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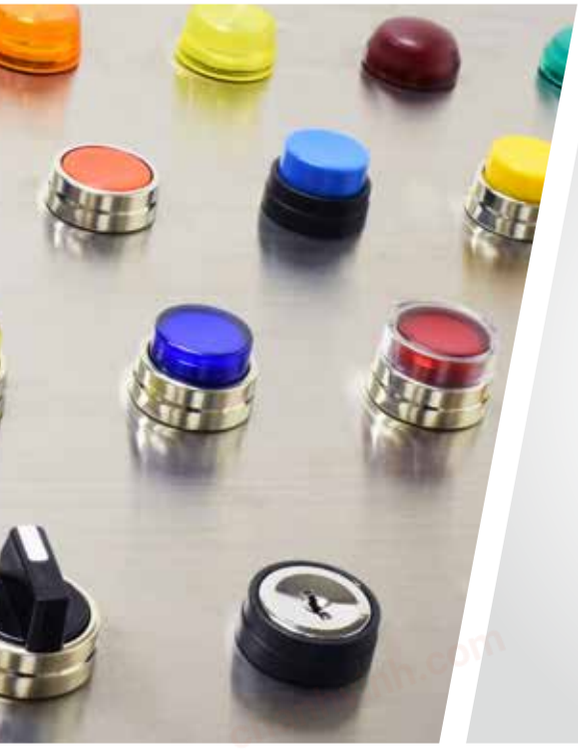
IDEC

Think Automation and beyond...

CONNECT

ø22 Switches & Pilot Lights

YW Series







Simple wiring with Push-in technology

IDEC CORPORATION



S³ CONNECT

All thoughts focused on the same goal

Since the late 1970s, IDEC has continued to instill and pursue “Save and Safe”, as part of our corporate DNA. Along with the rapid advancement in machine intelligence and demands for environmental resistance and high reliability in recent years, we need to face societal issues such as shortage in workforce.
To solve these issues, we have set as our goals “Safe, Simple & Smart=S³ (S cube)”, aiming to provide society with products and services that will bring about greater innovation and lasting quality.

Safe

Products anyone can use with safety and assurance, from a company seeking to be number one in safety

Simple

Products appreciated by all our customers for their ease of connection regardless of experience

Smart

Products that make labor-saving and space-saving a reality



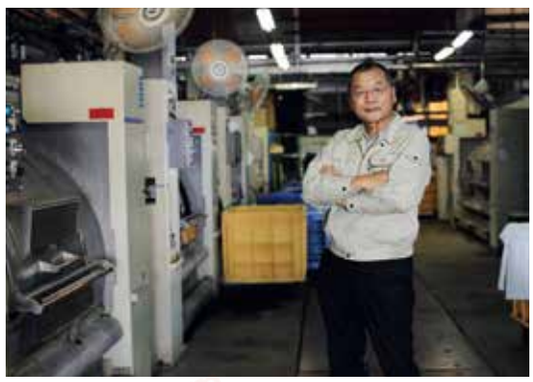
User+Ability =Usability

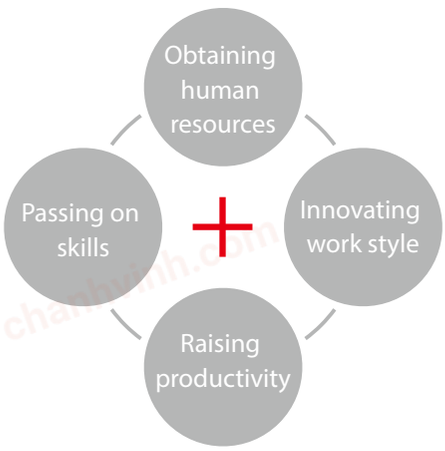
In an age of worker diversity,
products need to be usable by anyone, safely and easily.
By supporting experience with technology,
we are opening up possibilities of all kinds.











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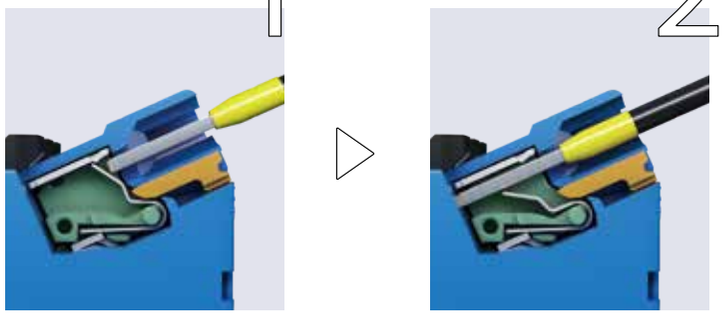
Push-in

Simple wiring for greater work efficiency

Ferrules and solid wires can be connected simply by push-in insertion, without a screwdriver. (*1)
To remove, a flat-blade screwdriver is inserted in a simple two-action process.
Since wiring can be performed regardless of the operator's skill level, wiring time is reduced.

*1) When connecting stranded wire, insert the wire while holding down the pusher with a flat-blade screwdriver.

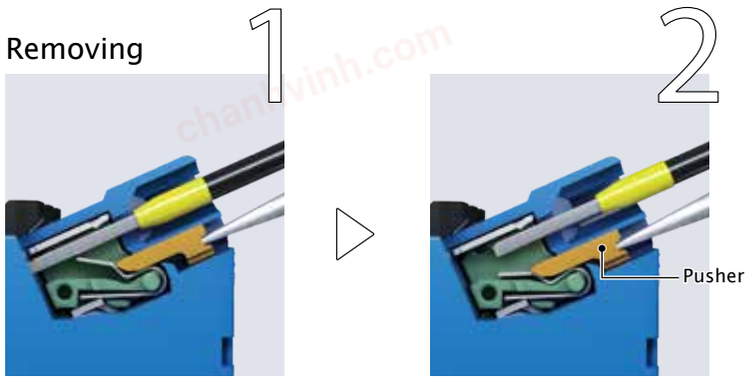
Connecting



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

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

Removing



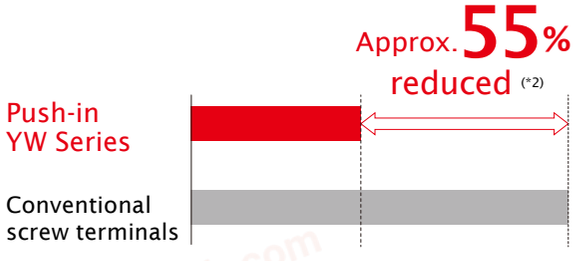
Insert a screwdriver into the opening.

With the screwdriver in place, pull out the wire.

Time saving and efficient

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

[Conditions]
Push-in: Insert wire with ferrule.
Screw terminals: With screw loosened, insert wire, then tighten with electric driver.



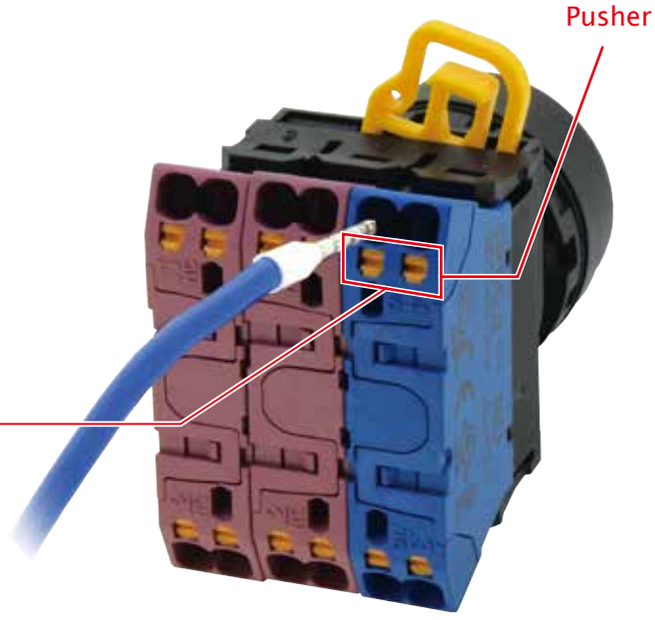
*2) As of IDEC research (as of November 2019)

Reliable and easy

Finger-safe structure and vibration resistance.
What's more, the space-saving design means better workability in a smaller space.

Stays firmly in place
Since the ferrule is held in place by a spring load, the wiring remains taut and vibration resistance is improved.

Finger-safe structure
IP20 finger-safe structure enables wiring to be performed without direct contact between screwdriver and conductive part.



Wiring procedure comparison

Work can be performed without using tools and regardless of the operator's skill level.

*1) When ferrule is used.

Conventional screw terminal

Remove screw → Pass wire through crimping terminal → Tighten screw → Check

Push-in terminal (*1)

Insert wire → Simple one-step operation → Pull lightly to confirm

No additional tightening needed

Because screws are not used on push-in terminals, re-tightening of screws is not required.

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Product Upgrade

The superior functions of the conventional YW Series still remain while improving ease of use.

Space-Saving

Contact block depth reduced

Saves space inside panel and enables downsizing of equipment.



Conventional YW Series
(pushbuttons)

Panel depth reduced by
3.5mm
DOWN
→



Push-in YW Series
(pushbuttons)



Conventional YW Series
(pilot light full voltage type)

Panel depth reduced by
20mm
DOWN
→



Push-in HW Series
(pilot light full voltage type)

Smart

Angled Connections

Enables flexible wiring.



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Added Value

Our aim is to create products that enable customers to experience the utmost usability.



Test point

A test point is available to check connectivity of the wiring. Check the connectivity easily using a tester.



Sub-Assembled Units

Sub-assembled units can be ordered for flexible use, such as sudden changes in design.



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ø22 YW Series Push-in Switches & Pilot Lights

Products

Pushbuttons: see page 10
Selector Switches: see page 12
Key Selector Switches: see page 14
Emergency Stop Switches: see page 16

Notice

- YW series Push-in products below will be released in summer 2020.
  Illuminated pushbuttons
  Illuminated emergency stop switches
- For Push-in pilot lights, use HW series. (See page 17)

- Push-in terminal connection reduces wiring time.
- Safety enhanced with IP20 finger-safe protection.

c UL us LISTED

- See website for details on approvals and standards.

Specifications and Ratings

Contact Ratings

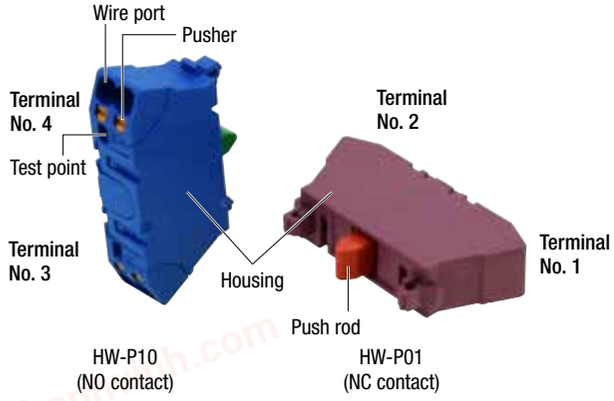
HW-P10 (NO contact), HW-P01 (NC contact)

Rated insulation voltage			600V (*1)					
Rated continuous current			10A					
Rated operating voltage			24V	48V	50V	110V	220V	440V
Operating Current	AC 50/60 Hz	Resistance Load (AC-12)	10A	—	10A	10A	6A	2A
		Inductive Load (AC-15)	10A	—	7A	5A	3A	1A
	DC	Resistance Load (DC-12)	10A	5A	—	2.2A	1.1A	—
		Inductive Load (DC-13)	5A	2A	—	1.1A	0.6A	—

- The operating current represents making and breaking currents (IEC 60947-5-1).
- Contact materials: Silver contacts
- Minimum applicable load: 3V AC/DC, 5 mA (applicable range may vary with operating conditions)

*1) Key selector switches: 250V (pollution degree 3, impulse withstand voltage 2.5kV)
400V (pollution degree 2, impulse withstand voltage 4.0kV)

Push-in Contact Block (HW-P)



Part No.	HW-P10	HW-P01
Contact	1NO	1NC
Contact No.	3-4	1-2
Housing	Blue	Purple red
Push Rod	Green	Red
Weight	Approx. 8g	

- Up to 2 blocks (1 layer) can be attached to an operator.

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Specifications

Switch Type		Pushbuttons	Selector Switches	Key Selector Switches		Emergency Stop Switches
Operating Temperature		–20 to +55°C (no freezing)	–25 to +55°C (no freezing)			
Operating Humidity		45 to 85% RH (no condensation)				
Storage Temperature		–45 to +80°C (no freezing)				
Storage Humidity		95% RH maximum				
Contact Resistance		50 mΩ maximum (initial value)				
Insulation Resistance		100 MΩ minimum (500V DC megger)				
Overvoltage Category		II				
Impulse Withstand Voltage		4.0kV	4.0kV	2.5kV	4.0kV	4.0kV
Pollution Degree		3	3	3 (*1)	2 (*1)	3
Dielectric Strength		2500V AC, 1 minute				
Vibration Resistance	Damage limits	30 Hz, amplitude 1.5 mm				10 to 500 Hz, Amplitude 0.35 mm, Acceleration 50m/s²
	Operating extremes	5 to 55Hz, amplitude 0.5 mm				10 to 500 Hz, Amplitude 0.35 mm, Acceleration 50m/s²
Shock Resistance	Damage limits	1,000 m/s²				1,000 m/s²
	Operating extremes	100 m/s²				150 m/s²
Degree of Protection		Terminal: Finger-safe (IP20) structure Panel front: IP65 (IEC 60529				
Recommended Tightening Torque for Locking Ring		2.0 N·m				
Terminal Style		Push-in terminal				
Mechanical Life (minimum operations)		Momentary: 5,000,000 (*2) Maintained: 250,000 (*2)	250,000 (*3)			250,000 (*3)
Electrical Life		100,000 operations minimum				

*1) For key selector switches, rated insulated voltage is 250V at pollution degree 3 and 400V at pollution degree 2.
*2) Switching frequency 1,800 operations/h, duty ratio 40%
*3) Switching frequency 900 operations/h, duty ratio 40%

Direct Opening Function Specification

Emergency Stop Switches

Type	Emergency stop switches
Minimum Force Required for Direct Opening Action	60N
Minimum Operator Stroke Required for Direct Opening Action	8.3mm
Maximum Operator Stroke	8.3mm

Key Selector Switches

Type	2-position	3-position
Minimum Operator Angle for Direct Opening Action	90°	45°
Minimum Operator Torque for Direct Opening Action	0.45N·m	0.45N·m
Maximum Operator Stroke	90°	45°

Degree of Protection

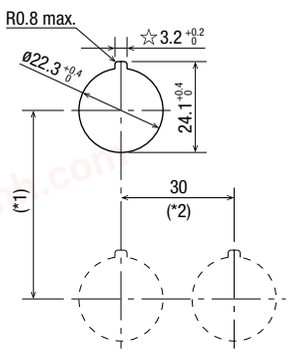
Unit	IEC 60529
All models	IP65 (*4)

*4) When using a nameplate with the YW series, IP65 protection degree is achieved only when nameplates shown on page 18, 20 are used. (IP40 when other ø22 namplates such as NWA are used)

Mounting Hole Layout

(Dimensions in mm)

Panel Cut (IEC60947-5-1)



- When high temperature is expected, take necessary measures such as securing sufficient mounting centers or using a cooling fan.
- The 3.2 mm recess is for preventing rotation and is not necessary when the nameplate or anti-rotation ring is not used.

Minimum Mounting Centers

(Dimensions in mm)

Unit	Vertical (*1)	Horizontal (*2)
ø40mm mushroom button	50 minimum	40 minimum
Pushbutton, Selector switch, Key selector switch	50 minimum	30 minimum
Emergency Stop Switch	50 minimum	50 minimum

Ordering Information

- Specify the Ordering No. when ordering. When ordering, specify button color, lens color, key removal specification, or key number codes.
- Some combinations cannot be ordered. For details, contact IDEC.
- Nameplates and accessories for mono-lever switch are ordered separately. See page 18 to 22.

Pushbuttons

Sub-Assembled

Assembled = Operator unit + Contact unit (Contact block, connecting unit)


Plastic bezel


Metal bezel





Package Quantity: 1

Operator Unit				Contact Unit		
Name / Shape	Part No. (Ordering No.)	② Operation	⑤ Button Color Code	Shape	Contact Configuration	Part No. (Ordering No.)
Flush (plastic) 	YW1B-②1⑤-PS	M: Momentary A: Maintained	B (black) G (green) R (red) Y (yellow) S (blue) W (white)		1NO	YW-CNP10
					1NC	YW-CNP01
					1NO-1NC	YW-CNP11
					1NO-2NC	YW-CNP12
					2NO	YW-CNP20
					2NC	YW-CNP02
					2NO-1NC	YW-CNP21
					3NO	YW-CNP30
					3NC	YW-CNP03
Flush (metal) 	YW4B-②1⑤-PS					
Extended (plastic) 	YW1B-②2⑤-PS	M: Momentary A: Maintained	B (black) G (green) R (red) Y (yellow) S (blue) W (white)		1NO	YW-CNP10
					1NC	YW-CNP01
					1NO-1NC	YW-CNP11
					1NO-2NC	YW-CNP12
					2NO	YW-CNP20
					2NC	YW-CNP02
					2NO-1NC	YW-CNP21
					3NO	YW-CNP30
					3NC	YW-CNP03
Extended (metal) 	YW4B-②2⑤-PS					
ø40mm Mushroom (plastic) 	YW1B-②4⑤-PS	M: Momentary A: Maintained	B (black) G (green) R (red) Y (yellow) S (blue) W (white)		1NO	YW-CNP10
					1NC	YW-CNP01
					1NO-1NC	YW-CNP11
					1NO-2NC	YW-CNP12
					2NO	YW-CNP20
					2NC	YW-CNP02
					2NO-1NC	YW-CNP21
					3NO	YW-CNP30
					3NC	YW-CNP03
ø40mm Mushroom (metal) 	YW4B-②4⑤-PS					

- Specify the operation type in place of ② and button color code in place of ⑤.
- See page 19 for contact configuration of contact units.

Part No. Example

Assembled and sub-assembled unit

Operator unit

YW1B - M 1 B - PS

- ① Bezel shape
  - 1: Round (plastic)
  - 4: Round (metal)
- ② Operation
  - M: Momentary
  - A: Maintained
- ③ Button style
  - 1: Flush
  - 2: Extended
  - 4: ø40mm Mushroom
- ⑤ Button Color Code
  - B (black)
  - G (green)
  - R (red)
  - Y (yellow)
  - S (blue)
  - W (white)

Contact unit

YW - CN P 10

- ④ Contacts (see page 19)

Assembled

YW1B - M 1 P 10 B

- ① Bezel shape
  - 1: Round (plastic)
  - 4: Round (metal)
- ② Operation
  - M: Momentary
  - A: Maintained
- ③ Button style
  - 1: Flush
  - 2: Extended
  - 4: ø40mm Mushroom
- ④ Contacts
  - 10: 1NO
  - 01: 1NC
  - 11: 1NO-1NC
  - 12: 1NO-2NC
  - 20: 2NO
  - 02: 2NC
  - 21: 2NO-1NC
  - 30: 3NO
  - 03: 3NC
- ⑤ Button Color Code
  - B (black)
  - G (green)
  - R (red)
  - Y (yellow)
  - S (blue)
  - W (white)

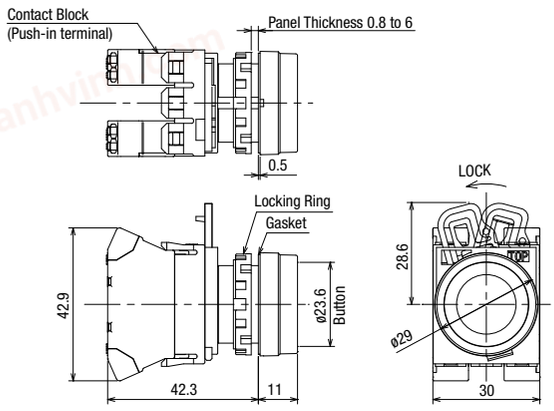
Pushbuttons

Dimensions

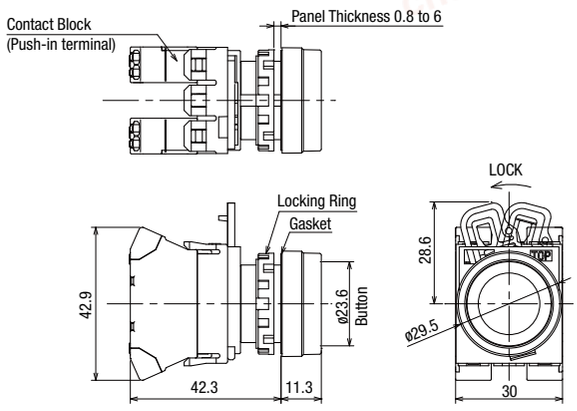
All dimensions in mm.

- Flush

Plastic bezel

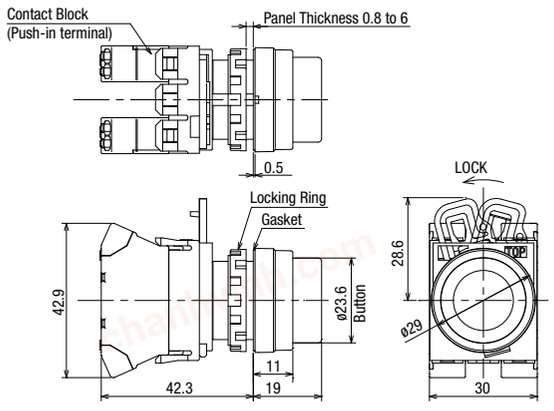


Metal bezel

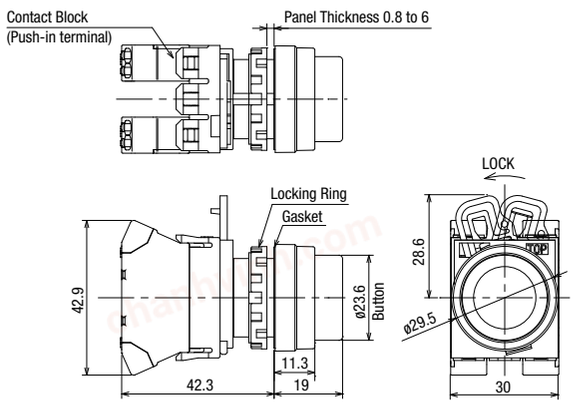


- Extended

Plastic bezel

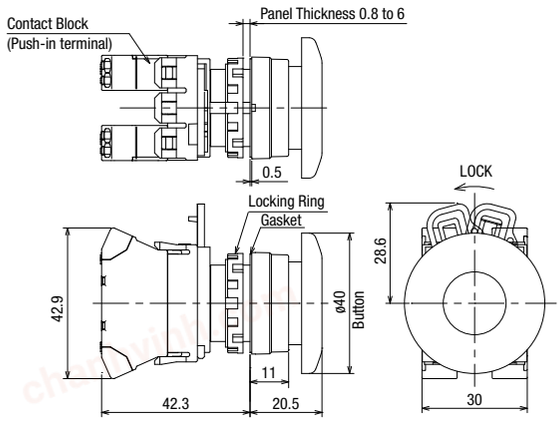


Metal bezel

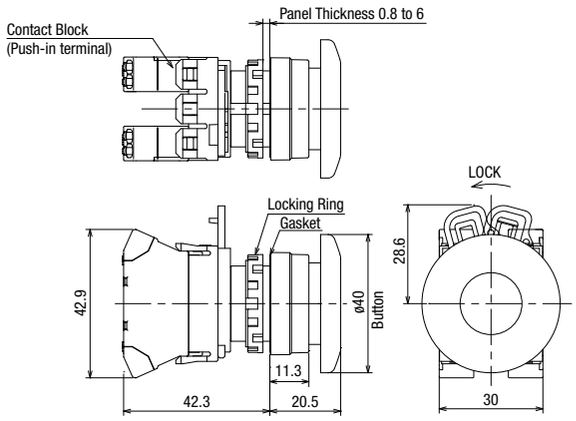


- ø40mm Mushroom

Plastic bezel



Metal bezel



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Selector Switches (Knob Operator)

Sub-Assembled

Assembled = Operator unit + Contact unit (Contact block, connecting unit)


Plastic bezel


Metal bezel





Package Quantity: 1

Name / Shape	Operator Unit			Contact Configuration	Contact Block		Operator Position			Contact Unit	
	No. of Positions	Part No. (Ordering No.)	②Operator position code		Mounting Position	Contact	1	2		Shape	Part No. (Ordering No.)
Knob Operator (Plastic bezel)  (Image:2-position)	90° 2-position	YW1S-②-PS	2: Maintained 21: Spring Return from Right	1NO (10)	(1)	1NO		●			YW-CNP10
					(2)	—					
					(3)	—					
				1NC (01)	(1)	—					YW-CNP01
					(2)	—					
					(3)	1NC	●				
				1NO-1NC (11)	(1)	1NO		●			YW-CNP11
					(2)	—					
					(3)	1NC	●				
				1NO-2NC (12)	(1)	1NC	●				YW-CNP12
					(2)	1NO		●			
					(3)	1NC	●				
				2NO (20)	(1)	1NO		●			YW-CNP20
					(2)	—					
					(3)	1NO		●			
				2NC (02)	(1)	—					YW-CNP02
					(2)	1NC		●			
					(3)	1NC		●			
				2NO-1NC (21)	(1)	1NO		●			YW-CNP21
					(2)	1NO		●			
					(3)	1NC	●				
				3NO (30)	(1)	1NO		●			YW-CNP30
					(2)	1NO		●			
					(3)	1NO		●			
				3NC (03)	(1)	1NC	●				YW-CNP03
					(2)	1NC	●				
					(3)	1NC	●				
	Operator Unit			Contact Configuration	Contact Block		Operator Position			Contact Unit	
	No. of Positions	Part No. (Ordering No.)	②Operator position code		Mounting Position	Contact	1	0	2	Shape	Part No. (Ordering No.)
Knob Operator (Metal bezel)  (Image: 3-position)	45° 3-position	YW1S-②-PS	3: Maintained 31: Spring Return from Right 32: Spring return from left 33: Spring return two-way	2NO (20)	(1)	1NO	●				YW-CNP20
					(2)	—					
					(3)	1NO			●		
				2NO (20N1)	(1)	—					YW-CNP20N1
					(2)	1NO	●		●		
					(3)	1NO			●		
				2NC (02)	(1)	1NC		▬			YW-CNP02
					(2)	—					
					(3)	1NC	▬				
				2NO-1NC (21)	(1)	1NO	●				YW-CNP21
					(2)	1NO		●			
					(3)	1NC			●		
				1NO-1NC (11)	(1)	1NO	●				YW-CNP11
					(2)	—					
					(3)	1NC	▬				
				1NO-2NC (12)	(1)	1NC		▬			YW-CNP12
					(2)	1NO	●		●		
					(3)	1NC	▬				
				3NO (30)	(1)	1NO	●				YW-CNP30
					(2)	1NO	●		●		
					(3)	1NO			●		
				3NC (03)	(1)	1NC		▬			YW-CNP03
					(2)	1NC		●			
					(3)	1NC	▬				

• Specify the Operator position code in place of ②.

For other contact units, see page 19.

Selector Switches (Knob Operator)

Part Number Development

Assembled and sub-assembled unit

Operator Unit

YW1S - 2 - PS

① Bezel shape
- **1**: Round (plastic)
- **4**: Round (metal)

② Operator position code
- **2**: 2-position, maintained
- **21**: 2-position, spring return from right
- **3**: 3-position, maintained
- **31**: 3-position, spring return from right
- **32**: 3-position, spring return from left
- **33**: 3-position, spring return two way

Assembled Part No. Example

YW1S - 2 P 10

① Bezel shape
- **1**: Round (plastic)
- **4**: Round (metal)

② Operator position code
- **2**: 2-position, maintained
- **21**: 2-position, spring return from right
- **3**: 3-position, maintained
- **31**: 3-position, spring return from right
- **32**: 3-position, spring return from left
- **33**: 3-position, spring return two way

③ Contacts (see page 19)

Contact unit

YW - CNP 10

③ Contacts (see page 19)

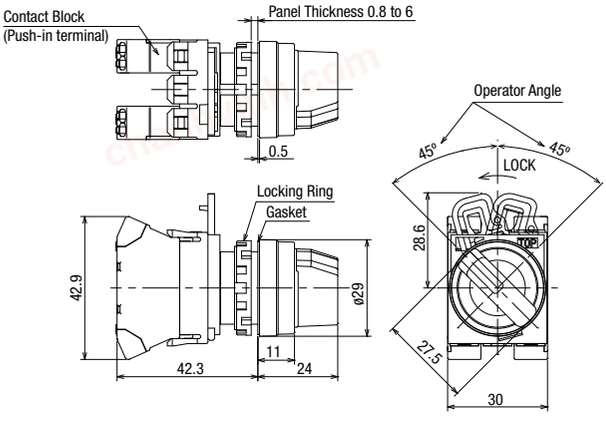
② Operator position code

Maintained (90° 2-position)	Spring Return (90° 2-position)	Maintained (45° 3-position)	Spring Return (45° 3-position)		
	Spring Return from Right		Spring Return from Right	Spring return from left	Spring return two-way
1 2	1 2	1 0 2	1 0 2	1 0 2	1 0 2

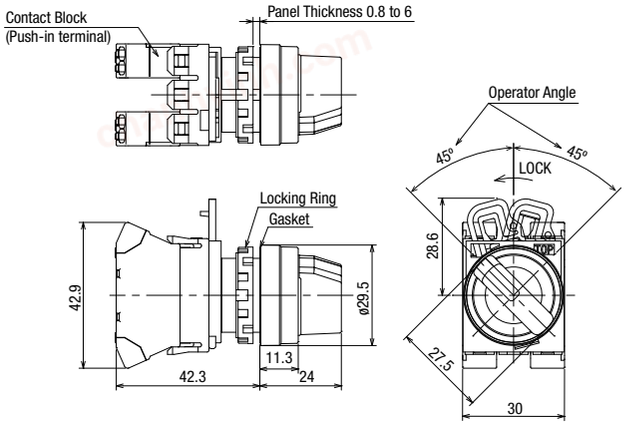
Dimensions

All dimensions in mm.

Plastic bezel



Metal bezel



Key Selector Switches (Disc Tumbler Key)

Sub-Assembled

Assembled = Operator unit + Contact unit (Contact block, connecting unit)



Plastic bezel

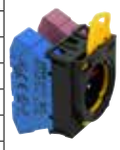
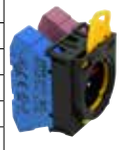


Metal bezel





Package Quantity: 1

Name / Shape	Operator Unit: No. of Positions	Operator Unit: Part No. (Ordering No.)	Operator Unit: ②Operator position code	Operator Unit: ③Key removal position	Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: 1	Operator Position: 2	Operator Position: 0	Contact Unit: Shape	Contact Unit: Part No. (Ordering No.)
Key Selector (Plastic bezel)  (Image: 2-position)	90° 2-position	YW1K-②③-PS	2: Maintained 21: Spring Return from Right	A: Removable in all positions B: Removable in the left only C: Removable in the right only	1NO (10)	(1)	1NO		●			YW-CNP10
						(2)	—					
						(3)	—					
					1NC (01)	(1)	—					YW-CNP01
						(2)	—					
						(3)	1NC	●				
					1NO-1NC (11)	(1)	1NO		●			YW-CNP11
						(2)	—					
						(3)	1NC	●				
					1NO-2NC (12)	(1)	1NC	●				YW-CNP12
						(2)	1NO		●			
						(3)	1NC	●				
					2NO (20)	(1)	1NO		●			YW-CNP20
						(2)	—					
						(3)	1NO		●			
					2NC (02)	(1)	—					YW-CNP02
						(2)	1NC		●			
						(3)	1NC		●			
					2NO-1NC (21)	(1)	1NO		●			YW-CNP21
						(2)	1NO		●			
						(3)	1NC	●				
					3NO (30)	(1)	1NO		●			YW-CNP30
						(2)	1NO		●			
						(3)	1NO		●			
					3NC (03)	(1)	1NC	●				YW-CNP03
						(2)	1NC	●				
						(3)	1NC	●				
		YW4K-②③-PS			1NO (10)	(1)	1NO		●			YW-CNP10
						(2)	—					
						(3)	—					
					1NC (01)	(1)	—					YW-CNP01
						(2)	—					
						(3)	1NC	●				
					1NO-1NC (11)	(1)	1NO		●			YW-CNP11
						(2)	—					
						(3)	1NC	●				
					1NO-2NC (12)	(1)	1NC	●				YW-CNP12
						(2)	1NO		●			
						(3)	1NC	●				
					2NO (20)	(1)	1NO		●			YW-CNP20
						(2)	—					
						(3)	1NO		●			
					2NC (02)	(1)	—					YW-CNP02
						(2)	1NC		●			
						(3)	1NC		●			
					2NO-1NC (21)	(1)	1NO		●			YW-CNP21
						(2)	1NO		●			
						(3)	1NC	●				
					3NO (30)	(1)	1NO		●			YW-CNP30
						(2)	1NO		●			
						(3)	1NO		●			
					3NC (03)	(1)	1NC	●				YW-CNP03
						(2)	1NC	●				
						(3)	1NC	●				
Key Selector (Metal bezel)  (Image: 3-position)	45° 3-position	YW1K-②③-PS	3: Maintained 31: Spring Return from Right 32: Spring return from left 33: Spring return two-way	A: Removable in all positions B: Removable in the left and center C: Removable in the right and center D: Removable in center only E: Removable in right and left G: Removable in left only H: Removable in right only	2NO (20)	(1)	1NO	●				YW-CNP20
						(2)	—					
						(3)	1NO			●		
					2NO (20N1)	(1)	—					YW-CNP20N1
						(2)	1NO	●		●		
						(3)	1NO			●		
					2NC (02)	(1)	1NC		▬			YW-CNP02
						(2)	—					
						(3)	1NC	▬				
					2NO-1NC (21)	(1)	1NO	●				YW-CNP21
						(2)	1NO		●			
						(3)	1NC			●		
					1NO-1NC (11)	(1)	1NO	●				YW-CNP11
						(2)	—					
						(3)	1NC	▬				
					1NO-2NC (12)	(1)	1NC		▬			YW-CNP12
						(2)	1NO	●		●		
						(3)	1NC	▬				
					3NO (30)	(1)	1NO	●				YW-CNP30
						(2)	1NO	●		●		
						(3)	1NO			●		
					3NC (03)	(1)	1NC		▬			YW-CNP03
						(2)	1NC		●			
						(3)	1NC	▬				
		YW4K-②③-PS			1NO (10)	(1)	1NO	●				YW-CNP10
						(2)	—					
						(3)	—					
					1NC (01)	(1)	—					YW-CNP01
						(2)	—					
						(3)	1NC	▬				
					1NO-1NC (11)	(1)	1NO	●				YW-CNP11
						(2)	—					
						(3)	1NC	▬				
					1NO-2NC (12)	(1)	1NC		▬			YW-CNP12
						(2)	1NO	●		●		
						(3)	1NC	▬				
					2NO (20)	(1)	1NO	●				YW-CNP20
						(2)	—					
						(3)	1NO			●		
					2NC (02)	(1)	1NC		▬			YW-CNP02
						(2)	—					
						(3)	1NC	▬				
					2NO-1NC (21)	(1)	1NO	●				YW-CNP21
						(2)	1NO		●			
						(3)	1NC			●		
					1NO-1NC (11)	(1)	1NO	●				YW-CNP11
						(2)	—					
						(3)	1NC	▬				
					1NO-2NC (12)	(1)	1NC		▬			YW-CNP12
						(2)	1NO	●		●		
						(3)	1NC	▬				
					3NO (30)	(1)	1NO	●				YW-CNP30
						(2)	1NO	●		●		
						(3)	1NO			●		
					3NC (03)	(1)	1NC		▬			YW-CNP03
						(2)	1NC		●			
						(3)	1NC	▬				

• Specify the Operator position code in place of ② and key removal position in place of ③ • Two keys are supplied. • For other contact units, see page 19.

Key Selector Switches (Disc Tumbler Key)

Part Number Development

Assembled and sub-assembled unit

Operator Unit

YW1K - 2 A - PS

① Bezel shape
- 1: Round (plastic)
- 4: Round (metal)

② Operator position code
- 2: 2-position, maintained
- 21: 2-position, spring return from right
- 3: 3-position, maintained
- 31: 3-position, spring return from right
- 32: 3-position, spring return from left
- 33: 3-position, spring return two way

③ Key removal position

2-position
- A: Removable in all positions
- B: Removable in the left only
- C: Removable in the right only

3-position
- A: Removable in all positions
- B: Removable in the left and center
- C: Removable in the right and center
- D: Removable in center only
- E: Removable in right and left
- G: Removable in left only
- H: Removable in right only

Contact unit

YW - CNP 10

③ Contacts (see page 19)

Assembled Part No. Example

YW1K - 2 A P 01

① Bezel shape
- 1: Round (plastic)
- 4: Round (metal)

② Operator position code
- 2: 2-position, maintained
- 21: 2-position, spring return from right
- 3: 3-position, maintained
- 31: 3-position, spring return from right
- 32: 3-position, spring return from left
- 33: 3-position, spring return two way

④ Key removal position

2-position
- A: Removable in all positions
- B: Removable in the left only
- C: Removable in the right only

3-position
- A: Removable in all positions
- B: Removable in the left and center
- C: Removable in the right and center
- D: Removable in center only
- E: Removable in right and left
- G: Removable in left only
- H: Removable in right only

③ Contacts (see page 19)

② Operator position code

Maintained (90° 2-position)	Spring Return (90° 2-position)	Maintained (45° 3-position)
	Spring Return from Right 	

Spring Return (45° 3-position)		
Spring Return from Right	Spring return from left	Spring return two-way
		

④ Key removal position

90° 2-position

Key Retained Position (Cam code: blank)		
A: Key removable in all positions 	B: Key removable at left 	C: Key removable at right 

45° 3-position

Key Retained Position			
A: Key removable in all positions 	B: Key removable at left / center 	C: Key removable at center / right 	D: Key removable at center 
E: Key removable at right / left 	G: Key removable at left 	H: Key removable at right 	

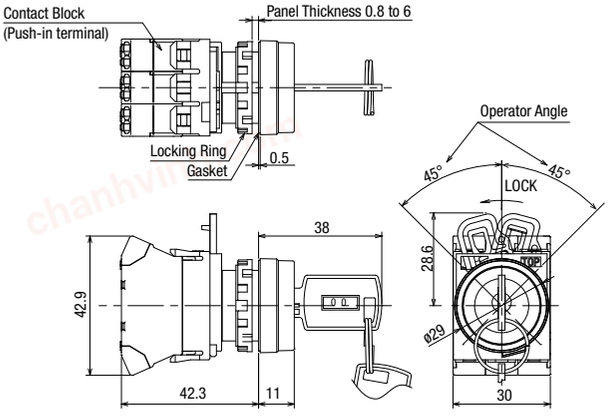
⓪①② : Key removal position ❶❷ : Key retained position

Note: The key cannot be removed in a spring return position.

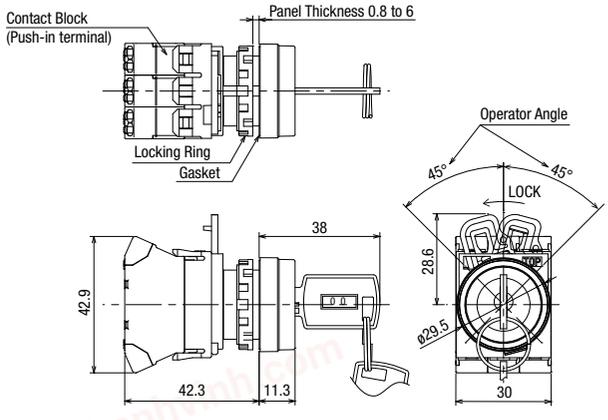
Dimensions

All dimensions in mm.

Plastic bezel



Metal bezel



Emergency Stop Switches

Sub-Assembled

Assembled	=	Operator unit	+	Contact unit (Contact block, connecting unit)





<Assembled> Ordering No.

Package Quantity: 1

Operator Unit			Contact Unit		
Name / Shape	Operation type	Part No. (Ordering No.)	Shape	Contact Configuration	Part No. (Ordering No.)
ø40mm Mushroom 	Pushlock Turn Reset	YW1B-V4R-PS		1NC	YW-CNP01
				2NC	YW-CNP02
				3NC	YW-CNP03
				1NO-1NC	YW-CNP11
				1NO-2NC	YW-CNP12
				2NO-1NC	YW-CNP21

- Pushlock turn reset – Button is maintained when pressed and is reset when turned clockwise.
- See page 19 for contact configuration of contact units.

Part Number Development

Assembled and sub-assembled unit

Operator Unit

YW1B - V 4 R - PS

① Operation type
V: Pushlock Turn Reset

② Button style
4: ø40mm Mushroom

Contact unit

YW - CNP 10

④ Contacts (see page 19)

Assembled Part No. Example

YW1B - V 4 P 11 R

① Operation type
V: Pushlock Turn Reset

② Button style
4: ø40mm Mushroom

④ Button Color Code

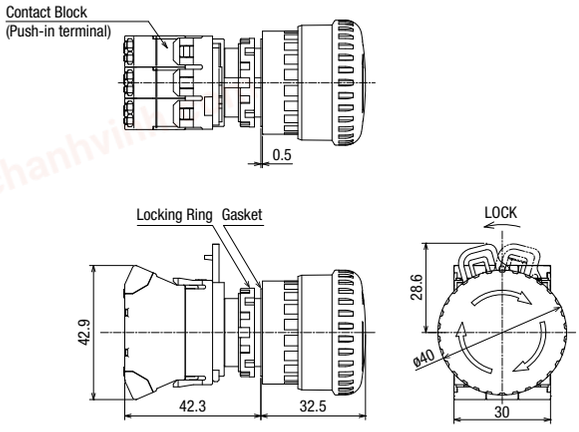
③ Contact Configuration Code
01: 1NC
02: 2NC
03: 3NC
11: 1NO-1NC
12: 1NO-2NC
21: 2NO-1NC

Note

- For emergency stop purposes, these switches must contain at least one NC contact block.

Dimensions

All dimensions in mm.



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ø22 HW Series Push-in Short Body Pilot Lights

Assembled



Package Quantity: 1

Name / Shape	Rated operating voltage	Part No. (Ordering No.)	Color code ① for lens
Extended (Dome) HW1P 	6V AC/DC	HW1P-2JPQ2①	**R** (red) **G** (green) **Y** (yellow) **A** (Amber) **S** (blue) **PW** (Pure white)
	12V AC/DC	HW1P-2JPQ3①	
	24V AC/DC	HW1P-2JPQ4①	
	100/120V AC/DC	HW1P-2JPRH①	
	200/240V AC/DC	HW1P-2JPCM①	
Square Flush HW2P 	6V AC/DC	HW2P-1JPQ2①	**R** (red) **G** (green) **Y** (yellow) **A** (Amber) **S** (blue) **PW** (Pure white)
	12V AC/DC	HW2P-1JPQ3①	
	24V AC/DC	HW2P-1JPQ4①	
	100/120V AC/DC	HW2P-1JPRH①	
	200/240V AC/DC	HW2P-1JPCM①	

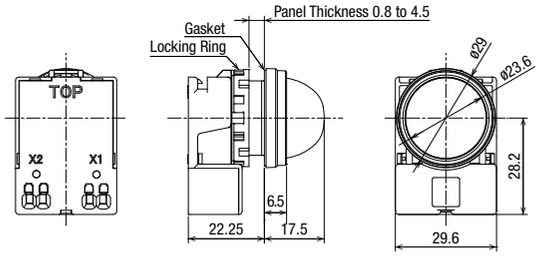
- Built-in BA9S base LED lamp. For LED Lamps, refer to “ø22 HW Series Push-in Switches & Pilot Lights”.
- For square flush pilot lights, legends and symbols can be engraved on marking plates, or printed film can be inserted. For details on marking plates or film, refer to “ø22 HW Series Push-in Switches & Pilot Lights”. Engraving and films must be prepared by the customer.
- Specify a lens color code in place of ① in the Part No.

Dimensions

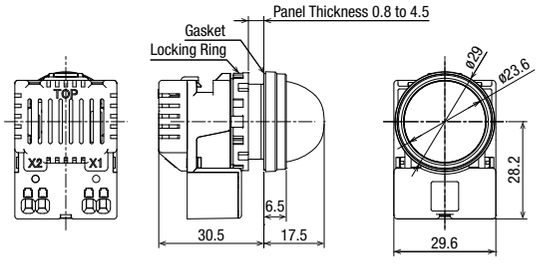
All dimensions in mm.

Extended (Dome)

6V, 12V, 24V AC/DC

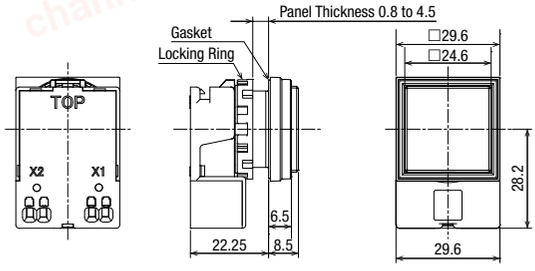


100/110V AC/DC, 200/220V AC

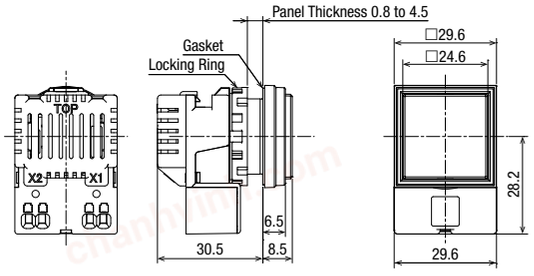


Square Flush

6V, 12V, 24V AC/DC



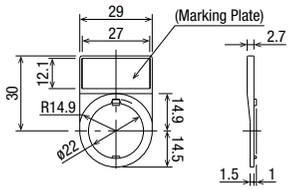
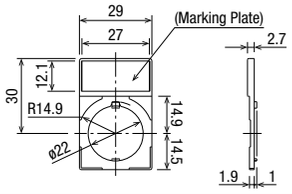
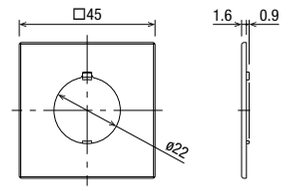
100/110V AC/DC, 200/220V AC



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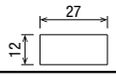
Nameplates

When ordering, specify the Ordering No.

Description	Legend	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
HWAM	Order marking plate (round) separately.	Plastic (black)	**HWAM**	HWAM	1	HWNP-☐ marking plate (sold separately) is necessary. 
				HWAMPN10	10	
HWAQ	Order marking plate (square) separately.	Plastic (black)	**HWAQ**	HWAQ	1	HWNP-☐ marking plate (sold separately) is necessary. 
				HWAQPN10	10	
HWAS	Blank	Plastic (black)	**HWAS-0**	HWAS-0	1	
				HWAS-0PN10	10	

Marking Plates for HWAM/HWAQ

When ordering, specify the Ordering No.

Description	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
HWNP	Aluminum (black) Thickness = 1.0mm	**HWNP-☐**	HWNP-☐	1	White legend on black background. Engraving area: W25×H7 
			HWNP-☐PN10	10	

• Specify a legend code in place of ☐ in the Ordering No.

Legends

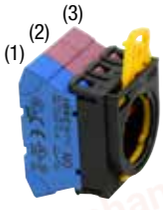
Code	Legend
0	(blank)
1	ON
2	OFF
3	START
4	STOP
31	OFF-ON
35	HAND-AUTO
53	HAND-OFF-AUTO

• See page 24 for how to install nameplates/marking plates, and how to remove marking plates.

Contact Unit

Contact Unit Part No. / Contact Table

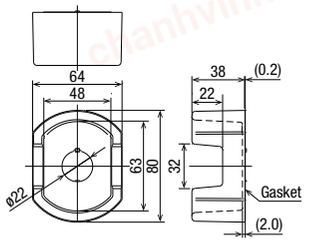
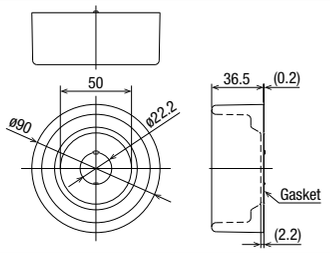
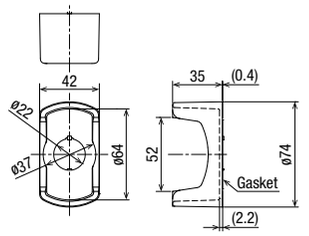
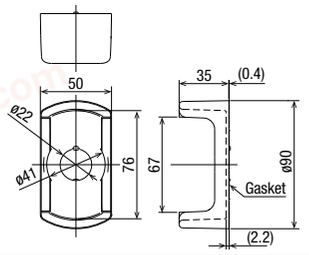
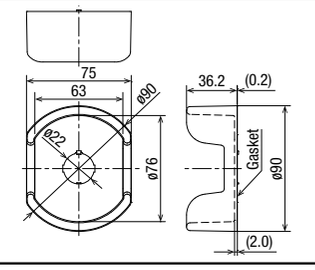
Package Quantity: 1

Shape	Contact Configuration (Code)	Part No. (Ordering No.)	Mounting Position	Contact	Applicable Operator Unit			
					Pushbuttons	Selector Switches / Key Selector Switches		Emergency Stop Switches
						90° 2-position	45° 3-position	
	1NO (10)	YW-CNP10	(1)	1NO	○	○	—	—
			(2)	—				
			(3)	—				
	1NC (01)	YW-CNP01	(1)	—	○	○	—	○
			(2)	—				
			(3)	1NC				
	1NO-1NC (11)	YW-CNP11	(1)	1NO	○	○	○	○
			(2)	—				
			(3)	1NC				
	1NO-1NC (11N1)	YW-CNP11N1	(1)	1NC	—	—	○	—
			(2)	—				
			(3)	1NO				
	1NO-1NC (11N2)	YW-CNP11N2	(1)	1NO	—	—	○	—
			(2)	1NC				
			(3)	—				
	1NO-1NC (11N3)	YW-CNP11N3	(1)	—	—	—	○	—
			(2)	1NC				
			(3)	1NO				
	1NO-1NC (11N4)	YW-CNP11N4	(1)	—	—	—	○	—
			(2)	1NO				
			(3)	1NC				
	2NO (20)	YW-CNP20	(1)	1NO	○	○	○	—
			(2)	—				
			(3)	1NO				
	2NO (20N1)	YW-CNP20N1	(1)	—	—	—	○	—
			(2)	1NO				
			(3)	1NO				
	2NC (02)	YW-CNP02	(1)	1NC	○	○	○	○
			(2)	—				
			(3)	1NC				
	2NC (02N1)	YW-CNP02N1	(1)	—	—	—	○	—
			(2)	1NC				
			(3)	1NC				
	2NO-1NC (21)	YW-CNP21	(1)	1NO	○	○	○	○
			(2)	1NO				
			(3)	1NC				
	2NO1NC (21N1)	YW-CNP21N1	(1)	1NO	—	—	○	—
			(2)	1NC				
			(3)	1NO				
	1NO-2NC (12)	YW-CNP12	(1)	1NC	○	○	○	○
			(2)	1NO				
			(3)	1NC				
	1NO-2NC (12N1)	YW-CNP12N1	(1)	1NC	—	—	○	—
			(2)	1NO				
			(3)	1NC				
	3NO (30)	YW-CNP30	(1)	1NO	○	○	○	—
			(2)	1NO				
			(3)	1NO				
	3NC (03)	YW-CNP03	(1)	1NC	○	○	○	○
			(2)	1NC				
			(3)	1NC				

• Contact unit includes a contact block and connecting unit.

SEMI S2 Compliant EMO Switch Guard

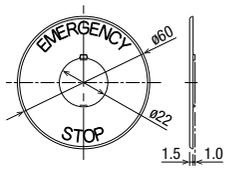
Package Quantity: 1

Shape	Part No. (Ordering No.)	Remarks	Dimensions (mm)
	HW9Z-KG1	• SEMI S2-0703, 12.5.1 compliant. • Widely used switch guard in many applications.	
	HW9Z-KG2	• SEMI S2-0703, 12.5.1 compliant. • SEMATECH Application Guide for SEMI S2-93, 12.4. compliant. • The round shape is effective to prevent inadvertent operation from any direction.	
	HW9Z-KG3	• SEMI S2 compliant (The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard.) • ISO 13850 compliant. • The smallest switch guard for ø22 series switches.	
	HW9Z-KG4Y	• SEMI S2 compliant (The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard.) • SEMATECH Application Guide for SEMI S2-93, 12.4. compliant. • ISO 13850 compliant. • Narrower than HW9Z-KG5. Saves more space.	
	HW9Z-KG5Y	• SEMI S2 compliant (The combination of IDEC's emergency stop switches and EMO switch guards are approved by TÜV Rheinland for compliance with SEMI S2 standard.) • SEMATECH Application Guide for SEMI S2-93, 12.4. compliant. • ISO 13850 compliant. • A nameplate can be installed.	

• Material: polyamide (PA6), degree of protection: IP65 (IEC 60529)

Nameplate (for ø22 mm Emergency Stop Switches)

Package Quantity: 1

Shape	Legend	Part No. (Ordering No.)	Remarks
	(blank)	HWAV-0-Y	**HWAV-27-Y** Nameplate color: yellow Legend color: black Panel thickness: 0.8 to 4.5 mm Material: polyamide Note) Cannot be used on ø60 mushroom pushlock turn reset switches. Use a nameplate exclusive for ø60 mushroom e-stop. See XW series catalog. 
	EMERGENCY STOP	HWAV-27-Y	

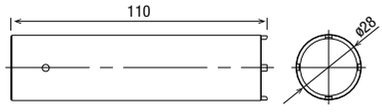
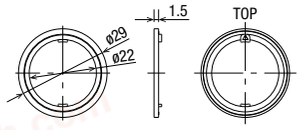
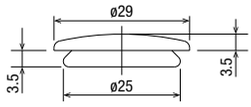
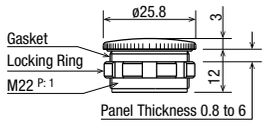
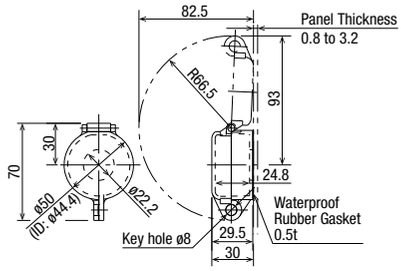
• "EMERGENCY OFF" and white (blank) nameplates available. See website or catalog for SEMI Emergency off (EMO) switches and Stop switches.

Note) For machinery subject to ISO/IEC standards such as machine tools and food machinery, in compliant with the revised ISO13850, it is not recommended to display texts or symbols such as EMERGENCY STOP on the actuator or nameplate of an emergency stop device.

Accessories

All dimensions in mm

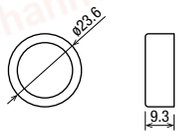
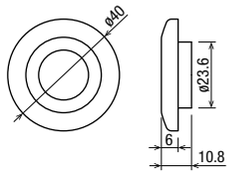
When ordering, specify the Ordering No.

Name / Shape	Specification	Part No.	Ordering No.	Package Quantity	Remarks
Contact Block 	NO contact Housing color: blue	**HW-P10**	HW-P10	5	
Contact Block 	NC contact Housing color: reddish purple	**HW-P01**	HW-P01	5	
Connecting unit 	Connecting unit for Push-in terminal	**YW-CN**	YW-CN	1	
Locking Ring Wrench 	Metal (nickel-plated brass) Weight: approx. 150g	**MW9Z-T1**	MW9Z-T1	1	• Used to tighten the locking ring when installing the HW switch onto a panel. 
Anti-rotation Ring 	Ring: polyamide Gasket: nitril rubber	**HW9Z-RL**	HW9Z-RLPN10	10	• Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and pushbutton selectors. 
Rubber Mounting Hole Plug 	Nitril rubber (black)	**OB-31**	OB-31PN05	5	• Degree of protection: IP65 (round hole), IP40 (with anti-rotation function) 
Mounting Hole Plug 	Plug: Metal (Zinc diecast) Locking nut: Polyamide Gasket: Nitrile rubber	**LW9Z-BM**	LW9Z-BM	1	• Degree of protection: IP66 (round hole), IP40 (with anti-rotation function) • Tightening torque: 1.2 N·m 
Padlock Cover 	Polyarylate Gasket: Nitrile rubber	**HW9Z-KL1**	HW9Z-KL1	1	• Used to protect pushbuttons, selector switches, and key selector switches. 

Maintenance Parts

All dimensions in mm

When ordering, specify the Ordering No.

Name / Shape		Part No.	Ordering No.	Package Quantity	Remarks
Button 	Round extended	YW9Z-B12①	YW9Z-B12①PN10	10	* (Color Code) B (black) G (green) R (red) Y (yellow) S (blue) W (white) 
	ø40 mushroom	YW9Z-B14①	YW9Z-B14①PN10	10	* (Color Code) B (black) G (green) R (red) Y (yellow) S (blue) W (white) 
Spare Key 	Metal	YW9Z-SK00	YW9Z-SK00PN02	2	

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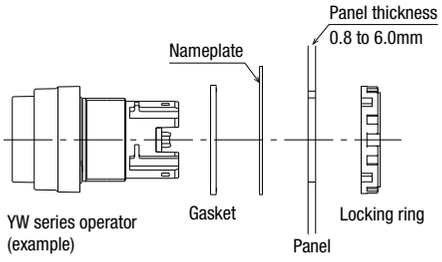
Safety Precautions

- Turn off the power to the CW series switches & pilot lights before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- For wiring, use wires of a proper size to meet the voltage and current requirements. and the number of connectable wires (page 26). Failure to tighten the terminal screws may cause overheating and fire.
- Avoid using in places mentioned below to maintain performance of the product.
  -Exposed to direct sunlight
  -Subject to corrosive or flammable gases

Instructions

Panel Mounting

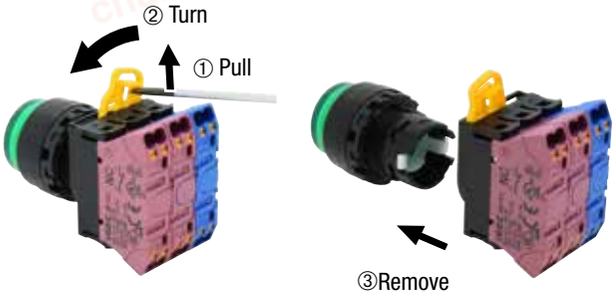
1. Remove the contact block from the operator.
2. Remove the locking ring from the operator
3. Insert the operator into the panel cut-out from the front. When mounting the nameplate, insert between the operator and panel.
4. Tighten the locking ring from the back.



Mounting panel thickness is reduced by 1.5 mm when using a nameplate.

Removing the Contact Block

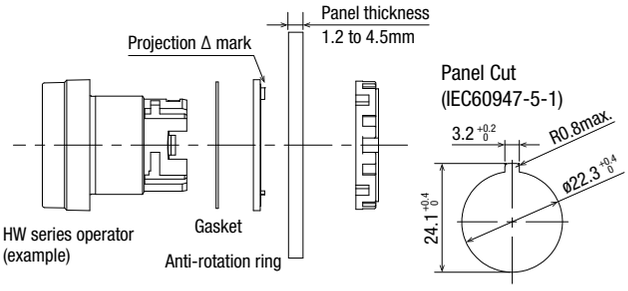
1. Remove the operator from the contact block by pushing and turning the locking lever in the direction of the arrow shown below. Then the operator can be pulled out.



2. To reinstall, place the TOP marking on the operator and the lock lever in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever in the opposite direction.

Anti-rotation Ring and Mounting Panel

Turn the TOP marking on the operator and the △ mark on the anti-rotation ring to the recess on the mounting panel.



Notes for Panel Mounting

Locking ring wrench recommended torque

Tighten the bezel to a tightening torque of 2.0 N·m.

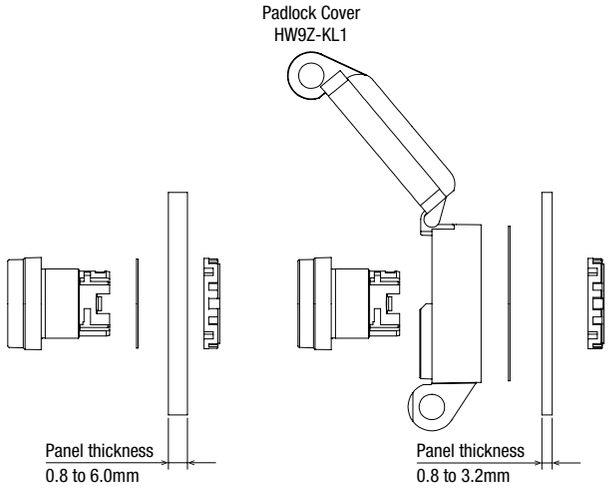
Locking ring wrench (MW9Z-T1) can be used to tighten the bezel. Do not use pliers. Excessive tightening will damage the locking ring.



Locking ring wrench
(MW9Z-T1)

Panel Thickness

HW series can be mounted on a panel with thickness of 0.8 to 6.0 mm. Take the thickness of nameplate and/or switch guard into consideration.



Instructions

Installing/Removing the Buttons

<To install> <To remove>

Pushbutton Button

• Extended/Mushroom

Button has threads. Turn clockwise to install the button.



Turn the button counterclockwise to remove.

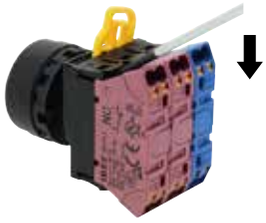


Note) Flush button is not removable.

Removing the Contact Block

Removing

To remove the contact block, insert into the flat blade screwdriver latch and move in the direction of the arrow.

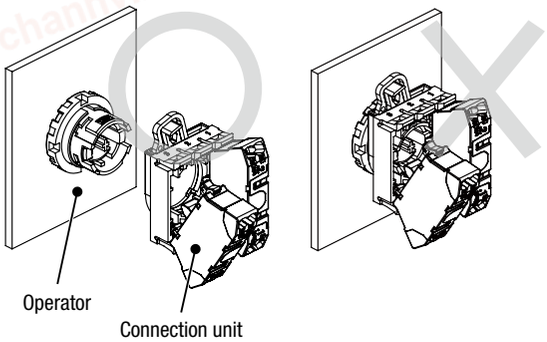


Installing

When installing the contact block, make sure that it snaps on to the operator.

Note 1) Make sure to attach a correctly assembled connection unit to the operator.

Note 2) When attaching the contact block to the connection unit, make sure that the connection is detached from the operator. If a contact block is installed with the operator attached to the connection unit, malfunction of the switch may occur.

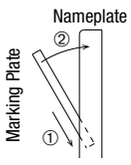


Nameplate

Mounting panel thickness is reduced by 1.5 mm when using a nameplate.

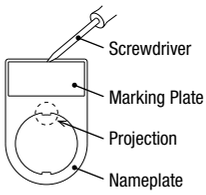
Installing a Marking Plate

Insert a marking plate tin the direction of the arrow ①, and press in as shown ②.



Removing a Marking Plate

Insert a flat screwdriver into the upper middle part of the marking plate and remove. When anti-rotation is not required, remove the projection from the nameplate using pliers.



Selector Switches

Turn the operator such as knob, lever, and key to each position accurately. Releasing halfway may cause the operator to return to the former position, or to get stuck between. On spring return two-way types, the center of operators may be misaligned slightly.

Key Selector Switches

Insert the key completely before turning. Failure to do so may cause failures.

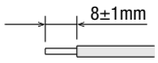
Applicable Wire

When wiring, use the applicable wires shown below.

Applicable Wire and Specifications

Applicable Wire	0.25 to 1.5mm² (AWG16 to 24)
Wire Strip Length (*1)	8 ± 1mm
Ferrule Size (*2) (Weidmüller)	H0.25 to H1.5 (without insulated cover)
	H0.25 to H1.5 (with insulated cover)

*1) Strip the sheath of the wire 8±1mm from the end.



*2) For details on ferrules, see “Wire Size and Recommended Ferrules” table below.

Note: Make sure that the stranded wires do not loosen when using wiring without ferrules.

Wire Size and Recommended Ferrules

Ferrules without insulated covers (Weidmüller product)

Applicable Wire (Stranded Wire)		Wire Strip Length	Part No.	Ordering No.
AWG	mm²			
24	0.25	5 to 6mm	H0.25/5	9018910000
20	0.50	10 to 11mm	H0.5/10	9004050000
18	0.75	10 to 11mm	H0.75/10	0542500000
18	1.00	10 to 11mm	H1.0/10	0282800000
16	1.50	10 to 11mm	H1.5/10	0186500000

Ferrules with insulated covers (Weidmüller product)

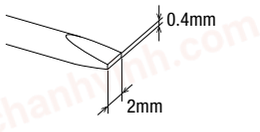
Applicable Wire (Stranded Wire)		Wire Strip Length	Part No.	Ordering No.
AWG	mm²			
24	0.25	10 to 11mm	H0.25/12 HBL	9025760000
22	0.34	10 to 11mm	H0.34/12 TK	9025770000
20	0.50	10 to 11mm	H0.5/14 OR	0690700000
18	0.75	10 to 11mm	H0.75/14 W	0462900000
18	1.00	10 to 11mm	H1.0/14 GE	0463000000
16	1.50	10 to 11mm	H1.5/14 R	0463100000

Recommended Tools (Weidmüller product)

Name	Part No.	Ordering No.
Crimping tool	PZ 6 Roto L	1444050000
Flat blade screwdriver	SDS 0.4×2.0×60	9037160000
	SDS 0.4×2.5×75	9009030000

Note 1) Note the crimping dimensions When using tools other than the recommended crimping tool. For details, see page 25.

Note 2) Use a flat blade screwdriver with a blade size of 0.4×2.0 mm.



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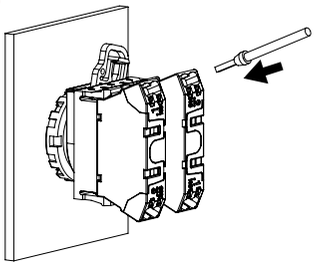
Instructions

Wiring Procedure

Connecting the wire

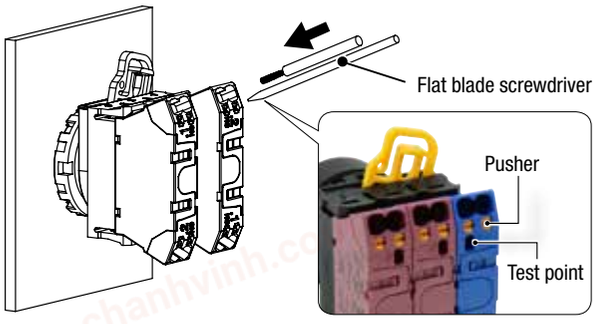
1) Stranded wires with ferrules or solid wire

1. Insert the wire to the back of the wire port.
2. After wiring, tug lightly to make sure that the wire is properly connected.



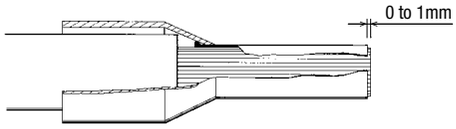
2) Stranded wire

1. While pressing the pusher (orange button) using a flat blade screwdriver (recommended: SDS 0.4×2.0×60 (optional). Insert the wire fully in the wiring port. Wire is connected when the pusher is released.
2. After wiring, tug lightly to make sure that the wire is properly connected.



Crimping of Ferrules and Wiring

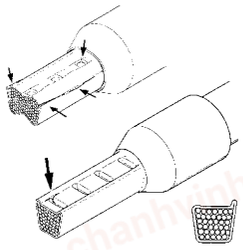
- Choose an appropriate ferrule for the wire.
- Cut the wire carefully to get a flat end.
- Make sure that ferrule sleeve is completely filled by the conductor. Depending on the cross section, the conductor should protrude approx. 0 to 1 mm from the ferrule sleeve.



- When crimping, refer to the instructions of the crimping tool.

Faults which can occur during crimping:

- Cracks along the sides and die impressions
- Splitting of the ferrules
- Asymmetrical crimping shape
- Extreme burrs formed along the sides
- Ferrule not filled by conductor
- Single conductors pushed back by protruding from the insulated cover
- Single conductors squeezed off
- Insulation cover damaged by the crimping jaw
- Conductor insulation not pushed into the insulated cover
- Ferrule bent longitudinally after crimping



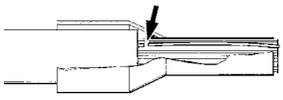
Formation of cracks at the sides. Sides spilt open

Formation of cracks at the impressions of the crimping jaw

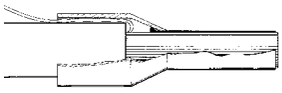
Asymmetrical crimping shape. Burr formation on one side



Asymmetrical crimping shape. Burr formation on one side



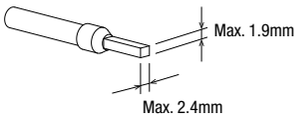
Single conductor squeezed off



Single conductor pushed back

Crimping dimensions: W2.4×H1.9 mm

Maximum connectable crimping size is W2.4×H1.9. Make sure that the ferrule size will be smaller than this dimension. (Recommended crimping tool: PZ 6 Roto (optional) Weidmüller



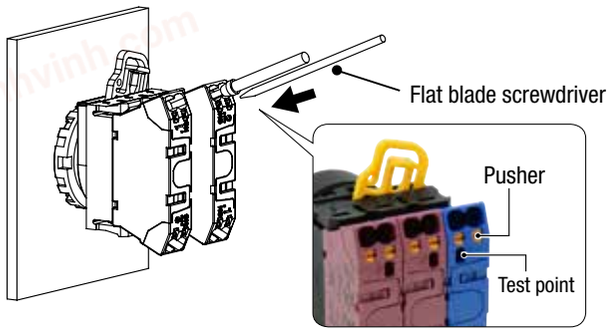
Note 1) If a tool other than the recommended crimping tool is used, the ferrule may not be crimped to the appropriate size and the clamp or spring inside the contact block may be deformed and may not operate normally.

Note 2) Pin crimp terminals cannot be used.

Instructions

Removing the Wire

When removing the wire, push the pusher using a flat blade screwdriver (recommended: SDS 0.4×2.0×60) and pull wire out in the direction of the arrow.



<Notes>

- Operate the pusher with a force of 20N. Do not press excessively. Otherwise, the switch may be damaged.
- Do not pull the wire out without depressing the pusher. When pulling the wire, be sure to pull in a straight direction. Otherwise, the socket may be damaged.

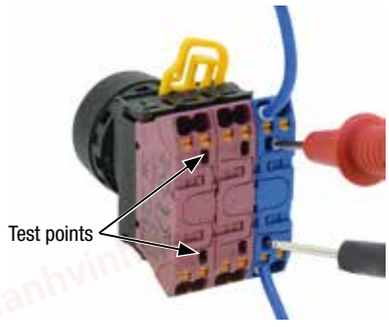
Number of Connectable Wires

Unit	Connectable wires		No. of connectable wires
HW-P Contact block Pilot light	Solid wire	0.25 to 1.5mm^2 (AWG16 to 24)	2
	Stranded wire	0.25 to 1.5mm^2 (AWG16 to 24)	
	Ferrule	Without insulated cover 0.25mm^2: conductor length 5 to 10mm 0.5 to 1.0mm^2: conductor length 6 to 10mm 1.5mm^2: conductor length 8 to 10mm With insulated cover 0.25 to 1.0mm^2: conductor length 6 to 10mm 1.5mm^2: conductor length 8 to 10mm Note) Pin terminals cannot be used	

Note) Only one wire can be inserted into one wire port.

Test Point

Note 1) Do not insert wires into the test point.
Note 2) When conducting a continuity test on the contact block, make sure that the probes (ø2.0 maximum) of the tester are inserted vertically to the panel.



Emergency Stop Switches Instructions

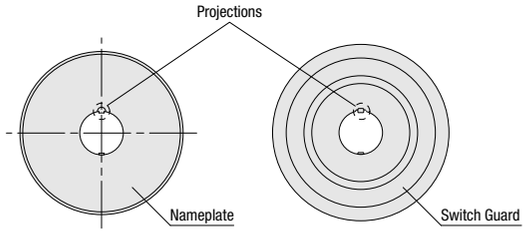
When using the YW emergency stop switches in safety-related part of a control system, observe safety standards and regulations of the relevant country or region. Also be sure to perform a risk assessment before operation.

Chattering / Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce. When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).
Also, do not apply shock to the switch as chattering may occur.

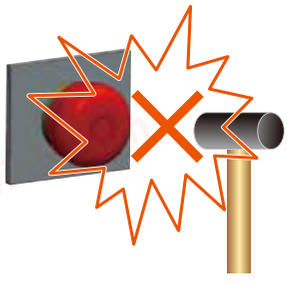
Nameplate or Switch Guard

When anti-rotation is not required, remove the projection from the nameplate or switch guard using pliers.



Handling

Do not expose the switch to excessive shocks and vibrations, otherwise the switch may be deformed or damaged, causing malfunction or operation failure.



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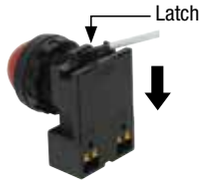
ø22 HW Series Push-in Short Body Pilot Lights Instructions

Installing the Pilot Light

Detach the operator unit from the LED unit. After mounting the operator from the front of the panel, attach the LED unit.

Installing / Removing the LED Unit

1. Detach the LED unit by lifting the latch using a small flat blade screwdriver width 0.5mm max.)
2. To install, align the TOP marking on the operator with the TOP marking on the LED unit.





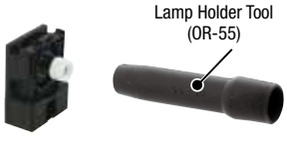
Replacing LED lamps

Lamps can be replaced using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator unit.

Removing the LED lamp from the front of the panel

Removing

To remove, slip the lamp holder tool onto the lamp head lightly. Then push slightly, and turn the lamp holder tool counterclockwise.



Installing

1. Insert the lamp head into the lamp holder tool.



2. Place the pins on the lamp base to the grooves in the lamp socket. Insert the lamp and turn it clockwise.

Notes for LED Units

Make sure not to apply load the the light guide part.

Installing / Removing the Lenses

<To install> <To remove>

Pilot Light Lens

• **Extended/Mushroom**

Lens has threads. Turn clockwise to install the lens.



Turn the lens counterclockwise to remove.



• **Round Flush/Square Flush**

Push in the lens holder into the operator unit.



Insert a flat screwdriver between the lens and the bezel to remove.



Installing/Removing the Lenses and Marking Plates

Removing

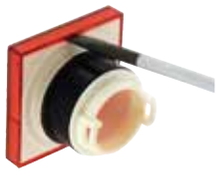
Removing the lens unit

Insert a flat screwdriver in groove of the lens (TOP mark side of the operator or opposite side) to remove the lens unit (lens/marking plate/lens holder).



Removing the lens

Remove the lens by pushing the lens from the rear to disengage the latches between the lens and the lens holder, using a flat screwdriver as shown below.

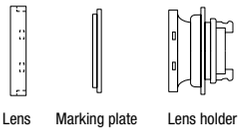


Note) The filter inside the lens holder it water and oil-proof and cannot be removed.

Installing

1. Place the marking plate on the lens holder with the anti-rotation projection engaged and press the lens onto the lens holder to engage the latches.
2. Place the marking plate in the correct orientation.

For Square Lens (square flush lens)
*Note the orientation of the parts.



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EP1727-1