

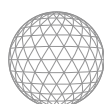


Think Automation and beyond...

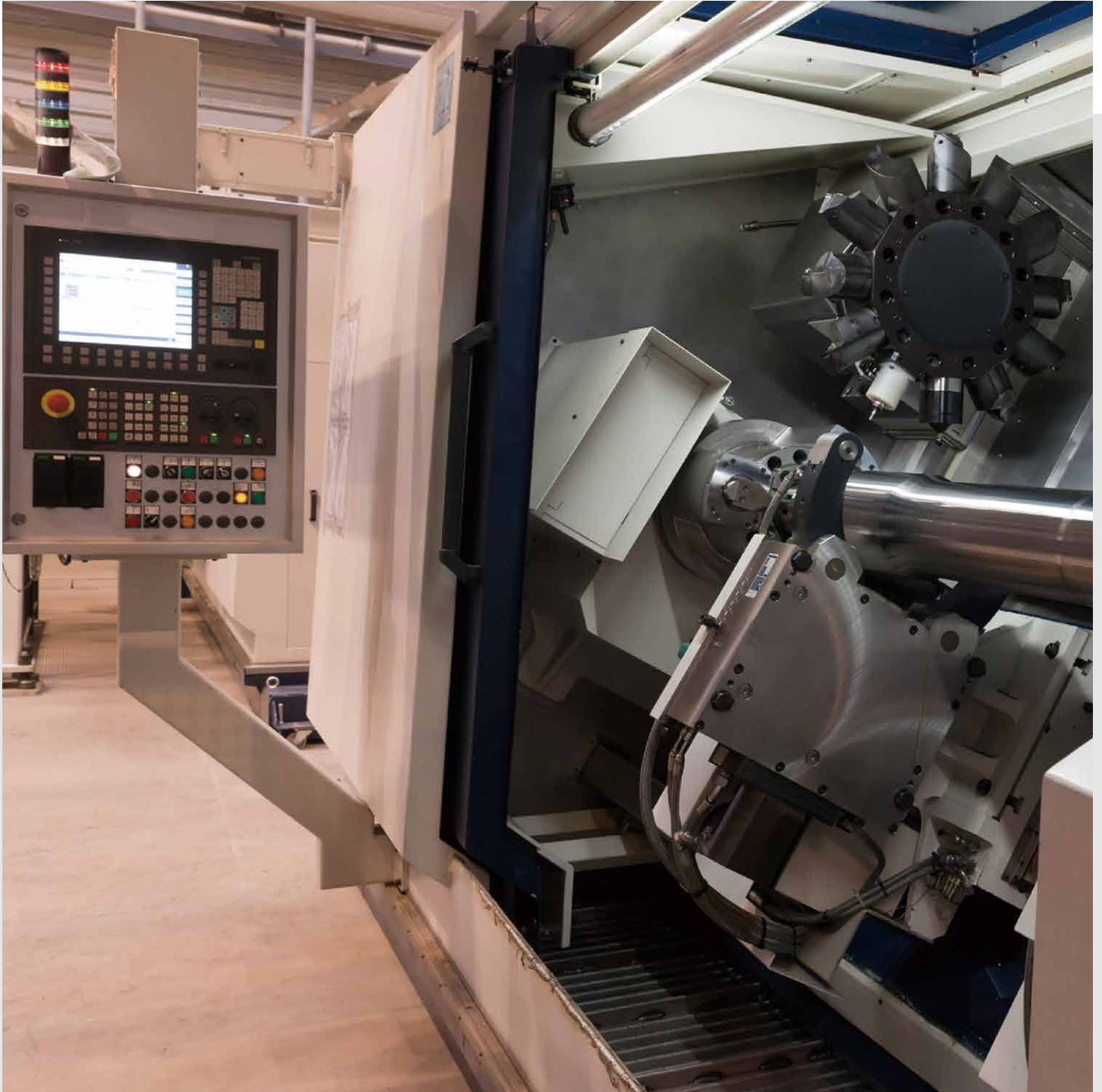


MACHINE TOOLS

Industry Solutions



APEM
an IDEC company



MACHINE TOOLS INDUSTRY

The shortage of skilled labor in recent years has proven to be a real challenge for the machine tools industry. In order to provide the necessary solutions, three key trends — automation, digitization, and multifunctionality — require major changes that draw on a wide spectrum of advanced technologies such as robotics, AI, and IoT.



Machine Tools and IDEC

OPERATOR SAFETY FIRST

Interlocking devices are the most critical component in machine tool safety. IDEC products meet the requirements of international safety standards and have the sturdiness and durability to stand up to the machine tool use environment. In keeping with the emerging trend toward automation, even in machine tool peripheral devices, we can supply safety edge switches, safety laser scanners, and other products geared to the new needs automation presents, helping to boost machine tool safety.

BUILT TO LAST

IDEC has spent more than 75 years developing and improving products with a constant focus on ease of use and quality. Our lengthy experience in the machine tools industry has made us acutely aware of the environmental resistance and durability needed to withstand a demanding environment as we continue to hone our product quality. IDEC is the trusted brand of many customers in the industry, and many of our products are used in machine tools worldwide.

COMPOUND SYSTEM SOLUTIONS

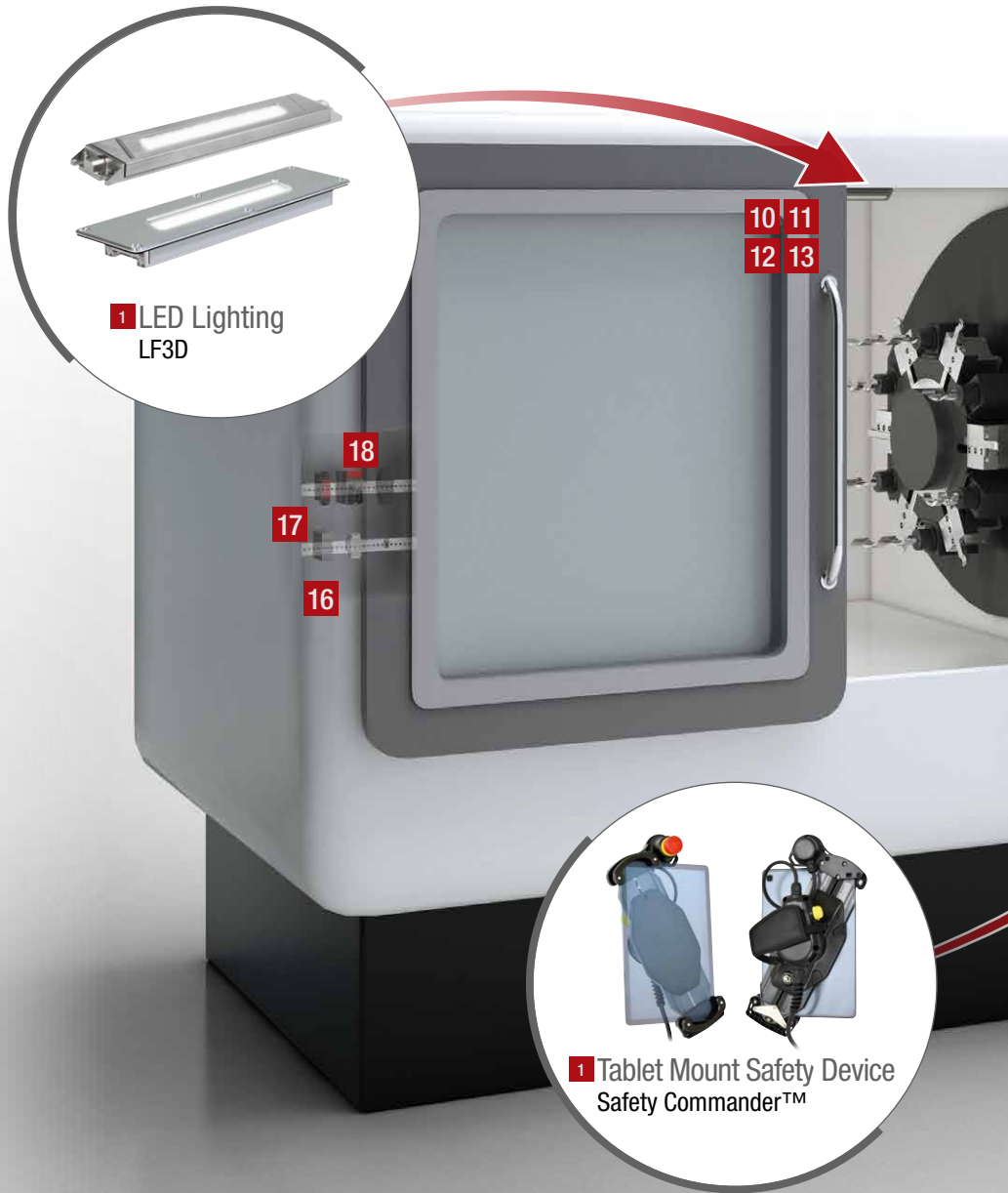
High-level automation solutions, for not only machine tools but also peripheral equipment, are now being explored as an answer to worldwide labor shortages. IDEC is using the product and safety knowhow that we have developed in robotics, material handling, and other industries to help machine tool manufacturers pursue automation and increase safety.



New proposals for evolving machine tool operations

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Ensures machine safety in compliance with international standards

9



Enabling Switches
HE Series

10



Interlock Switches with Solenoid
HS1T

11



Interlock Switches
with Solenoid
HS5L

13



Non-Contact Interlock Switches
HS3A

14

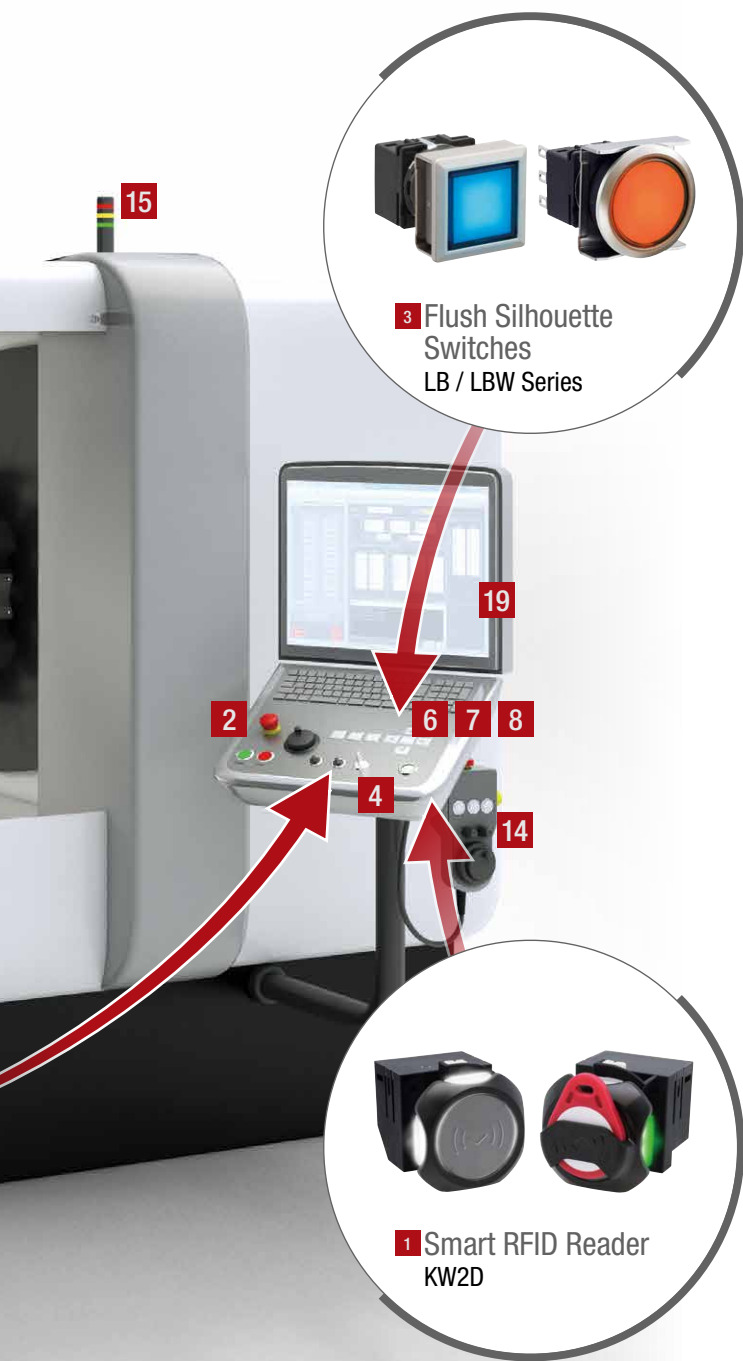


Safety Grip Switches
HE2G

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LED SignalLight Towers
LD6A



3 Flush Silhouette Switches
LB / LBW Series

1 Smart RFID Reader
KW2D

HMI components suitable for use on machine tools



2 Emergency Stop Switches
X Series



4 Push-in Switches &
Pilot Lights
YW / CW Series



5 Small Joysticks
TS / 3000 Series



6 Metal Switches
AV / PBA Series



7 Tactile Switches
Multimec™ Series



8 Pushbuttons
IP / IS Series



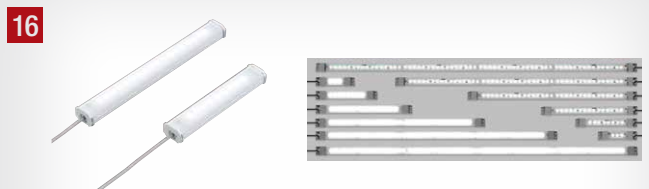
19 Operator Interfaces
HG Series



12 Interlock Switches
HS5D



18 Force Guided Relays
RF2



16 LED Lighting
LF1B-N / LF2B



17 Slim Relays / Universal Relays
RU / RJ / RV8

New

KW2D



Smart RFID Readers

Smart user authority control and log management with RFID

- Can be used as an **ISO16090 MSO access device** to assign user authority according to the skill level of the worker.
- Standard **Ø22mm** 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.



Series	Model	Rated Input Voltage Power Consumption	Operating Temperature	Storage Temperature	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:IP65/67 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 X6319-40, ISO/IEC15693	ISO/IEC14443 Type A

Authority control for machine and devices

BEFORE

Anyone can operate the machine



AFTER

Prevents inadvertent operations and setting changes, and prevents dangerous situations for operators.

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 cards.



New

Safety Commander™

Tablet Mount Safety Device

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

- The device can hold tablets **8 to 11**-inch for flexible mounting.
- Ergonomic **grip** design ideal for long and fatigue-free operation.
- Pivoting mechanism allows the tablet to be used **vertically** or **horizontally** to display a variety of contents such as tables, graphs, and maps.
- **Dedicated accessories** including wall mount for installation in limited spaces when the device is not in use.



*) The above image shows the device mounted on a commercially available tablet.
*) The tablet must be purchased by the user.

Series	Operating Temperature	Operating Humidity	Degree of Protection	Supported Tablet Size	Supported Tablet Thickness	Switches
Safety Commander	-20 to +55°C, (-20 to +35°C (*1))	45 to 85% RH	IP54	8 to 11 inches	Up to 24mm	Emergency stop switch: XA1E-LV302Q4R Enabling switch: HE5B-M2PY

• The data above does include tablets.
*1) USB power supply

Safety added to tablets for machine tool operations

BEFORE

Safety issues occur when tablets are used.

AFTER

Easy and safe teaching in hazardous areas

Emergency stop switches and 3-position enabling switches can be operated while holding the tablet with one hand.



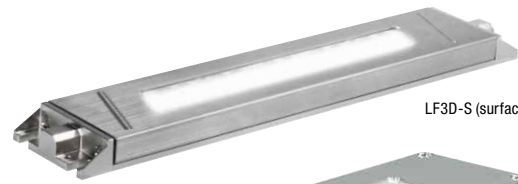
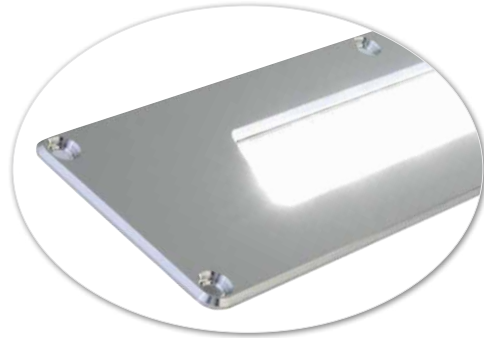
New

LF3D

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.
- **Compact and lightweight**, saves space inside machines.
- **IP67G** rated to withstand harsh environment inside machine tools.
- Designed to reduce **multi shadows** and reflections from light sources on workpieces.
- Equipped with a **glare save** function to dim brightness by half, reducing glare to the operator during maintenance.
- **M12** connector types available.



LF3D-S (surface mount)



LF3D-F (recessed mount)

Series	Rated Voltage	Rated Power	Color temp.	Luminous Flux	Reference Illuminance		Light source life	Illumination color	International Standards		
					Standard	Diffused			UL	CSA	CE
LF3D	24V DC	9.2W	5700K	1700 lm	1800 lx	1000 lx	50,000 hours	Warm white	●	●	●

LED lighting inside machine tool allows for clear identification of chatter marks

BEFORE

Hard to see chatter marks

AFTER

LED lighting improves machining efficiency

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.



X Series

Emergency Stop Switches

Unique technology for extreme safety



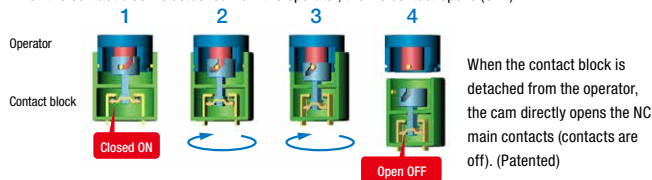
Reverse energy structure and Safe Break Action **minimize dangerous failure.**

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

Smooth surface and low profile prevents interference with other components on the operation panel.

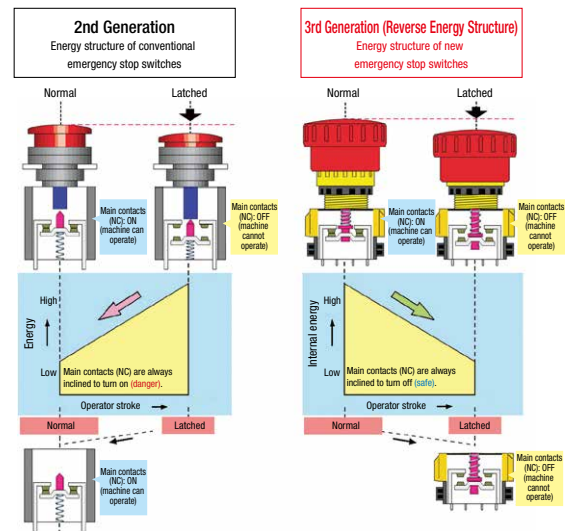
Safe Break Action

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)



Series	Mounting Hole Size (mm)	Contact Configuration	Contact Ratings	Depth Behind the Panel
XA (unibody)	ø16.2	1NC, 2NC		Solder Terminal : 19.5mm Solder/Tab Terminal #110 : 23.9mm
XA (removable contact block)	ø16.2	1NC, 2NC, 3NC, 4NC, 1NC+1NO, 2NC+1NO, 3NC+1NO	(applies to all contact configuration)	Solder Terminal : 27.9mm PC Board Terminal : 23.9mm
X6	ø16.2	1NC, 2NC		Solder Terminal : 19.5mm
XW	ø22.3	1NC, 2NC, 3NC, 4NC, 1NC+1NO, 2NC+1NO, 3NC+1NO	(applies to all contact configuration)	Without terminal cover : 37.1mm With terminal cover : 48.7mm
XW (indicator type)	ø22.3	1NC, 2NC, 3NC, 4NC, 1NC+1NO, 2NC+1NO, 3NC+1NO	(applies to all contact configuration)	Without terminal cover : 37.1mm With terminal cover : 48.7mm

Application: Operation panels for machine tools and manual pulse generators

Abundant size variations and high reliability



LB/LBW Series

Flush Silhouette Switches
 ø16 Switches & Pilot Lights

Flush Silhouette switches
 ideal for operation panels

- Very **user-friendly** mounting thanks to a **removable** contact block.
- PC board terminal enables a single board mounting for **space-saving** installation and **preventing** wrong wiring.
- Depth of only **27.9mm** behind panel. Reduces the size of machines and control panels.
- Stylish design with **2-thick** bezel prevents particles and contaminants from accumulating.



Flush Silhouette

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

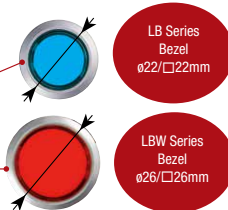


LB Series Flush Silhouette Switches

Slim 2mm-thick bezels for stylish panels.

LBW Series Flush Silhouette Switches

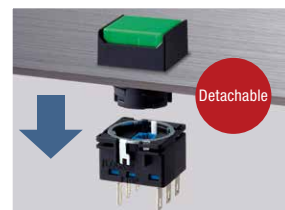
Sleek appearance with large surface for secure operation.



Very user-friendly mounting

Removable Contact Block / Single Board Mounting

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



Series	Bezel Diameter	Mechanical Durability	Electrical Rating	Contact Rating	International Standards				
					UL	CSA	TÜV	CCC	CE
LB	ø22 / □22mm	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)	●	●	●	●	●
LBW	ø26 / □26mm	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 panels for machine tools

For easy-to-operate panels with low profile switches



YW/CW Series



Push-in Switches & Pilot Lights

Simple wiring with Push-in technology

- Push-in terminals allow you to **save maintenance costs**, and give you **vibration-proof** and **consistent connections**.
- Wiring is completed simply by inserting a solid wire or ferrule into the Pushin terminal. No need for retightening, **increasing efficiency** of equipment for mass production.
- Connections are angled to facilitate wire entry, and the contact blocks feature a **handy test point** for insertion of a multimeter probe.
- Push-in contact blocks are **compact** and **easy** assembling/disassembling.



Contact block depth reduced

- Saves space inside panel and enables downsizing of equipment

Pushbuttons
Single contact block

Panel depth
36.4mm



Double contact block

Panel depth
59.6mm



Time saving & efficient

- Reduces 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	Mounting Hole Size (mm)	Bezel Size (mm)	Terminal Style		IP Ratings	International Standards				
			Screw	Push-in		UL	CSA	TÜV	CCC	CE
YW	ø22	ø30	●	●	IP65	●	●	●	●	●
CW	ø22	ø30	●	●	IP65	●	●	●	●	●

Application: Operation panels for machine tools and equipment

Improve wiring efficiency with push-in technology



TS/3000 Series

Small Joysticks

Broad range of high performance joysticks

■ Similar in size and operation to "gamepad" controls, but in a rugged industrial package.

■ **Hall effect** technology.

■ **SIL/PLd** capable.

■ **EMC Shielded.**

■ Short behind the panels.



Series	Life Cycles	Axis	Technology	Output	Mounting Style	IP Rating
TS	1 million	1 or 2	Hall effect	Single, dual, analog, PWM, USB	Front, rear & bushing	IP67/IP69K
3000	10 million	3	Hall effect	Single, dual, analog, PWM	Front or rear	IP65

Application: Control panels, remote controls

Intuitive control



AV/PBA Series

Metal Switches

Metal switches with robust and air-tight structure

■ **Robust, durable, and stylish** metal switches with smooth surface. Stainless steel structure prevents **corrosion**.

■ Piezo Series piezoelectric switches have a **flat actuation** surface and an epoxy potted back end high durability is maintained even when subject to coolants.



Series	Output	Mounting Hole Size (mm)	IP Rating	Life Expectancy
AV	Contact	Ø22 to Ø30	IP65/IP67/IP69K	1 million cycles
PBA	Pulse	Ø16 to Ø30	IP68, IP69K	50 million cycles

Application: Operation panels for machine tools and machines

Excellent design and high durability



Multimec™ Series

Tactile Switches

Metal switches with superior durability

- Endures **10 million** cycles with a secure tactile feedback. Improves **durability** of operation panels.
- Multimec™ switches are **IP67** rated and protected (except PCB) even if the sealing on the panel surface deteriorates and the oil penetrates inside.



Series	Terminal Style	Maximum Rating	IP Rating	Life Expectancy
Multimec™ 5 series - 5E & 5G	Through-hole Surface mount	50mA - 24V DC	IP67	10 million cycles

Application: Operation panels

Improved durability of operation panels



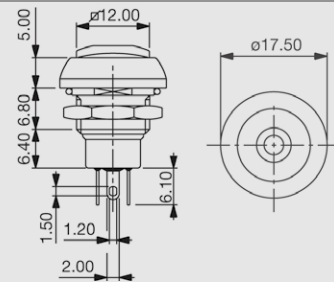
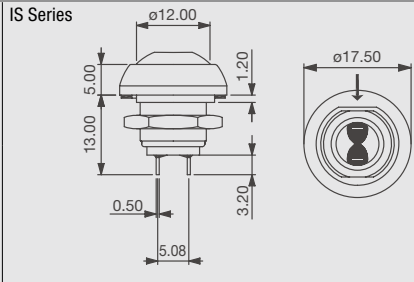
IP/IS Series

Pushbuttons

Compact pushbuttons for harsh environments

- **Short** depth behind the panel suitable for applications with limited space such as manual pulse generators.
- **Comfortable** operation ergonomic design, improving the operability of manual pulse generators.
- High environmental protection (**IP67**), durable for usage in machine tool environments.



Series	Bezel Material	Mounting Hole Size (mm)	Dimensions (mm)	
IP	Zinc diecast	Ø13.6	IP Series (*1) 	IS Series 
IS	Polyamide	Ø13.6		

*1) Dimension for IP series momentary (illuminated, round, solder terminal)
For other models, see website.

Application: Manual pulse generators, teaching pendants

Improved operability of hand-held boxes



HE Series

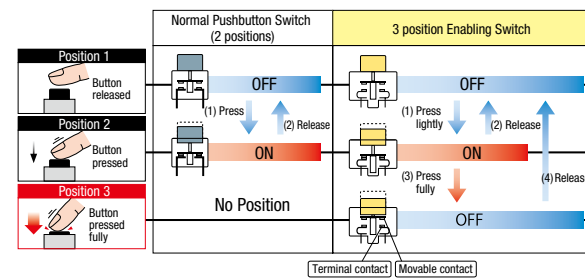
Enabling Switches

Ensuring safety during remote operation

- Ergonomic **3-position structure** stops machines safely either by pushing or releasing.
- Wide variety of models available.
- NBR/PVC models for applications requiring **cutting oil proof**.



■ Ergonomic 3-position operation



Series	Mounting Hole Size (mm)	Electrical Durability	Terminal Style	IP Rating	Rated Thermal Current	Rubber Boot Material	International Standards			
							UL	TÜV	CCC	CE
HE3B	ø16	Position 1 → 2 → 1: 1 million operations min. Position 1 → 2 → 3 → 1: 100,000 operations min. Operating frequency: 1200 operation per hour	Solder	IP40 IP65	3A (125V DC)	Silicon rubber, color: Y (yellow), B (black)	●	●	●	●
HE5B	ø16	Position 1 → 2 → 1: 1 million operations min. Position 1 → 2 → 3 → 1: 100,000 operations min. Operating frequency: 1200 operation per hour	Solder	IP65	3A (125V DC)	NBR/PVC Polyblend, color: gray	●	●	●	●

Application: Manual pulse generators, teaching pendants

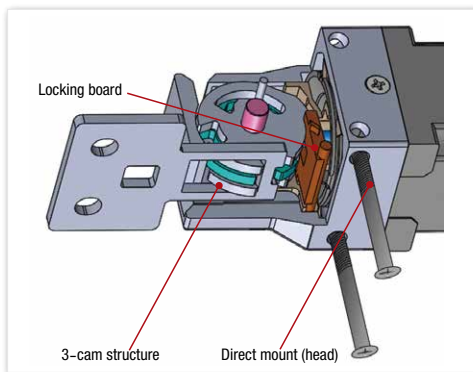
Improved safety of hand-held boxes

HS1T

Interlock Switches with Solenoid

Excellent robustness to ensure operator safety

- Features strong locking force of $F_{zh} = 5000N$ to protect operators from danger.
- Head rotating structure enables the head to be rotated without removing the head.
- The **3-cam structure**, which includes 2 stainless steel cams, achieves high durability against tensile force.



Series	Type and Coded Level	Locking Force	Electrical Durability	Terminal Style	IP Rating	Rated Current	International Standards				
							UL	CSA	TÜV	CCC	CE
HS1T	Type 2 low level coded interlocking device (ISO 14119)	5000N	100,000 times min. (AC-15 0.75A/250V) 2 million times min. (24V AC/DC, 100mA) (Operating Frequency: 900 operations per hour)	Spring clamp	IP67	200mA	●	●	●	●	●

Application: Machine guards

Ensuring operator safety



HS5L

Interlock Switches with Solenoid

Compact size with advanced safety

- Compact** size allows the interlock switch to be easily enclosed in guards as a preventive measure against invalidation, which is required by safety standard ISO14119 for interlock devices.
- Head removal detection function** detects contact signals even when the head comes off during locking to ensure safety.
- Optional **spring loaded actuator** locks the door safely when the door bounces.



Head removal detection

HS5L-VD44M-G (Lock monitor circuit)

	Actuator unlocked	Actuator locked	Head removed
<p>Lock monitor circuit 41 42</p> <p>Lock monitor circuit 51 52</p>	<p>OFF</p>	<p>ON</p>	<p>OFF</p> <p>ON</p> <p>Disparity</p>

Note: Head removal detection function is not a direct opening action mechanism.

Spring loaded actuators

Saves-space inside panels and equipments

IDEC patented spring loaded actuator locks the door safely when the door bounces. When the actuator is fully inserted (door closed completely), the door can tolerate a space of up to 16mm.



Patented

Series	Type and Coded level	Locking Force	Locking Strength	Terminal Style	IP Rating	Rated Current	International Standards				
							UL	CSA	TÜV	CCC	CE
HS5L	Type 2 low level coded interlocking device (ISO14119)	1400N	100,000 times min. (AC-15 0.75A/250V) 2 million times min. (24V AC/DC, 100mA) (Operating Frequency: 900 operations per hour)	Spring clamp	IP67	200mA	●	●	●	●	●

Application: Machine guards

Ensuring operator safety



HS5D

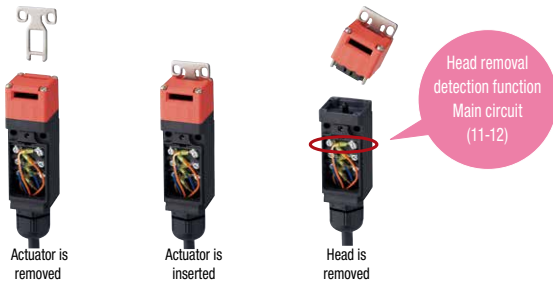
Interlock Switches

Easy installation in tight spaces

- **Head removal detection function** detects removal of the head by signals to ensure safety.
- Available with **3-contacts** including a dual contact + monitor contact although the size is the same as 2-contact models.



Head removal detection function



When using HS5D-12

	Actuator unlocked	Actuator locked	Head removed
Main circuit (NC) ⊖ 11, 12	OFF	ON	OFF
Main circuit (NC) ⊖ 21, 22	OFF	ON	ON

Note: Head removal detection function is not a direct opening action mechanism.

Disparity



Small size with 3 contacts

3 contact types with dual enabling contacts and a monitor contact are available. Compact size allow installation in tight spaces (30×91×30mm)

Series	Type and Coded Level	Electrical Durability	Terminal Style	IP Rating	International Standards				
					UL	CSA	TÜV	CCC	CE
HS5D	Type 2 low level coded interlocking device (ISO 14119)	100,000 operations minimum (AC-12 250V, 6A) 1,000,000 operations minimum (24V AC/DC, 100 mA) (operation frequency: 900 operations per hour)	Screw	IP67	●	●	●	●	●

Application: Machine guards

Ensuring operator safety



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.
- Durable protective structure to withstand harsh environments (Main body: **IP67**, Actuator: **IP67, IP69K**).
- Sensor head section can be changed in **5 directions** allowing flexible mounting.



Hygienic

RFID prevents the buildup of metal residue

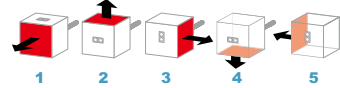
- Suitable for harsh environment applications

The nonmagnetic actuator is resistant against buildup of metal particles.

Mounting

Can be installed in five directions

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



Series	Safety Category	Performance Level	Type	Terminal	IP Rating	International Standards
HS3A	Category 4	PLe	"Type 4" or levels of coding "high"	M12 connector	Body: IP67, Actuator: IP67, IP69K	EN60947-5-3 (IFA approval) EN954-1, EN ISO13849-1, EN62061 GS-ET-14 (IFA approval) UL508 (UL listed) CSA C22.2 No.14 (c-UL listed)

Application: Machine guards

Ensuring operator safety



HE2G

Safety Grip Switches

Easy-to-grip ergonomic design

- **Compact design** enables a firm hold. Suitable for hold-to-run operations such as jog operation for filling machines.
- Ergonomic **3-position structure** stops machines safely by pushing in or releasing.
- **Lightweight** structure suitable for long operation.

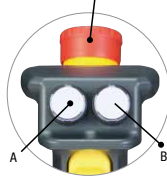


Select from a wide variety of models

Equipped with different control units for various use.

HE2G-21SHE-L-L

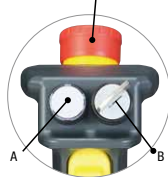
Emergency stop switch
XA1E-BV3U02R



A: Momentary pushbutton (white)
AB6M-M2PLW
B: Momentary pushbutton (white)
AB6M-M2PLW

HE2G-21SHE-L-K

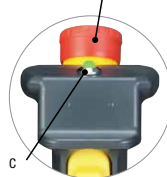
Emergency stop switch
XA1E-BV3U02R



A: Momentary pushbutton (white)
AB6M-M2PLW
B: Key selector switch
AS6M-2KT2PA

HE2G-21SHE-P-0

Emergency stop switch
XA1E-BV3U02R



C: Pilot light (green)
UP9P-2498G

Series	Rubber Boot Material	IP Rating	International Standards				
			UL	CSA	TÜV	CCC	CE
HE2G	Silicon rubber: Y (yellow), B (black) NBR / PVC polyblend rubber boot color: gray	IP67	●	●	●	●	●

Application: Operation panels

Ensuring operator safety



LD6A

LED SignalLight Towers

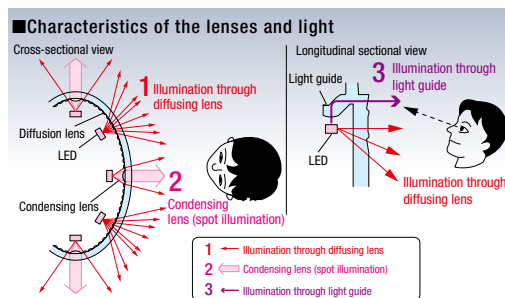
Compact size saves machine space

- Universal design with oval shape and striped design enhances **visibility**.
- Variety of mounting patterns, easily replaceable LED units, and **plug-in** terminals. Color combinations can be changed on-site, **reducing** maintenance time.
- Steady / flashing (flashing cycle compliant with **IEC** standards / alarm types available).
- Unique powerful design with 360-degree sound field. Two **alarm** sound patterns available.



■ Unique lens offers high visibility

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



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

Application: Machine status indication

Detects machine failure



LF1B-N/LF2B

LED Lighting

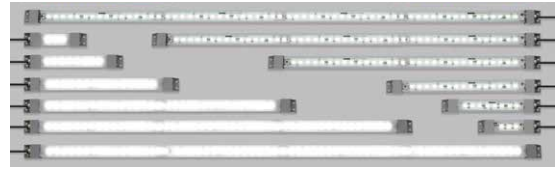
Wide range of variations including compact size for flexible installation

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.



LF2B



LF1B-N

Two easy mounting styles

Quick and easy installation

Dedicated brackets (2 types) available for mounting



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 inside machine tool panels

Small and easy-to-use inside panel



RU/RJ/RV8

Slim Relays / Universal Relays

**Slim, compact relays
save installation space**

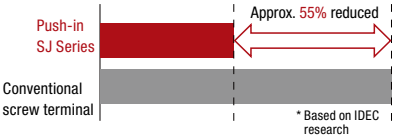
- **Compact** size with excellent durability and high allowable contact current.
- Circuit check can be performed without energizing the coil, so operation can be checked **before applying power** to the relay. (RU)
- The release lever easily holds and removes the relay and push-in terminals reducing **wiring time**. (RU, RJ)
- Space-saving **6mm** ideal for high density mounting. (RV8)



Time Saving & Efficient

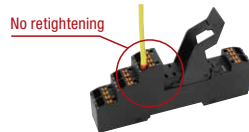
■ Save up to **55%** in wiring time

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.



Safe & Easy

■ Equipped with a release lever

The release lever easily holds and removes the relay.



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: Construction of control circuits

Compact size with high-capacity contacts, reducing installation space



RF2

Forced Guided Relays

2-pole forced guide relays to reduce cost and installation space

- **2-pole** relays achieve easy configuration of a safety circuit without having an excessive number of poles.
- Mechanical indicator allows easy confirmation of the contact status.
- By using the relays with **Push-in terminal**, screw terminal, or PC board sockets, the relay can be easily replaced during maintenance.



Series	Socket	Allowable Switching Current	Electrical Life	Mechanical Life	International Standards			
					UL	CSA	TÜV	CE
RF2	PC board terminal, Screw terminal, Finger protect screw terminal, Push-in terminal	6A	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) NC contact: 100,000 operations minimum (operating frequency 1,800 per hour) at 240V AC / 3A resistive load or 2A inductive load (power factor 0.4) 100,000 operations minimum (operating frequency 1,800 per hour) at 24V DC / 3A resistive load or 1A inductive load (time constant 48ms)	10 million operations min. (operating frequency 18,000 per hour)	●	●	●	●

Application: Safety circuits

Improving maintainability



HG Series

Operator Interfaces

Touch panel with excellent oil resistance and robustness

■ **IP66F** rated operator interface for use in machine tool environments where oil is used.

■ **Hard coat** protected for excellent **durability** and preventing scratches during operation even with metal cutting chips remaining on the hands.



Series	Display Size	Touch Switch	Communication / Memory Interface	Video / Audio Interface	Rated Voltage	International Standards		
						UL	CSA	CE
HG1G	4.3 inch	Analog resistive	COM, LAN, USB1, USB2		12 / 24V DC	●	●	●
HG2G-V	5.7 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT		24V DC	●	●	●
HG2G-5T	5.7 inch	Analog resistive	SERIAL, LAN, USB, USB2		12 / 24V DC	●	●	●
HG3G-V	10.4 / 8.4 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT	VIDEO IN1, VIDEO IN2, AUDIO OUT	24V DC	●	●	●
HG4G-V	12.1 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT	VIDEO IN1, VIDEO IN2, AUDIO OUT	24V DC	●	●	●
HG5G-V	15 inch	Analog resistive	COM1, COM2, LAN, USB1, USB2, SD, EXT	VIDEO IN1, VIDEO IN2, AUDIO OUT	24V DC	●	●	●

Application: Operation interfaces

Touch panels suitable for machine tool environments



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.





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