

HS1B Series Full Size Interlock Switch

HS1B

Key features include:

- Rugged aluminum die-cast housing
- **Direct Opening Action:** If the door is forced open, the contacts are disconnected even if they are welded or stuck.
- Available with or without an indicator (red or green).
- Mounted on safety guards, the switch can detect access into a restricted area.
- **Flexible Installation:** Two key entries and three conduit ports are provided.
- Select from two circuit configurations (1NO-1NC or 2NC).
- Degree of Contact Protection: IP67



Safety Products



EN1088
EN60947-5-1
IEC60947-5-1

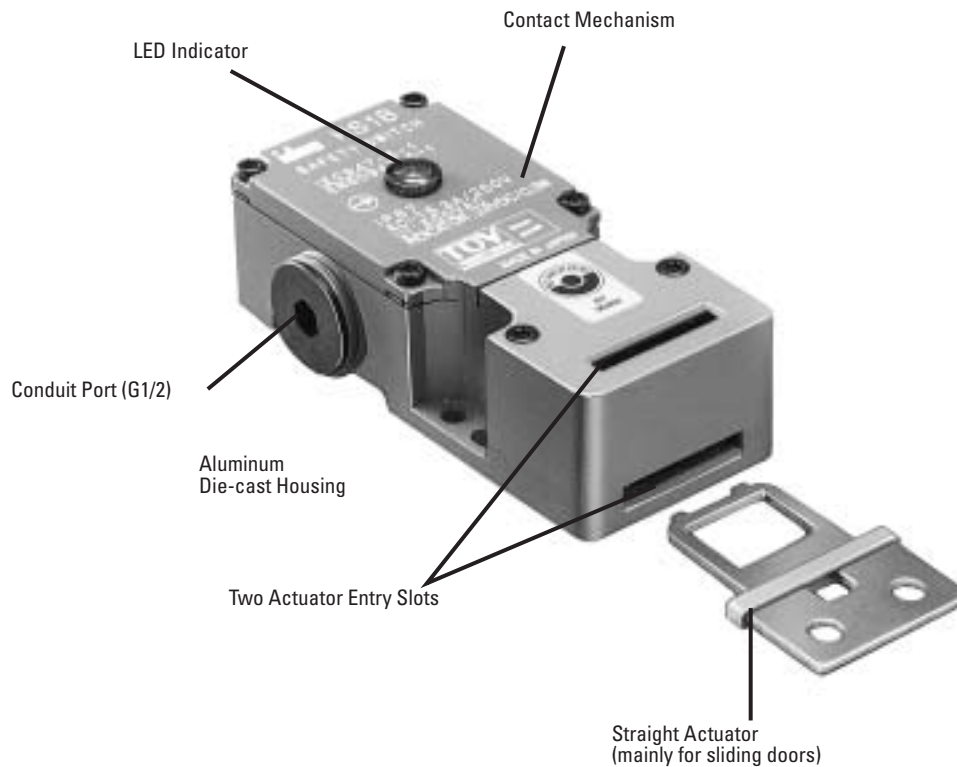


GS-ET-15
BG standard in Germany



Direct Opening Action

HS1B Series Functionality



Specifications

Specifications	Conforming to Standards		IEC60947-5-1, EN60947-5-1 GS-ET-15				
	Operating Temperature		-25 to +70°C (no freezing)				
	Storage Temperature		-40 to +80°C				
	Operating Humidity		85% RH maximum (no condensation)				
	Altitude		2,000m maximum				
	Rated Insulation Voltage (Ui)		300V (between LED and ground: 60V)				
	Impulse Withstand Voltage (Uimp)		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		1 m/sec maximum				
	Positive Opening Travel		11 mm minimum				
	Positive Opening Force		20N minimum				
	Thermal Current (Ith)		10A				
	Rated Operating Current (Ie)		Rated operating voltage (Ue)		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			
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	Rated Operating Voltage		24V DC				
	Rated Current		10 mA				
	Light Source		LED lamp				
	Lens Color		Red or Green (12 mm dia. Lens)				
Weight		Approx. 280g					

Ordering Information

HS1B - 02 4 R - R

 Indicator Color:
R (Red),
G (Green)

 Housing Color:
R (Red)

 Indicator Rated Voltage:
4 (24V DC)
Blank (without indicator)

 Circuit Configuration
11: 1NO-1NC
02: 2NC

Not necessary to specify color if indicator option not chosen.
B
Safety Products

Part Numbers

Part Numbers: Body

Type	Contact Configuration	Pilot Light	Part Number
HS1B (alum. die-cast housing)	1NC-1NO	Without	HS1B-11R
		With	HS1B-114R-①
HS1B (alum. die-cast housing)	2NC	Without	HS1B-02R
		With	HS1B-024R-①



- The special key wrench (HS9Z-T1) for removing the cover and manual unlocking is included with the switch.
- Specify the indicator color code in place of ①: R (red) or G (green).
- Order the keys separately (not supplied with the switch).

Part Numbers: Keys, Plug & Tools

Part Number	Description
HS9Z-A1	Straight Key (Mainly for sliding doors)
HS9Z-A2	L-shaped Key (Mainly for rotating doors)
HS9Z-A3	Adjustable Angle Key
HS9Z-P1	Plug for Conduit Opening
HS9Z-T1	Key Wrench (Torx head)*

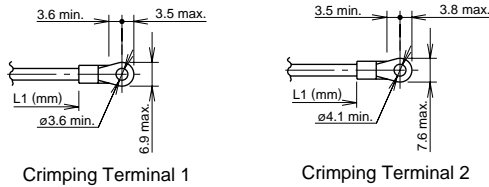


*Torx is a registered trademark of Camcar Textron.

Operation Precautions

Applicable Crimping Terminals

- (Refer to the Crimping Terminal 1 or 2 shown in the drawing below.)
- HS1C
Terminals No. 1 to 6: Use solid or stranded wires only (crimping terminals not applicable).
Terminals No. 7 and 8: Crimping Terminal 1
Ground Terminal: Crimping Terminal 2
- HS1B
Ground Terminal: Crimping Terminal 2
Other Terminals: Crimping Terminal 1
HS2B, HS5B, and HS1E
Crimping Terminal 1

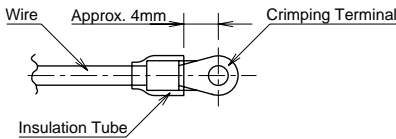


Crimping Terminal 1

Crimping Terminal 2

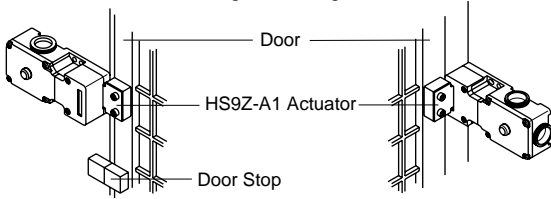


Use an insulation tube on the crimping terminal.

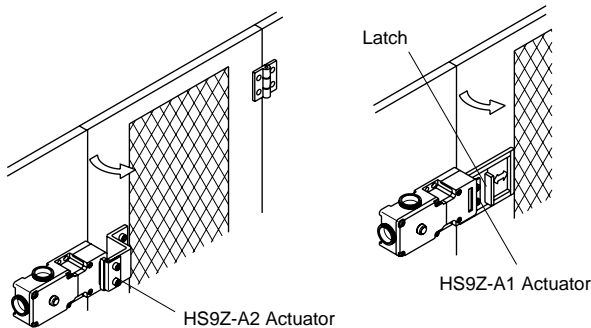


Installation Examples (see the diagrams below)

Mounting on Sliding Doors

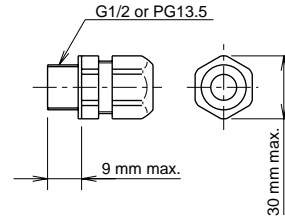


Mounting on Hinged Doors



Applicable Connectors (As shown below)

- Use connectors which maintain the IP67 protection.
- Applicable Connector Dimensions
- Flex Conduit: VF03 (Japan Flex) www.nipolex.co.jp
- Steel Connector (G1/2): ALC-103 (PF13.5): RBC-103PG13.5



Recommended Screw Tightening Torque

- HS1C: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
(4 or 6 pcs of M5 hex socket head cap screws)
- HS1B: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
(2 or 4 pcs. of M5 hex socket head cap screws)
- HS2B: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
(2 pcs of M5 hex socket head cap screws)
- HS5B: 4.0±0.4 N-m (approx. 40±4 kgf-cm)
(2 pcs of M4 hex socket head cap screws)
- HS1E: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
(4 or 6 pcs of M5 hex socket head cap screws)
- Key (HS9Z-A1/A2)
5.0±0.5 N-m (approx. 50±5 kgf-cm)
- (2 pcs. of M6 hex socket head cap screws)
Key (HS9Z-A51/A52)
- 2.0±0.2 N-m (approx. 20±2 kgf-cm)
(2 pcs of M4 hex socket head cap screws)
- 1.0±0.2 N-m (approx. 10±2 kgf-cm)
(2 pcs of M4 Phillips screws)



The screws are supplied by the user.

Applicable Wire Size

- HS1C: 0.5 to 0.75 mm² (Terminals No.1, 2, 5 to 8)
1.0 to 1.25 mm² (Terminals No.3, 4, and grounding terminal)
- HS5B: 0.5 to 1.25 mm²
- HS1E: 0.5 to 1.25 mm²