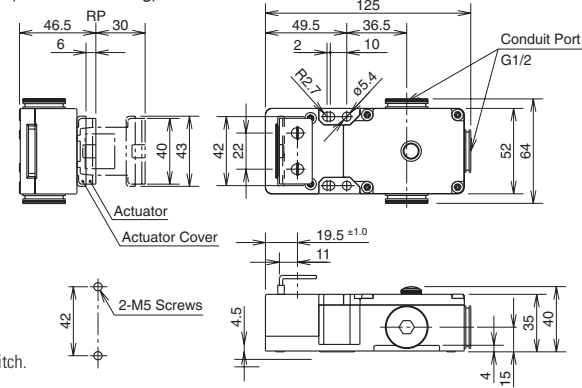
Using the Right-angle actuator (HS9Z-A2)
(Horizontal Mounting)



(Vertical Mounting)



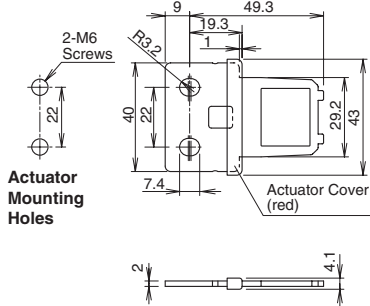
(Vertical Mounting)



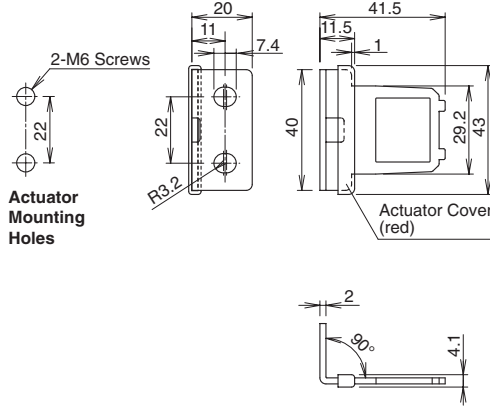
Plug the unused actuator insertion slot using the slot plug supplied with the interlock switch.

Actuator Dimensions

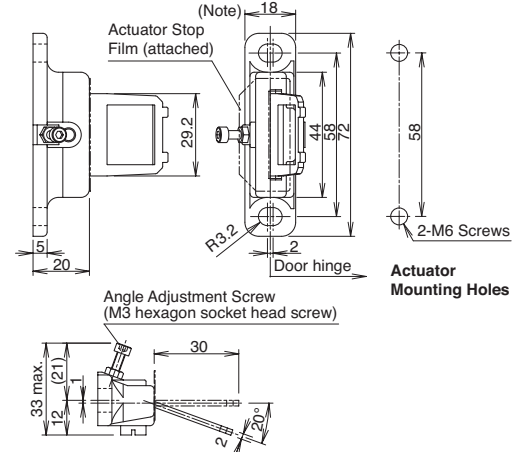
Straight Actuator HS9Z-A1



Right-angle Actuator HS9Z-A2



Angle-adjustable Actuator HS9Z-A3



Adjustable Actuator

The actuator angle is adjustable (0° to 20°) for hinged doors.
The minimum radius of the door opening can be as small as 100mm.

Actuator Angle Adjustment

- Using the screw (M3 hex socket head screw), the actuator angle can be adjusted (refer to the dimensional drawing). Adjustable angle: (0°) to 20°
- The larger the adjusted angle of the actuator, the smaller the applicable

radius of the door opening.

- After installing the actuator, open the door. Then adjust the actuator so that its edge can be inserted properly into the entry slot of the safety switch.
- Recommended tightening torque: 0.8 N-m (approx. 8.0 kgf-cm)
- After adjusting the actuator angle, apply loctite or the like to the adjustment screw to prevent it from loosening.