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IDEC

ø22 CW Series
Flush Silhouette Touchless Switches
CW1H/CW4H



Touchless Switches

For indoor and outdoor use. Suitable for hygiene measures and for replacement of photoelectric sensors, indicator lights, and mechanical switches

IDEC CORPORATION

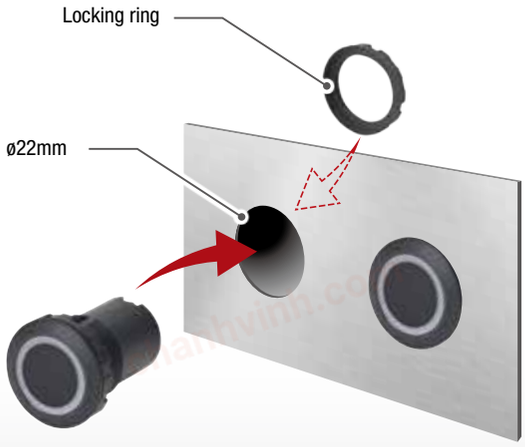
Just wave your hand to switch on



3-in-1
Saves space, time, and cost

Functions of a **photoelectric sensor** and **two indicator lights** integrated into a **single touchless switch**.

Easy installation



Simply insert into a **ø22mm** hole and tighten it from **the back with a locking ring**.

Equipped with a two-color LED



Output and standby status feedback by **LED illumination** in **two colors** that can be externally controlled.

NEW

Blue / pure white color variation

(made-to-order product)

The color combination can be recognized by the majority of people, regardless of individual differences in color vision.



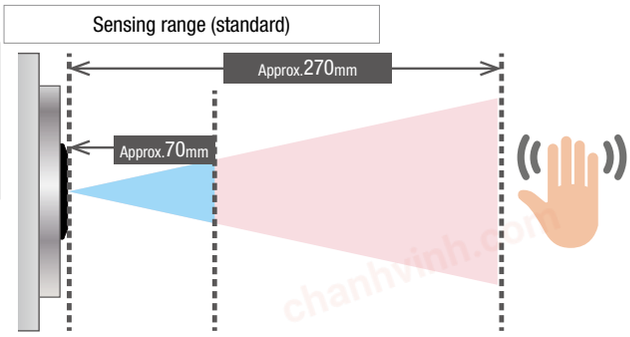
Near-infrared reflectance

Two types of sensing methods are available according to the sensing distance. Suitable for a variety of applications.

Standard model (diffuse-reflective)

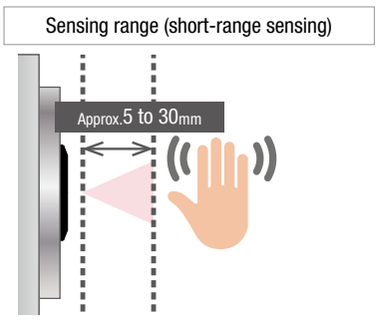
The maximum sensing range is adjustable from approx. **70 to 270mm** (*1) using a sensitivity control (*2). Suitable for applications that require long-range sensing.





NEW Short-range sensing model (convergent-reflective)

Emits and receives light at an angle. Detects objects only within a specific distance range **approx.5 to 30mm**. (*2)
Suitable for applications that require only short-range sensing.



• *1)Sensitivity control available only for standard model. *2) Sensing object: human hands. See page 6 for "Sensing range by object" for objects other than hands.

For outdoor use

Degree of protection: **IP65/67** suitable for outdoor use.
UL Type 4X (Outdoor) approved.
Features weather-resistant material.



Stylish and durable

Plastic and metal bezel types available for applications in harsh environments.
Excellent durability and **reliability**.



Application Examples

Public areas where unspecified number of people touch the same surface

Reduces the risk of viruses and bacteria spreading in applications with frequent access.


Public facilities



Elevators

Locations requiring weather resistance and durability

For use in a variety of applications, both indoors and outdoors.


Parking garages



Parking ticket machines

Locations requiring hygiene measures

As direct contact is not required, touchless switches can be used in applications which require reduction of infection risk and hygiene measures.


Air shower


Food machinery

Frequently operated equipment

Reduces operation fatigue when operating buttons and improves switch life.


Machine equipment


Picking

Human sensing applications

For equipment that detects people using photoelectric sensors, the sensor installation an issue. Touchless switches are easy to install, can display ON/OFF status, and do not require indicator lights.


Washing equipment


Sterilizer

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ø22 CW Series Flush Silhouette Touchless Switches CW1H/CW4H

Touchless switches for hygiene measures. Saves space, time, and cost.

- Suitable for indoor and outdoor use. Degree of protection: IP65/67
- Stylish design. Easy installation.
- Two-color LED illumination enables identification of output and standby.

- See website for details on approvals and standards.



General Specifications

Model	Standard model	Short-range sensing model
Operating temperature	When in use: -25 to +55ºC (-13 to 131ºF) When storing: -35 to +70ºC (-31 to 158ºF) (no freezing)	
Operating humidity	When in use: 35 to 95%RH, When storing: 35 to 95%RH (no condensation)	
Sensing method	Diffuse-reflective	Convergent-reflective
Sensing range	Maximum sensing range: approx. 120 to 350 mm (adjustable by sensitivity control) (white drawing paper 200 x 200 mm) Approx. 70 to 270mm if the object of sensing is a hand (reference value)	Approx. 10 to 30 mm (sensitivity not adjustable) (white drawing paper 200 x 200 mm) Approx. 5 to 30mm if the object of sensing is a hand (reference value)
Light source	Infrared LED	
Rated voltage	12 to 24VDC Allowable ripple rate ±10% (main circuit, illuminated part)	
Current draw	40mA maximum (main circuit) 20mA maximum (illumination part)	

Model		Standard model	Short-range sensing model
Control output		Non-contact (photo MOS relay) output Load power supply voltage: 24V DC± 10% max. (Load current: 100mA maximum) Voltage drop: 1.0V maximum (Load current: 100mA maximum)	
Protection circuit		Power supply reverse connection protection	
Response time		Turn-on ≤ 2.5ms, turn-off ≤ 1ms	
Materials	Bezel / Main body	Black plastic: PA66 Metal: Aluminum alloy	
	Lens	PMMA	
Degree of Protection		IP65/67, UL Type 4X (OUTDOOR USE) (*1)	
Weight		CW1H: 15g, CW4H: 20g	

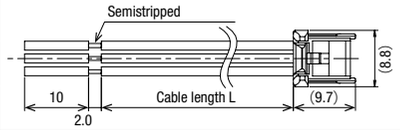
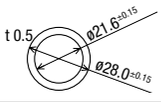
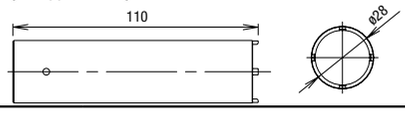
CW1H/CW4H

Package Quantity: 1

Name	Shape	Sensing method	Bezel specifications	Illumination color (LIGHT1/LIGHT2)	Illumination control method	Part No.
CW series flush silhouette touchless switches (standard model)		Diffuse-reflective	Black plastic	Green / Red	PNP	CW1H-DM1NGR-C
					NPN	CW1H-DM1NGR-C-N
				Blue / Pure White	PNP	CW1H-DM1NSPW-C
					NPN	CW1H-DM1NSPW-C-N
			Metal	Green / Red	PNP	CW4H-DM1NGR-C
					NPN	CW4H-DM1NGR-C-N
				Blue / Pure White	PNP	CW4H-DM1NSPW-C
					NPN	CW4H-DM1NSPW-C-N
CW series flush silhouette touchless switches (short-range sensing model)		Convergent-reflective	Black plastic	Green / Red	PNP	CW1H-GM1NGR-C
					NPN	CW1H-GM1NGR-C-N
				Blue / Pure White	PNP	CW1H-GM1NSPW-C
					NPN	CW1H-GM1NSPW-C-N
			Metal	Green / Red	PNP	CW4H-GM1NGR-C
					NPN	CW4H-GM1NGR-C-N
				Blue / Pure White	PNP	CW4H-GM1NSPW-C
					NPN	CW4H-GM1NSPW-C-N

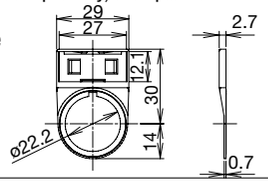
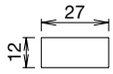
- Dedicated cable for external connection is not supplied. (One each of locking ring and rubber washer is supplied)

Accessories

Name	Shape	Specification	Part No.	Ordering No.	Package quantity	Remarks
Dedicated cable for external connection		AWG22	CW9Z-CN	CW9Z-CN200	1	Length (*2): 200mm 
				CW9Z-CN500		500mm
				CW9Z-CN1M 1	50	1000mm
Locking ring		Polyamide plastic (black)	CW9Z-LN	CW9Z-LNPN05	1 (5 pcs)	–
Gasket		Nitrile rubber	CW9Z-WM	CW9Z-WMPN10	1 (10 pcs)	For waterproofing between the mounting panel and the main body. 
Locking ring wrench		Metal (brass)	MW9Z-T1	MW9Z-T1	1	• Used to attach the unit to the panel. • Weight: Approx. 150g 

*1) Contact IDEC for lengths other than 200mm, 500mm, 1000mm.

Nameplates

Name / Shape	Specification	Part No.	Ordering No.	Package quantity	Remarks
Nameplate CWAM  Legend: Without marking plate	Plastic (Black)	CWAM	CWAM	1	• Nameplate: HWNP type (sold separately) is required. • Degree of protection: IP65 • Attach nameplate with the switch actuator rubber washer attached. 
Marking plate HWNP (*1) (*2)  Photo: HWNP-35	Aluminum (Black)	HWNP-☐	HWNP-☐	1	• White letters on black background • Engraving area W25 H7. t=1.0mm 
			HWNP-☐PN10	1 (10 pcs)	

*1) Available in units of 1 piece, but standard prices vary. *2) Specify the legend code below in place of ☐ in the part number..

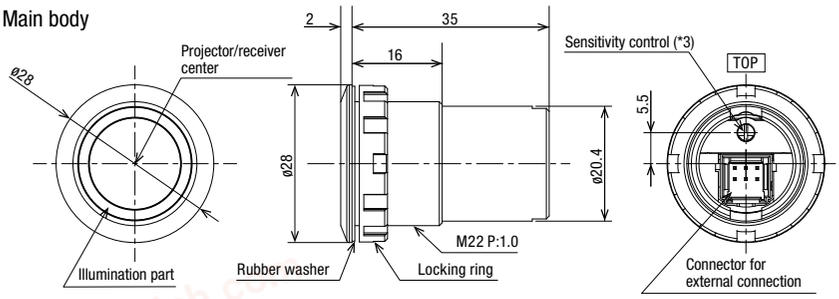
Legend for nameplates

Code	Legend	Code	Legend
0	Blank	4	STOP
1	ON	31	OFF-ON
2	OFF	35	HAND-AUTO
3	START	53	HAND-OFF-AUTO

Dimensions

All dimensions in mm.

Main body

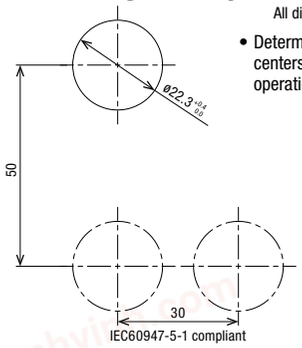


• *(3)Short-range sensing model does not have a sensitivity control.

Mounting hole layout

All dimensions in mm.

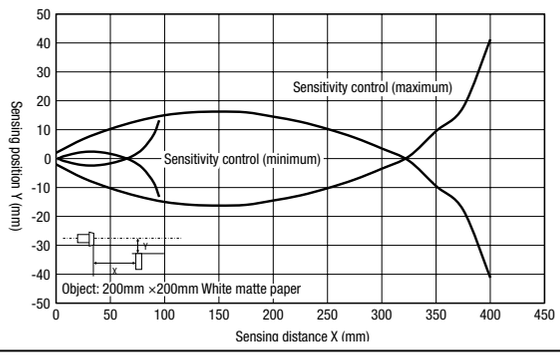
• Determine mounting centers to ensure easy operation.



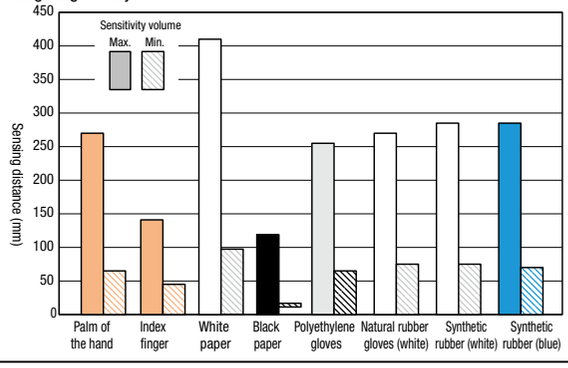
Characteristics

Standard model

Sensing area

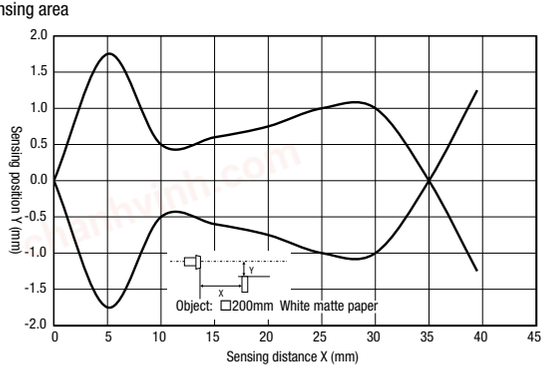


Sensing range of object

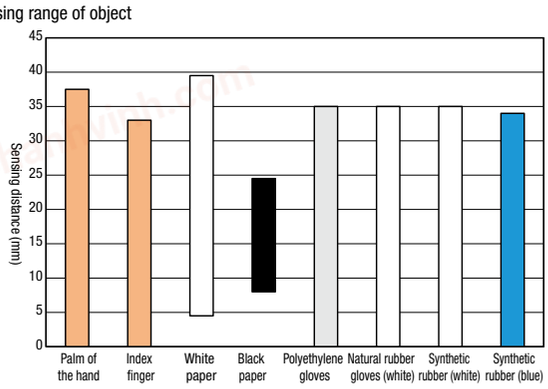


Short-range sensing model

Sensing area



Sensing range of object



• Sensing range measured using the actual object (using gloves).
• 200×200mm white and black paper used.

Safety Precautions

- Turn off the power to the product before starting installation, removal, wiring, maintenance, or inspection. Failure to turn power off may cause electrical shock or fire.

Instructions

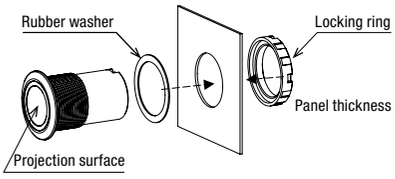
- Since the power reset time is 100ms, start use after 100ms when power is turned on.
- If the load and this product are connected to separate power supplies, be sure to turn on the power to this product first.
- Do not install or use the product in the following places as it may cause malfunction or damage.
  1) Near induction equipment or heat sources
  2) Locations subject to high vibration or shock
  3) Dusty places
  4) Locations subject to harmful gases
  5) Locations directly exposed to water, oil, chemicals, etc.
  6) Locations where icing may occur
- Install the sensor so that light from sunlight or fluorescent lamps does not directly reach the sensing surface.
- Mirror surfaces with high reflectivity and reflectors may cause extremely long sensing distances at unexpected sensing ranges.
- Water droplets, dirt, etc., on the sensor surface may affect the sensing performance, so wipe off with a soft cloth before use.
- Since PMMA is used as the material for the optical part, do not use organic solvents such as ammonia, sodium hydroxide, alcohol, or thinner.

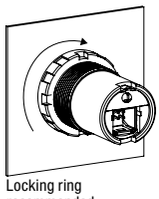
Caution

- Do not use a power supply outside the rated operating voltage range or AC power. Otherwise explosion or burning may occur.
- Avoid continuous lighting of two LED illumination colors simultaneously, as it may cause damage to the product.

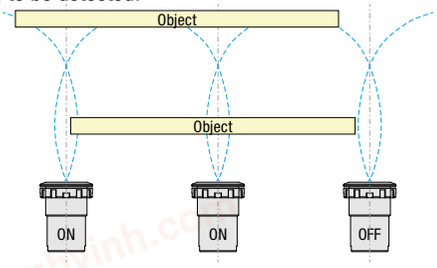
Installation

- Tighten the locking ring to the recommended tightening torque (1.2 N-m) with the optional locking ring wrench (MW9Z-T1). Install on a flat surface. Mounting on a non-flat surface may damage the product or impair its waterproof performance





- When multiple units are installed adjacent to each other, take into consideration the mounting centers of the switches and the location of objects to be detected.



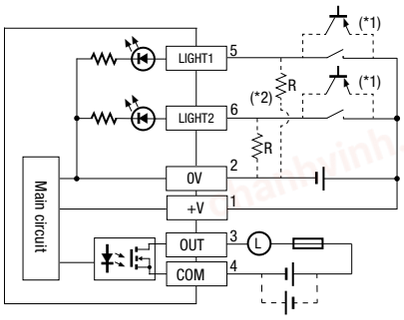
Wiring

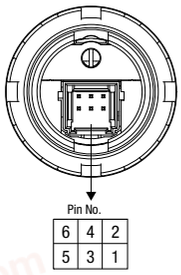
- Turn off the power to the product before starting wiring.
- Wiring errors may cause damage to the internal circuit. Be sure to refer to the connection diagram.
- Use within the range of the rated operating voltage.
- When using a switching power supply for power, be sure to ground the FG terminal.
- Avoid parallel wiring using piping or ducts with high-voltage lines or power lines (especially inverter power lines), as malfunction or damage may be caused due to inductive noise.
- When long wiring is used or when power sources or electromagnetic equipment may affect the product, use individual wiring.
- The illumination unit may light dimly due to inductive noise, etc. In this case, take countermeasures by connecting each terminals LIGHT1, LIGHT2, and PNP illumination control type to 0V, and by connecting the below shunt resistor between +V for NPN illumination control type. (See diagram below)

Shunt resistor R

Resistance value	Rated current
20kΩ	0.25W minimum

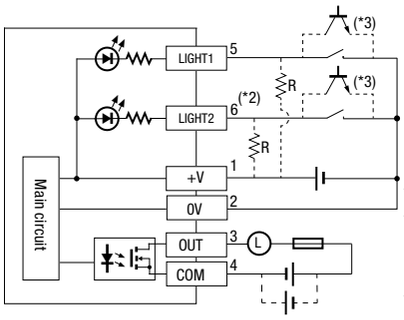
Connection diagram





R :Shunt resistor
L :Load
:Overcurrent protection element such as a fuse (100mA max.)

Pin No.	Terminal no.
1	+V
2	0V
3	OUT
4	COM
5	LIGHT1
6	LIGHT2



*1) NPN cannot be connected
*2) Connect only when dim lighting countermeasures are required
*3) PNP connection not recommended

Compatible connectors for external connection

Parts	Part No.	Manufacturer
Crimp socket	DF51K-6DS-2C (800)	Hirose Electric Co. Ltd.
Socket for crimping terminal	DF51K-22SCF (800) or DF51K-22SC (800)	

- Be sure to read the instructions carefully before performing installation, wiring, or maintenance work.

For details on mounting, wiring, and maintenance, see the instruction manual from the URL below.

URL: https://product.idec.com/?product=CW-H

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Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

1. Notes on contents of Catalogs

(1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.
Also, durability varies depending on the usage environment and usage conditions.

(2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.

(3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.

(4) The content of Catalogs is subject to change without notice.

2. Note on applications

(1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.
Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.

(2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.

(3) When using IDEC products, be cautious when implementing the following.

i. Use of IDEC products with sufficient allowance for rating and performance

ii. Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails

iii. Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications

(4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.

(5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.

i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health

ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems

iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference
If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

4. Warranty

(1) Warranty period

The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.

(2) Warranty scope

Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.

i. The product was handled or used deviating from the conditions / environment listed in the Catalogs

ii. The failure was caused by reasons other than an IDEC product

iii. Modification or repair was performed by a party other than IDEC

iv. The failure was caused by a software program of a party other than IDEC

v. The product was used outside of its original purpose

vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs

vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC

viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)

Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

(1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)

(2) Maintenance inspections, adjustments, and repairs

(3) Technical instructions and technical training

(4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

IDEC CORPORATION

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		India	IDEC Controls India Private Ltd.	**Taiwan**	IDEC Taiwan Corporation		

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