HS2B Full Size Interlock Switches

Key features:
- 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)
- Flexible Installation: Two actuator entries and three conduit ports are provided
- 1NC-1NO contacts
- Compact and lightweight plastic housing
- Degree of Contact Protection: IP67

![Direct Opening Action][1]

Part Numbers

<table>
<thead>
<tr>
<th>Model</th>
<th>Contact Configuration</th>
<th>Pilot Light</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS2B (plastic housing)</td>
<td>1NC-1NO</td>
<td>Without</td>
<td>HS2B-11NB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With red LED</td>
<td>HS2B-114NB-R</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With green LED</td>
<td>HS2B-114NB-G</td>
</tr>
</tbody>
</table>

Order the actuators separately (not supplied with the switch).

Actuator Keys & Accessories (order separately)

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS9Z-A1</td>
<td></td>
<td>Straight Actuator (Mainly for sliding doors)</td>
</tr>
<tr>
<td>HS9Z-A2</td>
<td></td>
<td>Right-angle Actuator (Mainly for rotating doors)</td>
</tr>
<tr>
<td>HS9Z-A3</td>
<td></td>
<td>Adjustable Actuator</td>
</tr>
<tr>
<td>HS9Z-P1</td>
<td></td>
<td>Conduit Opening Plug</td>
</tr>
</tbody>
</table>
## Specifications

<table>
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<tr>
<th>Overview</th>
<th>XW Series E-Stops</th>
<th>Interlock Switches</th>
<th>Enabling Switches</th>
<th>Safety Control Relays</th>
<th>Light Curtains</th>
<th>AS-Interface Safety at Work</th>
</tr>
</thead>
</table>

### Conforming to Standards
- IEC60947-5-1, EN60947-5-1, GS-ET-15, UL508

### Operating Temperature
- 

### Storage Temperature
- 

### 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 II (IEC61140)

### Pollution Degree
- 3 (IEC60947-5-1)

### Degree of Protection
- IP67 (IEC60529)

### Vibration Resistance
- Operating Extremes: 10 to 55 Hz, amplitude 0.5mm
- Damage Limits: 60 m/sec² (approx. 6G)

### Shock Resistance
- 1,000 m/sec² (approx. 100G)

### Actuator Operating Speed
- 1 m/sec maximum

### Positive Opening Travel
- 11 mm minimum

### Positive Opening Force
- 36N minimum

### Thermal Current (Ith)
- 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. 130g

<table>
<thead>
<tr>
<th>Contact Ratings</th>
<th>Operating Voltage (Ue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Operating Current (Ie)</td>
<td>30V</td>
</tr>
<tr>
<td>AC Resistive load (AC12)</td>
<td>10A</td>
</tr>
<tr>
<td>Inductive load (AC15)</td>
<td>10A</td>
</tr>
<tr>
<td>DC Resistive load (DC12)</td>
<td>8A</td>
</tr>
<tr>
<td>Inductive load (DC13)</td>
<td>4A</td>
</tr>
</tbody>
</table>

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## Application Examples and Circuit Diagrams

<table>
<thead>
<tr>
<th>Status 1</th>
<th>Status 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door/ Switch Status</td>
<td>Door Closed</td>
</tr>
<tr>
<td>Status</td>
<td>Machine ready to operate</td>
</tr>
</tbody>
</table>

| HS2B-11 (1NO-1NC) |
| Circuit Diagram |

**Main Circuit**
- Status 1: 3-4: Closed
- Status 2: 3-4: Open

**Auxiliary Circuit**
- Status 1: 1-2: Open
- Status 2: 1-2: Closed

### Dimensions (mm)

**Using the straight actuator (HS9Z-A1)**

**Horizontal Mounting**

**Vertical Mounting**

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.

![Circuit Diagram](image-url)
Using the Right-angle actuator (HS9Z-A2)

(Horizontal Mounting)

<table>
<thead>
<tr>
<th>Dimension (mm)</th>
<th>Description</th>
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<tbody>
<tr>
<td>36.5</td>
<td>2-M5 Screws</td>
</tr>
<tr>
<td>96</td>
<td>Actuator Cover</td>
</tr>
<tr>
<td>98</td>
<td>Actuator</td>
</tr>
<tr>
<td>49.3</td>
<td>Actuator Mounting Holes</td>
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(VERTICAL MOUNTING)

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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.