

HS6B Subminiature Interlock Switches

Key features:

- Only 78 x 30 x 15mm
- Two actuator entrances provide flexibility for installation options
- Integrated molded cable reduces wiring time
- IP67 (IEC60529)
- Direct Opening Action
- Actuators comply with ISO14119 and EN1088



Part Numbers

Contact Configuration	Cable Length	Part Number
1NC-1NO 	1m	HS6B-11B01
	3m	HS6B-11B03
	5m	HS6B-11B05
2NC 	1m	HS6B-02B01
	3m	HS6B-02B03
	5m	HS6B-02B05
2NC-1NO 	1m	HS6B-12B01
	3m	HS6B-12B03
	5m	HS6B-12B05
3NC 	1m	HS6B-03B01
	3m	HS6B-03B03
	5m	HS6B-03B05

Standard stock items in bold.

Actuator Keys (order separately)

Appearance	Part Number	Shape
	HS9Z-A61	Straight
	HS9Z-A62	Right-angle
	HS9Z-A65	Adjustable actuator 90° angle
	HS9Z-A66	Adjustable actuator 180° angle

Actuators are not included and must be ordered separately.

Contact Configuration & Operation Chart

Type	Contact Configuration	Contact Operation Chart						
		0.8 (Actuator Mounting Reference Position)						
		0 5.5 5.8 28.2 (Travel: mm)						
HS6B-11	1NC-1NO 	<table><tr><td>11-12</td><td>33-34</td><td></td></tr><tr><td></td><td></td><td></td></tr></table>	11-12	33-34				
11-12	33-34							
HS6B-02	2NC 	<table><tr><td>11-12</td><td>31-32</td><td></td></tr><tr><td></td><td></td><td></td></tr></table>	11-12	31-32				
11-12	31-32							
HS6B-12	2NC-1NO 	<table><tr><td>11-12</td><td>21-22</td><td>33-34</td></tr><tr><td></td><td></td><td></td></tr></table>	11-12	21-22	33-34			
11-12	21-22	33-34						
HS6B-03	3NC 	<table><tr><td>11-12</td><td>21-22</td><td>31-32</td></tr><tr><td></td><td></td><td></td></tr></table>	11-12	21-22	31-32			
11-12	21-22	31-32						
		Actuator inserted completely Actuator removed completely						

Overview

XW Series E-Stops

Interlock Switches

Enabling Switches

Safety Control Relays

Light Curtains

AS-Interface Safety at Work

Specifications

Conforming to Standards		EN1088, IEC60947-5-1, EN60947-5-1, GS-ET-15, IEC60664-1, IEC60204-1, EN60204-1, UL508, CSA C22.2 No. 14
Operating Temperature		−25 to +70°C (no freezing)
Storage Temperature		−40 to +80°C (no freezing)
Relative Humidity		45 to 85% RH (no condensation)
Storage Humidity		95% maximum (no condensation)
Altitude		2,000m maximum
Pollution Degree		3
Rated Insulation Voltage (U _i)		300V
Impulse Withstand Voltage (U _{imp})		4kv
Insulation Resistance		Between live & dead metal parts: 100MΩ maximum
		Between positive & negative live parts: 100MΩ minimum
Electric Shock Protection Class		Class II
Degree of Protection		IP67 (IEC60529)
Vibration Resistance	Operating Extremes	5 to 55 Hz, half amplitude 0.5 mm
	Damage Limits	30Hz, half amplitude 1.5mm
Contact Resistance		300mΩ maximum
Shock Resistance	Operating Extremes	300m/s ² (30G)
	Damage Limits	1000m/s ² (100G)
Direct Opening Travel		8mm minimum
Direct Opening Force		60N minimum
Thermal Current (I _{th})		2.5A
Operating Frequency		1200 operations/hour
Mechanical Life		1,000,000 operations (GS-ET-15)
Recommended Actuation Speed		0.05 to 1.0m/s
Wire Tensile Strength		50N minimum
Electrical Life		100,000 operations (at full rated load)
Conditional Short-Circuit Current		50A 250V (IEC60947-5-1, IEC60269-1, -2)
Weight		120g

Contact Ratings

Rated Operating Current (I _e)		Operating Voltage (U _e)	30V	125V	250V
		AC	Resistive load (AC-12)	–	2.5A
			Inductive load (AC-15)	–	1.5A
		DC	Resistive load (DC-12)	2.5A	1.1A
				(2A)	(0.4)A
			Inductive load (DC-13)	2.3A	0.55A
				(1A)	(0.22A)
					(0.1A)

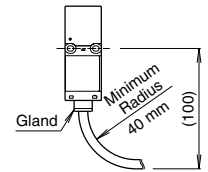
Installation Notes

Recommended Screw Torque

- Safety switch body installation (M4 screw): 1.0~1.5N-m
- Actuator installation (M4 screw): 1.0~1.5N-m

Handling Cables

- Do not tighten or loosen the fastened cable conduit of the safety switch
- Minimum bend radius of installed cable: 40mm

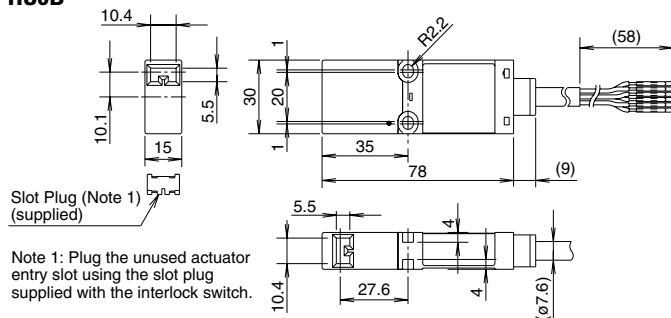


Wiring Designations

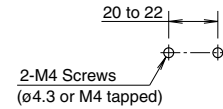
Part Number	Contact	Terminal #	Color
HS6B-12B01 (2NC-1NO)	NC	11-12	blue-blue/white
	NC	21-22	brown-brown/white
	NO	33-34	orange-orange/white
HS6B-03B01 (3NC)	NC	11-12	blue-blue/white
	NC	21-22	brown-brown/white
	NC	31-32	orange-orange/white
HS6B-11B01 (1NC-1NO)	NC	11-12	blue-blue/white
	NO	33-34	orange-orange/white
HS6B-02B01 (2NC)	NC	11-12	blue-blue/white
	NC	31-32	orange-orange/white

Dimensions (mm)

HS6B

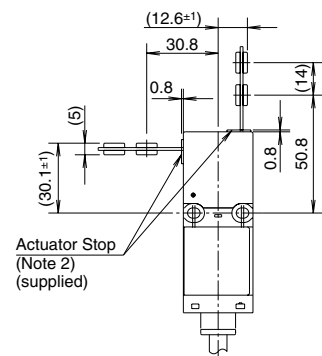


Installation

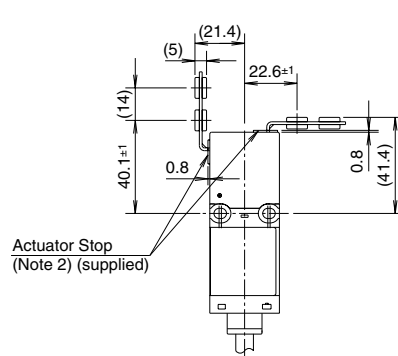


The interlock switch can be mounted in two directions.

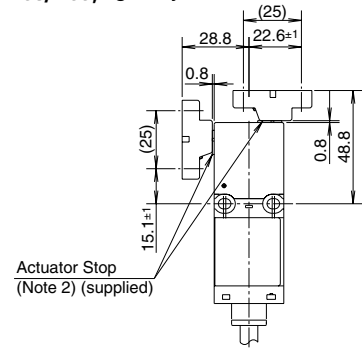
Using straight actuator (HS9Z-A61)



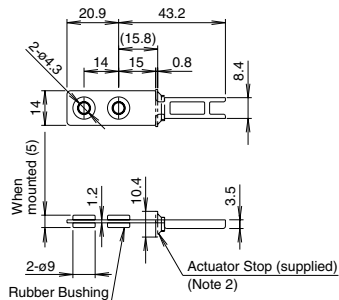
Using Right-angle actuator (HS9Z-A62)



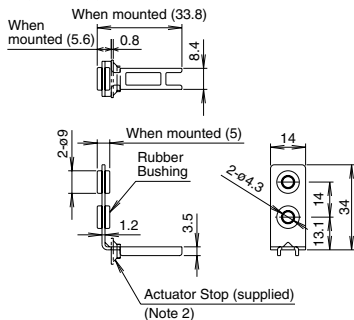
Using Angle Adjustable Actuator (HS9Z-A65/A66)



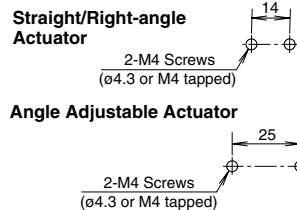
Straight actuator (HS9Z-A61)



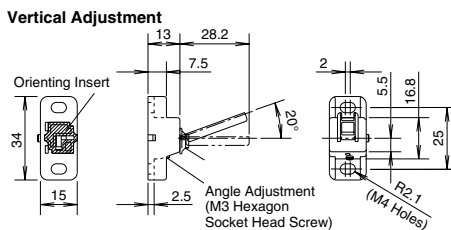
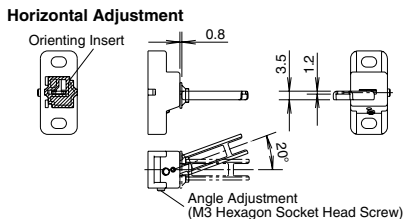
Right-angle actuator (HS9Z-A62)



Actuator Installation



Adjustable Actuator (HS9Z-A65)



The orientation of actuator adjustment (horizontal/vertical) can be changed using the orienting insert (white plastic) installed on the back of the actuator.

The base is made of glass-reinforced PA66 (66 nylon). Angle adjustment screws are stainless steel. When using adhesive on screws, take material compatibility into consideration.

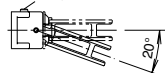
Note 2: After mounting the actuator, remove the actuator stop from the interlock switch.

Adjustable Actuator (HS9Z-A66)

The HS9Z-A65 and HS9Z-A66 have the metal key inserted in opposite directions.

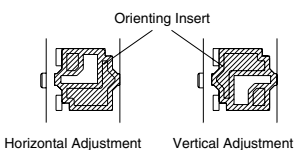
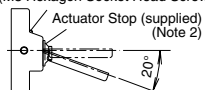
Horizontal Adjustment

Angle Adjustment
(M3 Hexagon Socket Head Screw)



Vertical Adjustment

Angle Adjustment
(M3 Hexagon Socket Head Screw)



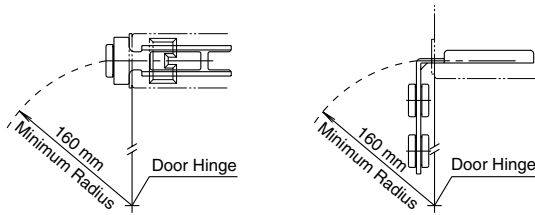
Minimum Radius of Hinged Door

- When using the interlock switch for a hinged door, refer to the minimum radius of doors shown below. For doors with small minimum radius, use angle adjustable actuators (HS9Z-A65 or HS9Z-A66).

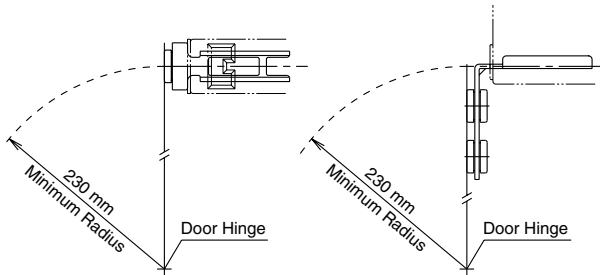
Note: Because deviation or dislocation of hinged door may occur in actual applications, make sure of the correct operation before installation.

HS9Z-A62 Actuator

- When the door hinge is on the extension line of the interlock switch surface:



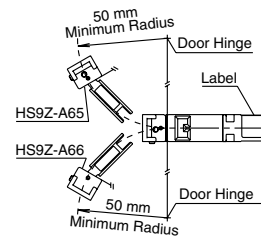
- When the door hinge is on the extension line of the actuator mounting surface:



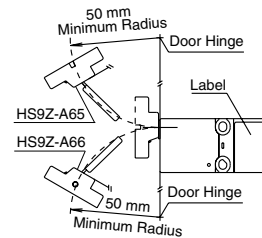
When using the HS9Z-A65/HS9Z-A66 Angle Adjustable (vertical) Actuator

- When the door hinge is on the extension line of the interlock switch surface:

Horizontal Swing

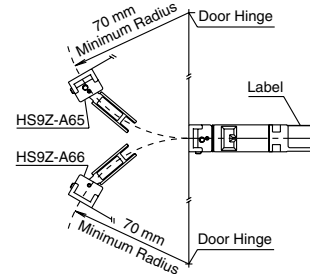


Vertical Swing

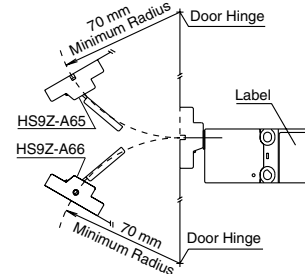


- When the door hinge is on extension line of the actuator mounting surface:

Horizontal Swing



Vertical Swing



Actuator Angle Adjustment for the HS9Z-A65/HS9Z-A66

- Using the angle adjustment screw, the actuator angle can be adjusted (see figures on page 370).
- 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 enter properly into the actuator entry slot of the interlock switch.
- After adjusting the actuator angle, apply Loctite to the adjustment screw so that the screw will not become loose.