Touchless Switches

For indoor and outdoor use
Suitable for hygiene protection

APEM
an IDEC company

Touchless switches suitable for both indoor and outdoor use

Plastic

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

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

Illumination
Color: Green

Illumination
Color: Red

NEW **Blue / Pure White** color variation (made-to-order product)
Color combination that can be recognized by majority of people regardless of individual differences in color vision.

Metal

The need for touchless switches to minimize the spread of viruses is increasing. The risk is especially high when an unspecified number of people touch the same surface. Touchless switches can be used in a wide range of applications to reduce the risk of contamination.

Standard model (diffuse reflective)

Near-infrared reflectance. Hand detection distance adjustable from approx. 70 to 270mm. (*1) Suitable for applications that require a long range detection.

Sensitivity control
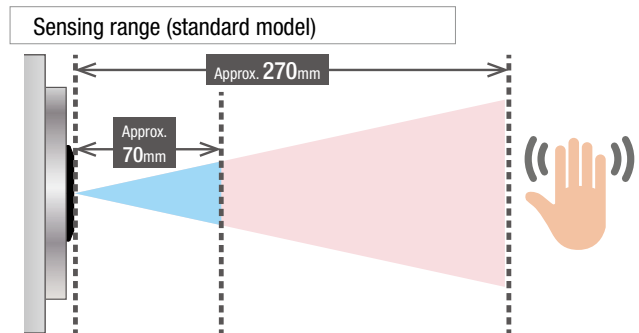
*1) Sensing object: Human hand. See page 6 for "Detection distance range by object" for objects other than hands. Sensitivity control available for standard models only)

Sensing range (standard model)

Approx. 270mm

Approx. 70mm

Available soon

Short range detection model (convergent reflective)

Emits and receives light at an angle. Detects objects only within a specific distance range
Sensing range approx. 5 to 30mm.
Suitable for applications that require only short range detection. Avoids long range detection.

Sensing range (short range detection model)

Approx. 5 to 30mm
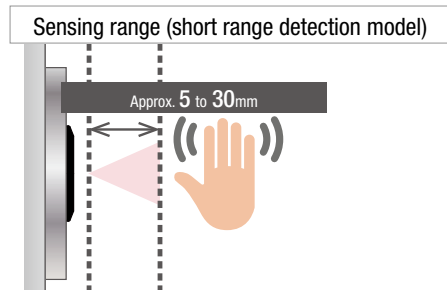
Models with **time delay** available to prevent malfunction.

*PNP models only

Hand near

Hand far

ON

0.5 sec

2 sec

OFF

With timer
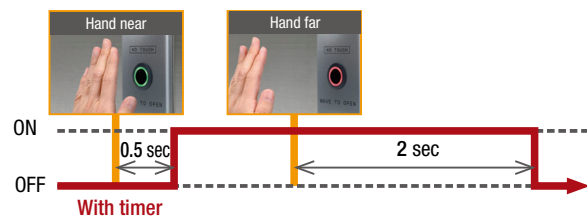
Public areas where unspecified number of people touch the same surface

Public facilities

Elevators

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

Locations requiring weather resistance and durability

Parking garages

Parking ticket machines

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

Locations requiring hygiene measures

Air shower

Food machinery

As direct contact is not required, touchless switches can be used in applications that minimize the spread of viruses.

Frequently operated equipment

Machine equipment

Picking

Reduces operation fatigue when operating buttons and improves switch life.

Touchless switches reduce risk in public and shared spaces.

- Suitable for indoor and outdoor use
- Adjustable detection distance
- Two-color LED illumination enables identification of output and standby

- See website for details on approvals and standards.

General Specifications

Operating temperature	When in use: -25 to +55°C When storing: -35 to +70°C (no freezing)
Operating humidity	When in use: 35 to 95%RH When storing: 35 to 95%RH (no condensation)
Detection method	Diffuse reflection method
Adjustable range of maximum detection distance	120 to 350mm (White drawing paper 200 x 200mm square) Approx. 70 to 270mm if the object is a hand (reference value)
Light source	Infrared LED
Rated voltage	12 to 24V DC Allowable ripple rate ±10%
Current draw	40mA maximum (main circuit) 20mA maximum (illumination part)

Control output		Non-contact (photoMOS relay) output Load power supply voltage: 24V DC± 10% max. (Load current: 100mA max.) Voltage drop: 1.0V max. (Load current: 100mA max.)
Protection circuit		Power supply reverse connection protection
Response time		Turn-on ≤ 2.5ms, turn-off ≤ 1ms
Delay time	On-delay	0.5 ± 0.1s (with timer model)
	Off-delay	2.0 ± 0.1s (with timer model)
Materials	Bezel / Main body	Black plastic :PA66 Metal: Aluminum alloy
	Lens	PMMA
Degree of protection		IP65/67, UL Type 4X (OUTDOOR USE) *Front of the panel
Weight		CW1H: 15g CW4H: 20g

CW1H/CW4H

Package Quantity: 1

Name	Shape	Sensing method	Bezel specification	Illumination color (LIGHT1 / LIGHT2)	Illumination control method	Timer	Part No.
CW Series Touchless Switches		Diffuse-reflective	Black plastic	Green / Red	PNP	Without timer	CW1H-DM1NGR-C
					NPN		CW1H-DM1NGR-C-N
					PNP	With timer	CW1H-DM1TGR-C
				Blue / Pure white	PNP	Without timer	CW1H-DM1NSPW-C
					NPN		CW1H-DM1NSPW-C-N
			Metal	Green / Red	PNP	Without timer	CW4H-DM1NGR-C
					NPN		CW4H-DM1NGR-C-N
					PNP	With timer	CW4H-DM1TGR-C
				Blue / Pure white	PNP	Without timer	CW4H-DM1NSPW-C
					NPN		CW4H-DM1NSPW-C-N

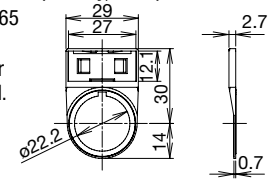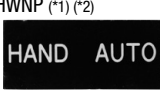- Dedicated cable for external connection is not supplied. (One each of locking ring and rubber washer is supplied)
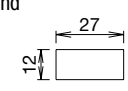
Accessories

Name	Shape	Description	Part No.	Ordering No.	Package Quantity	Remarks	
Cable for external connection		AWG22	CW9Z-CN	CW9Z-CN200	1	200mm	Semistripped
				CW9Z-CN500		500mm	
				CW9Z-CN1M (*1)	50	1000mm	
Locking ring		Polyamide Resin (black)	CW9Z-LN	CW9Z-LNPN05	1 (5 pcs)	—	
Rubber washer		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) Made-to-order product
*2) Contact IDEC for lengths other than 200mm, 500mm, and 1000mm.

Nameplates

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

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

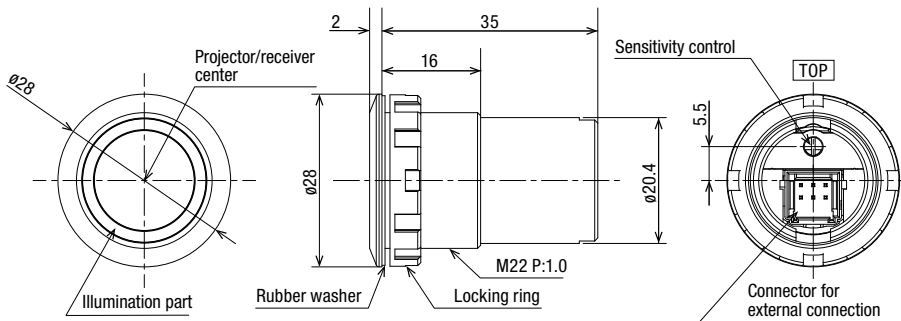### Legend for marking plate

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

Mounting Hole Layout
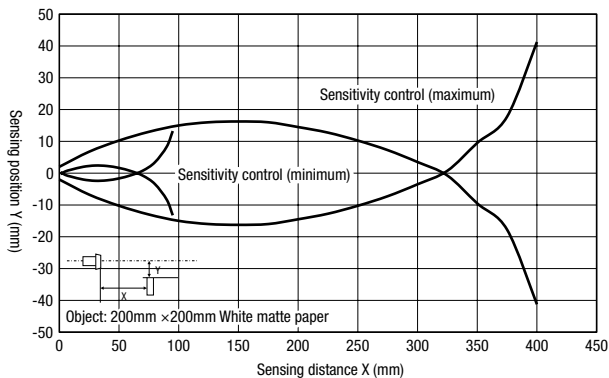
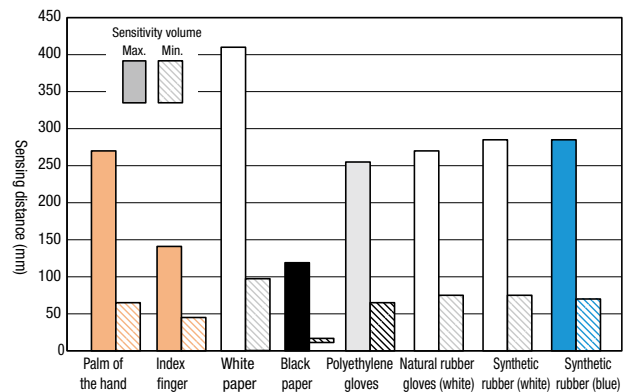All dimensions in mm.

IEC60947-5-1 compliant
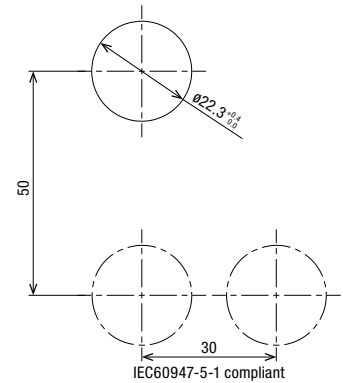
• Determine mounting centers to ensure easy operation.

Characteristics

Detection area

Detection distance range by object

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

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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 detection surface.
- Mirror surfaces with high reflectivity and reflectors may cause extremely long detection distances at unexpected detection ranges.
- Water droplets, dirt, etc., on the sensor surface may affect the detection 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

Rubber washer
Locking ring
Panel thickness 0.8 to 10mm
Projection surface
Locking ring recommended tightening torque 1.2N·m
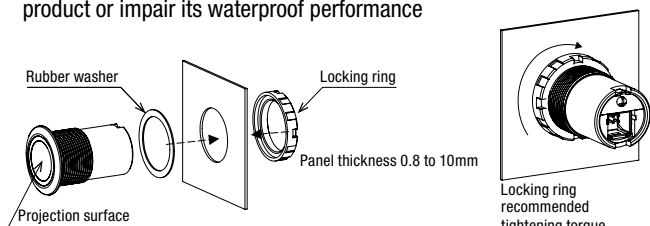
- When multiple units are installed adjacent to each other, take into consideration the mounting centers of the switches and the location of objects to be detected.


Object
Object
ON   ON   OFF
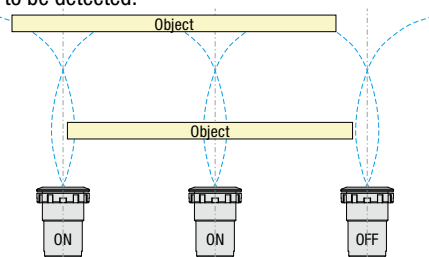
Wiring

- 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

Pin No.

6	4	2
5	3	1
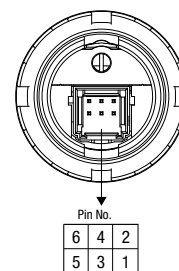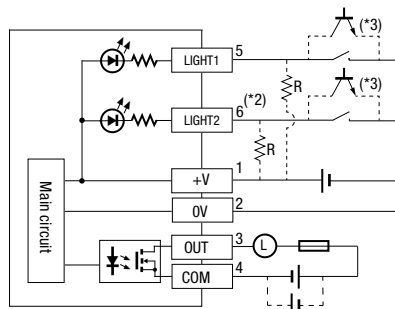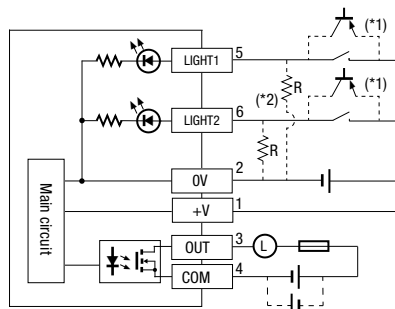
R :Shunt resistor
L :Load
:Overcurrent protection element such as a fuse (100mA max.)

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

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.

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100 000 + REFERENCES

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APEM
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