Idec Safety Interlock Switches
As increasingly more complex tasks are taken over by machines, it has become common for people and machines to interact closely on a daily basis. In these human-machine interactions, it is critical that safety components are used as a countermeasure to avoid injuries.

As machine safeguarding continues to evolve both in products and regulations, IDEC Corporation has created a family of safety components to meet industry demands and needs. With six decades of experience in industrial automation, IDEC continues to produce the same high-quality and globally-recognized products that can be relied upon for machine safety control throughout the world.

To us, safety isn’t just about meeting safety requirements; it’s about protecting people and productivity.
**IDEC Safety Interlock Switch Family**

**Compact, High-Quality Designs**
Often used for gate and door monitoring or locking, IDEC safety interlock switches are created with a high-quality and compact design aimed at achieving the ultimate goal of maximum personnel safety.

When installed correctly in a safety circuit, IDEC HS safety switches ensure that doors, gates and guards are closed before a process or machine can start up. When the gate or door is opened, the actuating key is removed from the switch thus signaling a safety logic device.

**Safety Made Simple**
Simple to install, HS safety interlock switches feature metal or plastic heads or bodies of different shapes, sizes and connection methods to cover most safeguarding applications, while complying with both domestic and European safety standards. For some international standards, such as EN1088, applications can only use proprietary actuators to prevent tampering of the gate or door. HS switches are perfect for this, as they meet or exceed all standards.

**Variety to Choose From**
Available in a variety of sizes, contact arrangements and functions, IDEC HS safety interlock switches can be used in a wide-range of safety system applications from machine tools and semiconductor equipment to packaging and material handling equipment.

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www.IDEC.com/safety
IDEC has a variety of gate/door switches to meet all your needs!

**Basic Safety Interlock Switches**

- **Subminiature - HS6B**
  - 30 x 15 x 78mm
  - 2 or 3 contacts
  - Integrated cable
  - Plastic body
  - (page 5)

- **Miniature - HS5D**
  - 30 x 30 x 90mm
  - 2 or 3 contacts
  - Screw termination
  - Metal or plastic head
  - (page 6)

- **Full Size - HS1B**
  - 52 x 35 x 125mm
  - 2 contacts
  - Screw termination
  - Die-cast aluminum body
  - (page 7)

**Solenoid Locking Safety Interlock Switches**

- **Subminiature - HS6E**
  - 75 x 15 x 75mm
  - 500N
  - 5 contacts
  - Integrated cable
  - Plastic body
  - (page 8)

- **Miniature - HS5E**
  - 35 x 40 x 146mm
  - 1400N
  - 4 contacts
  - Integrated cable
  - Metal head, plastic body
  - (page 10)

- **Full Size - HS1E**
  - 104 x 35 x 129mm
  - 1500N
  - 3-4 contacts
  - Screw termination
  - Plastic body
  - (page 12)

- **Full Size - HS1C**
  - 106 x 35 x 125mm
  - 3000N
  - 6 contacts
  - Screw termination
  - Die-cast aluminum body
  - (page 16)

- **Full Size - HS1L**
  - 104 x 35 x 129mm
  - 3000N
  - 6 contacts
  - Screw termination
  - Plastic body
  - (page 14)
HS6B features:
- Only 78 x 30 x 15mm
- Two actuator entrances provide flexibility for installation options
- Integral molded cable reduces wiring time
- IP67 (IEC60529)
- Direct Opening Action
- Actuators comply with ISO14119 and EN1088

Part Numbers

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>Cable Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1NC-1NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1m</td>
<td>HS6B-11B01</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>HS6B-11B03</td>
</tr>
<tr>
<td>2NC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1m</td>
<td>HS6B-02B01</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>HS6B-02B03</td>
</tr>
<tr>
<td>2NC-1NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1m</td>
<td>HS6B-12B01</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>HS6B-12B03</td>
</tr>
<tr>
<td>3NC</td>
<td></td>
<td></td>
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<td>1m</td>
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<td>3m</td>
<td>HS6B-03B03</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>HS6B-03B05</td>
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</table>

Specifications

Conforming to Standards
EN1088, IEC60947-5-1, IEC60947-5-1, GS-ET-15, IEC60664-1, IEC60204-1, IEC60204-1, 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% (no condensation)
Storage Humidity 95% maximum (no condensation)
Rated Insulation Voltage (U) 300V
Degree of Protection IP67 (IEC60529)
Direct Opening Travel 8mm minimum
Direct Opening Force 60N minimum
Thermal Current (Ith) 2.5A

Rated Operating Current (Ie)

Rated Voltage (Ue) 30V 125V 250V
AC
- Resistive load (AC-12) – 2.5A 1.5A
- Inductive load (AC-15) – 1.5A 0.75A
DC
- Resistive load (DC-12) 2.5A 1.1A 0.55A
  (2A) (0.4A) (0.2A)
- Inductive load (DC-13) 2.3A 0.55A 0.27A
  (1A) (0.22A) (0.1A)

Operating Frequency 1200 operations/hour
Mechanical Life 1,000,000 operations (GS-ET-15)
Electrical Life 100,000 operations (at full rated load)
Weight 120g - 1m cable type, 270g - 3m cable type, 420g - 5m cable type

Dimensions (mm)

Actuator Keys

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Part Number</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HS9Z-A61</td>
<td>Straight</td>
</tr>
<tr>
<td></td>
<td>HS9Z-A62</td>
<td>Right-angle</td>
</tr>
<tr>
<td></td>
<td>HS9Z-A65</td>
<td>Adjustable actuator 90° angle</td>
</tr>
<tr>
<td></td>
<td>HS9Z-A66</td>
<td>Adjustable actuator 180° angle</td>
</tr>
</tbody>
</table>

Actuators are not included and must be ordered separately.
HS5D features:
- Detects detachment of head for enhanced safety
- Compact dimensions with up to three contacts
- The head orientation can be rotated, allowing 8 different actuator entries
- NC contacts with direct opening action (IEC/EN60947-5-1)
- M3 terminal screws for easy wiring
- Gold-plated contacts suitable for small loads

**Part Numbers**

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>Gland Port</th>
<th>Plastic Head Type</th>
<th>Metal Head Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1NC-1NO</td>
<td>G1/2</td>
<td>HS5D-11RN</td>
<td>HS5D-112RN</td>
</tr>
<tr>
<td>Main Circuit</td>
<td>PG13.5</td>
<td>HS5D-11RNP</td>
<td>HS5D-112RNP</td>
</tr>
<tr>
<td>Monitor Circuit</td>
<td>M20</td>
<td>HS5D-11RM</td>
<td>HS5D-112RNM</td>
</tr>
<tr>
<td>2NC</td>
<td>G1/2</td>
<td>HS5D-02RN</td>
<td>HS5D-022RN</td>
</tr>
<tr>
<td>Main Circuit</td>
<td>PG13.5</td>
<td>HS5D-02RNP</td>
<td>HS5D-022RNP</td>
</tr>
<tr>
<td>Monitor Circuit</td>
<td>M20</td>
<td>HS5D-022RN</td>
<td>HS5D-022RNM</td>
</tr>
<tr>
<td>2NC-1NO</td>
<td>G1/2</td>
<td>HS5D-12RN</td>
<td>HS5D-122RN</td>
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<tr>
<td>Main Circuit</td>
<td>PG13.5</td>
<td>HS5D-122RNP</td>
<td>HS5D-122RNM</td>
</tr>
<tr>
<td>Monitor Circuit</td>
<td>M20</td>
<td>HS5D-122RN</td>
<td>HS5D-122RNM</td>
</tr>
<tr>
<td>3NC</td>
<td>G1/2</td>
<td>HS5D-03RN</td>
<td>HS5D-032RN</td>
</tr>
<tr>
<td>Main Circuit</td>
<td>PG13.5</td>
<td>HS5D-03RNP</td>
<td>HS5D-032RNP</td>
</tr>
<tr>
<td>Monitor Circuit</td>
<td>M20</td>
<td>HS5D-032RN</td>
<td>HS5D-032RNM</td>
</tr>
</tbody>
</table>

Standard stock items in bold.

**Actuator Keys & Accessories**

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS9Z-A51</td>
<td></td>
<td>Straight</td>
</tr>
<tr>
<td>HS9Z-A51A</td>
<td></td>
<td>Straight w/rubber bushings</td>
</tr>
<tr>
<td>HS9Z-A52</td>
<td></td>
<td>Right-angle</td>
</tr>
<tr>
<td>HS9Z-A52A</td>
<td></td>
<td>Right-angle w/rubber bushings</td>
</tr>
<tr>
<td>HS9Z-A55</td>
<td></td>
<td>Angle Adjustable (vertical/horizontal)</td>
</tr>
<tr>
<td>HS9Z-A5P</td>
<td></td>
<td>Plug Actuator</td>
</tr>
<tr>
<td>HS9Z-SH5</td>
<td></td>
<td>Sliding Actuator</td>
</tr>
<tr>
<td>HS9Z-PH5</td>
<td></td>
<td>Padlock Hasp</td>
</tr>
</tbody>
</table>

*Actuators are not included and must be ordered separately.*

**Specifications**

- **Conforming to Standards**: ISO14119, EN1088, IEC60947-5-1, EN60947-5-1 (TÜV approval), GS-ET-15 (TÜV approval), UL508, CSA C22.2 No. 14, GB14048.5 (CCC approval), IEC60204-1/EN60204-1 (applicable standards for use)
- **Operating Temperature**: -30 to +70°C (no freezing)
- **Storage Temperature**: -40 to +80°C (no freezing)
- **Relative Humidity**: 45 to 85% (no condensation)
- **Rated Insulation Voltage (Ui)**: 300V
- **Degree of Protection**: IP67 (IEC60529)
- **Actuator Operating Speed**: 0.05 to 1.0m/s
- **Direct Opening Travel**: 10mm minimum
- **Direct Opening Force**: 50N minimum
- **Thermal Current (Ith)**: 10A
- **Rated Current (Ie)***: 10A (AC-12 250V), 5A (AC-15), 2.2A (DC-13), 0.6A (DC-13)
- **Minimum Applicable Load (reference)**: 5V AC/DC, 1mA (Applicable range may vary with operating conditions and load types.)
- **Operating Frequency**: 900 operations per hour
- **Mechanical Life**: 1,000,000 operations minimum (GS-ET-15)
- **Electrical Life**: 1,000,000 operations minimum (AC-12 250V, 6A), 1,000,000 operations minimum (24V AC/DC, 100mA) (operation frequency: 900 operations per hour)
- **Weight (approx.)**: Plastic head: 80g, Metal head: 110g

*TÜV rating: AC-15 3A/250V, DC-13 4A/30V

**Dimensions (mm)**

![Dimensions Diagram](image-url)
HS1B 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

<table>
<thead>
<tr>
<th>Model</th>
<th>Contact Configuration</th>
<th>Pilot Light</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>1NC-1NO</td>
<td>Without</td>
<td>HS1B-11R</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>Red LED</td>
<td>HS1B-114R-R</td>
<td></td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td>Green LED</td>
<td>HS1B-114R-G</td>
<td></td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td>2NC</td>
<td>Without</td>
<td>HS1B-02R</td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td>Red LED</td>
<td>HS1B-024R-R</td>
<td></td>
</tr>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td>Green LED</td>
<td>HS1B-024R-G</td>
<td></td>
</tr>
</tbody>
</table>

Standard stock items in bold.

### Actuator Keys & Accessories

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.png" alt="Image" /></td>
<td>HS9Z-A1</td>
<td>Straight Actuator (Mainly for sliding doors)</td>
</tr>
<tr>
<td><img src="image8.png" alt="Image" /></td>
<td>HS9Z-A2</td>
<td>Right-angle Actuator (Mainly for rotating doors)</td>
</tr>
<tr>
<td><img src="image9.png" alt="Image" /></td>
<td>HS9Z-A3</td>
<td>Adjustable Actuator</td>
</tr>
<tr>
<td><img src="image10.png" alt="Image" /></td>
<td>HS9Z-T1</td>
<td>Key Wrench (included with switch)</td>
</tr>
<tr>
<td><img src="image11.png" alt="Image" /></td>
<td>HS9Z-P1</td>
<td>Conduit Opening Plug</td>
</tr>
</tbody>
</table>

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)

- **Rated Insulation Voltage (Ue)**
  - 300V (between LED and ground: 60V)

- **Degree of Protection**
  - IP67 (IEC60529)

- **Actuator Operating Speed**
  - 0.05 to 1.0m/s

- **Direct Opening Travel**
  - 11mm minimum

- **Direct Opening Force**
  - 20N minimum

- **Thermal Current (Ith)**
  - 10A

- **Rated Operating Current (Ie)**
  - Rated Voltage (Ue) | 30V | 125V | 250V |
  - AC | Resistive load (AC-12) | 10A | 10A | 6A |
  - AC | Inductive load (AC-15) | 5A | 3A | |
  - DC | Resistive load (DC-12) | 8A | |
  - DC | Inductive load (DC-13) | 4A | 1.1A | 0.8A |

- **Operating Frequency**
  - 900 operations/hour

- **Mechanical Life**
  - 1,000,000 operations

- **Electrical Life**
  - 100,000 operations (rated load)

- **Recommended Short Circuit Protection**
  - 250V, 10A fuse (Type D01 based on IEC60269-1, 60269-2)

- **Indicator**
  - Operating Voltage: 24V DC
  - Current: 10mA
  - Light Source: LED lamp
  - Lens Color: Red or Green (12mm dia. Lens)

- **Weight (approx)**
  - 280g

### Dimensions (mm)

- ![Image](image12.png)

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**HS6E features:**
- Compact body: 75 × 15 × 75mm
- 15mm wide, thinnest solenoid interlock switch in the world
- Reversible mounting and angled cable allow four actuator insertion directions
- Energy saving: 24V DC, 110mA (solenoid: 100mA, LED: 10mA)
- Manual unlocking possible on three sides
- LED indicator shows solenoid operation
- 500N locking retention force

Part Numbers

<table>
<thead>
<tr>
<th>Mechanical Spring Lock (power solenoid to unlock)</th>
<th>Cable Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Configuration</td>
<td>A1A2</td>
<td>(+)</td>
</tr>
<tr>
<td>(Actuator inserted)</td>
<td>(Solenoid OFF)</td>
<td>1m</td>
</tr>
<tr>
<td>Monitor Circuit:</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Main Circuit:</td>
<td>21</td>
<td>22</td>
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<tr>
<td>Monitor Circuit:</td>
<td>31</td>
<td>32</td>
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<tr>
<td>(Actuator inserted)</td>
<td></td>
<td>1m</td>
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<tr>
<td>Monitor Circuit:</td>
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<td>Monitor Circuit:</td>
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<td>Monitor Circuit:</td>
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<td>12</td>
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<td>Main Circuit:</td>
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<td>22</td>
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<td>Monitor Circuit:</td>
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<tr>
<td>(Actuator inserted)</td>
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<td>Monitor Circuit:</td>
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<td>12</td>
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<td>Main Circuit:</td>
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<td>22</td>
</tr>
<tr>
<td>Monitor Circuit:</td>
<td>33</td>
<td>34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solenoid Lock (remove power to solenoid to unlock)</th>
<th>Cable Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Configuration</td>
<td>A1A2</td>
<td>(+)</td>
</tr>
<tr>
<td>(Actuator inserted)</td>
<td>(Solenoid ON)</td>
<td>1m</td>
</tr>
<tr>
<td>Monitor Circuit:</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Main Circuit:</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Monitor Circuit:</td>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>(Actuator inserted)</td>
<td></td>
<td>1m</td>
</tr>
<tr>
<td>Monitor Circuit:</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Main Circuit:</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Monitor Circuit:</td>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>(Actuator inserted)</td>
<td></td>
<td>1m</td>
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<tr>
<td>Monitor Circuit:</td>
<td>11</td>
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<td>Main Circuit:</td>
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<tr>
<td>Monitor Circuit:</td>
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<td>34</td>
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<tr>
<td>(Actuator inserted)</td>
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<td>1m</td>
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<tr>
<td>Monitor Circuit:</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Main Circuit:</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Monitor Circuit:</td>
<td>33</td>
<td>34</td>
</tr>
</tbody>
</table>

1. Contact configuration shows the contact status when actuator is inserted and solenoid off for spring lock.
2. Contact configuration shows the contact status when actuator is inserted and solenoid on for solenoid lock.
3. Indicator LED color is green.
4. Actuator keys are not supplied with the interlock switch and must be ordered separately.
5. Standard stock items in bold.

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800-262-IDECC

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### Actuator Keys & Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HS9Z-A61</td>
<td>Straight</td>
</tr>
<tr>
<td></td>
<td>HS9Z-A62</td>
<td>Right-angle (actuator retention force 100N max)</td>
</tr>
<tr>
<td></td>
<td>HS9Z-A62S</td>
<td>Right-angle with Mounting Plate</td>
</tr>
<tr>
<td></td>
<td>HS9Z-A65</td>
<td>Angle adjustable with hex screw (horizontal or vertical configurable)</td>
</tr>
<tr>
<td></td>
<td>HS9Z-A66</td>
<td>Angle Adjustable (horizontal or vertical configurable)</td>
</tr>
<tr>
<td></td>
<td>HS9Z-T3</td>
<td>Manual Unlock Key (long type - metal)</td>
</tr>
</tbody>
</table>

1. Actuators are not included and must be ordered separately.

### Specifications

#### Conforming to Standards
- UL 508, CSA C22.2, No. 14, ISO 14119, IEC 60947-5-1, EN 60947-5-1 (TÜV approval), EN 1088 (TÜV approval), GS-ET-19, IEC 60204-1/EN 60204-1 (applicable standards for use)

#### Operating Temperature
- –25 to +50°C (no freezing)

#### Storage Temperature
- –40 to +80°C (no freezing)

#### Relative Humidity
- 45 to 85% (no condensation)

#### Rated Insulation Voltage (Ui)
- 300V (door monitor contact), 150V (lock monitor contact), 30V (between LED or solenoid and ground)

#### Electric Shock Protection Class
- Class II (IEC 61140)

#### Degree of Protection
- IP67 (IEC 60529)

#### Actuator Operating Speed
- 0.05 to 1.0m/s

#### Direct Opening Travel
- 8.0mm minimum

#### Direct Opening Force
- 60N minimum

#### Thermal Current (Ith)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temp.</td>
<td>2.5A (up to 2 circuits)</td>
</tr>
<tr>
<td>2.5A (up to 2 circuits)</td>
<td></td>
</tr>
<tr>
<td>Operating temp.</td>
<td>1.0A (3 or more circuits)</td>
</tr>
<tr>
<td>1.0A (3 or more circuits)</td>
<td></td>
</tr>
</tbody>
</table>

#### Rated Operating Current (Ie)

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Rated Voltage (Ue)</th>
<th>30V</th>
<th>125V</th>
<th>250V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main &amp; Lock Monitor Circuit</td>
<td>AC Resistive load (AC-12)</td>
<td>2A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inductive load (AC-15)</td>
<td></td>
<td>1A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DC Resistive load (DC-12)</td>
<td></td>
<td>0.4A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inductive load (DC-13)</td>
<td>2A</td>
<td>0.22A</td>
<td></td>
</tr>
<tr>
<td>Door Monitor Circuit</td>
<td>AC Resistive load (AC-12)</td>
<td></td>
<td>2.5A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inductive load (AC-15)</td>
<td>2.3A</td>
<td>1.1A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DC Resistive load (DC-12)</td>
<td>2.3A</td>
<td>0.55A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inductive load (DC-13)</td>
<td></td>
<td>0.27A</td>
<td></td>
</tr>
</tbody>
</table>

#### Minimum Applicable Load (reference)
- 3V AC/DC, 5 mA

#### Actuator Retention Force
- 500N maximum (GS-ET-19)

#### Operating Frequency
- 900 operations/hour

#### Mechanical Life
- 1,000,000 operations minimum (GS-ET-19)

#### Electrical Life
- 100,000 operations minimum (rated load)
- 1,000,000 operations minimum (24V AC/DC, 100mA) (operating frequency 900 operations/hr)

#### Cable
- UL2464, No. 22 AWG (12-core: 0.3mm² or equivalent/core)

#### Cable Diameter
- ø7.6mm

#### Weight
- 220g - 1m cable type, 410g - 3m cable type, 600g - 5m cable type

1. UL, c-UL rating: Main/Lock monitor circuit: 125V AC, 1A Pilot duty, 125V DC, 0.22A Pilot duty
   - Door monitor circuit: 240V AC, 0.75A Pilot duty, 250V DC, 0.27A Pilot duty
2. TÜV rating: Main/Lock monitor circuit: AC-15 125V/1A, DC-13 125V/0.22A
   - Door monitor circuit: AC-15 240V/0.75A, DC-13 250V/0.27A

### Dimensions (mm)

![Dimensions Diagram](image-url)
HS5E features:
- World's smallest 4 contact solenoid interlock switch (35 x 40 x 146mm)
- Flexible installation - the head can rotate, allowing 8 different actuator entries
- Metal actuator entry slot ensures long life
- Actuator locking strength is 1400N minimum (GS-ET-19)
- LED pilot light indicates the solenoid status
- IP67 (IEC60529)

**Part Numbers**

**Mechanical Spring Lock (power solenoid to unlock)**

<table>
<thead>
<tr>
<th>Contact Arrangement</th>
<th>Pilot Light</th>
<th>Cable Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door Monitor (Actuator inserted)</td>
<td>Lock Monitor (Solenoid Off)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Circuit: Monitor Circuit: Monitor Circuit:</td>
<td>Yes</td>
<td>1m</td>
<td>HSSE-A4001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3m</td>
<td>HSSE-A4003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5m</td>
<td>HSSE-A4005</td>
</tr>
</tbody>
</table>

**Solenoid Lock (remove power to solenoid to unlock)**

<table>
<thead>
<tr>
<th>Contact Arrangement</th>
<th>Pilot Light</th>
<th>Cable Length</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door Monitor (Actuator inserted)</td>
<td>Lock Monitor (Solenoid ON)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Circuit: Monitor Circuit: Monitor Circuit:</td>
<td>Yes</td>
<td>1m</td>
<td>HSSE-A4401-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3m</td>
<td>HSSE-A4403-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5m</td>
<td>HSSE-A4405-G</td>
</tr>
</tbody>
</table>

1. Contact configuration shows the contact status when actuator is inserted and solenoid off for spring lock.
2. Contact configuration shows the contact status when actuator is inserted and solenoid on for solenoid lock.
3. Main circuit has door and lock monitor contacts wired in series internally.
### Actuator Keys & Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS9Z-A51</td>
<td>Straight</td>
<td></td>
</tr>
<tr>
<td>HS9Z-A52</td>
<td>Right-angle</td>
<td></td>
</tr>
<tr>
<td>HS9Z-A53</td>
<td>Angle adjustable vertical operation</td>
<td></td>
</tr>
<tr>
<td>HS9Z-A55</td>
<td>Angle adjustable horizontal/vertical operation</td>
<td></td>
</tr>
<tr>
<td>HS9Z-A5P</td>
<td>Plug Actuator (allows switch to be used as interlock plug unit)</td>
<td></td>
</tr>
<tr>
<td>HS9Z-PH5</td>
<td>Padlock Hasp (prevents unauthorized insertion of actuator)</td>
<td></td>
</tr>
<tr>
<td>HS9Z-SP51</td>
<td>Mounting Plate (allows easy mounting to aluminum frames)</td>
<td></td>
</tr>
<tr>
<td>HS9Z-T3</td>
<td>Manual unlock key (long type - metal)</td>
<td></td>
</tr>
<tr>
<td>HS9Z-SH5</td>
<td>Sliding Actuator</td>
<td></td>
</tr>
</tbody>
</table>

1. The actuator tensile strength is 500N minimum.
2. Actuators are not included and must be ordered separately.

### Specifications

- **Conforming to Standards**: ISO14119, IEC60947-5-1, EN60947-5-1 (TÜV approval), EN1088, GS-ET-19 (BG approval), UL508, CSA C22.2, No. 14, GB 140485.5 (CCC approval) IEC60204-1/EN60204-1
- **Operating Temperature**: –25 to 50°C (no freezing)
- **Relative Humidity**: 45 to 85% (no condensation)
- **Rated Insulation Voltage (U) Note 1**: 250V (between LED, solenoid and grounding: 30V)
- **Storage Temperature**: –40 to +80°C (no freezing)
- **Actuator Operating Speed**: 0.05 to 1.0m/s
- **Direct Opening Travel**: Actuator HS9Z-A51: 11mm minimum
  Actuator HS9Z-A52/A53/A55: 12mm minimum
- **Direct Opening Force**: 80N minimum
- **Thermal Current (Ith)**: 2.5A
- **Rated Operating Current (Ie)** Note 2
  - **Rated Voltage (Ue)** 30V 125V 250V
  - Resistive load (AC-12): — 2A 1A
  - Inductive Load (AC-15): — 1A 0.5A
  - DC Resistive load (DC-12): 2A 0.4A 0.2A
  - Inductive Load (DC-13): 1A 0.22A 0.1A
- **Minimum Applicable Load (reference)**: 3V AC/DC, 5mA
- **Actuator Retention Force**: 1400N minimum (GS-ET-19)
- **Operating Frequency**: 900 operations per hour
- **Mechanical Life**: 1,000,000 operations minimum (GS-ET-19)
- **Electrical Life**: 100,000 operations minimum (operating frequency 900 operations per hour, rated load AC-12, 250V, 1A)
- **Cable**: UL2464, No. 21AWG - 8-core: 0.5mm² or equivalent/core
  (HS5E-V types: No. 22AWG - 12-core: 0.3mm² on equivalent/core)
- **Cable Diameter**: ø7.6mm
- **Solenoid**: Rated Voltage 24V DC (100% duty cycle)
  - Current: 268mA (initial value)
- **Pilot Light**: Rated Voltage 24V DC
  - Current: 10mA
- **Weight (approx.)**: 400g - 1m cable type, 580g - 3m cable type, 760g - 5m cable type

1. UL rating: 125V
2. TUV, BG rating: AC-15, 0.5A/250V, DC-13, 0.22A/125V
3. UL, c-UL rating: Pilot duty AC 0.5A/125V, Pilot duty DC 0.22A/125V

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**Dimensions (mm)**

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HS1E features:
- Plastic Housing: Lightweight
- 1500N locking retention force
- Available with a red or green indicator
- Choose from 4 circuit configurations
- Flexible Installation: The actuator can be accessed from two directions
- Ease of Wiring: M3.5 termination screws

Part Numbers (Mechanical Spring Lock only)

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>LED</th>
<th>Standard</th>
<th>Manual Unlock Key</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main circuit: 1NC + 1NC</strong>&lt;br&gt;Monitor circuit: 1NO/1NO</td>
<td>None</td>
<td>HS1E-40R</td>
<td>HS1E-40KR</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>HS1E-44R-G</td>
<td>HS1E-44KR-G</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>HS1E-44R-R</td>
<td>HS1E-44KR-R</td>
</tr>
</tbody>
</table>

1. Key wrench for TORX screws (HS9Z-T1) is supplied with the interlock switch.
2. Actuator is not supplied with the interlock switch, and must be ordered separately.
3. TORX is a registered trademark of Camcar Textron.
### Actuator Keys & Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS9Z-A1</td>
<td></td>
<td>Straight Actuator</td>
</tr>
<tr>
<td>HS9Z-A2</td>
<td></td>
<td>Right-angle Actuator</td>
</tr>
<tr>
<td>HS9Z-A3</td>
<td></td>
<td>Angle Adjustable Actuator</td>
</tr>
<tr>
<td>HS9Z-T1</td>
<td></td>
<td>Key Wrench (included with switch)</td>
</tr>
<tr>
<td>HS9Z-P1</td>
<td></td>
<td>Conduit Opening Plug (G1/2)</td>
</tr>
</tbody>
</table>

Actuators are not included and must be ordered separately.

### Specifications

- **Conforming to Standards**: EN1088, IEC60947-5-1, EN60947-5-1(TUV), ISO14119, GS-ET-19 (BG), UL508, CSA C22.2 No. 14, GB14048.5 (CCC approval), IEC60204-1, EN60204-1 (applicable standards for use)

- **Operating Temperature**: –20 to +40°C (no freezing)

- **Storage Temperature**: –40 to +80°C

- **Relative Humidity**: 45 to 85% (no condensation)

- **Electric Shock Protection**: Class II (according to IEC61140)

- **Degree of Protection**: IP67 (IEC60529)

- **Vibration Resistance**: Operating Extremes: 10 to 55Hz (amplitude 0.35mm)

- **Damage Limits**: 10Hz (amplitude 1.5m)

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

- **Actuator Retention Force**: 1,500N minimum (per GS-ET-19)

- **Actuator Operating Speed**: 0.05 to 1.0m/s

- **Direct Opening Travel**: 11mm minimum

- **Direct Opening Force**: 20N minimum

- **Thermal Current (Ith)**: Main circuit: 10A, Auxiliary circuit: 3A

#### Rated Operating Current (Ij)

<table>
<thead>
<tr>
<th>Main Circuit</th>
<th>AC Resistive load (AC-12)</th>
<th>Inductive load (AC-15)</th>
<th>DC Resistive load (DC-12)</th>
<th>Inductive load (DC-13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30V</td>
<td>10A</td>
<td>5A</td>
<td>6A</td>
<td>3A</td>
</tr>
<tr>
<td>125V</td>
<td>10A</td>
<td>3A</td>
<td>3A</td>
<td>3A</td>
</tr>
<tr>
<td>250V</td>
<td>6A</td>
<td>3A</td>
<td>3A</td>
<td>3A</td>
</tr>
</tbody>
</table>

#### Auxiliary Circuit

<table>
<thead>
<tr>
<th>AC Resistive load (AC-12)</th>
<th>Inductive load (AC-15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A</td>
<td>3A</td>
</tr>
<tr>
<td>0.9A</td>
<td>3A</td>
</tr>
<tr>
<td>3A</td>
<td>3A</td>
</tr>
</tbody>
</table>

- **Rated Operating Voltage (Ue)**: Main Circuit: 10V, 125V, 250V

- **Rated Voltage (Ue)**: 30V, 125V, 250V

- **Rated Line Voltage (Ue)**: 30V, 125V, 250V

- **Rated Current (Ie)**: 6A, 3A, 3A

- **Rated Power (Pe)**: 1.5kW, 1.5kW, 1.5kW

- **Rated Thermal Power (Pth)**: 2.5kW, 2.5kW, 2.5kW

- **Rated Heat Dissipation (Qd)**: 2.5kW, 2.5kW, 2.5kW

- **Operating Frequency**: 900 operations/hour max.

- **Mechanical Life**: 1,000,000 operations min. (at full rated load)

- **Electrical Life**: 100,000 operations (rated load)

#### Solenoid Unit

- **Operating Voltage**: 24V DC (100% duty cycle)

- **Current**: 292mA (initial value)

- **Coil Resistance**: 10Ω (at 20°C)

- **Pickup Voltage**: 20.4V maximum (at 20°C)

- **Drop Out Voltage**: 2.4V minimum (at 20°C)

- **Allowable Voltage**: 26.4V max (continuous)

- **Insulation Class**: Class F

#### Indicator

- **Operating Voltage**: 24V DC

- **Current**: 10mA

- **Light Source**: LED lamp

- **Lens Color**: Red or Green

- **Weight (approx)**: 500g

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**Note:**

Plug the unused actuator entry slot using the slot plug supplied with the interlock switch.
**HS1L features:**
- 3,000N locking retention force
- LED indicator
- Energy-efficient solenoid
- 6 contacts with easy-to-wire terminations
- M3 terminal screws for easy wiring

### Part Numbers

#### Mechanical Spring Lock (power solenoid to unlock)

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>Conduit Size</th>
<th>LED</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main circuit:</td>
<td>G1/2</td>
<td>Red</td>
<td>HS1L-R4KMSR-R</td>
</tr>
<tr>
<td>Monitor circuit:</td>
<td>PG13.5</td>
<td>Red</td>
<td>HS1L-R4KMSRP-R</td>
</tr>
<tr>
<td>Monitor circuit:</td>
<td>M20</td>
<td>Red</td>
<td>HS1L-R4KMSRM-R</td>
</tr>
<tr>
<td>Monitor circuit:</td>
<td></td>
<td>Green</td>
<td>HS1L-R4KMSRM-G</td>
</tr>
</tbody>
</table>

#### Solenoid Lock (remove power to solenoid to unlock)

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>Conduit Size</th>
<th>LED</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main circuit:</td>
<td>G1/2</td>
<td>Red</td>
<td>HS1L-R7Y4KMSR-R</td>
</tr>
<tr>
<td>Monitor circuit:</td>
<td>PG13.5</td>
<td>Red</td>
<td>HS1L-R7Y4KMSRP-R</td>
</tr>
<tr>
<td>Monitor circuit:</td>
<td>M20</td>
<td>Red</td>
<td>HS1L-R7Y4KMSRM-R</td>
</tr>
<tr>
<td>Monitor circuit:</td>
<td></td>
<td>Green</td>
<td>HS1L-R7Y4KMSRM-G</td>
</tr>
</tbody>
</table>

1. Contact configuration shows the contact status when actuator is inserted and solenoid off for spring lock.
2. Contact configuration shows the contact status when actuator is inserted and solenoid on for solenoid lock.
3. Actuators are not supplied with the interlock switch and must be ordered separately.

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### Actuator Keys & Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="actuator1.png" alt="" /></td>
<td>HS9Z-A1S</td>
<td>Straight Actuator</td>
</tr>
<tr>
<td><img src="actuator2.png" alt="" /></td>
<td>HS9Z-A2S</td>
<td>L-shaped Actuator</td>
</tr>
<tr>
<td><img src="actuator3.png" alt="" /></td>
<td>HS9Z-A3S</td>
<td>Angle Adjustable Actuator (vertical operation only)</td>
</tr>
<tr>
<td><img src="wrench.png" alt="" /></td>
<td>HS9Z-T1</td>
<td>Key Wrench (included with switch)</td>
</tr>
<tr>
<td><img src="plug.png" alt="" /></td>
<td>HS9Z-P1</td>
<td>Conduit Opening Plug (G1/2)</td>
</tr>
</tbody>
</table>

Actuators are not included and must be ordered separately.

### Specifications

**Conforming to Standards**
- ISO14119, IEC60947-5-1
- EN60947-5-1 (TÜV approval)
- UL508, CSA C22.2 No. 14
- IEC60204-1/EN60204-1 (applicable standards for use)

**Operating Temperature**
- −20 to +55°C (no freezing)

**Storage Temperature**
- −40 to +80°C (no freezing)

**Relative Humidity**
- 45 to 85% (no condensation)

**Rated Insulation Voltage (U<sub>i</sub>)**
- 300V

**Overvoltage Category**
- III

**Electric Shock Protection**
- Class II (IEC 61140)

**Degree of Protection**
- IP67 (IEC 60529)

**Shock Resistance**
- Damage limits: 1000m/s²

**Actuator Retention Force**
- 3000N minimum (GS-ET-19)

**Actuator Operating Speed**
- 0.05 to 1.0m/s

**Direct Opening Travel**
- 11mm minimum

**Direct Opening Force**
- 50N minimum

**Thermal Current (I<sub>t</sub>)**
- 10A

**Rated Operating Current (I<sub>e</sub>)**

<table>
<thead>
<tr>
<th></th>
<th>AC Resistive Load (AC-12)</th>
<th>AC Inductive Load (AC-15)</th>
<th>DC Resistive Load (DC-12)</th>
<th>DC Inductive Load (DC-13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Voltage</td>
<td>30V 125V 250V</td>
<td>10A 10A 6A</td>
<td>8A 2.2A 1.1A</td>
<td>4A 1.1A 0.6A</td>
</tr>
</tbody>
</table>

**Operating Frequency**
- 900 operations per hour

**Mechanical Life**
- 1,000,000 operations minimum (GS-ET-19)

**Electrical Life**
- 100,000 operations minimum (AC-15 3A/250V) 1,000,000 operations minimum (24V AC/DC, 100mA) (operating frequency 900 operations per hour)

**Solenoid Unit**
- Rated Operating Voltage: 24V DC (100% duty cycle)
- Rated Current: 200mA (initial value)

**Indicator**
- Rated Operating Voltage: 24V DC
- Rated Current: 10mA
- Light Source: LED
- Illumination Color: Green (G), Red (R)

**Weight (approx.)**
- 450g (HS1L-DQ44)

1. Minimum applicable load (reference value): 3V AC/DC, 5mA
   (Applicable range may vary with operating conditions and load types.)
2. TÜV rating: AC-15 3A/250V, DC-13 4A/30V
   UL, c-UL rating: A300, Pilot duty: AC 3A/250V, Pilot duty: DC 4A/30V
**HS1C features:**
- Rugged aluminum die-cast housing
- 1500N locking retention force
- Flexible Installation: The actuator can be accessed from two directions
- Select from four different circuit configurations
- IP67

**Part Numbers** (Mechanical Spring Lock Only)

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>Indicator LED</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Circuit: 1NC+1NC, Auxiliary Circuit: 1NO/1NO</td>
<td>Green</td>
<td>HS1C-R44R-G</td>
</tr>
<tr>
<td>Contacts are linked to the solenoid mechanically</td>
<td>Red</td>
<td>HS1C-R44R-R</td>
</tr>
<tr>
<td>Main Circuit: 1NC+1NC, Auxiliary Circuit: 1NO</td>
<td>Green</td>
<td>HS1C-R144R-G</td>
</tr>
<tr>
<td>Contacts are linked to the solenoid mechanically</td>
<td>Red</td>
<td>HS1C-R144R-R</td>
</tr>
</tbody>
</table>

**Contact Configuration**

| Main Circuit: 1NC+1NC, Auxiliary Circuit: 1NC+1NC | Green | HS1C-R244R-G |
| Contacts are linked to the solenoid mechanically | Red | HS1C-R244R-R |

| Main Circuit: 1NC+1NC, Auxiliary Circuit: 1NC | Green | HS1C-R344R-G |
| Contacts are linked to the solenoid mechanically | Red | HS1C-R344R-R |

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Actuator Keys & Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS9Z-A1</td>
<td>Straight Actuator</td>
<td></td>
</tr>
<tr>
<td>HS9Z-A2</td>
<td>Right-angle Actuator</td>
<td></td>
</tr>
<tr>
<td>HS9Z-A3</td>
<td>Adjustable Actuator</td>
<td></td>
</tr>
<tr>
<td>HS9Z-T1</td>
<td>Key Wrench (included with switch)</td>
<td></td>
</tr>
<tr>
<td>HS9Z-P1</td>
<td>Conduit Opening Plug (G1/2)</td>
<td></td>
</tr>
</tbody>
</table>

Actuators are not included and must be ordered separately.

Specifications

- **Conforming to Standards**: EN1088, IEC60947-5-1, EN60947-5-1, GS-ET-19, UL508, GB 140485.5 (CCC approval), CSA C22.2 No. 14
- **Operating Temperature**: –20 to +40°C (no freezing)
- **Storage Temperature**: –40 to +80°C
- **Relative Humidity**: 40 to 85% (no condensation)
- **Rated Insulation Voltage (U)**: 300V (between LED or solenoid and ground: 60V)
- **Actuator Retention Force**: 1,500N minimum
- **Actuator Operating Speed**: 0.05 to 1.0m/s
- **Direct Opening Travel**: 11mm minimum
- **Direct Opening Force**: 20N minimum
- **Thermal Current (Ith)**: Main circuit: 10A, Auxiliary circuit: 3A

### Rated Operating Current (Iₑ)

<table>
<thead>
<tr>
<th>Rated Voltage (Uₑ)</th>
<th>Main Circuit</th>
<th>Auxiliary Circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AC</td>
<td>DC</td>
</tr>
<tr>
<td>30V</td>
<td>10A</td>
<td>6A</td>
</tr>
<tr>
<td>125V</td>
<td>10A</td>
<td>3A</td>
</tr>
<tr>
<td>250V</td>
<td>6A</td>
<td>3A</td>
</tr>
</tbody>
</table>


- **Rated Insulation Voltage (Uₑ)**: AC Inductive load (AC-15): 3A, DC Inductive load (DC-13): 0.9A

- **Operating Frequency**: 900 operations/hour max.
- **Mechanical Life**: 1,000,000 operations
- **Electrical Life**: 100,000 operations (rated load)
- **Recommended Short Circuit Protection**: 250V, 10A fuse (Type D01 based on IEC60269-1, 60269-2)
- **Solenoid Unit**: Operating Voltage: 24V DC (100% duty cycle); Current: 415mA (initial value)
- **Indicator**: Operating Voltage: 24V DC; Current: 10mA; Light Source: LED lamp; Lens Color: Red or Green

### Dimensions (mm)

- **Conduit Port G1/2**: 23.5 x 106
- **Dimensions**: 23.5 x 106
- **Weight (approx)**: 660g

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**Note**: Dimensions and weights are approximate and subject to change.
FS1A Safety Controllers - Consolidate Multiple Safety Relays to One SmartSafety Relay

FS1A features:

- No programming required
- Easily replaces 2 - 3 safety relay control modules
- 8 or 24 pre-programmed logic safety circuits
- Connect with various types of safety inputs
- Monitor status of safety I/Os and error codes
- IEC 61508 integrity level 3, ISO 13849-1 performance level e and EN954-1 safety category 4 compliant

When you want a straightforward system that’s safe, easy-to-install and won’t cost an arm and a leg, an IDEC SafetyOne FS1A is the answer! The FS1A offers up to 24 pre-programmed logic safety circuits. That means you can configure a system without any programming, just by selecting one logic from either 8 (FS1A-C01S) or 24 (FS1A-C11S) to configure a safety system.

Unlike multiple safety relays, which require lots of cumbersome wiring and take up too much space, the entry-level safety controller makes it easy to consolidate basic safety circuits. At the same time they save space and minimize wiring.

FS1A SafetyOne can easily replace two to three safety relay control modules with no programming required. Not only that, SafetyOne can be configured simply by flipping dip switches to select a logic. One module can connect with various safety components such as Emergency Stop switches, light curtains, Interlock switches, two hand controls and auxiliary components such as muting lights, sensors and much more.

FS1A is UL listed, TUV rated and CE marked, as well as meets IEC 61508 integrity level 3, ISO 13849-1 performance level e and EN954-1 safety category 4.

Monitor Output

Muting function of light curtains

Solenoid drive output

Replaces more than seven safety relay modules

Two-hand Control

Mode selection

Four safety output lines
SG Safety Light Curtains - a Quality, Affordable Hazardous Area Access Solution

SG Light Curtain features:
- Integrated light curtain for Finger or Body Protection
- Operating distance up to 6m or 19m
- Heights from 150 to 1800mm
- Compact 32 x 37mm profile
- Sturdy profile and rotating brackets
- User interface with display
- Alignment function

The SG2 Type 2 series offers two models, the SG2 basic and the SG2 extended. Available functions include Test/Restart, EDM and Anti-interference. With very fast response times, the SG2 series can be installed right next to a hazardous area improving productivity. The rotating mounting brackets make installation and the alignment of the emitting and receiving units easy, even at long distances and in applications that use mirrors.

Enabling Switches - Ensuring Operator Safety

Enabling Switch features:
- Ergonomically-designed OFF-ON-OFF 3-position operation
- Employs direct opening action mechanism for ON-OFF operation by pressing tightly
- Contacts will not turn on when released from OFF (position 3) to OFF (position 1)
- IEC/EN 60947-5-8 Compliant

IDEC enabling switches are used in numerous pendants and grip switches around the world. Developed using IDEC’s fundamental philosophy to provide high reliability in products, our enabling switches provide optimal safety.

An enabling switch is a 3-position (OFF-ON-OFF) switch to allow machine operation only when the switch is lightly pressed and held in the middle position (position 2). Because it disables machine operation when released (position 1) or further depressed (position 3) by a panicked operator, the safety of operators is ensured. When operators use pendants to perform teaching, system changeover and maintenance, they must have protection against unpredictable machine operation. Therefore teaching pendants are equipped with 3-position enabling switches.
For over 60 years, IDEC has manufactured reliable, high-quality Emergency Stop switches and consistently led the market in new technology and innovation for machine operator safety. By surpassing current international standards, IDEC E-Stops are the safest in the world.

**RF1V Force Guided Relays**

Force guided relays are used in safety circuits to detect failures such as contact welding and damage to the contact spring. The contacts of these relays are "forced" to open and close by a guide connected to the armature. Available in four or six pole models, all relays have 6A rated contacts. RF1V can be mounted directly on a printed circuit board or can use DIN RAIL or PCB mount sockets.