In automotive and auto-parts manufacturing, both productivity and safety are essential. As a steadfast supplier to the automotive industry, IDEC combines both its technology achievements and customer experience insights to develop the most reliable products. For decades, IDEC has provided a variety of product solutions that meet the diverse demands of our customers. As the auto industry continues to evolve at an accelerated pace, we will embrace new challenges and offer more products that can deliver added value to our customers.
IDEC's Commitment to the Automotive Industry

ENHANCING PRODUCTIVITY AND SAFETY

The IDEC Group has spent many years examining trends and solving challenges in the automotive industry. We supply a variety of product groups required in manufacturing processes, from press to bodies, engines, and transmissions. We thoroughly observe all safety procedures, especially in environments where people and machines coexist. As a company aiming to pursue the most advanced safety and security technologies in the world, IDEC will continue to contribute to improving the safety and productivity of workers.

FOR SAFER AUTOMOTIVE MANUFACTURING
NEXT-GENERATION CONCEPT "SAFETY2.0"

As the era of collaboration between people, machines, and robots is in full swing for automotive manufacturing equipment, the IDEC Group is promoting the next generation safety concept Safety2.0. Until now, we have increased the level of safety by making machines safe and eliminating areas where people and machines coexist. However, with Safety 2.0, people, things, and the environment are instead coordinated in order to maintain a high level of safety in areas where people and machines coexist. Building on the concept of Safety2.0, the IDEC Group will continue to provide higher value-added services to customers, including proposing flexible, safe, and highly productive automotive manufacturing systems, and consulting on safety measures for collaborative robot systems.

SERVING AUTOMOTIVE PRODUCTION PLANTS
AND MANUFACTURING FACILITIES AROUND THE WORLD

In addition to delivering unique products to automotive production plants and manufacturing facilities around the world in a timely manner, IDEC provides local in-person and online support in multiple languages to our customers in all regions.
Innovative solutions for the evolving automotive industry

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Safety products to ensure safety of workers

1. Safety Light Curtains SE4D-C

2. Flush Mount Silhouette Switches LB / LBW Series

3. Emergency Stop Switches X Series

4. Safety Laser Scanners SE2L

5. Interlock Switches with Solenoid HS5D / HS5L

6. Door Handle Actuators for HSS Series

7. Non-contact Interlock Switches HS3A

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14. Tablet-Mount Safety Device Safety Commander™

15. Smart RFID Reader KW2D

16. Safety products to ensure safety of workers
Innovative solutions for the evolving automotive industry

Push-in connection products to save maintenance time

1. Safety Relay Module
   HR6S

2. Push-In Switches & Pilot Lights
   HW/CW Series

3. Relays/Push-In Relay Sockets
   RU/RJ/RN/SU/SJ Series

Charging equipment for use in various environments

5. Metal Switches
   AV Series

15. Operator Interfaces
    HG Series

16. Safety Relay Barriers
    (Intrinsically Safe Explosion-Proof Structure)
    EB3N

Emergency Stop Switches
X Series

Safety Laser Scanners
SE2L

Interlock Switches/Interlock Switches with Solenoids
HS5D/HS5L

Force Guided Relays
RF1/RF2

Operator Interface Handheld Model
HG1P
Safety Commander™

Tablet Mount Safety Device

Safety features (emergency stop switch / enabling switch) made available to commercially available tablets for use as a remote controller or teaching pendants

- The device can hold 8 to 11-inch tablets with flexible mounting depending on the required display size.
- Emergency stop switch located in an easy-to-operate position. Pivoting mechanism allows the tablet to be used vertically or horizontally.
- Ergonomic grip design ideal for long and fatigue-free operation.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Operating Temperature</th>
<th>Operating Humidity</th>
<th>Degree of Protection</th>
<th>Supported Tablet Size</th>
<th>Supported Tablet Thickness</th>
<th>Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Commander</td>
<td>-20 to +55°C, (-20 to +35°C (*1))</td>
<td>45 to 85% RH</td>
<td>IP54</td>
<td>8 to 11 inches</td>
<td>Up to 24mm</td>
<td>Emergency stop switch: XA1E-LV302Q4R, Enabling switch: HES0-M2PY</td>
</tr>
</tbody>
</table>

*1) The above image shows the device mounted on a commercially available tablet.

* The tablet must be purchased by the user.

Safety added to tablets for robot operation

BEFORE

No access to safety controls when tablets are used.

AFTER

Reliable safety control is readily available, making teaching safer in hazardous areas.

Emergency stop switch and enabling switch are easily accessible while holding the tablet with one hand.
**SAE**

**Miniature Photoelectric Switches**

- Industry standard 25.4mm-size for installation.
- **Light On / Dark On** switching available to reduce maintenance parts inventory and make on-site setting changes possible.
- 3 diffuse reflective models available according to distance (1000mm, 500mm, 100mm) for flexible installation.
- QR codes are printed on the products, enabling easy access to operating instructions from smartphones.

**HR6S**

**Safety Relay Module**

- IDEC safety relay modules, including HR5S category 2 relay modules, cover all safety requirements from categories 1 to 4.
- Diagnostic functions for approx. 20 items and status output available using pulse signals.
- Supports variety of input devices that were not available on conventional models.

**SE4D-C**

**Safety Light Curtain**

- High performance safety light curtains with lightweight plastic housing.
- Approximately 36% smaller (cross-section) and 45% lighter than conventional models.
- Compact size fits on a 20 x 20mm aluminum frame, enabling downsizing of equipment.
- **Large operation indicators** indicates the presence of the light curtain and prevent downtime due to inadvertent shading.
- Equipped with a variety of functions such as muting control for each optical axis.

*SE4D is shown as image.*
New Products

KW2D

Smart RFID Reader

Smart user authority control and log management with RFID

- Standard Ø22 mm panel cut-out enables easy installation.
- Device equipped with verification function. Easy tag registration using a software program.
- Ethernet communication (Modbus TCP, EtherNet/IP and IO-Link) allows easy and flexible integration.
- Suitable for battery production lines (copper-free products) (*)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Model</th>
<th>Rated Input Voltage</th>
<th>Operating Temperature</th>
<th>Degree of Protection</th>
<th>RFID Interface Specifications</th>
<th>Supported Tags</th>
</tr>
</thead>
</table>
| KW2D         | Without holder: KW2D-R100Q4E | 24V DC | -25 to +55°C | Front unit: IP66F/67F  
Back unit: IP20 | ISO/IEC14443 Type A (Type A), ISO/IEC18092 (Type F), JIS X6319-4 (Type F), ISO/IEC 15693 (Type V) | ISO/IEC14443 Type A, ISO/IEC18092, JIS X6319-4, ISO/IEC15693 |
|              | With holder: KW2D-RH100Q4E | 2.4W max. | | Front unit: IP65F  
Back unit: IP20 | | ISO/IEC14443 Type A |

(*) Condition: Material used on the surface of the product does not contain copper. (Does not apply to the inside of the product) Contact IDEC for details.

Recordkeeping and authorization management for operators

BEFORE

Do not know when and who was involved in the production process

AFTER

History log of operators enables detailed authorization management.

An RFID reader is mounted on an operation panel with ø22mm panel cut-out. The reader is then used to register workers and authenticate their ID.
Push-in terminal reduces wiring time
Single LED reduces spare parts

| Push-in terminals enable easy wiring without special skills. |
| Up to 55% less wiring time compared to conventional screw terminals. Reduces downtime during manufacturing and maintenance (*1). |
| A single LED light source for 6 colors, reducing spare part count. |
| Suitable for battery production lines (copper-free products) (*2). |

---

### Time saving & efficient

**Reduces wiring time**

Push-in connections are made simple by inserting the wire, reducing wiring time by approximately 55% compared to conventional screw terminals.

---

### Six different colors with a single LED

![LED colors](image)

<table>
<thead>
<tr>
<th>HW</th>
<th>CW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Yellow</td>
<td>Yellow</td>
</tr>
<tr>
<td>Amber</td>
<td>Amber</td>
</tr>
<tr>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>Pure White</td>
<td>Pure White</td>
</tr>
</tbody>
</table>

---

### Product Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Mounting Hole Size (mm)</th>
<th>Bezel Size (mm)</th>
<th>Terminal Style</th>
<th>IP Rating</th>
<th>Contact Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW</td>
<td>Ø22</td>
<td>Ø30</td>
<td>Screw</td>
<td>IP65 (*1)</td>
<td>Rated insulation voltage: 600V Rated current: 10A</td>
</tr>
<tr>
<td>CW</td>
<td>Ø22</td>
<td>Ø30</td>
<td>Push-in</td>
<td>IP65</td>
<td>Rated insulation voltage: 300V Rated current: 10A</td>
</tr>
</tbody>
</table>

* *1 Based on IDEC research. |
* *2 Excluding key selector switches. |
Condition: Material used on the surface of the product does not contain copper. (Does not apply to the inside of the product) |
Contact IDEC for details.

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Application: Operation panels

Using push-in technology to improve the efficiency of wiring work
RU/RJ/SU/SJ Series
Relays/Push-In Relay Sockets

Relays & relay sockets for high performance and usability

Push-in connections reduce wiring time by 55% (*1).
RJ relays with high contact current and Slim design (12.7mm) achieve downsizing of control panels.
Push-in connections eliminate tightening of screws during maintenance.

*1 Compared to conventional screw terminals (Based on IDEC research).

Time Saving & Efficient
Save up to 55% in wiring time
Wiring time greatly reduced compared with conventional screw terminals.
Push-in terminals eliminate the need for torque maintenance such as tightening of screws because screws are not used.

Safe & easy
Equipped with release lever
The release lever easily holds and removes the relay.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Allowable Contact Current</th>
<th>Contact Material</th>
<th>Push-in</th>
<th>Compatible Sockets</th>
<th>Screw (Finger-safe protection)</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>RU15 (1-pole)</td>
<td>12A</td>
<td>AgNi</td>
<td>SJ1S-21L</td>
<td>SJ1S-07B</td>
<td>UL</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>RU2S (2-pole)</td>
<td>8A</td>
<td>AgNi</td>
<td>SJ2S-21L</td>
<td>SJ2S-07S</td>
<td>CSA</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>RU2 (2-pole)</td>
<td>10A</td>
<td>Ag alloy</td>
<td>SU2S-21L</td>
<td>SM2S-05D</td>
<td>VDE</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>RU4 (4-pole)</td>
<td>6A</td>
<td>Ag (Au clad)</td>
<td>SJ4S-21L</td>
<td>SY4S-05DF</td>
<td>TÜV</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>RU42 (4-pole)</td>
<td>3A</td>
<td>AgNi (Au clad)</td>
<td>SJ42S-21L</td>
<td>SY42S-05DF</td>
<td>CE</td>
<td>● ● ● ●</td>
</tr>
</tbody>
</table>

Application: Control panels

Push-in technology improves efficiency
LB/LBW Series

Ø18/Ø22mm Flush Mount Silhouette Switches

Flush Mount Silhouette switches suitable for operation panels in small operation spaces

- Stylish design with 2mm-height bezels.
- Removable contact block makes single board mounting possible.
- Short body enables downsizing of operation panels.
- Suitable for battery production lines (copper-free products).[*]

<table>
<thead>
<tr>
<th>LB / LBW Series</th>
<th>Bezel Diameter</th>
<th>Mechanical Durability</th>
<th>Electrical Durability</th>
<th>Contact Rating</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB / LBW Series</td>
<td>Ø18/Ø22 mm</td>
<td>Momentary: 2 million operations min.</td>
<td>50,000 or 100,000 operations min.</td>
<td>5A (silver contact)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintained: 250,000 operations min.</td>
<td>(*1) (*2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selector switch/key switch: 250,000 operations min.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1) Excluding key selector switches.
*2) Switching frequency - 1800 operations/h: momentary 1200 operations/h: maintained including selector switches and key selector switches.

- Flux Mount Silhouette:
  - Projects only 2mm from the panel surface. For sleek and refined style.

- LB Series Flush Mount Silhouette Switches
  - Slim 2mm-thick bezel for stylish operation panels.

- LBW Series Flush Mount Silhouette Switches
  - Sleek appearance with large surface for secure operation.

- Ø16mm LB Series switches & pilot lights
  - Short body for space-saving installation.

- Short body:
  - Depth of only 27.9mm behind panel. Reduces the size of machines and control panels.

- Flux Mount Silhouette & control unit
  - Removable contact block / Single board mounting
  - Removable contacts enable easy wiring.
  - Single board mounting saves labor and prevents incorrect wiring.

- UP series LED has the same depth as LB/LBW series. Mounts on the same panel. (Flush bezel: 34.9mm, standard bezel: 27.9mm)

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Bezel Diameter</th>
<th>Mechanical Durability</th>
<th>Electrical Durability</th>
<th>Contact Rating</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB / LBW</td>
<td>Ø18/Ø22 mm</td>
<td>Momentary: 2 million operations min.</td>
<td>50,000 or 100,000 operations min.</td>
<td>5A (silver contact)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintained: 250,000 operations min.</td>
<td>(*1) (*2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selector switch/key switch: 250,000 operations min.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1) Excluding key selector switches.
*2) Switching frequency - 1800 operations/h: momentary 1200 operations/h: maintained including selector switches and key selector switches.

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Stylish operation panels
**AV Series**

**Metal Switches**

**Excellent design and robust structure withstands drastic temperature changes**

- **Robust, durable, and stylish** metal switches.
- **Low profile ideal for machine surfaces. Stainless steel structure prevents corrosion.**
- **Operating/storage temperature of -30 to +85°C, suitable for harsh environment.**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Mounting Hole Size (mm)</th>
<th>Output</th>
<th>Electrical Durability</th>
<th>Mechanical Durability</th>
<th>IP Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV</td>
<td>ø16 to ø30</td>
<td>Contact</td>
<td>500,000 operations</td>
<td>1 million operations</td>
<td>IP65/IP67/IP69K</td>
</tr>
</tbody>
</table>

**Application: Battery charging equipment**

**Stylish and robust design**
LED indicators for flexible mounting

- **Mounts** on robots, AGVs, and various processing equipment.
- Available in a **wide selection** of variations, such as flat, dome, ø66mm dome, 2-color switching, and 3-color switching.
- **IP67** protection for use in harsh environments.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Color Variations</th>
<th>Cable Length</th>
<th>Rated Voltage</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH1D</td>
<td>Single color/2-color switching/3-color switching (*1)</td>
<td>Cable type: 1m, 3m, 5m M12 connector type (*1): 30cm</td>
<td>Cable type: 24V AC/DC M12 connector type(*1): 24V DC</td>
<td>IP67</td>
</tr>
</tbody>
</table>

*1: Large dome type only

Application: Status displays on various machines and collaborative robots

Achieves high visibility
Ergonomic emergency stop switches for staying one step ahead to ensure safety

Reverse energy structure and Safe Break Action minimize the possibility of safety failures.

E-stops can be reset by turn reset or pull reset, preventing failure caused by incorrect reset operation.

Padlockable e-stop available for XN Series, providing workers with the next level safety.

Suitable for battery production lines (copper-free products) (*1).

Safe Break Action
When the contact block is detached from the operator, the NC contact opens (OFF).

Reverse energy structure
With X series, the potential energy level of the latched status is lower than that of normal status. In the event the switch is damaged due to excessive shocks, the NC contacts will turn off, thus stopping the machine (patented design).

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Mounting Hole Size (mm)</th>
<th>Head Size (mm)</th>
<th>Solder/Tab</th>
<th>Terminal Type</th>
<th>IP Rating</th>
<th>Rated Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>XN</td>
<td>ø30.5</td>
<td>ø40</td>
<td>ø40</td>
<td>PC Board</td>
<td>IP65</td>
<td>5A (30V DC/125V AC/250V AC)</td>
</tr>
<tr>
<td>XW</td>
<td>ø22.3</td>
<td>ø40</td>
<td>ø40</td>
<td>PC Board</td>
<td>IP65</td>
<td>5A (30V DC/125V AC/250V AC)</td>
</tr>
<tr>
<td>XA</td>
<td>ø16.2</td>
<td>ø30</td>
<td>ø40</td>
<td>PC Board</td>
<td>IP65</td>
<td>5A (30V DC/125V AC/250V AC)</td>
</tr>
<tr>
<td>X6</td>
<td>ø16.2</td>
<td>ø30</td>
<td>ø40</td>
<td>PC Board</td>
<td>IP65</td>
<td>5A (30V DC/125V AC/250V AC)</td>
</tr>
</tbody>
</table>

*1 Does not include XN series flush bezel or padlock type.
Copper-free types available for XN Series padlock type.
Condition: Material used on the surface of the product does not contain copper. (Does not apply to the inside of the product)
Contact IDEC for details.

Application: Operation panels

Next level of safety with padlockable e-stops
**SE2L**

**Safety Laser Scanner**

**Compact safety sensors for collaborative robots**

- **Area protection** and **access protection** functions enable flexible construction of a safe robot system.
- **Low-speed and stop areas** can be configured individually to achieve **productivity and safety**.
- **SE9Z-* connection box** reduces **maintenance time** and **wiring**.

*Available soon.*

- **One scanner can monitor two separate areas**
  - Dual protection function reduces maintenance and cost.

- **Ideal for collaborative robots**
  - Two warning zones, in addition to a safety zone, can be configured to achieve slow speed areas.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Safety Category</th>
<th>Performance Level</th>
<th>Detection Characteristics</th>
<th>Power Supply Voltage</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE2L</td>
<td>Type 3</td>
<td>PL=d, SIL3</td>
<td>Protected area: Max. 5m Detection angle: 270°</td>
<td>24V DC ±10%: When using converter power supply 24V DC -30%+20%: When using battery</td>
<td></td>
</tr>
</tbody>
</table>

**Application:** Safety measures for robot equipment, conveyor lines, AGVs, and collaborative robots

**Safety laser scanner prevents injuries**
**HS5D/HS5L**

Interlock Switches/Interlock Switches with Solenoids

**Compact and robust interlock switches**

- **Compact design** for flexible mounting.
- **Head removal detection function** detects contact signals even when the head comes off when actuated to ensure safety.
- **Lock monitoring** supports a variety of circuits with a small number of contacts (HS5L)
- **Select according to application:** without lock (HS5D) and with lock (HS5L)
- **Suitable for battery production lines** (copper-free products) (*)

---

*1 Condition: Material used on the surface of the product does not contain copper. (Does not apply to the inside of the product) Contact IDEC for details.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Mechanical Durability</th>
<th>Terminal Style</th>
<th>IP Rating</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS5D</td>
<td>1 million operations min.</td>
<td>Screw</td>
<td>IP67</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
<tr>
<td>HS5L</td>
<td>2 million operations min. (Operation frequency of 900 operations/hour, actuator insertion/removal, solenoid operation) When using HS5Z-SH5/EH5/DH5, 100,000 operations min. (actuator insertion/removal)</td>
<td>Spring clamp</td>
<td>IP67</td>
<td>✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
</tbody>
</table>

**Application: Interlocks for machine tools and safety fences**

**Achieving reliable safety**
Door Handle Actuator/Slide Handle Actuator for HS5 Series

Actuators

Shock-resistant metal handle actuator to ensure a safe work environment

- Locks firmly and easily on rattling doors (door handle actuator).
- Mounts on sliding doors/hinged doors/double doors.
- Interlock mechanism with two-step action prevents failure (sliding handle actuator).

Two-step action prevents inadvertent operation

Failure caused by inadvertent operation and rattling doors can be prevented by the interlock switch and actuator.

1. Grab the handle and pull the knob to unlatch
2. Slide the handle and insert the actuator to close the door

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Applicable Models (*1)</th>
<th>Standard Specifications</th>
<th>Mechanical Durability</th>
<th>Fit Padlock Shackle Diameter</th>
</tr>
</thead>
</table>
| Door handle actuator for HS5 Series | Without lock: HS5D interlock switch  
With lock: HS5L interlock switch with solenoid  
HS5E-K interlock switch with key | Operating temperature: -25 to +70°C (no freezing)  
100,000 operations min. | ø6 to 7.5                          |
| Sliding handle actuator for HS5 Series | Without lock: HS5D interlock switch  
With lock: HS5L interlock switch with solenoid  
HS5E-K interlock switch with key | Operating temperature: -30 to +70°C (no freezing)  
100,000 operations min. | ø6 to 13                          |

* For HS5L/HS5E-A/HS5E, use the rear lock release button model.

Application: Interlocks for safety fences

Prevent downtime caused by door interlock failures
HS3A Non-Contact Interlock Switches

**RFID non-contact interlock switches**

- **Built-in safety function.** Compliant with up to PLe, Category 4, and SIL CL3 regardless of use with specific modules.
- **RFID** feature ensures reliable detection even when mounted on rattling doors.
- **IP67** rated (IP67 and IP69K for actuators).
- Sensor head section can be changed in 5 directions allowing flexible mounting.

### Identification

- RFID eliminates buildup of metal residue in keyed interlock switches
- Prevents tampering (unicode model)
  
  An actuator with an electronic code is assigned to a sensor head. This prevents tampering by using an unassigned spare actuator.

### Mounting

- Can be installed in five directions
  - The interlock switch can be installed in five directions, allowing for flexible installation.

### Table: Product Specifications

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Safety Category</th>
<th>Performance Level</th>
<th>Type</th>
<th>Terminal Style</th>
<th>IP Rating</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS3A</td>
<td>Category 4</td>
<td>PLe</td>
<td>&quot;Type 4&quot; or levels of coding &quot;High&quot;</td>
<td>M12 connector</td>
<td></td>
<td>EN60947-5-3 (Ia approval) EN954-1, EN ISO13849-1, EN62061 GS-ET-14 (Ia approval) UL508 (UL listed) CSA C22.2 No.14 (c-UL listed)</td>
</tr>
</tbody>
</table>

Application: Interlocks for machine tools and safety fences

Reliable safety
Automotive Industry Solutions

Safety Solutions

FS1A
Safety Controller

Pre-programmed to easily build a safety system

- Equipped with 35 safety circuit logics for immediate use.
- Compliant with ISO13849-1 PLe.
- No need for programming; simply use the DIP switch to select a built-in logic.
- Complies with international safety standards when connected to safety input/output devices.
- Various functions integrated into one device.

Selecting a logic—that’s all you need!
SafetyOne lets you configure a system without any programming. Complies with international safety standards when connected to safety input/output devices.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>SIL / PL / Category</th>
<th>Operating Voltage</th>
<th>Power Consumption</th>
<th>Safety Input/Output Points</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS1A</td>
<td>IEC61508 Safety Integrity Level 3, ISO13849-1 Performance Level e, ISO13849-1 Category 4</td>
<td>24V DC</td>
<td>48W</td>
<td>Safety inputs: 14 Safety outputs: 4</td>
<td>UL CSA TÜV CE</td>
</tr>
</tbody>
</table>

Application: Safety measures for small devices

Reduce total cost and simplify system wiring
RF1/RF2
Force Guided Relays

Compact forced guided relays help reduce installation space

- Force guided contact mechanism (EN50205 Type A TÜV certification)
- Pioneering 2-pole force guided relay (*1).
- Multiple contact configurations available for various circuit design.
  - 4-pole (2NO+2NC, 3NO+1NC)
  - 6-pole (4NO2NC, 5DIN1, 3NO3NC) (*2)
  - 2-pole (SPST-NO+SPST-NC, DPDT) (*1)
- Shock resistance exceeds 200m/s².
- DIN rail sockets with finger-safe protection, and PCB board sockets available.

*1) RF2  *2) RF1

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Contact Rating</th>
<th>Power Consumption</th>
<th>Electrical Durability</th>
<th>Mechanical Durability</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF1</td>
<td>Rated load: 250V AC/6A, 36V DC/6A</td>
<td>Allowable contact power: 1,500VA AC, 180W DC (30V DC max.) 85W DC (30V DC to 125V DC max.)</td>
<td>Approx. 0.36W (4 poles)  Approx. 0.50W (6 poles)</td>
<td>100,000 operations min. at 250V AC/6A resistance load 100,000 operations min. at 30V DC/6A resistance load (operating frequency: 1200 operations/hour)</td>
<td>UL • • •</td>
</tr>
<tr>
<td>RF2</td>
<td>Rated load: NO contact: 240V AC/6A, 24V DC/6A NC contact: 240V AC/3A, 24V DC/3A Allowable contact power: NO contact: 1440VA,144W NC contact: 720VA,72W</td>
<td>Allowable contact voltage: 250V AC, 125V DC</td>
<td>Approx. 0.7W (4 poles)</td>
<td>NO contact: 100,000 operations min. (operating frequency 1800 operations/hour) at 240V AC/6A resistance load or 2A inductive load (power factor: 0.4) 100,000 operations min. (operating frequency 1800 operations/hour) with 24V DC/6A resistance load or 1A inductive load (time constant: 48ms)</td>
<td>UL • • •</td>
</tr>
</tbody>
</table>

Application: Designing interlock control circuits for equipment

Flexible support for designing safety circuits in equipment
HG1P
Operator Interface Handheld Model

Teaching or control for small dedicated devices and robots

- Lightweight and compact, weighs only 500g. Robust and drop resistant up to 1.5m to avoid damage when accidently dropped.
- Ergonomic design ideal for long and fatigue-free operation. 1.5 seconds fast start-up time.
- High resolution 4.3-inch TFT color LCD display. Clear and informative display enables intuitive operation.
- Removable cable enables cables to be detached easily when damaged. Saves downtime and cost.
- Easy maintenance with a USB memory.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Rated Voltage</th>
<th>Power Consumption</th>
<th>Electrostatic Discharge</th>
<th>Display</th>
<th>Color/ Shade</th>
<th>Display Resolution</th>
<th>Brightness View Angle</th>
<th>Backlight Life</th>
<th>User Memory Capacity</th>
<th>International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>HG1P</td>
<td>24V DC</td>
<td>3W max. (2W when USB2 is not used)</td>
<td>In air: 8kV, Contact 4kV</td>
<td>TFT color LCD</td>
<td>65,536 colors</td>
<td>480 (W) x 272 pixels</td>
<td>460 cd/m²</td>
<td>Left / right: 80°, top: 65°, bottom: 55°</td>
<td>Standard: 30,000 hours minimum</td>
<td>12MB</td>
</tr>
</tbody>
</table>

Visualize teaching operation on the screen

Application: Teaching for small dedicated devices and robots

IDEC solution for easy use
Excellent visibility and durability providing superior performance for machine operators

- **HG1G**
  - Screen Size: 4.3-inch
  - Display: TFT color LCD
  - Colors: 65,536
  - Display Resolution: 480 (W) × 272 (H) pixels
  - Brightness: 800 cd/m²
  - Rated Voltage: 12 / 24V DC
  - Power Consumption: 8W max.

- **HG2G-V**
  - Screen Size: 5.7-inch
  - Display: TFT color LCD
  - Colors: 65,536
  - Display Resolution: 640 (W) × 480 (H) pixels
  - Brightness: 800 cd/m²
  - Rated Voltage: 12 / 24V DC
  - Power Consumption: 18W max.

- **HG2G-ST**
  - Screen Size: 5.7-inch
  - Display: TFT color LCD
  - Colors: 65,536
  - Display Resolution: 320 (W) × 240 (H) pixels
  - Brightness: 500 cd/m²
  - Rated Voltage: 12 / 24V DC
  - Power Consumption: 8W max.

- **HG3G-VA / V8**
  - Screen Size: 10.4 or 8.4-inch
  - Display: TFT color LCD
  - Colors: 65,536
  - Display Resolution: 1024 (W) × 768 (H) pixels
  - Brightness: 700 cd/m²
  - Rated Voltage: 24V DC
  - Power Consumption: 25W max. (VA), 22W max. (V8)

- **HG4G-V**
  - Screen Size: 12.1-inch
  - Display: TFT color LCD
  - Colors: 65,536
  - Display Resolution: 1024 (W) × 768 (H) pixels
  - Brightness: 600 cd/m²
  - Rated Voltage: 24V DC
  - Power Consumption: 25W max.

- **HG5G-V**
  - Screen Size: 15-inch
  - Display: TFT color LCD
  - Colors: 65,536
  - Display Resolution: 1024 (W) × 768 (H) pixels
  - Brightness: 650 cd/m²
  - Rated Voltage: 24V DC
  - Power Consumption: 27W max.

*1 Operation not guaranteed when used with certain types of oils.
*2 Does not guarantee use in direct sunlight although UV protection material is used.
*3 Can be used within a temperature range of -20 to +55°C (HG1G), and -20 to +60°C (other models).

**Application:** Operation panels / EV charging stations

Stylish and robust design
Explosion-Proof Solutions

**EB3N**

Safety Relay Barrier (Intrinsically Safe Explosion-Proof Structure)

Used in battery production lines, alloy wheel manufacturing and painting applications

- Achieves **Explosion-proof safety** and **machine safety** in an explosive atmosphere.
- **ISO13849-1 Category 4, Performance Level e** machine safety systems can be constructed in an explosive atmosphere.
- Connected safety input devices can be used under all explosive gases and hazardous areas.
- **Global standards**
  - Explosion Proof Safety Certification
    - China: Ex-CCC, Japan: TIIS, International: PTB (IEC Ex), EU: PTB (ATEX), US: UL
  - Machine Safety Certification = TÜV Rheinland

1:1 connection with a safety input device, compliant with Category 4

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Safety Category</th>
<th>Performance Level (PL)</th>
<th>Safety Input</th>
<th>Safety Output</th>
<th>Rated Voltage</th>
<th>International Standards</th>
<th>Explosion-Proof Performance</th>
</tr>
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<tbody>
<tr>
<td>EB3N</td>
<td>4</td>
<td>e</td>
<td>2</td>
<td>2NO</td>
<td>24V DC</td>
<td>Ex-CCC [Exia] II C</td>
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<td></td>
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<td>IEC-Ex [Exia] II C, [Exia D]</td>
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<td>ATEX II (1) G [Exia] II C, II (1) D [Exia D]</td>
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<td>UL Class I, Zone 0, [Exia] II C</td>
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<td>Class I, II, III, Div. 1, Groups A, B, C, D, E, F and G</td>
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<td>TIIS [Exia] II C</td>
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</tbody>
</table>

Application: Painting lines, secondary battery production lines

Explosion-proof solutions backed by decades of experience