



*Think Automation and beyond...*

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# SEMICONDUCTOR

Industry Solutions

IDEC CORPORATION



## Semiconductor Manufacturing Equipment Industry

With semiconductors now intrinsic in an increasing range of areas from IoT and 5G to cloud computing, autonomous driving, imaging, and sensors, the market scale for semiconductor manufacturing equipment also continues to grow, accompanied by huge advances in miniaturization and stacking. In these circumstances, our customers need us to help boost reliability for high throughput in semiconductor manufacturing equipment components, downsize for a reduced footprint, and ensure safety and peace of mind. IDEC will continue to offer the solutions that help reduce COO (cost of ownership).

## Semiconductor Manufacturing Equipment and IDEC

### MORE PRODUCTS FOR BETTER EQUIPMENT PERFORMANCE

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IDEC supplies a wide range of products for semiconductor manufacturing equipment, including front-end, back-end, and inspection processes. From start-up switches and bar code scanners for FOUF and tool information management to slim relays and push-in terminals that reduce installation space and wiring time, EMO switches, safety switches, safety laser scanners, and enabling switches, our products ensure operator safety while avoiding equipment damage. IDEC's vast array of products helps to achieve the best performance from customers' equipment.

### PURSUING 24-HOUR OPERATION

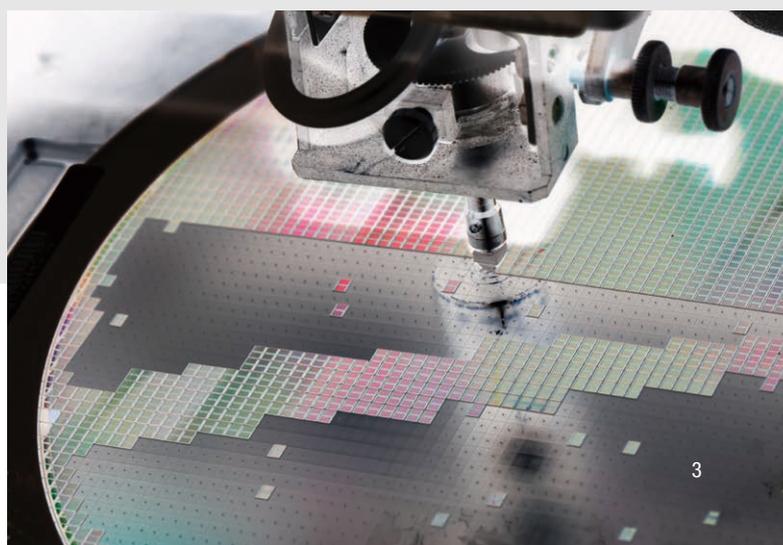
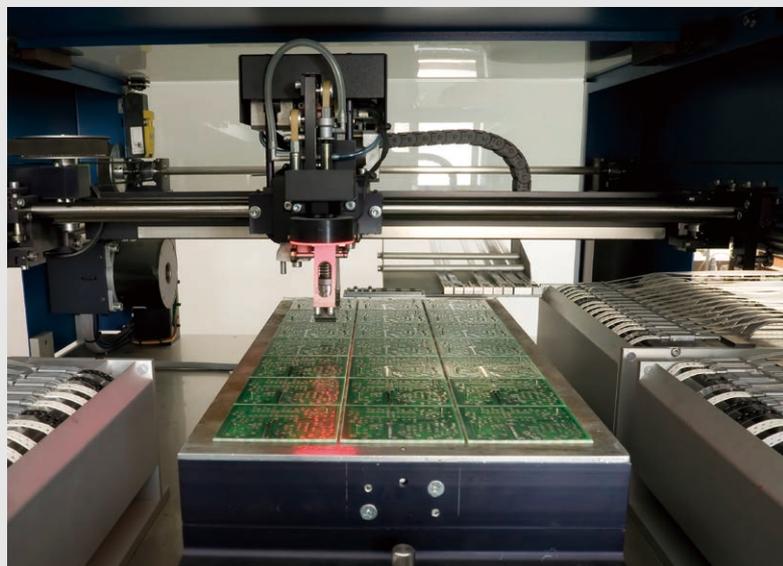
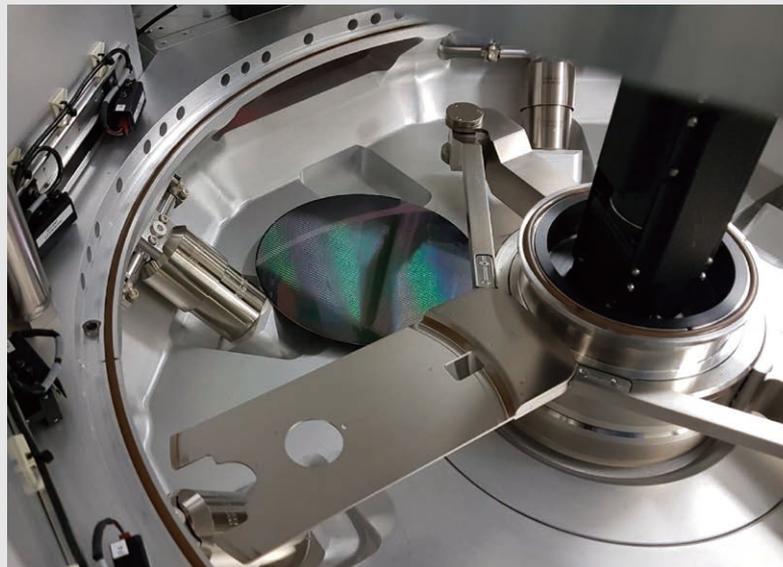
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Downtime caused by unnecessary semiconductor manufacturing equipment stoppages means huge losses not only for semiconductor manufacturers (fabs) but also for semiconductor manufacturing equipment manufacturers. Reliability and ease of use are key to avoiding that downtime and its consequences. IDEC will continue to help improve COO and the cost of consumables by prioritizing both reliability and ease of use so that semiconductor manufacturing equipment and plants can operate 24 hours a day with no downtime.

### ASSISTING GLOBAL DEPLOYMENT

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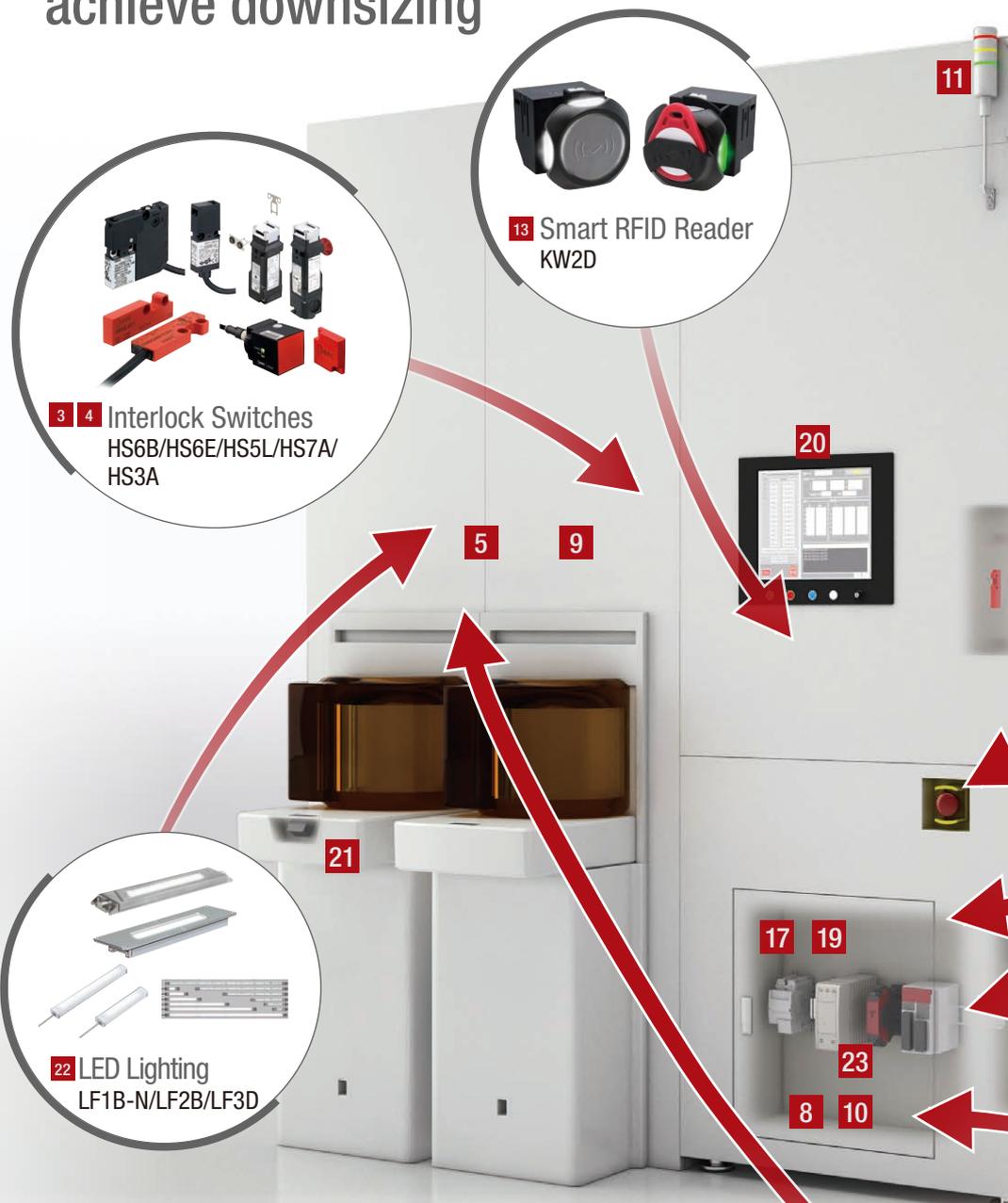
SEMI standards bring consistency across the semiconductor industry. Safety is no exception, and SEMI standards lead the way ahead of other industries. Because safety is in IDEC's DNA, we have a strong record of SEMI standard compliance, including EMO switches and guards. IDEC will continue to help firms deploy semiconductor manufacturing equipment and plants globally with a close eye on changes in the semiconductor industry and its standardization developments.



# New proposals to comply with SEMI standards and achieve downsizing

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## Safety products to ensure safety to workers



**1**  
Tablet Mount Safety Device  
Safety Commander™



**5**  
Safety Laser Scanners  
SE2L



**8**  
Force Guided Relays  
RF1/RF2



**9**  
Tape Switches/Edge Switches  
T/E series



**10**  
Available soon  
Safety Controllers  
FS1B



**11**  
LED SignaLight Towers  
LD6A



**12** Emergency Stop Switches  
XA/XW/HW series



**6** Safety Relay Modules  
HR6S



**9** Safety Relay Modules  
HR5S



**18** Ethernet Switches  
SX5E



**2** Miniature Photoelectric Sensors  
SA2E

### Small footprint and labor saving inside panel products

**17**



Slim Relays/Universal Relays  
RU/RJ/RV8

**19**



Controllers  
FT1A

**20**



Operator Interfaces  
HG series

**21**



Barcode Scanners  
WB1F

**23**



Power Supplies  
PS5R-V

### Front of panel products compliant with SEMI S2 and other standards

**14**



Push-in Switches & Pilot Lights  
HW series

**15**



Flush Silhouette Switches  
CW series

**16**



Flush Silhouette Switches  
LB/LBW series

# Safety Commander™ HT3P/HT4P

Tablet Mount Safety Device

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

- Holds up to **8 to 11-inch** (HT3P) / **10 to 13 inch** (HT4P) tablets with flexible mounting depending on the required display size.
- Ergonomic grip design ideal for long and **fatigue-free** operation.
- Tablets can be used **vertically** or **horizontally**.  
**Ergonomic** design for improved usability.
- Stable communication with **wired LAN** (HT4P) and **USB** charging available.
- **Mechanical switches** installed for reliable operation ideal for various applications (HT4P)
- **Accessories** include a wall mount hanger to enhance easy of use.
- Newly available with an emergency stop switch (button color: white, illuminated color: red) compliant with **ISO 13850:2015**



HT3P

HT4P



Wall mount bracket (accessory) enables operation while fixed to the wall.



Inactive (Non-illuminated)



Active (Illuminated)

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

\*The tablet must be provided by the user.

Series	Supported Tablet Sizes	Supported Tablet Thickness	Wired LAN Connection	Mechanical Switches	IP Rating (*1)	Emergency Stop Switch	Enabling Switch
HT3P	8 to 11 inch	Up to 24mm	—	—	IP54	XA1E-LV3SG02Q4R/XA1E-LV3SG02Q4WR	HE5B-M2PY
HT4P	10 to 13 inch	Up to 23mm	●	● (*2)	IP54	XA1E-LV3SG02Q4R/XA1E-LV3SG02Q4WR	HE6B-M200Y

The above data does not include a tablet.

\*1) Except when connected to a USB cable.

\*2) Up to 3 IDEC LB series switches can be installed. The product will be shipped with the requested switches. For custom products, see HT4P catalog.

Application: Tablet operation of large equipment, machine operation control, etc.

Improves safety and operability. A tablet can be readily equipped with a safety device.



# SA2E

Miniature Photoelectric Sensors (Built-in Amplifier)

Standard size with full range of functions in a compact package

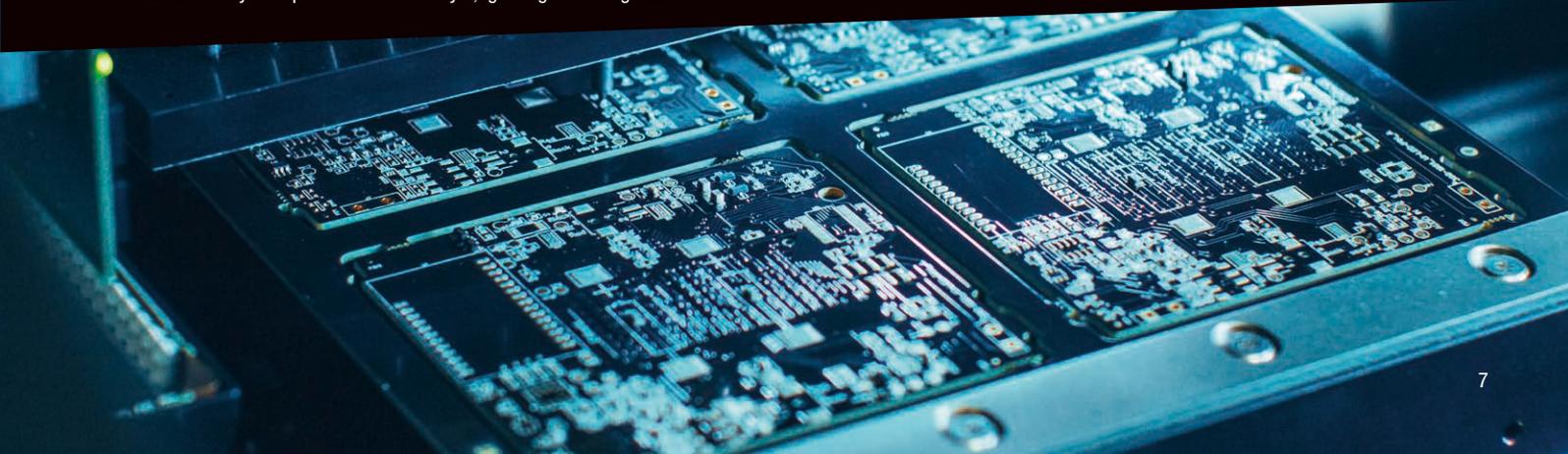
- Industry standard **25.4mm**-size for installation.
- **Light On / Dark On switching** available to reduce maintenance parts inventory and make on-site setting changes possible.
- Features operating temperature range of **-30 to +55°C**.
- Air blower unit allows **stable detection in dusty environment**.



Sensing Method/ Part No.	Sensing Range
Through-beam SA2E-T	20m
Polarized Retro-reflective SA2E-P	Max. 5m (IAC-R5/R8) Reflector
Coaxial Polarized Retro-reflective SA1E-X	Max. 2m (IAC-R9) Reflector
Diffuse reflective SA2E-D	100mm 500mm 1m Three sensing variations according to distance are available.
Background Suppression SA2E-B	10~350mm
Small-beam SA2E-N	50~150mm

Application: Substrate detection for board inspection

Detects only workpieces on the conveyor, ignoring the background



# HS6B/HS6E/HS5L

Interlock Switches / Solenoid Interlock Switches

Slim and compact interlock switches



- Compact and built-in with **3 poles of contacts**, easy mounting is possible on limited spaces as on chamber doors. (\*1)
- Solenoid switches ensure reliable safety by locking with a thickness of only **15mm**. (\*2)
- Integrated cable design minimizes **wiring** time. (\*3)
- **Head removal detection function** prevents malfunctions due to loosening of the head after changing the actuator insertion direction. (\*4)
- Complete with 2 models: spring lock and solenoid lock. (\*5)

\*1) HS6B \*2) HS6E \*3) HS6B, HS6E  
\*4) HS5L spring lock model \*5) HS6E, HS5L



Series	Contact Ratings	Mechanical Durability	Electrical Durability	Solenoid Unit	International Standard				
					UL	CSA	TÜV	CCC	CE
HS6B	Rated insulation voltage: 300V Rated continuous voltage: 2.5A	1 million times min. (GS-ET-15)	100,000 times min. (AC-12 250V 1.5A, DC-12 250V 0.2A) 1 million times (24V AC/DC 100mA) (Operating frequency: 1200 operations/h)	—	●	●	●	●	●
HS6E	Rated insulation voltage: 30V to 300V Rated continuous voltage 0.5A to 2.5A	1 million times min. (GS-ET-19)	100,000 times min. (AC-12 250V 6A) 1 million times (24V AC/DC 100mA) (Operating frequency: 900 operations/h)	Rated voltage: 24V DC Rated current: 110mA	●	●	●	●	●
HS5L	Rated insulation voltage: 250V Rated continuous voltage: 2.5A	2 million times min.	100,000 times (operating frequency: 900 operations/h) 2 million times min. (24V AC/DC, 100mA)	Rated voltage: 24V DC Rated current: 200mA	●	●	●	●	●

Application: Interlock for protection covers on chambers

Compact size contributes to small footprint



# HS7A/HS3A

## Non-Contact Interlock Switches

### Compact size<sup>(\*)</sup> for stable detection even on rattling doors<sup>(\*)</sup>

- Compact **reed switches** for easy mounting on chamber doors.<sup>(\*)</sup>
- Satisfies safety requirements up to **Category 4** when used with a safety relay module.<sup>(\*)</sup>
- Compliant with up to **PLe, Category 4, and SIL CL3** regardless of use with specific modules.<sup>(\*)</sup>
- Maximum number of connections: **36<sup>(\*)</sup>, 20<sup>(\*)</sup>**. Interlock switches can be integrated on multiple chamber doors.
- RFID** feature ensures reliable detection even when mounted on rattling doors.<sup>(\*)</sup>

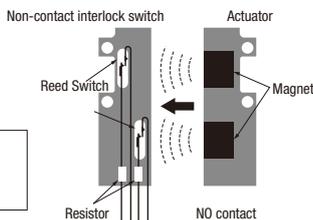
\*1) HS7A \*2) HS3A



#### Operation Principle (Reed Switch)

As the actuator equipped with magnets approaches the non-contact interlock switch, the reed switch inside the interlock switch turns on (NO contact) or turns off (NC contact).

Because multiple magnets are embedded, the interlock switch cannot be defeated by using other magnets or metal chips.



#### Identification Characteristics

Tamper-proof (unicode model)



An actuator with an electronic code is assigned to a sensor head. This prevents tampering by using an unassigned spare actuator.

Series	Rated Voltage	Rated Current	Electrical Durability	Minimum Operation Distance when Safety Output is ON (Sao)	Minimum Operation Distance when Safety Output is OFF (Sar)	International Standards
HS7A	24V DC	100mA	1.2 million operations min. (HS7A-DMP)	5mm (HS7A-DMC) 8mm (HS7A-DMP)	15mm (HS7A-DMC) 20mm (HS7A-DMP)	EN60947-5-1 (IFA approval) EN ISO 13849-1 EN62061 UL508 (UL listed) CSA C22.2 No.14 (c-UL listed)
HS3A	24V DC ±15%	80mA (at no load)	—	13mm	58mm	EN60947-5-3 (IFA approval) EN954-1 EN ISO 13849-1 EN62061 GS-ET-14 (IFA approval) UL508 (UL listed) CSA C22.2 No.14 (c-UL listed)

Application: Interlock for protective cover on chambers

Compact size and RFID feature enables easy installation



# SE2L

Safety Laser Scanners

## Compact safety laser scanner suitable for semiconductor manufacturing equipment

- Compact size suitable for installation near and integration with equipment. (85 × 85 × 95mm)
- Using a configuration software and **teaching** function enables automatic area configuration by referring to walls and pillars.
- Troubleshooting is easy by displaying errors and detection logs on the unit or by connecting a PC.
- Robot controller connection terminal (SE9Z-\*) equipped with a safety relay reduces **maintenance time** and **wiring time**.



Robot controller connection terminal

■ Detecting people in front of the load/unload section of equipment



Series	Performance Level	SIL	Response Speed	Power Voltage	Power Consumption	International Standards			
						UL	CSA	TÜV	CE
SE2L	PL=d	SIL 2	ON → OFF: 60 to 510ms OFF → ON: 270 to 510ms	24V DC ± 10%: When using converter power supply 24V DC -30%/+20%: When using battery	Without Output Load: 6W Maximum (without output load): 50W	●	●	●	●

Application: Detecting people in front of the load/unload area, intrusion detection

Non-contact, long-distance detection and compact size allow flexible mounting without affecting footprint



# HR6S



Safety Relay Modules

Full range of diagnostic functions reduces downtime for semiconductor manufacturing equipment

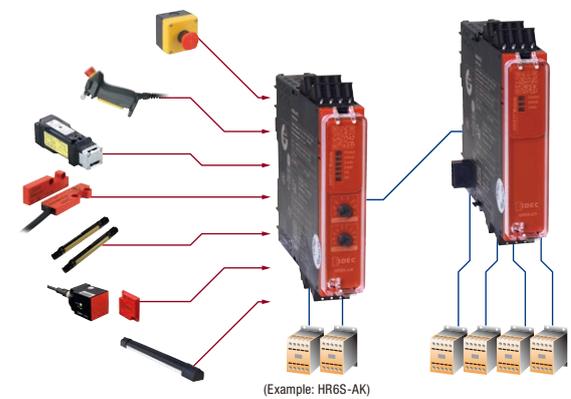


**Diagnostic** results are **coded** and output as a pulse signal for easy and detailed monitoring of systems.

**Dial switching** allows flexible configurations in connection with various input devices and selection of numerous start modes, eliminating the need use different modules for different functions.

### Connect to Various Input Devices

Dials are used to select input devices and start functions to enable safety measures for a wide variety of machines and allows standardization of the relay module.



Shape	Safety Relay Module						Expansion Module
							
Part No.	HR6S-BAC	HR6S-AF	HR6S-AK	HR6S-AT	HR6S-S	HR6S-DN	HR6S-EP
Max. PL (*1)	c	e	e	e	e	e	e
Category (*1)	3	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4
OFF delay (sec)				0, 0.1, 0.2, 0.3...900			0, 0.1, 0.2, 0.3...900

\*1) NC contact is compliant to category 1, PLc

Application: Avoids danger for devices

For ensuring safe stop when used with safety edge switches



# HR5S



## Easy implementation of Category 2 configuration, reducing installation time and cost

- Non-redundant safety system compliant with international standards.
- Reduces cost and installation space for safety control parts.
- The size of off-delay models reduced to **half** compared to conventional models.
- When emergency off switches or interlock switches are turned off, an alarm can be output in case of failure (**Category 2** requirement). Therefore, machines with low-risk can operate without stopping.



### Performance of Category 2 system

- System that eliminates short-circuit fault detection when wiring from an input device



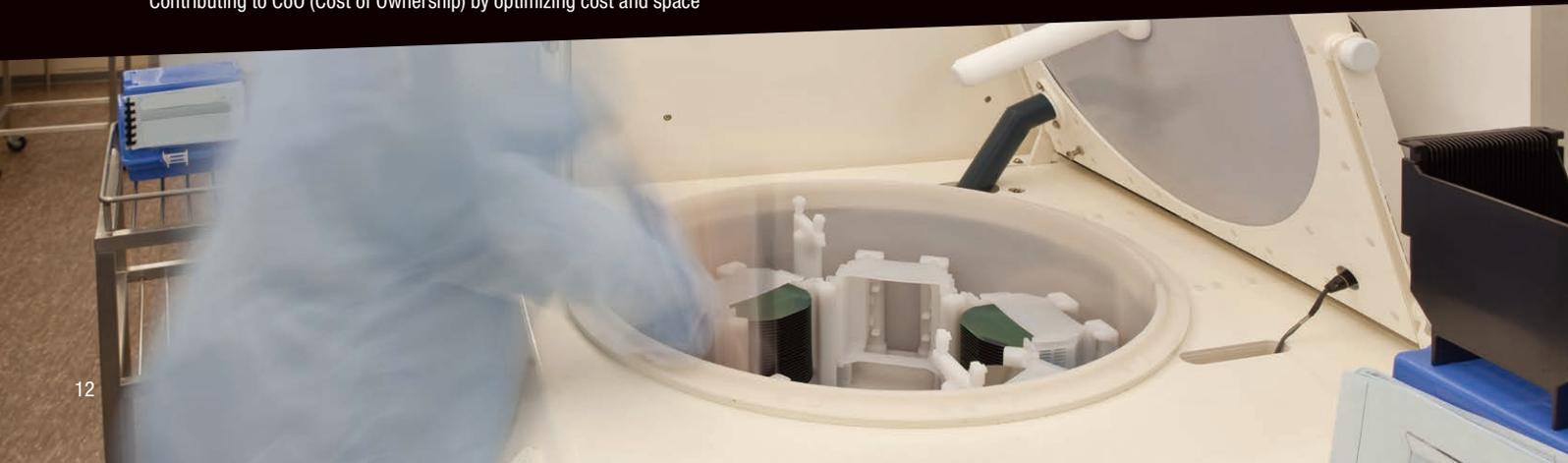
- System with off-delay control system



Series	Model	Performance Level (PL)	Contact Configuration	Reaction time		International Standards				
				Output without OFF-delay	Output with OFF-delay	UL	CSA	TÜV	CCC	CE
HR5S-C2S	Simple model	PL=c	2NO (Without OFF-delay): Safety output	0.02s max.	—					
HR5S-C2B	Standard model	PL=d	1NO (Without OFF-delay): Auxiliary output + 1NO (With OFF-delay): Safety output	0.02s max.	0.25, 0.5, 1, 2, 4 sec	●	●	●	●	●
HR5S-C2D-T□□□	Off-delay model									

Application: Building an interlock control circuit for equipment

Contributing to CoO (Cost of Ownership) by optimizing cost and space



# RF1/RF2

Force Guided Relays

Compact forced guided relays help reduce installation space



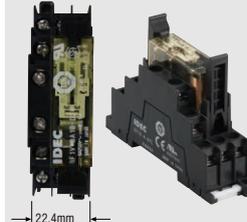
- Forced guided contact mechanism (EN50205 Type A TÜV approved).
- Pioneering **2-pole** forced guide relays.<sup>(\*)1</sup>
- Contact configuration can be selected according to the circuit.
  - 4-pole (2NO-2NC, 3NO-1NC),
  - 6-pole type (4NO2NC, 5NO1NC, 3NO3NC)<sup>(\*)2</sup>
  - 2-pole type (SPST-NO+SPST-NC, DPDT)<sup>(\*)1</sup>
- Shock resistance exceeding **200m/s<sup>2</sup>**.
- DIN-rail mount sockets with **finger protection** and PC board sockets available.

<sup>(\*)1</sup> RF2 <sup>(\*)2</sup> RF1

■ When Using RF2S-1A1BLD1-D24 & DIN Rail Socket



When using a 4-pole forced guided relay with LED indicator & DIN rail socket



\* Compared to IDEC products. Total cost refers to the cost for relays and sockets.

Series	Contact Rating	Power Consumption	Electrical Life	Mechanical Life	International Standards			
					UL	CSA	TÜV	CE
RF1	Rated load: 250V AC 6A, 30V DC 6A Allowable Switching Power: 1500 VA, 180W DC (30V DC max.) 85W DC (30V to 125V DC max.) Allowable Switching Voltage: 250V AC, 125V DC Allowable Switching Current: 6A	Approx. 0.36 (4-pole) Approx. 0.50W (6-pole)	250V AC 6A resistive load: 100,000 operations min. 30V DC 6A resistive load: 100,000 operations min. (operating frequency 1200 per hour)	10 million operations min. (operating frequency 10,800 per hour)	●	●	●	
RF2	Rated load NO contact: 240V AC 6A / 24V DC 6A NC contact: 240V AC 3A / 24V DC 3A Allowable Switching Power: NO contact: 1440VA/144W NC contact: 720VA / 72W Allowable Switching Voltage: 250V AC, 125V DC Allowable Switching Current: 6A	Approx. 0.7W	NO contact: 100,000 operations minimum (operating frequency 1,800 per hour) at 240V AC / 6A resistive load or 2A inductive load (power factor 0.4) 100,000 operations minimum (operating frequency 1,800 per hour) at 24V DC / 6A resistive load or 1A inductive load (time constant 48ms)	10 million operations min. (operating frequency 18,000 per hour)	●	●	●	●

Application: Building interlock circuit for equipment

Flexible construction of safety circuits in equipment



# T/E series

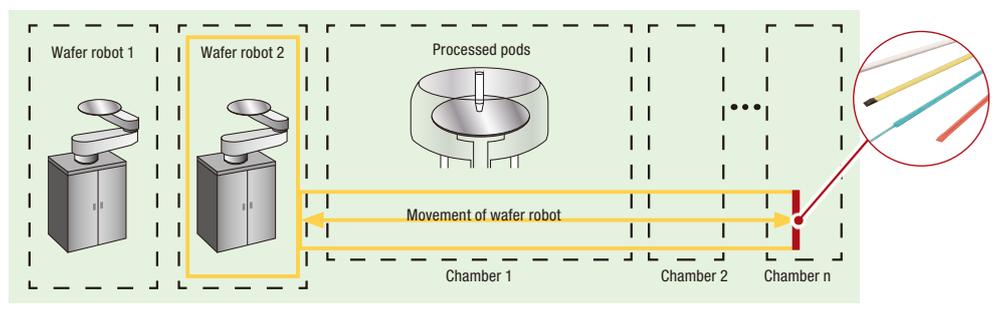
Tape Switches, Edge Switches

Contact detection switches. Custom sizes can be ordered to suit application requirements

- Thin tape-switches can be easily customized to the **desired length**.
- Functions as a switch when pressed anywhere on protrusion (bead) of the switch.
- Standard (tape width: **14.3mm**) and wide (tape width: **19mm**) types available.
- The tape switch is protected with a **special cover** to protect target objects.
- An **aluminum channel** allows easy installation.



## Inside equipment



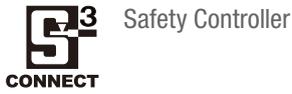
Series	Rated voltage / Rated Current	Actuating Force	Minimum Curvature	Durability	Maximum Length
Tape switch	Rated voltage: 5 to 24V AC/DC $\pm$ 10% Rated current: 0.01 to 0.3A $\pm$ 10% (resistive load)	2.3 to 15N	Radius 150mm or longer (except T04BL1)	300 million operations min. (24V DC 0.3A, resistive load)	1900mm (T04BL1)
Edge switch	Rated voltage: 5 to 24V AC/DC $\pm$ 10% Rated current: 0.01 to 0.3A $\pm$ 10% (resistive load)	10 to 150N max.	–	–	2000mm to 10,000mm

Application: Detecting the edge limit of movement of wafer robot in equipment

Safe and secure devices enhance safety



# FS1B



## The Safety Controller that requires no programming

- Safety controller with **24** pre-programmed logics, certified to international safety standards
- Ready-to-use logics such as **partial stop control and mode switching logics**.
- **The universal input** feature enables connection with contacts and sensors.



### Pre-certified safety control logics

The FS1B safety controller and its built-in control logics have been certified by a trusted independent body, ensuring that they operate safely and reliably. This pre-certification not only enhances the safety of your equipment and system, but also streamlines the overall approval process for machinery certification.

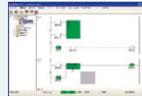
#### Others

Software, hardware, and maintenance costs users money and time

- Programmable safety controller
- Configuration software and programs
- Software driver
- Third-party program certification



Safety PLC or safety controller



Software (program, function block)

#### IDEC

Simply choose a logic number and get started

- Setting switches keep the design simple
- No configuration files or version updates required
- No program certification required
- Suitable for maintenance at overseas factories

Certified pre-set logics



Series	SIL / PL / Category	Operating Voltage	Safety Circuit	International Standards			
				UL	CSA	TÜV	CE
FS1B	IEC61508 Safety Integrity Level 3, ISO13849-1 Performance Level e, ISO13849-1 Category 4	24V DC	Selecting a logic	●	●	●	●

Application: Building interlock control circuits for equipment

Reduced total cost, simplified system wiring



# LD6A

LED SignalLight Towers

## Stylish design with ergonomic visibility

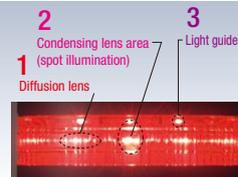
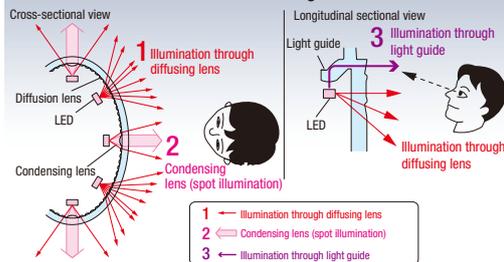
- Universal design with oval shape and striped design enhances **visibility**.
- Variety of mounting patterns, easily replaceable LED units, and **plug-in** terminals.
- Steady / flashing (flashing cycle compliant with **IEC** standards / alarm types available).
- Unique powerful design with 360-degree sound field. **Two alarm** sound patterns available.
- Lens design for high visibility.



### ■ Unique lens offers high visibility

Three different illumination methods and a unique lens shape enable high visibility from all directions.

#### ■ Characteristics of the lenses and light



By combining a diffusing lens, which diffuses the light broadly, with a condensing lens, a super bright area is created enabling high visibility. Also, the illumination through the light guide enhances the visibility when the SignalLight is viewed from below.



Series	Rated Voltage	Power Consumption		Flashing Cycle (IEC60073)	LED Life	Alarm Volume	International Standards		
		LED	(Buzzer)				UL	CSA	CE
LD6A	24V AC/DC	0.6W (R, Y) 0.75W (S, G) 0.5W (W)	110mA max.	Approx. 105 flashes per minute (1.75 Hz)	Approx. 30,000 hours	70 to 90 dB, at 1m (volume adjustable)	●	●	●

Application: Warning alert

Stylish design for devices



# XA/XW/HW series

EMO Switches

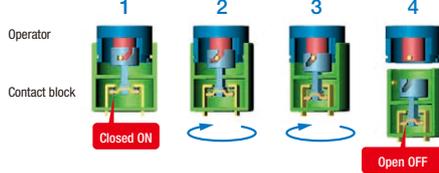


## Emergency Off (EMO) switches in compliance with SEMI standard S2

- **Direct opening action** function.
- IDEC Safe Break Action and reverse energy structure (XA/XW) satisfies the requirements of **international safety standards**.
- The switch guard is compliant with **TÜV Rheinland** when used with suitable SEMI S2 and SEMATECH products.

### Safe Break Action

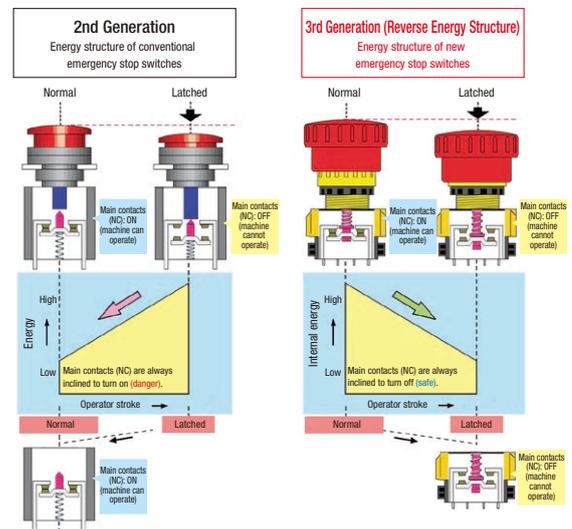
When the contact block is detached from the operator, the NC contact opens (OFF).



When the contact block is detached from the operator, the cam directly opens the NC main contacts (contacts are off). (Patented)

### 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)



Series	Hole Size (mm)	Head Size (mm)	Solder	Terminal Style			IP Rating	Contact Ratings	International Standards				
				M3 Screw	Connector				UL	CSA	TÜV	CCC	CE
XW	ø22.3	ø40		●			IP65 IP67	Rated insulation voltage: 250V Rated continuous voltage: 5A	●	●	●	●	●
XA (Removable contact)	ø16.2	ø40	●				IP65	Rated insulation voltage: 300V Rated continuous voltage: 5A	●	●	●	●	●
HW	ø16.2	ø40		●			IP65	Rated insulation voltage: 600V Rated continuous voltage: 10A	●	●	●	●	●

Application: Emergency shut down when abnormality occurs in a device

Suitable for section 12.1 of SEMI standard (S2 0706) EMO Circuit



# KW2D

**S<sup>3</sup>** Smart RFID Reader  
CONNECT

Smart user authority control and log management with RFID for access to devices

Flat design prevents dust and other particles from accumulating.

Standard  $\varnothing 22$ 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, CC-Link IE Field Basic) allows easy communication with existing devices.



Equipped with an LED easily visible from the side and an auxiliary buzzer for feedback on operation status.



• Can be controlled from a host device (such as a touch panel or PLC).

Series	Model	Rated Input Voltage Power Consumption	Operating Temperature	IP Rating	RFID Interface Specification	Supported Tags	
						Card	KEYFOB
KW2D	Without holder: KW2D-R100Q4E With holder: KW2D-RH100Q4E	24V DC 2.4W max.	-25 to +55°C	Front unit: IP65/67F Back unit: IP20	ISO/IEC 14443 (Type A) ISO/IEC 18092 (Type F) JIS X6319-4 (Type F) ISO/IEC 15693 (Type V)	ISO/IEC 14443 Type A ISO/IEC 18092 JIS X6319-4 ISO/IEC 15693	ISO/IEC 14443 Type A

Application: Access control for devices

Strengthening security of production recipes and parameters



# HW series



Push-in Switches & Pilot Lights

ø22mm switches & pilot lights with enhanced collecting mounting compared to ø30mm and ø25mm, while ensuring the same operability as ø30mm.



- **Push-in** terminals enable easy wiring and little skill is required.
- Approximately **55%** less work time and improved efficiency compared to conventional screw terminals. Reduces downtime during manufacturing and maintenance. (\*1)
- Because screws are not used, re-tightening of screws is not required, eliminating anti-vibration measures for semiconductor manufacturing equipment.
- Terminals with finger-safe protection enable safe maintenance and prevents accidents such as electrical shocks.

\*1 Based on IDEC research

### Time saving & efficient

#### Reduce wiring time

##### Connecting



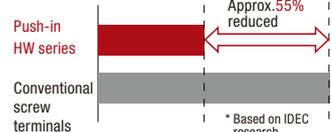
Push the wire straight in as far as it will go.



Connection is completed. Pull lightly to make sure it is firmly in place.

##### Wiring Procedure

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



Series	Applicable Wires	Applicable Wire Size	Mechanical Durability	Electrical Durability (*4)	Contact Ratings	International Standards				
						UL	CSA	TÜV	CCC	CE
HW	UL1007 H05V,H07V JIS 3307(IV) JIS 3316(KIV)	0.25 to 1.5mm <sup>2</sup> (AWG16 to 24)	<ul style="list-style-type: none"> <li>Pushbuttons, illuminated pushbuttons Momentary: 5,000,000 operations min. Maintained: 500,000 operations min.</li> <li>Selector switch: 500,000 operations min.</li> <li>Key selector switch (disc tumbler): 500,000 operations min.</li> <li>Key selector switch (pin tumbler): 100,000 operations min.</li> </ul>	<ul style="list-style-type: none"> <li>Pushbuttons Momentary: 500,000 operations min. (*1) Maintained: 500,000 operations min. (*3)</li> <li>Selector switch: 500,000 operations min. (*2)</li> <li>Key selector switch (disc tumbler): 500,000 operations min. (*2)</li> <li>Key selector switch (pin tumbler): 100,000 times min. (*2)</li> </ul>	Silver contacts Rated Insulation Voltage: 600V Rated operating Current: 10A	●	●	●	●	●

\*1) Depends on rated operating current \*2) Operating frequency 1200 operations/h, duty ratio 40% \*3) Switching frequency 900 operations/h, duty ratio 40% \*4) Load condition 220V AC, 3A (AC-15)

Application: Operation panel for devices

ø22mm size and reduction of labor and wiring work contribute to CoO and CoC



# CW series



Flush Silhouette Switches

Flush mount switches with sleek design & Push-in technology

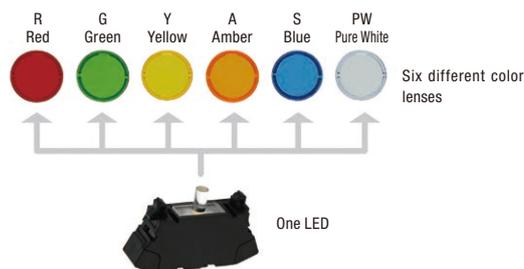


- Flush design with **2.5mm** thick bezel prevents particles and contaminants from accumulating.
- Push-in** terminals and **screw** terminal styles available.
- Screw terminal models have a **short body** in depth behind the panel, reducing installation space.
- A single LED supports 6 colors. When color changes are required, only the lens needs to be replaced. Eliminates the need to stock replacement LEDs in variety of colors.
- Approximately **55%** less work time and improved efficiency compared to conventional screw terminals. Reduces downtime during manufacturing and maintenance.

\*1 Based on IDEC research

### Six different colors with a single LED

Previously, 5 different color LEDs were required but with the new illuminated unit, only a single LED is needed. Only the lens needs to be replaced to change the illumination color. The new LED reduces maintenance time, makes stock control easier, and is environmentally friendly.



Series	Applicable Wires	Applicable Wire Size	Mechanical Durability	Electrical Durability	Contact Ratings	International Standards				
						UL	CSA	TÜV	CCC	CE
CW	UL1007 H05V,H07V JIS 3307(IV) JIS 3316(KIV)	0.25 to 1.5mm <sup>2</sup> (AWG16 to 24)	Pushbuttons, illuminated pushbuttons Momentary: 2 million operations min. (when single contact block is used) Maintained: 250,000 operations min. (when single contact block is used) Selector switches: 250,000 operations min. (when single contact block is used) Key selector switches: 250,000 operations min. (when single contact block is used)	50,000 operations min. or 100,000 operations min. (*1) (*2)	Rated insulated voltage: 300V Rated continuous current: 10A	●	●	●	●	●

\*1) Depends on rated operating current

\*2) Operating frequency 1800 operations/h momentary, operating frequency 900 operations/h maintained

Application: Operation panel for devices

Flush Silhouette prevents contaminants and particles from accumulating, reducing maintenance work



# LB/LBW series

Flush Silhouette Switches

## Flush mount switches with sleek design

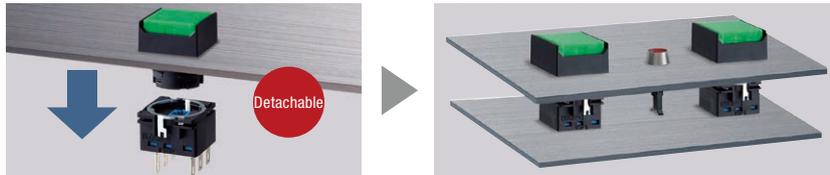
Stylish design with 2mm-thick bezel prevents particles and contaminants from accumulating.

Removable contact block / single board mounting available. Switches with guard available to prevent misoperation.



### Removable Contact Block / Single Board Mounting

Removable contacts enable easy wiring / Single board mounting for space-saving installation.



### Flush Silhouette

Projects only 2mm from the panel surface. For sleek and refined style.



Series	Mechanical Durability	Electrical Durability	Contact Ratings	International Standards				
				UL	CSA	TÜV	CCC	CE
LB	Momentary: 2,000,000 operations min. Maintained: 250,000 operations min. Selector/key selector sw: 250,000 operations min.	50,000 or 100,000 operations min. (*1) (*2)	Rated Insulation Voltage: 250V Rated Operating Current: 5A (silver contact) 3A (gold contact)	●	●	●	●	●
LBW	Momentary: 2,000,000 operations min. Maintained: 250,000 operations min. Selector/key selector sw: 250,000 operations min.	50,000 or 100,000 operations min. (*1) (*2)	Rated Insulation Voltage: 250V Rated Operating Voltage: 5A (silver contact) 3A (gold contact)	●	●	●	●	●

\*1) Depends on rated operating current \*2) Switching frequency - 1800 operations/h: momentary 1200 operations/h: maintained including selector switches and key selector switches

Application: Operation panel for devices

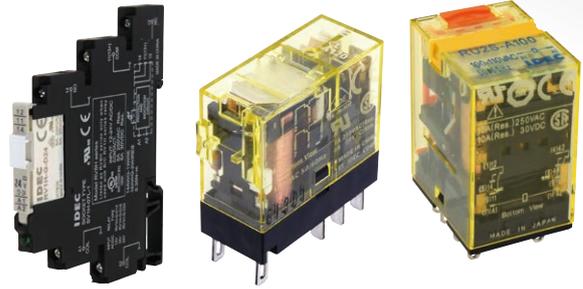
Flush silhouette switches prevent contaminants and particles from accumulating and reduce maintenance work



# RU/RJ/RV8

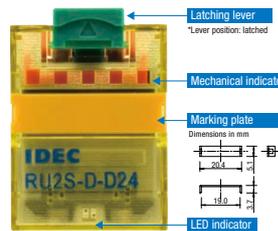
Slim Relays / Universal Relays

**Slim, compact relays  
save installation space**



- Compact** size with excellent durability and high allowable contact current.
- Circuit check can be performed without energizing the coil, enabling check up **before applying power** to the relay. (RU)
- The release lever easily holds and removes the relay and push-in terminals, reducing **wiring time**. (RU, RJ)
- Space-saving **6mm** ideal for high density mounting. (RV8)
- Only **70mm** from the DIN rail. Suitable for slim control panels and low-profile AGVs. (RV8)

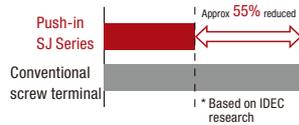
### Time Saving & efficient



**Large Switching Capacity**  
Highly conductive materials ensure stable electric conduction of current.



- Save up to 55% in wiring time**  
Wiring time reduced greatly compared with conventional screw terminals. (Compared with IDEC products)
- Reduce maintenance work**  
Push-in terminals eliminate the need for torque maintenance such as tightening of screws because screws are not used.



Series	Allowable Contact Current	Contact Material	Electrical Life	Mechanical Life	International Standards			
					UL	CSA	TÜV	CE
RJ	1-pole: 12A 2-pole: 8A 2-pole (bifurcated contacts): 1A	AgNi (*1) AgNi (Au clad) (*2)	•AC: 200,000 operations min. DC: 100,000 operations min. Operation frequency 1800 operations/h (*1) •AC: 100,000 operations min. DC: 200,000 operations min. Operation frequency 1800 operations/h (*2)	•AC: 30,000,000 operations min. DC: 50,000,000 operations min. Operation frequency 18,000 operations/h (*1) •AC: 10,000,000 operations min. DC: 20,000,000 operations min. Operation frequency 18,000 operations/h (*2)	●	●	● (VDE)	●
RU	2-pole (RU2): 10A 4-pole (RU4): 6A 4-pole (RU42 bifurcated contacts): 3A	2-pole (RU2): Ag alloy 4-pole (RU4): Ag (Au-clad) 4-pole (RU42 bifurcated contacts): Ag-Ni (Au-clad)	2-pole (RU2): 100,000 operations min. (250V AC, 10A/resistive load) 500,000 operations min. (250V AC, 5A/resistive load) 4-pole (RU4): 50,000 operations min. (250V AC, 6A/resistive load) 4-pole (RU42 bifurcated contacts): 100,000 operations min. (250V AC, 3A/resistive load)	2-pole (RU2) / 4-pole (RU4): AC: 50,000,000 operations min. DC: 100,000,000 operations min. 4-pole (RU42 bifurcated contacts): 50,000,000 operations min.	●	●	●	●
RV8	6A	AgNi+Au plated	30,000 operations min. (NO contact) 10,000 operations min. (NC contact) (*3)	10,000,000 operations min. (Operation frequency 18,000 operations/h)	●	●	● (VDE) (*4)	●

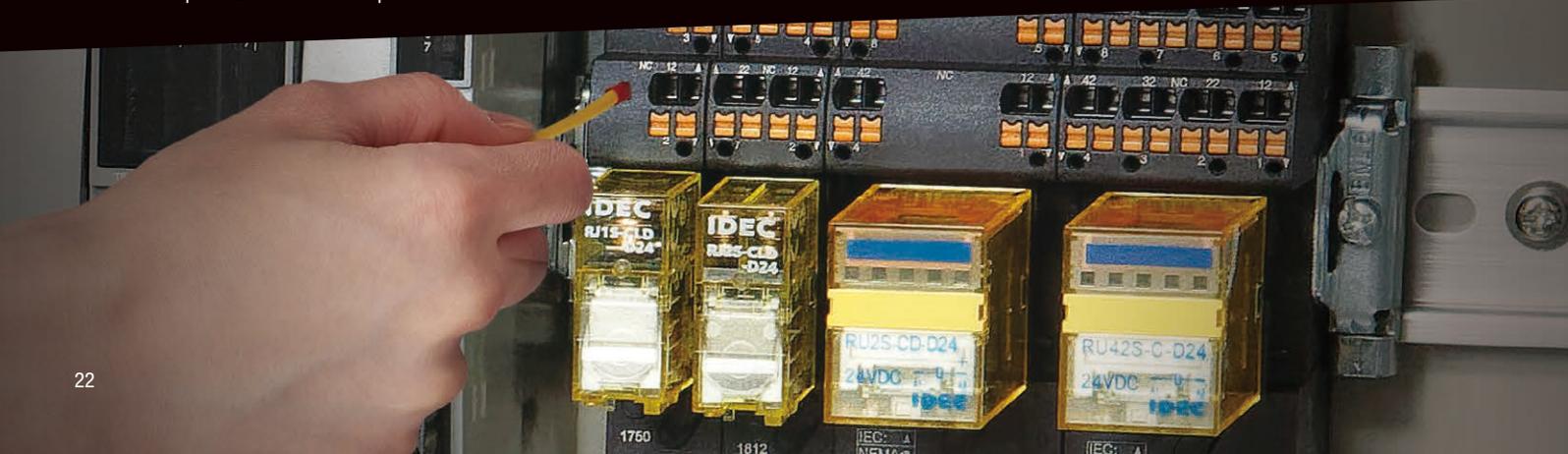
\*1) 1-pole, 2-pole \*2) 2-pole (bifurcated contacts)

\*3) 250V / DC30V AC, 6A resistive load, operation frequency 1800 operations/h

\*4) RV1H only

Application: Building control circuit for equipment

Compact size with small footprints



# SX5E

## Ethernet Switches

### Unmanaged switch available with 5-port or 8-port entry

- High **EMI impulse rejection** enables high reliability and stable operation.
- Robust **metal housing** for superior impact and environmental resistance.
- Compliant with **fast Ethernet** standards for high-speed communication.
- Equipped with various functions such as **QoS** (8-port model only) and redundant power input (2 power systems).

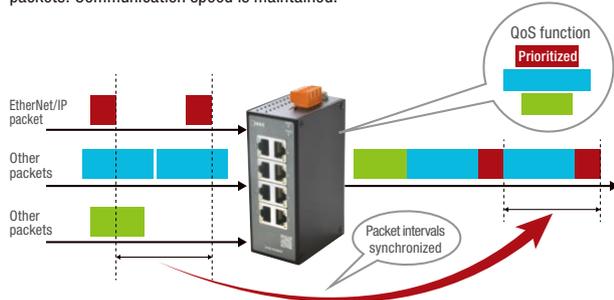


8-port

5-port

#### QoS Function (8-port)

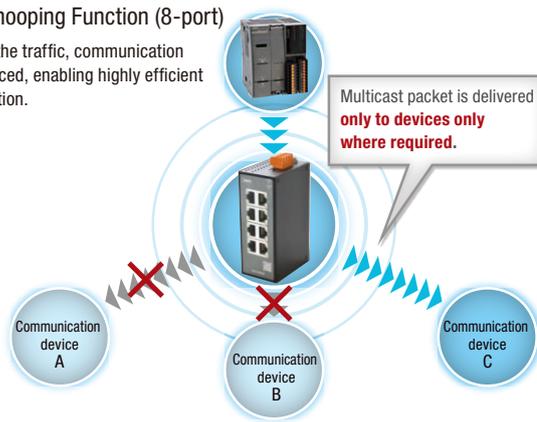
Allows the Ethernet switch to automatically determine and prioritize EtherNet/IP packets. Communication speed is maintained.



• QoS function can be turned on/off using a dip switch.

#### IGMP Snooping Function (8-port)

By filtering the traffic, communication can be reduced, enabling highly efficient communication.



Series	Number of Ports	Operating Temperature	Voltage Tolerance	Power Consumption	Data Transfer Speed	Degree of Protection
SX5E-HU055B	5	-40 to +75°C	9-60V DC, 18-30V AC	3.4W	10Mbps/100Mbps (Auto-negotiation function)	IP30
SX5E-HU085B	8		12-48V DC, 18-30V AC	4.1W		

Application: Various devices mounted on equipment

Ensures fast and reliable data transmission in harsh environments



# FT1A

## Controllers

### Powerful controller with integrated I/O for optimal control

- Touch, Pro, and Lite: **3 models** available to provide flexibility for a variety of applications.
- **Touch panel + controller** (Touch) reduces installation space and wiring work by integrating the touchscreen and control unit.
- **Ethernet, USB, and RS232C** interfaces available for various host communication.
- Independent dual-axes is possible using **2 pulse outputs** (only Pro/Lite models with pulse output).
- **Relay output** and **transistor output** for applications with frequent switching.



Series	Built-in Output Points (*1)						International Standards			
	No. of Inputs		No. of Digital Outputs				No. of Analog Output Points	UL	CSA	CE
	Digital	Analog	Relay Output		Transistor (Sink Output)	Transistor (Source Output)				
10A Relay	2A Relay									
FT1A Touch	6 points	2 points	4 points	–	4 points	4 points	2 points			
FT1A Pro	6 to 16 points	2 to 4 points	4 points	4 points	–	–	–	●	●	●
FT1A Lite	6 to 12 points	2 to 4 points	4 points	4 points	–	–	–			

\*1) Combination of I/O points differs depending on the part no.

Application: Building a control circuit for equipment and peripheral devices

Suitable for simple control and integrated functions, achieve small footprint

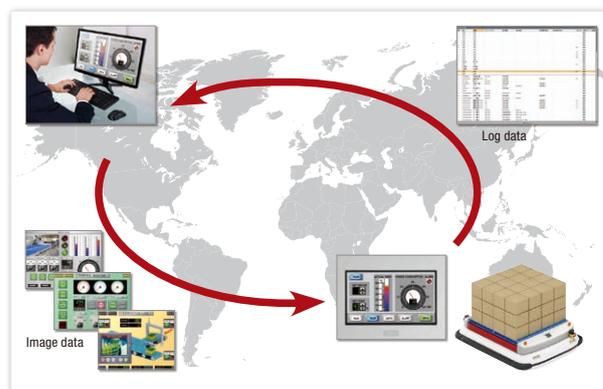


# HG series

Operator Interface

Excellent visibility and usability equipped with basic performance required for operators

- With the web server function, location of AGVs and status of automated warehouses can be checked, and **remote** monitoring and operation of device is possible using a PC, tablet, or smartphone
- Data inside operator interfaces can be sent by CSV file or screen shot using the email function allowing tracing of devices, factor analysis, and sending early alerts to operators
- Remote maintenance** is possible by using the FTP server and client function to transfer project data and read history data
- Maintenance time can be reduced with a long-life, high-performance LED backlight, enabling reduction of **running costs**
- Stress-free **1.5-second** startup, allows quick access to devices



Series	Display Size	Operation Style	Communication / Memory Interface	Color	Display Resolution	Brightness	Rated Voltage	International Standards		
								UL	CSA	CE
HG1G	4.3 inch	Analog resistive	COM, LAN, USB1, USB2	65,536	480(W)×272(H)	800cd/m <sup>2</sup>	12 / 24V DC	●	●	●
HG2G-V	5.7 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT	65,536	640(W)×480(H)	800cd/m <sup>2</sup>	24V DC	●	●	●
HG2G-5T	5.7 inch	Analog resistive	SERIAL, LAN, USB, USB2	65,536	320(W)×240(H)	500cd/m <sup>2</sup>	12 / 24V DC	●	●	●
HG3G-V	10.4 / 8.4 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT	65,536	1024(W)×768(H)	700cd/m <sup>2</sup> (VA), 800cd/m <sup>2</sup> (V8)	24V DC	●	●	●
HG4G-V	12.1 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT	65,536	1024(W)×768(H)	600cd/m <sup>2</sup>	24V DC	●	●	●
HG5G-V	15 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT	65,536	1024(W)×768(H)	650cd/m <sup>2</sup>	24V DC	●	●	●
HG1J	4.3 inch wide	PCAP	COM, LAN, USB1, USB2	16,770,000	480(W)×272(H)	500cd/m <sup>2</sup>	12 / 24V DC	●	●	●
HG2J	7.0 inch wide	PCAP	COM, LAN, USB1, USB2	65,536	800(W)×480(H)	500cd/m <sup>2</sup>	12 / 24V DC	●	●	●

Application: Operation and monitoring of devices

Fast, visible, and easy with various communication functions



# WB1F

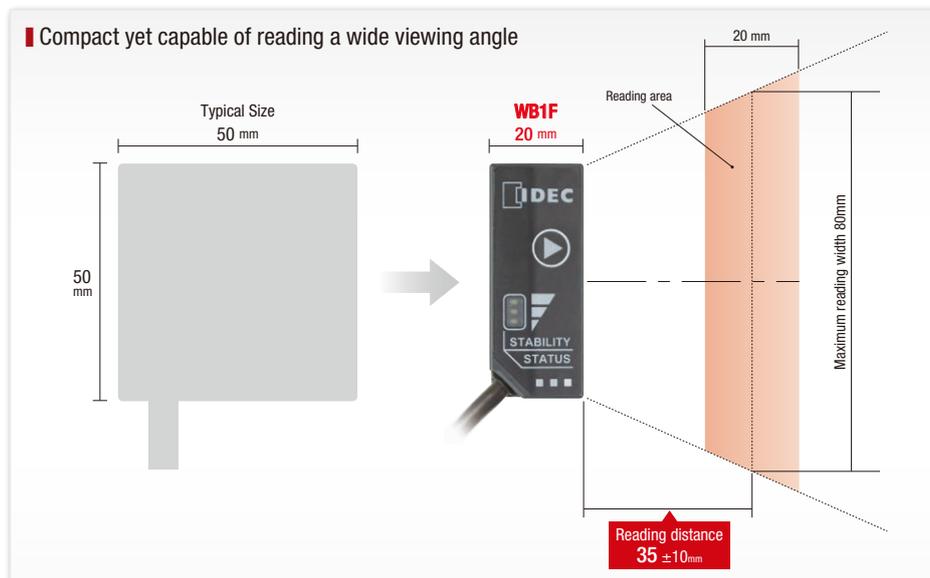
Fixed Barcode Scanner

**Compact size suitable for downsizing of equipment**

- Wide viewing angle and wide reading depth.
- Equipped with **CCD** image sensors.
- Maintenance costs are reduced as there is no moving parts.
- Images are acquired when they are scanned, making it possible to distinguish reading errors such as disturbance of ambient light.



Compact yet capable of reading a wide viewing angle

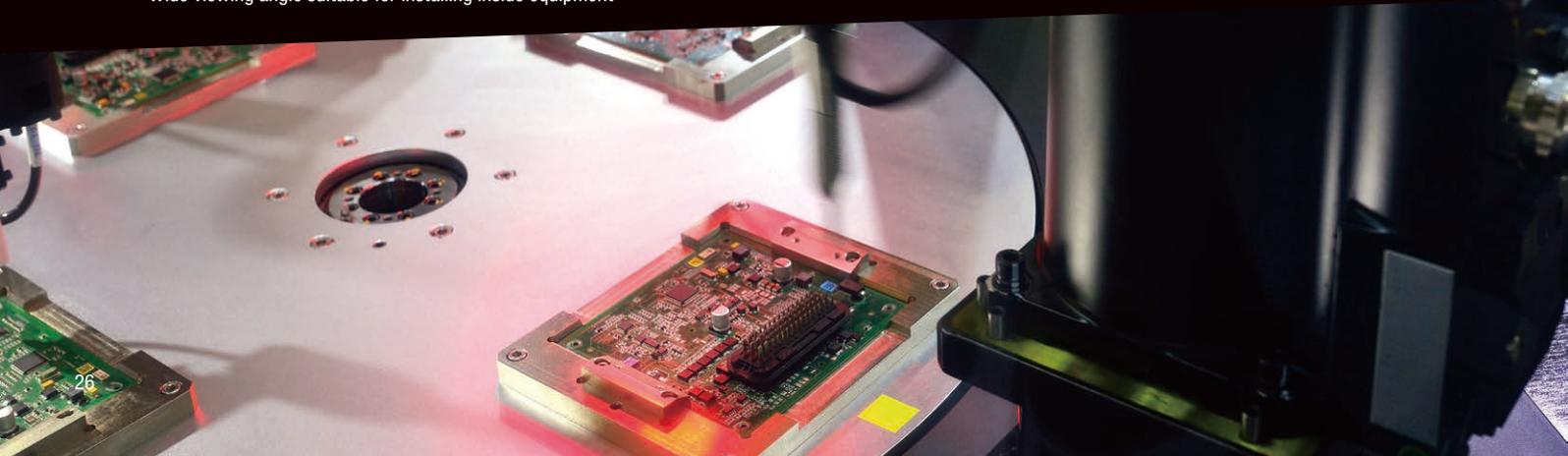


Series	Rated Voltage	Consumption Current	Reading Distance	Number of Digits to be Read	Symbols to be read	International Standards	
						UL	CE
WB1F	5V DC $\pm$ 0.25V (*1) USB Buspower (5V DC) (*2)	200mA maximum	35 $\pm$ 10mm	64 digits maximum	EAN13/8 (including add-on), UPC-A/E/E1 (including add-on), CODE39, Codabar (=NW7), Interleaved 2 of 5 (=ITF), Standard 2 of 5 (=Industrial 2 of 5), Matrix 2 of 5, Chinese Post Matrix, COOP 2 of 5, SCODE, Code93, Code128, GS1-128 (formerly: EAN-128), MSI/Plessey, Italian Pharmacy (=Code32), CIP39, Tri-Optic, TELEPEN, Code11, GS1 DataBar (formerly: RSS) (*3)	●	●

\*1) RS-232 type \*2) USB type \*3) Omni-directional, Truncated, Limited, Expanded

Application: Short reading distance and a wide viewing angle

Wide viewing angle suitable for installing inside equipment



# LF3D/LF2B/LF1B-N

LED Lighting

## Robust, excellent environmental resistance, and uniform light distribution

- IDEC's lineup of products offer light distribution characteristics (condensing lens, diffusing lens) for various applications. **Wide-angle, bright illumination** sheds light on a wide area from blade edges to pallets. (LF3D)
- **IP67G/IP69K** rated to withstand harsh environment. (LF3D)
- Designed to reduce **multi shadows** and reflections from light sources on workpieces. (LF3D)
- Equipped with a **glare save** function to dim brightness by half, reducing glare to the operator during maintenance. (LF3D)
- IDEC's unique optical technology enables the light to shine evenly on the surface, suppressing **multiple shadows** and allowing the operator to see scratches and unevenness on the workpiece. LF3D lighting makes it possible to check whether **chatter marks** have been generated or not easily, at a glance. (LF3D)
- LF1B-N has a rated voltage of 24V DC, 6 lengths, and 6 color variations. **RGB** types can be used as an indicator lamp.
- LF2B available with **100 to 240V AC** and 24V DC voltages ideal for export to global destinations.



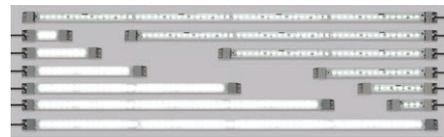
LF3D-S (Surface mount)



LF3D-F (Flush mount)



LF2B



LF1B-N

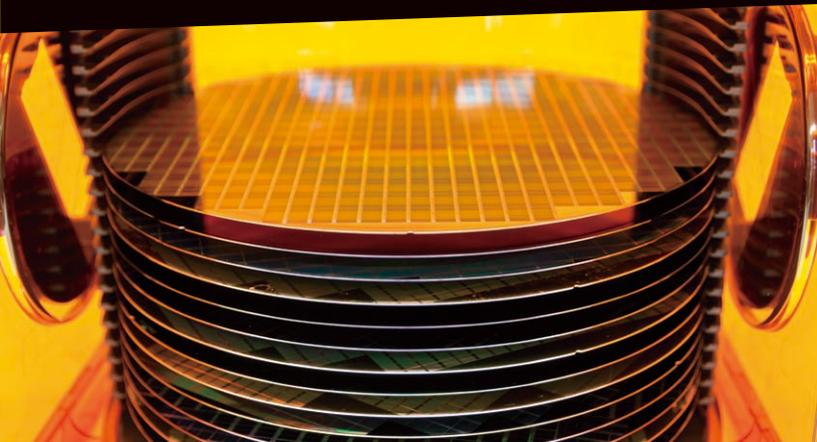
Series	Rated Voltage	Rated Power	Color Temperature	Luminous Flux	Reference Illuminance		Life	Illumination Color	International Standards		
					Standard	Diffused			UL	CSA	CE
LF3D	DC24V	9.2W	5700K	1550 lm	1800 lx	1000 lx	50,000 hours	Daylight	●	●	●

Series	Lens	IP Rating	Rated Voltage	International Standards		
				UL	CSA	CE
LF1B-N	Diffusing / condensing	IP65	24V DC	●	●	●
LF2B	Diffusing / condensing	IP65	24V DC 100 to 240V AC	● (*1)	● (*1)	●

\*1) 12/24V DC type only

Application: Lighting for various equipment

Suitable for SEMI S8 requirements



# PS5R-V

Switching Power Supplies

Compact power supply  
easily mountable on DIN rails



■ IDEC's **SS terminal**<sup>(\*)</sup> enables ease of use and safety.

■ EN 61204-3 compliant (DC power supply **EMC Standard Class B**)

■ Long-term **5-year** warranty reduces maintenance costs.

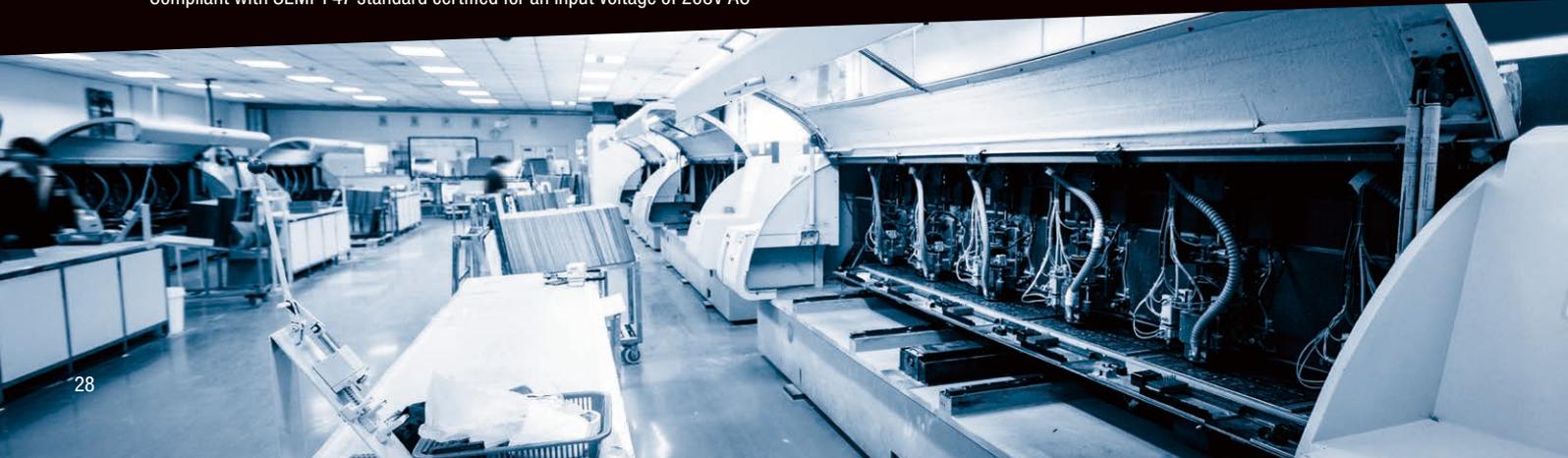
<sup>(\*)</sup> SS terminal (save & safety terminal): The screw keeps the wiring in a spring-up state, so there is no need to loosen or remove the screw. This also prevents the screw from falling off, improving work efficiency.

Series	Rated Input Voltage	Output Capacity	Dimensions (Width)	Efficiency (TYP.) (rated output) (*1)	International Standards			
					UL	CSA	TÜV	CE
PS5R-V	100 to 240V AC	10 to 240W	22.5 to 60mm	77 to 89% (100V AC) 73 to 90% (230V AC)	●	●	●	●

\*1) When in a stable state at the rated value.

Application: Supplying power to various devices mounted on equipment

Compliant with SEMI-F47 standard certified for an input voltage of 208V AC



**We make the point of contact, where people interface with machines, easy, safe and secure. We create new possibilities.**

One of our corporate principles is to conduct business with consideration for social contribution. Since its founding, IDEC has developed and introduced the world to numerous products and services centered on its control technology. Today, our products are used not only in factories, but in a wide range of settings in people's everyday lives where customers desire safety, ease of use, reliability and a smaller environmental footprint.



# Industry Solutions

Every industry is different but we take the same approach to all of them.

Build quality products that can be trusted no matter what and back them up with support every step of the way.

## AUTOMOTIVE



IDEC is an expert in providing solutions for the automotive industry. We go above and beyond with technology to help you reduce maintenance costs, defects, and accidents so you can work more effectively and improve accuracy.



Related products

## MACHINE TOOLS



IDEC understands that it's not enough for us to simply improve productivity with increased uptime and ease of use. Our products not only meet safety standards, we can help you downsize equipment and reduce maintenance costs.



Related products

## ROBOTICS



The key to more efficient production lines requires an unwavering commitment to collaboration to establish safe and efficient working environments where robots and humans can work together. IDEC can help your initiatives reach their fullest potential with products that exceed safety and collaboration compliance requirements.



Related products

## FOOD & PACKAGING



IDEC's cutting edge technology not only helps you provide the assurances you need for cost-effective traceability, we can help you improve productivity and uptime. We have the interfaces and collaboration tools to help you identify when problems occur, improve safety, and operability.



Related products

## AGV & AUTOMATIC WAREHOUSE



IDEC is an expert at optimizing the distribution of goods to help streamline the automation process while helping to prevent injury. Build or update your warehouse confidently, with IDEC as a partner, to streamline logistics with improved productivity and reduced risk of injury.



Related products

## CONTROL PANEL



As global competition rises, manufacturers are searching for innovative ways to enhance productivity and profitability. IDEC's high-quality industrial products, automation technology, and services add value by helping build next generation control panels and equipment that minimize maintenance time, reduce the amount of needed space, and provide reliable technology.



Related products

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