



Think Automation and beyond...



ø22 Switches & Pilot Lights
HW Series



Simple wiring with Push-in technology

IDEC CORPORATION



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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

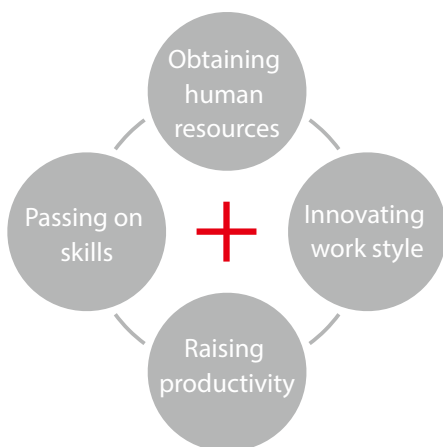
Products appreciated by all our customers for their ease of connection regardless of experience

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.





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 skill level, wiring time is reduced.

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

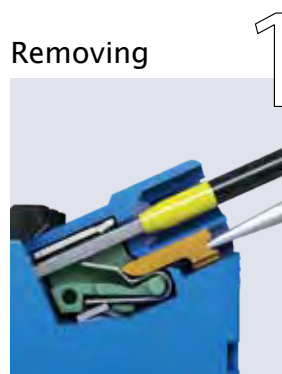


Connecting

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

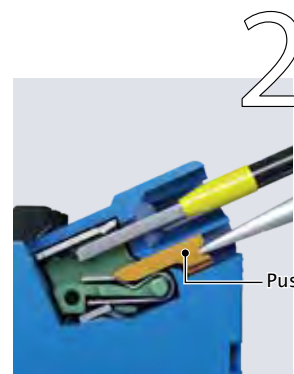


Connection is completed. Pull lightly to make sure it is firmly in place.



Removing

Insert a screwdriver into the opening.



With the screwdriver in place, pull out the wire.

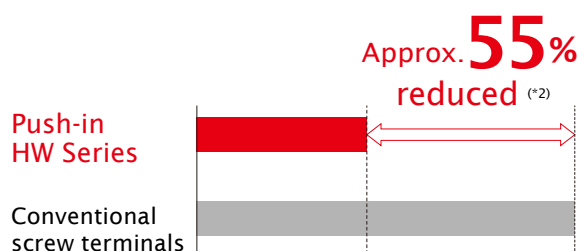
Time saving and efficient

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 July 2019)

Reliable and easy

Finger-safe structure and vibration resistance.

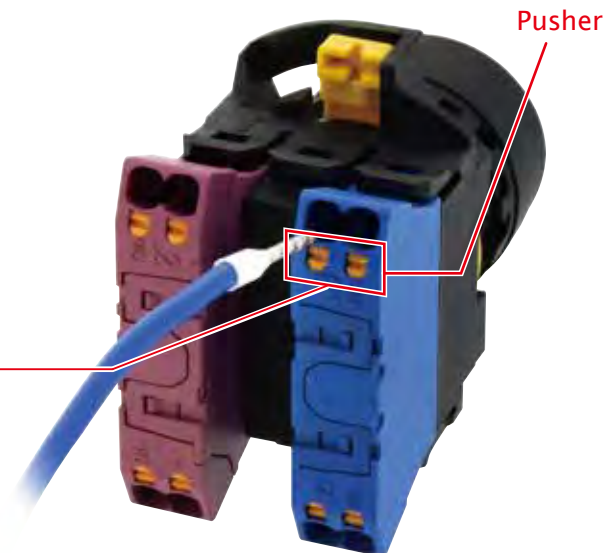
What's more, the space-saving design means better workability in a smaller space.

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

The pusher 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 skill level.

*1) When ferrule is used.

Conventional screw terminal



Push-in terminal ^(*)



No additional tightening needed

Screws may loosen during transport due to vibration, but because screws are not used on push-in terminals, re-tightening of screws is not required.

Product Upgrade

The superior functions of the earlier HW Series still remain while improving ease of use.

Space-Saving

Contact block

Saves space inside panel and enables downsizing of equipment.



Earlier HW Series
(pushbuttons)

Downsize
10%



Push-in HW Series
(pushbuttons)



Earlier HW Series
(pilot light full voltage type)

Panel depth
reduced by
50%

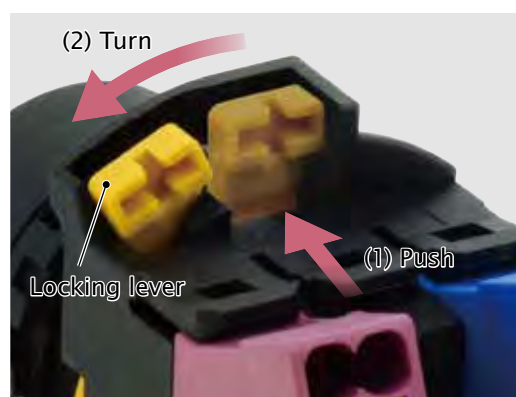


Push-in HW Series
(pilot light full voltage type)

Easy

Locking lever

Usability improved by easy mounting and removal. The mounting status of the contact blocks can be confirmed at a glance from the back of the switch.



The specifications are the same as the earlier series, enabling easy installation

Panel design

Push-in design does not change the panel design.

Electrical rating and durability

Same electrical ratings and durability with push-in terminal contact blocks.

Added Value

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



Sub-Assembled Units

Sub-assembled units can be ordered for flexible use.



HW Series Push-in Switches & Pilot Lights

Products

Pushbuttons:	see page 11
Selector Switches:	see page 15
Pilot lights:	see page 22
Illuminated / Non-illuminated buzzers:	see page 23
Emergency Stop Switches:	see page 24

Notice

- HW series Push-in products below will be released in fall 2019.
Illuminated pushbuttons Pilot lights (high-voltage)
Dual pushbuttons Illuminated selector switches
Selector pushbuttons Monolever switches
- The LED lamp for pilot lights (low-voltage) will be changed at the release of the above products.
- Test point for continuity check will be added starting fall 2019.

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



- See website for details on approvals and standards.

Note) Approvals for pushbuttons, selector switches, pilot lights only.
For illuminated/non-illuminated buzzer (page **23**) and emergency stop switches (page **24**), see each page.

Specifications and Ratings

Contact Ratings

Pushbuttons Selector Switches Emergency Stop Switches	Rated insulation voltage	600V
	Rated continuous current	10A
	Contact ratings by utilization category IEC60947-5-1	AC-15 (A600) DC-13

- See website for approved contact ratings.

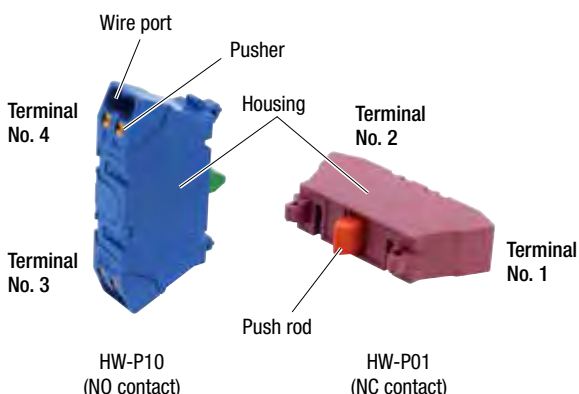
Contact Ratings by Utilization Category

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

Operating Voltage			24V	48V	50V	110V	220V	440V
Operating Current	AC 50/60 Hz	AC-12 Control of resistive loads and solid state loads	10A	—	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72 VA)	10A	—	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads and solid state loads	10A	5A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	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)

Push-in Contact Block (HW-P)



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

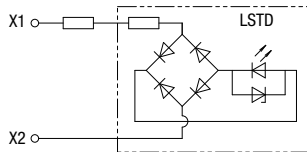




- Up to 2 blocks (1 layer) can be attached to an operator.

LED Specifications

Unit	Color	Rated Voltage	Operating Voltage	LED lamp	
				Lamp Base	Part No.
Pilot light	R, G, Y, A, S, PW	AC/DC6V	AC/DC6V	BA9S/13	LSTD-6*
		AC/DC12V	AC/DC12V		LSTD-1*
		AC/DC24V	AC/DC24V		LSTD-2*

- See page 32 for details on LED lamp ratings.

LED Lamp Ratings (Pilot Lights)

Rated Voltage		6V AC/DC			12V AC/DC		24V AC/DC	
Voltage Range		6V AC/DC ±10%			12V AC/DC ±10%		24V AC/DC ±10%	
Current Draw	Color	R, A	G, PW	S	R, G, Y, A, PW	S	R, G, A, PW	S
	DC	7mA	5.5mA	4.5mA	10mA	8mA	10mA	8mA
	AC	8mA	8mA	7mA	11mA	9mA	11mA	9mA
Part No.		LSTD-6*			LSTD-1*		LSTD-2*	
Life (reference value)		Approx. 50,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.)						
Internal Circuit		AC/DC6-24V			Symbols			
					 LED chip  Rectifier diode  Zener diode  Resistor			

- Specify a color code in place of *. R (red), G (green), A (amber), S (blue), PW (pure white)
- Use a pure white (PW) LED for yellow (Y) illumination.

Specifications

Pushbuttons, Selector Switches

Operating Temperature	-25 to +60°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	-40 to +80°C (no freezing)
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Overvoltage Category	II
Impulse Withstand Voltage	4.0kV
Pollution Degree	3
Dielectric Strength	Between live and dead parts: 2500V AC, 1 minute
Vibration Resistance	Damage limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s ² Operating extremes: 100 m/s ²
Degree of Protection	Terminal: Finger-safe (IP20) structure Panel front: IP65 (IEC 60529), UL Type 4X
Recommended Tightening Torque for Locking Ring	2.0N·m
Terminal Style	Push-in terminal
Mechanical Life (minimum operations)	Pushbutton Momentary: 5,000,000 Maintained: 500,000 Selector switch: 500,000 Key selector switch (Disc tumbler): 500,000 Key selector switch (Pin tumbler): 100,000
Electrical Life (*4)	Pushbutton Momentary: 500,000 (*1) Maintained: 500,000 (*3) Selector switch: 500,000 (*2) Key selector switch (Disc tumbler): 500,000 (*2) Key selector switch (Pin tumbler): 100,000 (*2)
Weight (approx.)	38g (HW1B-M1P11), 38g (HW1S-2TP11) 76g (HW1K-2AP11), 66g (HW1K-2PCP11)

*1) Switching frequency 1,800 operations/h, duty ratio 40%

*2) Switching frequency 1,200 operations/h, duty ratio 40%

*3) Switching frequency 900 operations/h, duty ratio 40%

*4) Load condition 220V AC, 3A (AC-15)

Pilot lights

Operating Temperature	-25 to +50°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	-40 to +80°C (no freezing)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Overvoltage Category	II
Impulse Withstand Voltage	2.5kV
Pollution Degree	3
Dielectric Strength	Between live and dead parts: 2000V AC, 1 minute
Vibration Resistance	Damage limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s ² Operating extremes: 100 m/s ²
Degree of Protection	Terminal: Finger-safe (IP20) structure Panel front: IP65 (IEC 60529), UL Type 4X
Recommended Tightening Torque for Locking Ring	2.0N·m
Terminal Style	Push-in terminal
Weight (approx.)	26g (HW1P-2JPQ4)

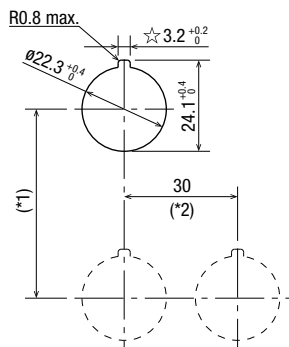
Illuminated / non-illuminated buzzer specifications: see page 23

Emergency stop switch specifications: see page 24

Mounting Hole Layout

Panel Cut (IEC60947-5-1)

(Dimensions in mm)



- 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	40
Pilot light	50	30

- For emergency stop switch mounting centers, see page 24.

Degree of Protection

Unit	IEC 60529	UL50
All models	IP65 (*3)	UL Type 4X

*3) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 28 are used. (IP40 when other ø22 namplates such as NWA are used)

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 29 to 32.

Pushbuttons



Assembled



Package Quantity: 1

Name / Shape	Operation	Contact Configuration	Part No. (Ordering No.)	⑤ Color Code
Flush HW1B-M1 	Momentary	1NO	HW1B-M1P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	HW1B-M1P01⑤	
		1NO-1NC	HW1B-M1P11⑤	
		2NO	HW1B-M1P20⑤	
		2NC	HW1B-M1P02⑤	
	Maintained	1NO	HW1B-A1P10⑤	
Extended HW1B-M2 	Momentary	1NO	HW1B-M2P10⑤	
		1NC	HW1B-M2P01⑤	
		1NO-1NC	HW1B-M2P11⑤	
		2NO	HW1B-M2P20⑤	
		2NC	HW1B-M2P02⑤	

Package Quantity: 1

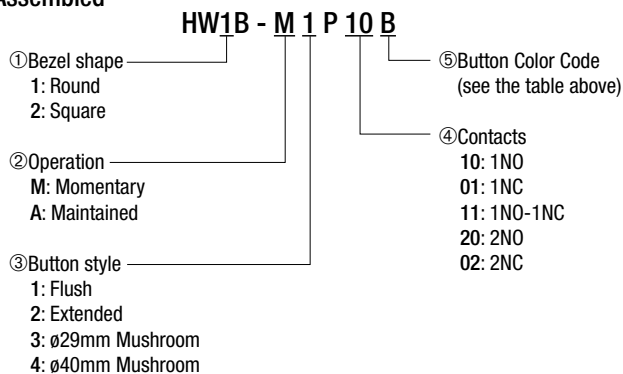
Name / Shape	Operation	Contact Configuration	Part No. (Ordering No.)	⑤ Color Code
ø29mm Mushroom HW1B-M3 	Momentary	1NO	HW1B-M3P10⑤	B (black) G (green) R (red) Y (yellow)
		1NC	HW1B-M3P01⑤	
ø40mm Mushroom HW1B-M4 	Momentary	1NO	HW1B-M4P10⑤	
		1NC	HW1B-M4P01⑤	

- Specify a button color code in place of ⑤ in the Part No.
- Pushbuttons with 1 contact block contain 2 dummy blocks. Pushbuttons with 2 contact blocks contain 1 dummy block.
- When requiring flush type maintained switches other than 1NO contact configuration, select from sub-assembled product.
- For other types, select from sub-assembled units.

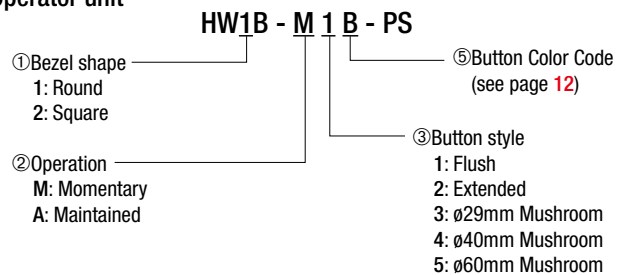
Part No. Example

Assembled and sub-assembled unit

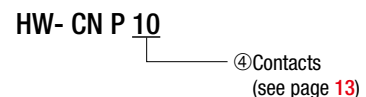
Assembled



Operator unit

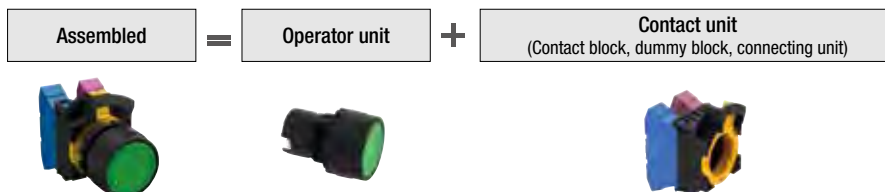


Contact unit








Pushbuttons

Sub-Assembled



<Reference> Assembled Part No. Example

Name / Shape	Operation	Contact Configuration	<Reference> Assembled Part No.	⑤ Button Color Code
	Momentary	1NO	○HW1B-M1P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	○HW1B-M1P01⑤	
		1NO-1NC	○HW1B-M1P11⑤	
		2NO	○HW1B-M1P20⑤	
		2NC	○HW1B-M1P02⑤	
	Maintained	1NO	○HW1B-A1P10⑤	
		1NC	HW1B-A1P01⑤	
		1NO-1NC	HW1B-A1P11⑤	
		2NO	HW1B-A1P20⑤	
		2NC	HW1B-A1P02⑤	
	Momentary	1NO	○HW1B-M2P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	○HW1B-M2P01⑤	
		1NO-1NC	○HW1B-M2P11⑤	
		2NO	○HW1B-M2P20⑤	
		2NC	○HW1B-M2P02⑤	
	Maintained	1NO	HW1B-A2P10⑤	
		1NC	HW1B-A2P01⑤	
		1NO-1NC	HW1B-A2P11⑤	
		2NO	HW1B-A2P20⑤	
		2NC	HW1B-A2P02⑤	
	Momentary	1NO	○HW1B-M3P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	○HW1B-M3P01⑤	
		1NO-1NC	HW1B-M3P11⑤	
		2NO	HW1B-M3P20⑤	
		2NC	HW1B-M3P02⑤	
	Maintained	1NO	HW1B-A3P10⑤	
		1NC	HW1B-A3P01⑤	
		1NO-1NC	HW1B-A3P11⑤	
		2NO	HW1B-A3P20⑤	
		2NC	HW1B-A3P02⑤	
	Momentary	1NO	○HW1B-M4P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	○HW1B-M4P01⑤	
		1NO-1NC	HW1B-M4P11⑤	
		2NO	HW1B-M4P20⑤	
		2NC	HW1B-M4P02⑤	
	Maintained	1NO	HW1B-A4P10⑤	
		1NC	HW1B-A4P01⑤	
		1NO-1NC	HW1B-A4P11⑤	
		2NO	HW1B-A4P20⑤	
		2NC	HW1B-A4P02⑤	
	Momentary	1NO	HW1B-M5P10⑤	B (black) G (green) R (red)
		1NC	HW1B-M5P01⑤	
		1NO-1NC	HW1B-M5P11⑤	
		2NO	HW1B-M5P20⑤	
		2NC	HW1B-M5P02⑤	

• Part no. marked with ○ can be purchased as an assembled product.

<Sub-Assembled> Ordering No.

Package Quantity: 1

Operator Unit		Contact Unit Shape	Contact Configuration	Part No. (Ordering No.)
Name / Shape	Part No. (Ordering No.)			
<div>Flush</div> <div></div>	HW1B-M1⑤-PS	<div></div>	1NO	HW-CNP10
			1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NO	HW-CNP20
	2NC		HW-CNP02	
	HW1B-A1⑤-PS		1NO	HW-CNP10
			1NC	HW-CNP01
			1NO-1NC	HW-CNP11
2NO			HW-CNP20	
<div>Extended</div> <div></div>	HW1B-M2⑤-PS		1NO	HW-CNP10
			1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NO	HW-CNP20
	2NC		HW-CNP02	
	HW1B-A2⑤-PS		1NO	HW-CNP10
			1NC	HW-CNP01
			1NO-1NC	HW-CNP11
2NO			HW-CNP20	
<div>ø29mm Mushroom</div> <div></div>	HW1B-M3⑤-PS		1NO	HW-CNP10
			1NC	HW-CNP01
		1NO-1NC	HW-CNP11	
		2NO	HW-CNP20	
	2NC	HW-CNP02		
	HW1B-A3⑤-PS	1NO	HW-CNP10	
		1NC	HW-CNP01	
		1NO-1NC	HW-CNP11	
2NO		HW-CNP20		
<div>ø40mm Mushroom</div> <div></div>	HW1B-M4⑤-PS	1NO	HW-CNP10	
		1NC	HW-CNP01	
		1NO-1NC	HW-CNP11	
		2NO	HW-CNP20	
	2NC	HW-CNP02		
	HW1B-A4⑤-PS	1NO	HW-CNP10	
		1NC	HW-CNP01	
		1NO-1NC	HW-CNP11	
2NO		HW-CNP20		
<div>ø60mm Mushroom</div> <div></div>	HW1B-M5⑤-PS (*1)	1NO	HW-CNP10	
		1NC	HW-CNP01	
		1NO-1NC	HW-CNP11	
		2NO	HW-CNP20	
		2NC	HW-CNP02	

• Specify a button color code in place of ⑤ in the Part No.



• For mounting positions of contacts, see page 13.

• When ordering the contact unit, select the same contact configuration as the operator unit.

*1) For ø60mm mushroom, the button color for ⑤ is B (black), G (green), R (red).

Pushbuttons

<Reference> Assembled Part No. Example

Name / Shape	Operation	Contact Configuration	<Reference> Assembled Part No.	⑤ Color Code
	Momentary	1NO	HW2B-M1P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	HW2B-M1P01⑤	
		1NO-1NC	HW2B-M1P11⑤	
		2NO	HW2B-M1P20⑤	
	Maintained	2NC	HW2B-M1P02⑤	
		1NO	HW2B-A1P10⑤	
		1NC	HW2B-A1P01⑤	
		1NO-1NC	HW2B-A1P11⑤	
	Momentary	2NO	HW2B-M2P20⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		2NC	HW2B-M2P02⑤	
	Maintained	1NO	HW2B-A2P10⑤	
		1NC	HW2B-A2P01⑤	
		1NO-1NC	HW2B-A2P11⑤	
		2NO	HW2B-A2P20⑤	
		2NC	HW2B-A2P02⑤	

<Sub-Assembled> Ordering No.


Package Quantity: 1

Operator Unit		Contact Unit	Contact Configuration	Part No. (Ordering No.)
Name / Shape	Part No. (Ordering No.)			
	HW2B-M1⑤-PS		1NO	HW-CNP10
			1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NO	HW-CNP20
	2NC		HW-CNP02	
	HW2B-A1⑤-PS		1NO	HW-CNP10
			1NC	HW-CNP01
			1NO-1NC	HW-CNP11
2NO			HW-CNP20	
	HW2B-M2⑤-PS		2NC	HW-CNP02
			1NO	HW-CNP10
			1NC	HW-CNP01
			1NO-1NC	HW-CNP11
	HW2B-A2⑤-PS		2NO	HW-CNP20
			2NC	HW-CNP02
			1NO	HW-CNP10
		1NC	HW-CNP01	
	1NO-1NC	HW-CNP11		
	2NO	HW-CNP20		
	2NC	HW-CNP02		

- Specify a button color code in place of ⑤ in the Part No.
- For mounting positions of contacts, see table below.

Contact Unit Part No. / Contact Table

Package Quantity: 1

Shape	Contact Configuration (Code)	Part No. (Ordering No.)	Mounting Position	Contact
	1NO (10)	HW-CNP10	(1)	1NO
			(2)	Dummy
			(3)	Dummy
	1NC (01)	HW-CNP01	(1)	Dummy
			(2)	Dummy
			(3)	1NC
	1NO-1NC (11)	HW-CNP11	(1)	1NO
			(2)	Dummy
			(3)	1NC
	2NO (20)	HW-CNP20	(1)	1NO
			(2)	Dummy
			(3)	1NO
	2NC (02)	HW-CNP02	(1)	1NC
			(2)	Dummy
			(3)	1NC

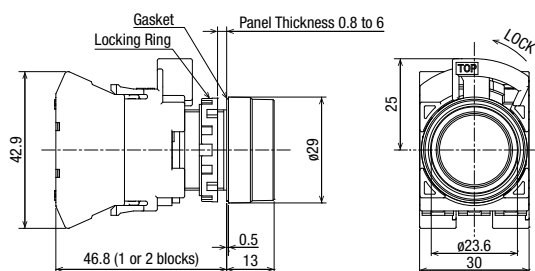
Pushbuttons

Dimensions

All dimensions in mm.

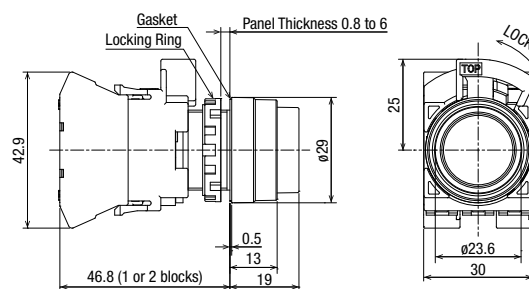
Flush

HW1B-□1P



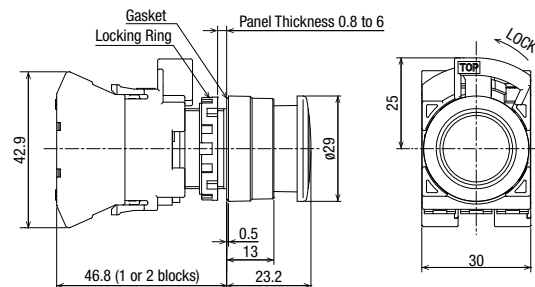
Extended

HW1B-□2P



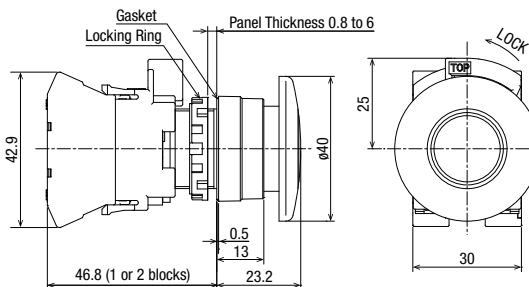
ø29mm Mushroom

HW1B-□3P



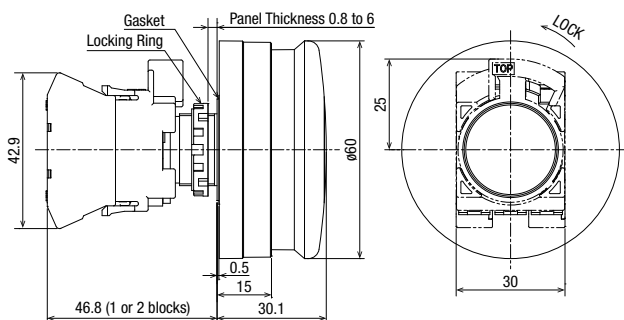
ø40mm Mushroom

HW1B-□4P



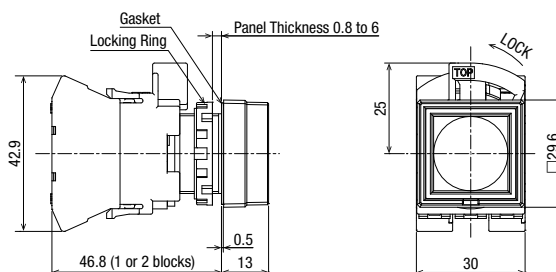
ø60mm Mushroom

HW1B-M5P



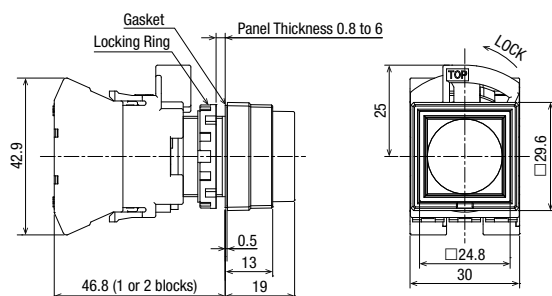
Square Flush

HW2B-□1P

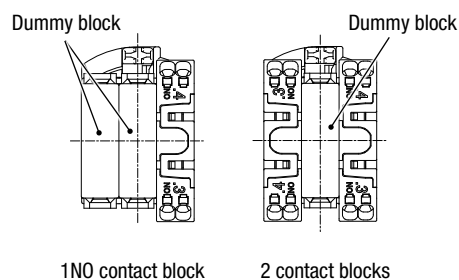


Square Extended

HW2B-□2P



Bottom View







Selector Switches (Knob Operator)

Assembled

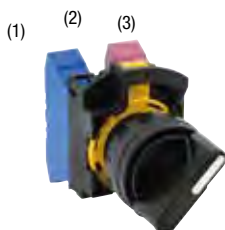


Package Quantity: 1

Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Maintained (90°)			
			Mounting Position	Contact	1	2					
	90° 2-position	1NO (10)	(1)	NO		●		HW1S-2TP10	/		
			(3)	—	Dummy						
		1NC (01)	(1)	—	Dummy			HW1S-2TP01			
			(3)	NC	●						
		1NO-1NC (11)	(1)	NO		●		HW1S-2TP11			
			(3)	NC	●						
	2NO (20)	(1)	NO		●		HW1S-2TP20				
		(3)	NO		●						
	45° 3-position	Contact Configuration (Code)	Contact Block		Operator Position			Maintained		Spring return two-way	
			Mounting Position	Contact	1	0	2				
		2NO (20)	(1)	NO	●			HW1S-3TP20	HW1S-33TP20		
			(3)	NO			●				

- Knob operator: white indicator on black body
- Selector switches with 1 contact block contain 2 dummy blocks. Pushbuttons with 2 contact block contains 1 dummy block.
- Turn the operator to each position accurately.
- **For other contact configuration or operation, select from sub-assembled units.**

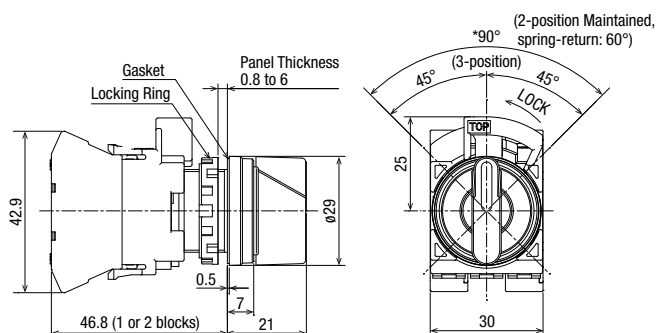
Contact Block Mounting Position



Note) (2) can only be mounted with a dummy block.

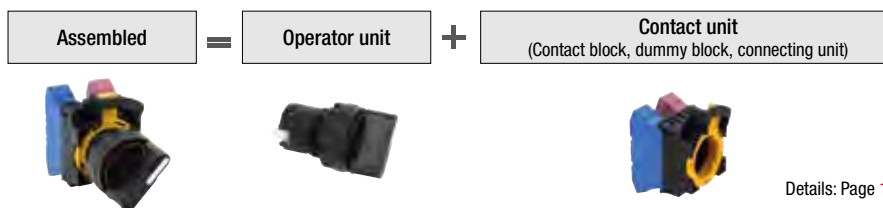
Dimensions

All dimensions in mm.



Selector Switches (Knob Operator)




Sub-Assembled



Details: Page 17


90° 2-position / 45° 3-position

Package Quantity: 1

<Reference> Assembled Part No.										Operator Unit Ordering No.		
<div>Knob Operator HW1S</div> <div></div> <div>White indicator on black knob</div>	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	①Operator position code	Shape	①Operator position code	
			Mounting Position	Contact	1	2			Maintained (90°)		Maintained (90°)	
	90° 2-position	1NO (10) 1NC (01) 1NO-1NC (11) 2NO (20) 2NC (02)	(1) (3) (1) (3) (1) (3) (1) (3)	NO — — NC NO NO NC NC		●			—	①Operator position code		①Operator position code
	45° 3-position	1NO-1NC (11) 1NO-1NC (11N1) 2NO (20) 2NC (02) 1NO-1NC (11N1) ★ ☆	(1) (3) (1) (3) (1) (3) (1) (3)	NO NC NC NO NC NC NC NO	●	●	●		—	①Operator position code		①Operator position code
								J	①Operator position code		①Operator position code	

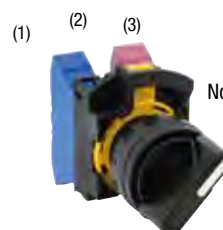
90° 2-position Reversed Cam

Package Quantity: 1

<Reference> Assembled Part No.							Operator Unit Ordering No.	
Knob Operator HW1S	No. of Positions	Contact Code	Contact Block		Operator Position		Cam Code	①Operator position code
			Mounting Position	Contact	2	1		Maintained (90°)
	90° 2-position	2NC (02)	(1)	NC		●	J	HW1S-2JTP02
			(3)	NC		●		

- On the contact arrangement marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
 - For models with ☆, contacts may overlap when the operator position is changed.
 - For part no. other than maintained position, see Part No. Example on page 17.
 - Part No. marked with ○ can be purchased as an assembled product.
 - Operator unit for lever operator is available. See Part No. Example on page 17.
- Note: Turn the operator to each position accurately.

Contact Block Mounting Position



Note) (2) can only be mounted with a dummy block.

Contact Unit Part No. / Contact Configuration Table: see page 17

Selector Switches (Knob Operator)

Contact Unit Part No. / Contact Configuration Table

Package Quantity: 1

Shape	Contact Configuration (Code)	Part No. (Ordering No.)	Mounting Position	Contact
	1NO (10)	HW-CNP10	(1)	1NO
			(2)	Dummy
			(3)	Dummy
	1NC (01)	HW-CNP01	(1)	Dummy
			(2)	Dummy
			(3)	1NC
	1NO-1NC (11)	HW-CNP11	(1)	1NO
			(2)	Dummy
			(3)	1NC
	1NO-1NC (11N1)	HW-CNP11N1	(1)	1NC
			(2)	Dummy
			(3)	1NO
	2NO (20)	HW-CNP20	(1)	1NO
			(2)	Dummy
			(3)	1NO
	2NC (02)	HW-CNP02	(1)	1NC
			(2)	Dummy
			(3)	1NC

Note) <Reference> Specify the same contact configuration as an assembled unit.

Part No. Example

Assembled and sub-assembled unit

Assembled Part No. Example

HW1S - 2 J TP 10

③ Contacts
(see page 15)

- ① 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

② Cam code
J or blank

Operator unit Part Number Development

HW1S - 2 J L - PS

④ Operator unit code
T: Knob Operator
L: Lever Operator

- ① 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

② Cam code
J: Specified
Blank: Not specified

Contact unit

HW- CN P 10

③ Contacts
(see the table above)

① Operator position code

Maintained (90° 2-position)	Spring Return (60° 2-position)	
Cam code: blank	Cam code: J	Cam code: blank

Maintained (45° 3-position)	Spring Return (45° 3-position)		
Cam code: Blank, J, or S	Cam code: blank		





Key Selector Switches (Disc Tumbler Key)

Assembled



Note) Select pin tumbler keys from sub-assembled units.

Package Quantity: 1



Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	Operator position code	Ordering No.
			Mounting Position	Contact	1	2				
 (NC contact only)	90° 2-position 60° 2-position	1NO (10)	(1)	NO		●		—	Maintained (90°) 	HW1K-2①P10
			(3)	—	Dummy			—		HW1K-2①P11
		1NO-1NC (11)	(1)	NO		●		—		HW1K-2①P20
			(3)	NC	●			—		
		2NO (20)	(1)	NO		●		—		
			(3)	NO		●		—		
	45° 3-position	Contact Code	Mounting Position	Contact	1	0	2		Operator position code	Ordering No.
								—	Maintained 	HW1K-3②P20
		2NO (20)	(1)	NO	●			—	Spring return from right 	HW1K-31②P11N1
							●	—		
		1NO-1NC (11N1)	(1)	NC		●		—		
							●	—		

- Each selector key switch is supplied with two keys.
- Key selector switches with 1 contact block contain 2 dummy blocks. Pushbuttons with 2 contact block contains 1 dummy block.
- Specify key removal position code in ① and ②.

- For other contact configuration or operator position, select from sub-assembled units.
- Standard key number (231) is available for assembled products.
- *For numbers other than standard key numbers, contact IDEC.





Key removal position

① 90° 2-position / 60° 2-position

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

①② : Key removal position ①② : Key retained position

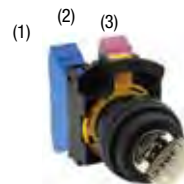
② 45° 3-position

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

①②③ : Key removal position ①②③ : Key retained position

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

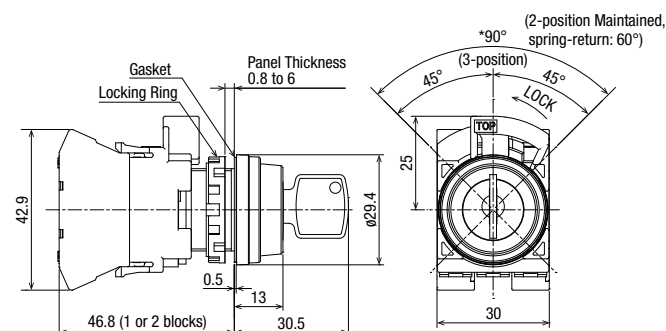
Contact Block Mounting Position



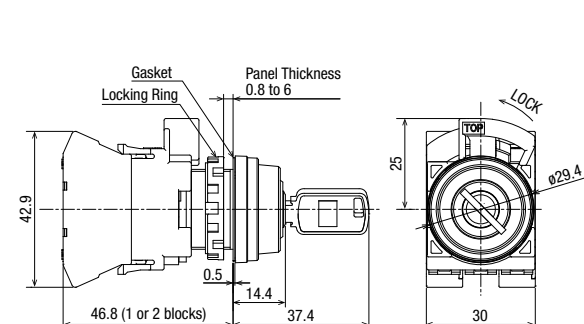
Note) (2) can only be mounted with a dummy block.

Dimensions

Disc Tumbler Key



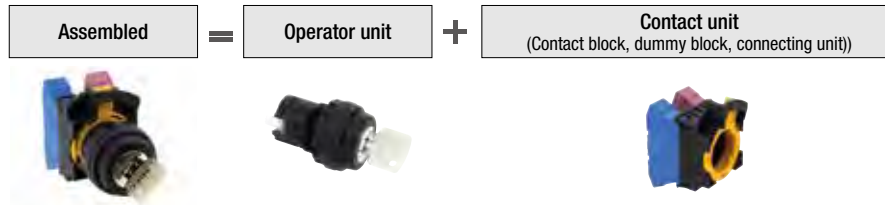
Pin Tumbler Key



All dimensions in mm.





Key Selector Switches (Disc Tumbler Key)

Sub-Assembled





90° 2-position / 45° 3-position

Package Quantity: 1

<Reference> Assembled Part No.							Operator Unit Ordering No.						
Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position		Cam Code	①Operator position code	Name / Shape	①Operator position code			
			Mounting Position	Contact	1	2		Maintained		1	2		
  (NC contact only)	90° 2-position	1NO (10)	(1)	NO				—		HW1K-2④⑥-PS			
			(3)	—	Dummy						○HW1K-2④P10		
		1NC (01)	(1)	—	Dummy						HW1K-2④P01		
			(3)	NC							○HW1K-2④P11		
		1NO-1NC (11)	(1)	NO							○HW1K-2④P11		
			(3)	NC							○HW1K-2④P20		
	2NO (20)	(1)	NO					—	○HW1K-2④P20				
		(3)	NO					—	HW1K-2④P02				
	2NC (02)	(1)	NC					—					
		(3)	NC					—	HW1K-2④P02				
	Operator Position	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	①Operator position code	Name / Shape	①Operator position code		
			Mounting Position	Contact	1	0	2		Maintained		1	0	2
45° 3-position	1NO-1NC (11) 1NO-1NC (11N1) 2NO (20) 2NC (02) 1NO-1NC (11N1) ★☆☆	(1)	NO					—		HW1S-3④⑥-PS			
			NC								HW1K-3④P11		
		(1)	NC								—	HW1K-3④P11N1	
			NO								—	○HW1K-3④P20	
		(1)	NO								—	○HW1K-3④P20	
			NO								—	HW1K-3④P02	
		(1)	NC								—	HW1K-3④P02	
			NC								—	HW1K-3④P02	
		(1)	NC								J	○HW1K-3J④P11N1	HW1S-3J④⑥-PS
			NO										

90° 2-position Reversed Cam


Package Quantity: 1

<Reference> Assembled Part No.							Operator Unit Ordering No.		
Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position		Cam Code	①Operator position code	
			Mounting Position	Contact	2	1		Maintained	2 1
 (NC contact only)	90° 2-position	2NC (02)	(1)	NC		●	J	HW1K-2J④P02	 HW1K-2J④⑥-PS
			(3)	NC		●			

- On the contact arrangement marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator position is changed.
- For part no. other than maintained position, see Part No. Example on page 21.
- Part no. marked with ○ can be purchased as an assembled product.
- Each selector key switch is supplied with two keys.

- Specify the desired key removal position in ④. } See page 21 Part No. Development for details.
- Specify the key number in ⑥.

Contact Unit Part No. / Contact Configuration Table

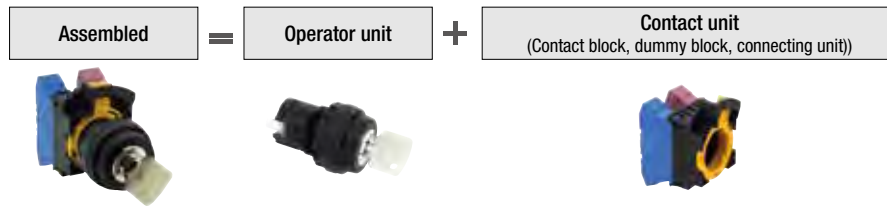
Shape	Contact Configuration (Code)	Part No. (Ordering No.)
	1NO (10)	HW-CNP10
	1NC (01)	HW-CNP01
	1NO-1NC (11)	HW-CNP11
	1NO-1NC (11N1)	HW-CNP11N1
	2NO (20)	HW-CNP20
	2NC (02)	HW-CNP02

- For contact mounting position, see page 17.

Key Selector Switches (Pin Tumbler Key)





























Sub-Assembled

Note) Select pin tumbler keys from sub-assembled units.





90° 2-position / 45° 3-position

Package Quantity: 1

<Reference> Assembled Part No.								Operator Unit Ordering No.				
Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position		Cam Code	①Operator position code	Name / Shape	①Operator position code		
			Mounting Position	Contact	1	2		Maintained <div><div>1</div><div>2</div></div>		Maintained <div><div>1</div><div>2</div></div>		
								<Reference> Assembled Part No.		Part No. (Ordering No.)		
	90° 2-position	1NO (10)	(1)	NO			—	HW1K-2P④P10		HW1K-2P④⑥-PS		
			(3)	—	Dummy			—				
		1NC (01)	(1)	—	Dummy			—			HW1K-2P④P01	
			(3)	NC				—				
		1NO-1NC (11)	(1)	NO				—			HW1K-2P④P11	
			(3)	NC				—				
		2NO (20)	(1)	NO				—			HW1K-2P④P20	
			(3)	NO				—				
		2NC (02)	(1)	NC				HW1K-2P④P02				
			(3)	NC								
	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	①Operator position code	Name / Shape	①Operator position code	
			Mounting Position	Contact	1	0	2		Maintained <div><div>1</div><div>0</div><div>2</div></div>		Maintained <div><div>1</div><div>0</div><div>2</div></div>	
												<Reference> Assembled Part No.
	 (NC contact only)	45° 3-position	1NO-1NC (11)	(1)	NO				—	HW1K-3P④P11		HW1K-3P④⑥-PS
				(3)	NC				—			
			1NO-1NC (11N1)	(1)	NC				—	HW1K-3P④P11N1		
			(3)	NO				—				
2NO (20)			(1)	NO				—	HW1K-3P④P20			
			(3)	NO				—				
2NC (02)			(1)	NC				—	HW1K-3P④P02			
			(3)	NC				—				
1NO-1NC (11N1) ★ ☆			(1)	NC				J	HW1K-3JP④P11N1			
			(3)	NO								

90° 2-position Reversed Cam

Package Quantity: 1


<Reference> Assembled Part No.							Operator Unit Ordering No.	
Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position		Cam Code	①Operator position code
			Mounting Position	Contact	2	1		Maintained 2 1
					⊗	⊙		<Reference> Assembled Part No.
 (NC contact only)	90° 2-position	2NC (02)	(1)	NC		●	J	 HW1K-2JP④⑥-PS
			(3)	NC		●	J	

- On the contact arrangement marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator position is changed.
- For part no. other than maintained position, see Part No. Example on page 21.
- Each selector key switch is supplied with two keys.

- Specify the desired key removal position in ④
15 types of key numbers are available in addition to standard (500) key.
- Specify the key number in ⑥.
- Spring return types are also available.

See page 21 Part No. Development for details.

Contact Unit Part No. / Contact Configuration Table

Shape	Contact Configuration (Code)	Part No. (Ordering No.)
	1NO (10)	HW-CNP10
	1NC (01)	HW-CNP01
	1NO-1NC (11)	HW-CNP11
	1NO-1NC (11N1)	HW-CNP11N1
	2NO (20)	HW-CNP20
	2NC (02)	HW-CNP02

- For contact mounting position, see page 17.

Key Selector Switches (Disc Tumbler Key / Pin Tumbler Key)

Part No. Example

Assembled and sub-assembled unit

Assembled Part No. Example

HW1K - 2 J P A P 01 - 501

①Operator 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

②Cam code

- J: Specified
- Blank: Not specified

③Key Style

- Blank: Disc Tumbler Key
- P: Pin Tumbler Key

⑥Key No.

- Disc Tumbler Key
- Blank: Standard (231)

*For key numbers other than the standard key number, contact us.

⑤Contacts

④Key removal position

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

Pin Tumbler Key

- Blank: Standard (500)
- 501 to -515 (non-standard)

Note: The key number is engraved on the key cylinder.

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

Operator unit Part No. Development

HW1K - 2 J P A - 501 - PS

①Operator 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

②Cam code

- J: Specified
- Blank: Not specified

③Key Style

- Blank: Disc Tumbler Key
- P: Pin Tumbler Key

⑥Key No.

- Disc Tumbler Key
- Blank: Standard (231)

*For key numbers other than the standard key number, contact us.

④Key removal position

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

Pin Tumbler Key

- Blank: Standard (500)
- 501 to -515 (non-standard)

Note: The key number is engraved on the key cylinder.

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

HW- CN P 10

⑤Contacts (see page 20)

①Operator position code

Maintained (90° 2-position)	Spring Return (60° 2-position)
Cam code: blank	Cam code: J

Maintained (45° 3-position)	Spring Return (45° 3-position)		
Cam code: Blank, J, or S	Cam code: blank		

④Key removal position

90° 2-position / 60° 2-position

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

Key Retained Position (Cam code: J)		
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 	

①②: Key removal position ①②: Key retained position


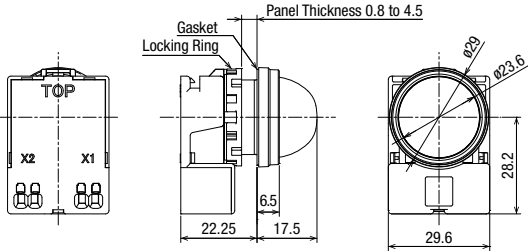

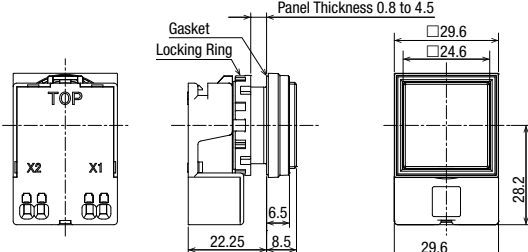
Note: The key cannot be removed in a spring return position.

Short Body Pilot Lights

Assembled



Package Quantity: 1

Name / Shape	Operating Voltage	Part No. (Ordering No.)	Color code ① for lens	Dimensions (All dimensions in mm.)
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		
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		

- Built-in BA9S base LED lamp. See page 32 for LED Lamps.
- 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, see page 35. Engraving and films must be prepared by the customer.
- Specify a lens color code in place of ① in the Part No.

Illuminated / Non-Illuminated Buzzers


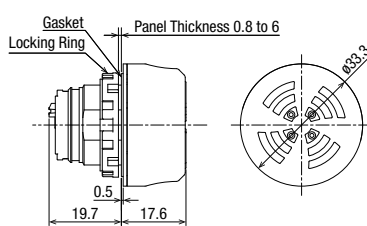

Easy installation of buzzers and lamps

- Short, 19.7 mm depth behind panel.
- Buzzer and lamp functions are integrated. (Illuminated buzzers)
- IP65 waterproof from the front of the panel
- Installing an optional terminal rubber boot upgrades the terminal's waterproof characteristics to IP54 without the need to use a rear enclosure.



- See website for details on approvals and standards.



Name / Shape	Part No. (Ordering No.)	Illumination Color	Sound Type	Package Quantity	Dimensions (All dimensions in mm.)
	HW1Z-P1F2PQ4R	Red	Intermittent	1	
	HW1Z-P1F2PQ4Y	Yellow			
	HW1Z-2PQ4B	—	Steady	1	
	HW1Z-F2PQ4B	—	Intermittent		

- See page 30 for details on terminal rubber boot.

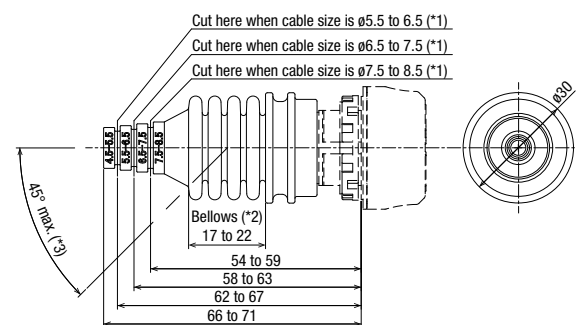
Specifications and Ratings

Rated Insulation Voltage		30V
Rated Voltage		12 to 24V DC
Voltage Range		10.8 to 26.4V DC
Rated Current (effective value)		Illuminated: 18mA (24V DC), 8mA (12V DC) Non-Illuminated (Steady sound): 9mA (24V DC), 4mA (12V DC) (Intermittent sound): 7mA (24V DC), 3mA (12V DC)
Inrush Current		100mA maximum
Buzzer	Sound Pressure (of HW1Z itself) (at 25°C)	90dB min. at 0.1m (24VDC) 70dB min. at 1m (24V DC, equivalent value) 84dB min. at 0.1m (12V DC) 64dB min. at 1m (12VDC, equivalent value)
	Sound Frequency (at 25°C)	2,200 to 2,450Hz
	Sound Type	Illuminated: Intermittent Non-Illuminated: Steady/Intermittent
	Intermittent Cycle (at 25°C)	105 cycles/minute approx. (1.75Hz approx.)
Illumination	Illumination Type	Flashing
	Flash Cycle (at 25°C)	105 cycles/minute approx. (1.75Hz approx.)
Operating Temperature		-20 to +50°C (no freezing)
Operating Humidity		20 to 85% RH (no condensation)
Storage Temperature		-30 to +80°C (no freezing)
Insulation Resistance		100 MΩ minimum (500V DC megger)
Dielectric Strength		Between live and earthed metal parts: 1000 AC, 1 minute
Vibration Resistance		Damage limits: 5 to 55Hz, amplitude 0.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm
Shock Resistance		Operating extremes: 100 m/s ² Damage limits: 1,000 m/s ²
Degree of Protection	Panel front	IP65 (IEC60529)
	Terminal	IP40 (IEC 60529) IP54 (with terminal rubber boot) (IEC 60529)
Terminal Style		Push-in terminal
Applicable Wire		Solid wire/ferrule (without insulation cover): 0.2 to 1.5 mm ² , AWG24-16 Ferrule (with insulation cover): 0.2 to 0.75 mm ² , AWG24-18
Weight (approx.)		17g

Dimensions

All dimensions in mm.

With terminal rubber boot

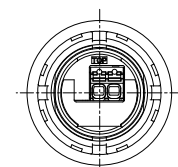


*1: $\phi 4.5$ - 5.5 cable needs no cutting.

*2: The bellows must be 17 to 22mm long after installing the terminal rubber boot.

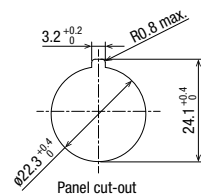
*3: Maintain a cable angle of 45° max. to the HW1Z axis.

Terminal Arrangement (bottom view)



X1 and X2 have no polarity.

Mounting Hole Layout



$3.2^{+0.2}_{-0}$ hole is for anti-rotation.

Not required when nameplate/anti-rotation is not used.

Instructions for Illuminated / Non-illuminated buzzers: see page 39

Emergency Stop Switches

- Direct opening action (IEC 60947-5-5; 5.2, IEC 60947-5-1; Annex K)
- Safety lock mechanism (IEC 60947-5-5; 6.2)
- Degree of Protection IP65 (IEC 60529)



- See website for details on approvals and standards.

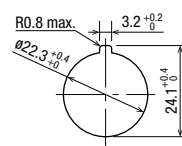


Specifications

Operating Temperature	-25 to +60°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	-40 to +80°C (no freezing)
Minimum Force Required for Direct Opening Action	50N
Minimum Operator Stroke Required for Direct Opening Action	5.5mm
Maximum Operator Stroke	10.0mm
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead parts: 2500V AC, 1 minute
	Between terminals of different poles: 2500V AC, 1 minute
	Between terminals of the same poles: 2500V AC, 1 minute
Vibration Resistance	Damage limits: 10 to 500 Hz, Amplitude 0.35 mm, Acceleration 50m/s ² Operating extremes: 10 to 500 Hz, Amplitude 0.35 mm, Acceleration 50m/s ²
Shock Resistance	Damage limits: 1,000 m/s ² Operating extremes: 150 m/s ²
Operation Frequency	900 operations/hour
Mechanical Life	100,000 operations minimum
Electrical Life	100,000 operations minimum (at 900 operations/h, duty ratio 40%)
Degree of Protection	IP65 (IEC 60529), UL Type 4X
Short-circuit Protection	250V/10A fuse (Type aM IEC 60269-1/IEC 60269-2)
Weight (approx.)	51g (HW1B-V4P02) 48g (HW1B-Y2P02)

Mounting Hole Layout

All dimensions in mm.



Minimum Mounting Centers for HW1B (emergency stop switch)

	Vertical Spacing	Horizontal Spacing
HW1B-V3 HW1B-V4 HW1B-Y2	50 mm minimum	50 mm minimum
HW1B-V5	60 mm minimum	60 mm minimum

- The minimum mounting centers of HW1B (pushbuttons) and each HW series emergency stop switches are shown. For other button shapes, refer to the dimensions and take wiring and operation of switches into consideration.

Nameplate (for ø22 mm Emergency Stop Switches)

Package Quantity: 1

Shape	Legend	Part No.	Ordering No.	Remarks
	(blank)	HWAV-0-Y	HWAV-0-Y	HWAV-27-Y Nameplate color: yellow Legend color: black Panel thickness: 0.8 to 4.5 mm Material: Polyamide
	EMERGENCY STOP	HWAV-27-Y	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.


Emergency Stop Switches


Assembled



Package Quantity: 1

Package Quantity: 1

Name / Shape	Contact Configuration	Part No. (Ordering No.)
ø29mm Mushroom Pushlock Turn Reset HW1B-V3 	1NC	HW1B-V3P01R
	1NO-1NC	HW1B-V3P11R
	2NC	HW1B-V3P02R

Name / Shape	Contact Configuration	Part No. (Ordering No.)
ø40mm Mushroom Pushlock Turn Reset HW1B-V4 	1NC	HW1B-V4P01R
	1NO-1NC	HW1B-V4P11R
	2NC	HW1B-V4P02R

- Pushlock turn reset – Button is maintained when pressed and is reset when turned clockwise.
- Emergency stop switches with 1 contact block contain 2 dummy blocks. Pushbuttons with 2 contact block contains 1 dummy block.
- For other types, select from sub-assembled units.

Part No. Example

Assembled and sub-assembled unit

Assembled Part No. Example

HW1B-V 4 P 11 R

- ① Operation type
V: Pushlock Turn Reset
Y: Push Pull
- ② Button style
3: ø29mm Mushroom
4: ø40mm Mushroom
5: ø60mm Mushroom
2: ø40mm Mushroom (Push Pull)
- ③ Contact Configuration Code
01: 1NC
11: 1NO-1NC
02: 2NC
- ④ Button Color Code

Operator unit Part Number Development

HW1B - V 3 R - PS

- ① Operation type
V: Pushlock Turn Reset
Y: Push Pull
- ② Button style
3: ø29mm Mushroom
4: ø40mm Mushroom
5: ø60mm Mushroom
2: ø40mm Mushroom (Push Pull)
- ④ Button Color Code
(see page 26)

Contact unit

HW- CN P 10

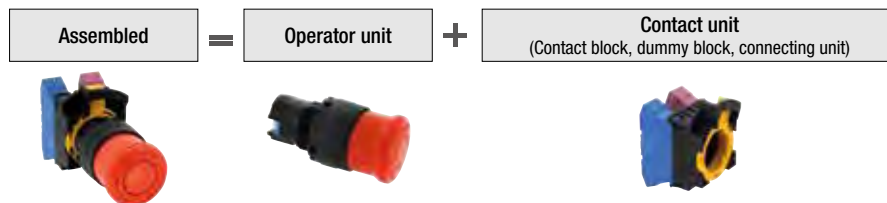
③ Contacts (see page 27)

Note



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

Emergency Stop Switches

Sub-Assembled



<Reference> Assembled Part No. Example Pushlock Turn Reset


Name / Shape	Contact Configuration	<Reference> Assembled Part No.	④ Button Color Code
 ø29mm Mushroom HW1B-V3	1NC	○HW1B-V3P01④	R (red) Y (yellow)
	1NO-1NC	○HW1B-V3P11④	
	2NC	○HW1B-V3P02④	
 ø40mm Mushroom HW1B-V4	1NC	○HW1B-V4P01④	R (red) Y (yellow)
	1NO-1NC	○HW1B-V4P11④	
	2NC	○HW1B-V4P02④	
 ø60mm Mushroom HW1B-V5	1NC	HW1B-V5P01④	R (red) Y (yellow)
	1NO-1NC	HW1B-V5P11④	
	2NC	HW1B-V5P02④	

<Assembled> Ordering No. Pushlock Turn Reset

Package Quantity: 1



Operator Unit		Contact Unit		
Name / Shape	Part No. (Ordering No.)	Shape	Contact Configuration	Part No. (Ordering No.)
 ø29mm Mushroom	HW1B-V3④-PS		1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NC	HW-CNP02
 ø40mm Mushroom	HW1B-V4④-PS		1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NC	HW-CNP02
 ø60mm Mushroom	HW1B-V5④-PS		1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NC	HW-CNP02

Push Pull

Name / Shape	Contact Configuration	<Reference> Assembled Part No.	④ Button Color Code
 ø40mm Mushroom HW1B-Y2	1NC	HW1B-Y2P01④	R (red) Y (yellow)
	1NO-1NC	HW1B-Y2P11④	
	2NC	HW1B-Y2P02④	

Push Pull

Package Quantity: 1


Operator Unit		Contact Unit		
Name / Shape	Part No. (Ordering No.)	Shape	Contact Configuration	Part No. (Ordering No.)
 ø40mm Mushroom	HW1B-Y2④-PS		1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NC	HW-CNP02

• Part No. marked with ○ can be purchased as an assembled product.

- Specify a button color code in place of ④ in the Part No.
Note) Y (yellow) cannot be used as a emergency stop switch by EN standards.
- Pushlock turn reset – Button is maintained when pressed and is reset when turned clockwise.
- Push-Pull – 2-position switches with button maintained in both depressed and reset positions.
- For details on contact mounting position of the contact unit, see page 27.
- When ordering a contact unit, specify the same contact configuration as an assembled product.

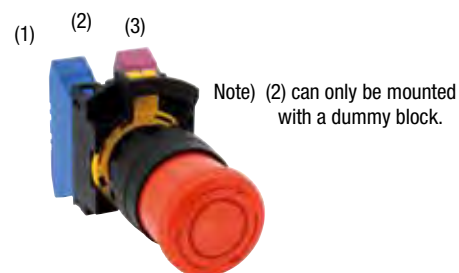
Emergency Stop Switches

Contact Unit Part No. / Contact Configuration Table Package Quantity: 1

Shape	Contact Code	Part No. (Ordering No.)	Mounting Position	Contact
	1NC (01)	HW-CNP01	(1)	Dummy block
			(2)	Dummy block
			(3)	1NC
	1NO-1NC (11)	HW-CNP11	(1)	1NO
			(2)	Dummy block
			(3)	1NC
	2NC (02)	HW-CNP02	(1)	1NC
			(2)	Dummy block
			(3)	1NC

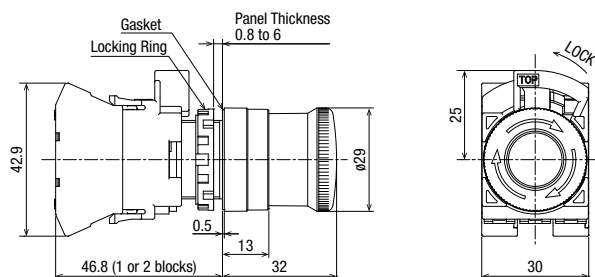
Note) <Reference> Specify the same contact configuration as an assembled unit.

Contact Block Mounting Position



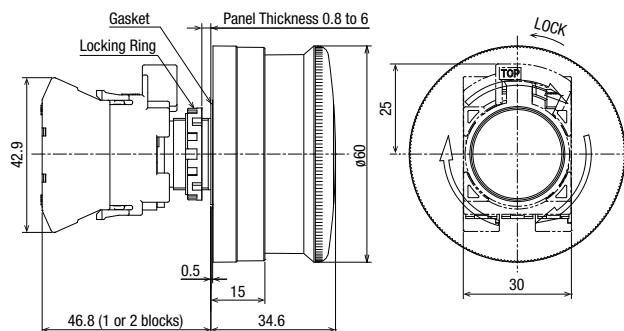
Dimensions

ø29mm Mushroom Pushlock Turn Reset
HW1B-V3

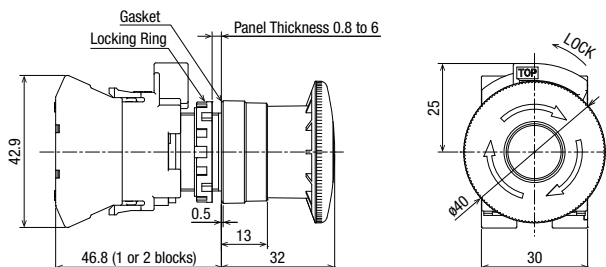


All dimensions in mm.

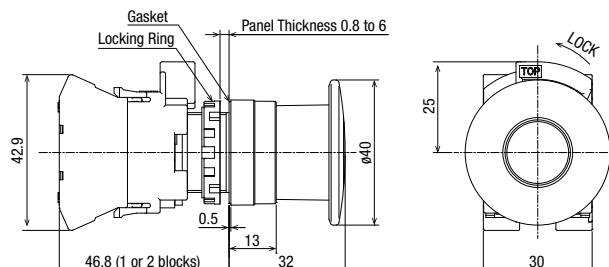
ø60mm Mushroom Pushlock Turn Reset
HW1B-V5



ø29mm Mushroom Pushlock Turn Reset
HW1B-V4



ø40mm Mushroom Push Pull (2-position)
HW1B-Y2



Nameplates

All dimensions in mm

When ordering, specify the Ordering No.

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

- Nameplates cannot be used on HW series control stations (HW1X).

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	<p>White legend on black background. Engraving area: W25×H7</p>
			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 36 for how to install nameplates/markings plates, and how to remove marking plates.

Sub-Assemblies

All dimensions in mm

Contact unit

Shape	Contact Configuration (Code)	Part No. (Ordering No.)	Package Quantity
	1NO (10)	HW-CNP10	1
	1NC (01)	HW-CNP01	1
	1NO-1NC (11)	HW-CNP11	1
	1NO-1NC (11N1)	HW-CNP11N1	1
	2NO (20)	HW-CNP20	1
	2NC (02)	HW-CNP02	1

- Contact unit includes a contact block, dummy block, connecting unit. See page 17 for contact block reference table.

Contact Block

Shape	Specification	Part No. (Ordering No.)	Package Quantity
	NO contact Housing color: blue	HW-P10	5
	NC contact Housing color: reddish purple	HW-P01	5

- Note) Two dummy blocks are required when one contact block is used. One dummy block is required when two contact blocks are used.

Dummy Block

When ordering, specify the Ordering No.

Shape	Part No.	Ordering No.	Package Quantity
 Polyamide (black)	CW-DB	CW-DBPN05	5

- Note) Two dummy blocks are required when one contact block is used. One dummy block is required when two contact blocks are used.

Connecting unit

Shape	Specification	Ordering No.	Package Quantity
 Weight: Approx 9 g	Connecting unit for Push-in terminal	HW-CNP	1

Accessories

All dimensions in mm


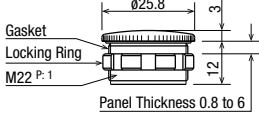

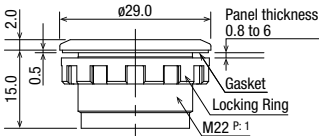

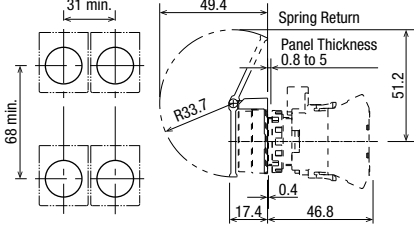

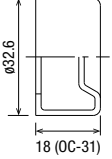

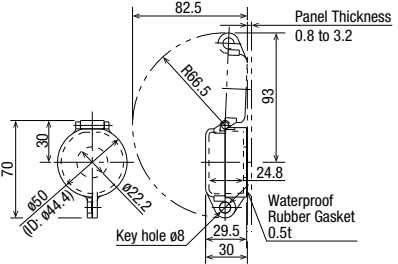



When ordering, specify the Ordering No.

Name / Shape	Material	Part No.	Ordering No.	Package Quantity	Remarks
Tool 	Locking Ring Wrench Metal (nickel-plated brass) Weight: approx. 150g	MW9Z-T1	MW9Z-T1	1	<ul style="list-style-type: none"> Used to tighten the locking ring when installing the HW switch onto a panel.
	Lamp Holder Tool Nitrile rubber (black)	OR-55	OR-55	1	<ul style="list-style-type: none"> Used to install and remove the LED lamps. See page 34 for how to install. Ⓐ : BA9S
Anti-rotation Ring 	Ring: polyamide Gasket: nitril rubber	HW9Z-RL	HW9Z-RLPN10	10	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Degree of protection: IP65 (round hole), IP40 (with anti-rotation function)

Accessories

All dimensions in mm

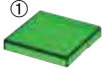



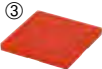
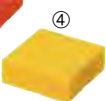







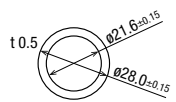
When ordering, specify the Ordering No.

Name / Shape		Material	Part No.	Ordering No.	Package Quantity	Remarks
Mounting Hole Plug 		Plug: Metal (Zinc diecast) Locking nut: Polyamide Gasket: Nitrile rubber	LW9Z-BM	LW9Z-BM	1	<ul style="list-style-type: none"> Degree of protection: IP66 (round hole), IP40 (with anti-rotation function) Tightening torque: 1.2 N·m 
Mounting Hole Plug 		Polyamide	LW9Z-BP1	LW9Z-BP1	1	<ul style="list-style-type: none"> Degree of protection: IP65 Tightening torque: 2.0 N·m 
Switch Guard 	Spring Return	Guard: Polyacetal Cover: polyarylate	HW9Z-K1	HW9Z-K1	1	<ul style="list-style-type: none"> Used to prevent inadvertent operation for flush pushbuttons. Degree of protection: IP65 Maintained type stops at 90° and 180°. 
	Maintained	Gasket: Nitrile rubber	HW9Z-K11	HW9Z-K11	1	
Button Clear Boot 	For flush pushbuttons	Rubber (EPDM)	OC-31	OC-31	1	<ul style="list-style-type: none"> Used to cover and protect pushbuttons where units are subject to watersplash. Not suitable for outdoor use or where the units are subject to oil splash. Cannot be used with nameplates HWAM, HWAQ, HWAS, or HWAU. 
	For extended pushbuttons		OC-32	OC-32	1	
Padlock Cover 		Polyarylate Gasket: Nitrile rubber	HW9Z-KL1	HW9Z-KL1	1	<ul style="list-style-type: none"> Used to protect pushbuttons, selector switches, and key selector switches. 
Ring Adapter 		Nitril rubber	HW9Z-A25	HW9Z-A25PN05	5	<ul style="list-style-type: none"> Used to install the HW series units into ø25 mm mounting holes. Degree of protection: IP65 Cannot be used with anti-rotation and nameplate. Mounting panel thickness: 1.2 to 6.0 mm See page 35 for details.
Ring Adapter 		Gasket: polyamide Washer: metal (brass)	HW9Z-A30	HW9Z-A30PN02	2	<ul style="list-style-type: none"> Used to install the HW series units (round type) into ø30 mm mounting holes (except for HW1B-M5/V5). Degree of protection: IP65 Cannot be used with anti-rotation ring and nameplate. Mounting panel thickness: 1.6 to 4.0 mm
For Illuminated Buzzer Terminal Rubber Boot 		Nitrile rubber	—	HW9Z-CZ1	1	<ul style="list-style-type: none"> Applicable cable: ø4.5 to 8.5 mm Cut the end of rubber boot to fit the cable size (see dimensions on page 23). Weight: 10 g (approx.)

Maintenance Parts

All dimensions in mm

When ordering, specify the Ordering No.


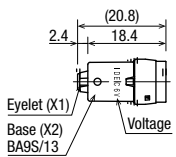
Name and Shape		Material/Dimensions	Part No.	Ordering No.	Package Quantity	Color Code *
Lens  	① Square flush	Polyarylate ø24.6 H4	HW9Z-L21*	HW9Z-L21*PN05	5	R (red), G (green), Y (yellow), A (amber), C (clear), S (blue) Note: Use C (clear) lens for PW (pure white) illumination.
	② Extended (dome)	AS ø23.5 H15.1	HW1A-P2*	HW1A-P2*PN05	5	R (red), G (green), Y (yellow), A (amber), W (white), S (blue) Note: Use W (white) lens for PW (pure white) illumination.
Button      	① Round flush with round or square bezel	Polyacetal ø23.6 H3	HW1A-B1*	HW1A-B1*PN05	5	B (black), G (green), R (red), Y (yellow), S (blue), W (white)
	② Round extended with round or square bezel	Polyacetal ø23.6 H9.2	HW1A-B2*	HW1A-B2*PN05	5	
	③ Square flush	Polyacetal □24.8 H3	HW2A-B1*	HW2A-B1*PN05	5	
	④ Square extended	Polyacetal □24.5 H9.2	HW2A-B2*	HW2A-B2*PN05	5	
	⑤ ø29 mushroom	Polyacetal ø29 H12.7 (M18P1.0)	HW1A-B3*	HW1A-B3*PN02	2	
	⑥ ø40 mushroom	Polyacetal ø40 H12.7 (M18P1.0)	HW1A-B4*	HW1A-B4*PN02	2	
Marking Plate 	Square flush	Acrylic □22.7 t1	HW9Z-P21	HW9Z-P21PN05	5	<ul style="list-style-type: none">• White• See page 35 for dimensions and engraving area.
Spare Key (Disc Tumber Key) 	Metal (nickel-plated brass)		HW9Z-SK-231	HW9Z-SK-231PN02	2	
Spare Key (Pin Tumber Key) 	Metal (nickel-plated brass)		LW9Z-SK-500	LW9Z-SK-500PN02	2	• Standard key number
			LW9Z-SK-□	LW9Z-SK-□PN02		• Key number □: 501 to 515
Lockig Ring 	Polyamide (black) ø28.4 H5 M22P1		HW9Z-LN	HW9Z-LNPN05	5	
Gasket 	Nitryl rubber (black)		HW9Z-WM	HW9Z-WMPN10	10	

Maintenance Parts

All dimensions in mm

HW Series LED Lamps

When ordering, specify the Ordering No.

Shape/Dimensions	Operating Voltage	Current Draw		Part No.	Ordering No.	Package Quantity	Base
		DC	AC				
 	6V AC/DC	7mA (R, A) 5.5mA (G, PW) 4.5mA (S)	8mA (except S) 7mA (S)	LSTD-6*	LSTD-6*	1	BA9S/13
					LSTD-6*PN10	10	
	12V AC/DC	10mA (except S) 8mA (S)	11mA (except S) 9mA (S)	LSTD-1*	LSTD-1*	1	
					LSTD-1*PN10	10	
	24V AC/DC	10mA (except S) 8mA (S)	11mA (except S) 9mA (S)	LSTD-2*	LSTD-2*	1	
					LSTD-2*PN10	10	

- Specify a color code in place of *. R (red), G (green), A (amber), S (blue), PW (pure white)
- Use a PW (pure white) LED lamp for Y (yellow) illumination.

Safety Precautions

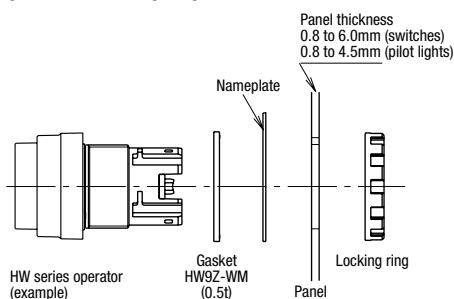
- Turn off the power to the HW series switches & pilot lights before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.

- For wiring, use wires of a proper size to meet the voltage and current requirements.
- 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.

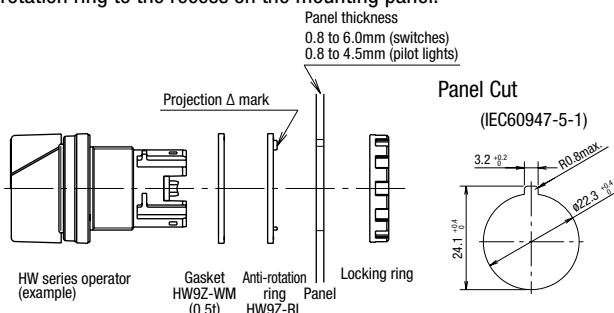
Removing the Contact Block

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.

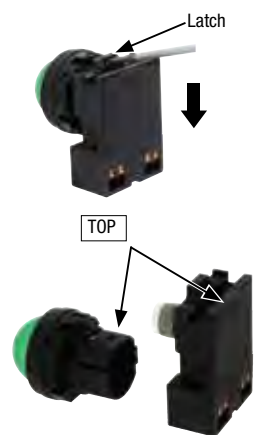


Installing the Pilot Light

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.



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 (switches) and 0.8 to 4.5 mm (pilot lights). Take the thickness of nameplate and/or switch guard into consideration.

Instructions

Replacing LED lamps

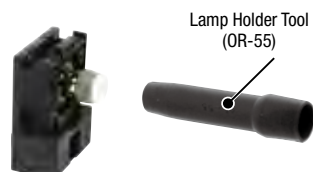
Lamps can be replaced using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator unit.

(See page 29 for lamp holder tool.)

Removing the LED lamp from the front of the panel

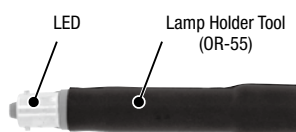
How to Remove

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



How to Install

Insert the lamp head into the lamp holder tool.



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

Removing the Contact Blocks/Full Voltage Adapters

How to Remove

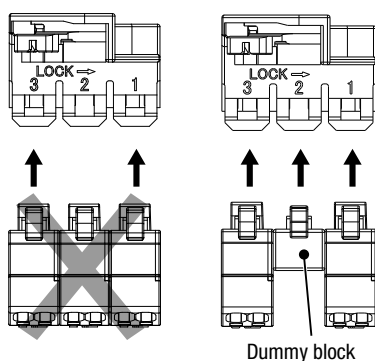
To remove the contact block and dummy block, insert into the flat blade screwdriver latch and move in the direction of the arrow.



How to Install

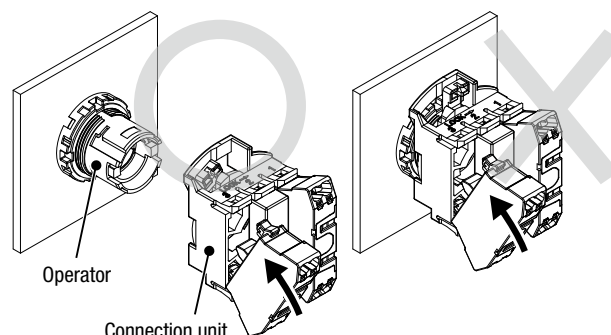
When installing the contact block or dummy block, make sure that it snaps on to the operator.

For No. 1 and 3 only a contact block or dummy block can be installed. For No. 2, only a dummy block can be installed.



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.



Installing/Removing the Buttons and Lenses

<To install>

<To remove>

Pushbutton Button

• Flush/Extended

Push in the button to install.



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



• Mushroom/Jumbo Mushroom

Button has threads. Turn clockwise to install the button.



Turn the button counterclockwise to remove. Note: Jumbo mushroom button cannot be removed.



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.



Instructions

Installing/Removing the Lenses and Marking Plates

Removing

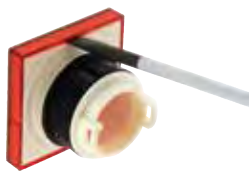
Removing the lens unit

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.

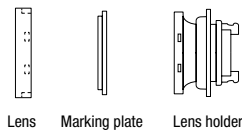


Note: The translucent filter in the lens holder cannot be removed because this filter is sealed to make the unit waterproof and oiltight.

Installing

- 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.
- Place the marking plate in the correct orientation.

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



Using a Ring Adapter

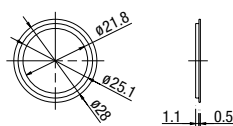
HW9Z-A25

Install the ring adapter between the HW series unit and panel. Make sure that the side with ridges face the panel.

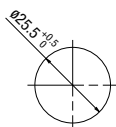


Nitril Rubber

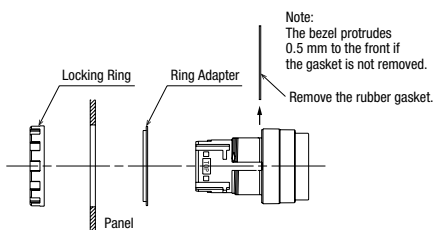
Dimensions



Panel Cut-out



Installation

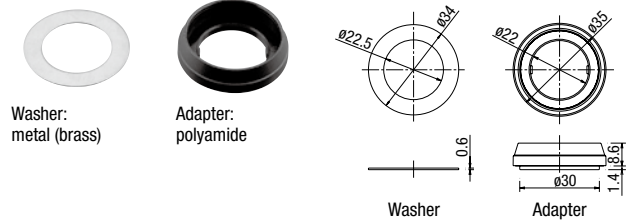


Note:
The bezel protrudes 0.5 mm to the front if the gasket is not removed.
Remove the rubber gasket.

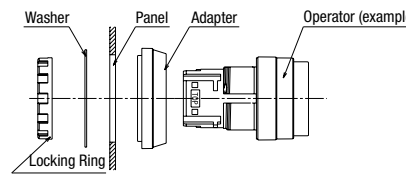
HW9Z-A30

The ring adapter HW9Z-A30 consists of a washer and adapter. Install adapter between the HW series unit and panel. Install washer between the locking ring and panel.

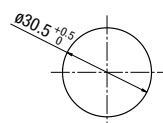
Dimensions



Installation



Panel Cut-out



Marking

For HW series pilot lights, legends and symbols can be engraved on the built-in marking plates, or printed film can be inserted under the lens for labeling purposes.

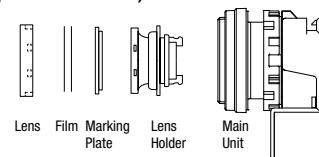
Marking plate and marking film size (mm)

Built-in marking plate and engraving area	Applicable marking film size
<p>Outside diameter: 22.7</p> <p>Engraving depth: 0.5mm max.</p> <p>Engraving Area: 19.9</p>	<p>22.7</p> <p>Two 0.1 mm-thick films or one 0.2 mm-thick film</p>

*Marking films are not supplied.

Insertion Order of Marking Plate and Film

Square Lens (Square flush lens)



Note: Films are not supplied. When inserting a film, make sure that the marking plate is installed with its uneven side facing the lens holder.

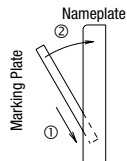
Instructions

Nameplate

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

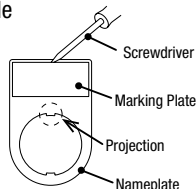
Installing a Marking Plate

Insert a marking plate in 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 (*1)	0.25 to 1.5mm ² (AWG16 to 24)
Wire Strip Length (*2)	8 ± 1mm (*3)
Ferrule Size (*3) (Weidmüller)	H0.25 to H1.5 (without insulation cover) H0.25 to H1.5 (with insulation cover)

*1) For applicable wires confirmed by IDEC, see website.

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

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



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

Wire Size and Recommended Ferrules

Ferrules without insulation covers

Applicable Wire (Stranded Wire)		Wire Strip Length	Weidmüller Recommended Part No.
AWG	mm ²		
24	0.25	5 to 6mm	H0.25/5
20	0.50	10 to 11mm	H0.5/10
18	0.75	10 to 11mm	H0.75/10
18	1.00	10 to 11mm	H1.0/10
16	1.50	10 to 11mm	H1.5/10

Ferrules with insulation covers

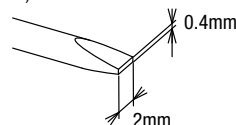
Applicable Wire (Stranded Wire)		Wire Strip Length	Weidmüller Recommended Part No.
AWG	mm ²		
24	0.25	10 to 11mm	H0.25/12 HBL
22	0.34	10 to 11mm	H0.34/12 TK
20	0.50	10 to 11mm	H0.5/14 OR
18	0.75	10 to 11mm	H0.75/14 W
18	1.00	10 to 11mm	H1.0/14 GE
16	1.50	10 to 11mm	H1.5/14 R

Recommended Tools (Optional)

Name	Weidmüller Recommended Part No.
Crimping tool	PZ6 ROTO L
Flat blade screwdriver	SDS 0.4×2.0×60

Note 1) Note the crimping dimensions When using tools other than the recommended crimping tool. For details, see page 38.

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



• For details on crimping tools, see Weidmüller website.

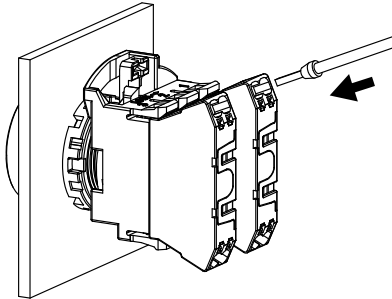
Instructions

Wiring Procedure

Connecting the wire

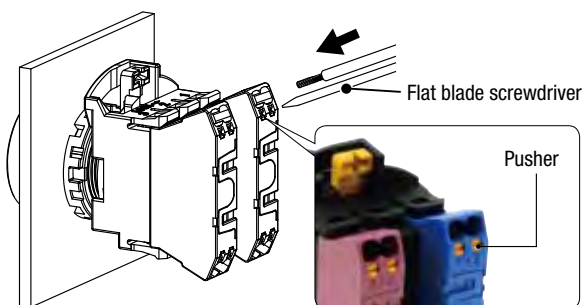
Stranded wires with ferrules or solid wire

- 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.



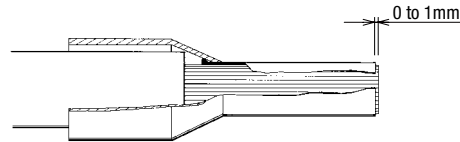
Stranded wire

- 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

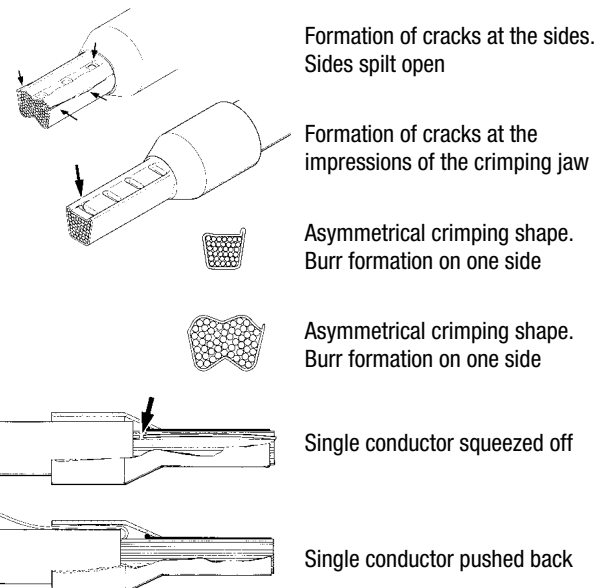
- Choose an appropriate ferrule for the wire.
- Cut the wire carefully to get a flat end.
- Make sure that ferrule sleeve is completely filled by the conductor. Depending on the cross section, the conductor should protrude approx. 0 to 1 mm from the ferrule sleeve.



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

Faults which can occur during crimping:

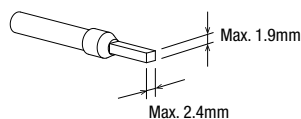
- Cracks along the sides and die impressions
- Splitting of the ferrules
- Asymmetrical crimping shape
- Extreme burrs formed along the sides
- Ferrule not filled by conductor
- Single conductors pushed back by protruding from the insulation cover
- Single conductors squeezed off
- Insulation cover damaged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



Instructions

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)

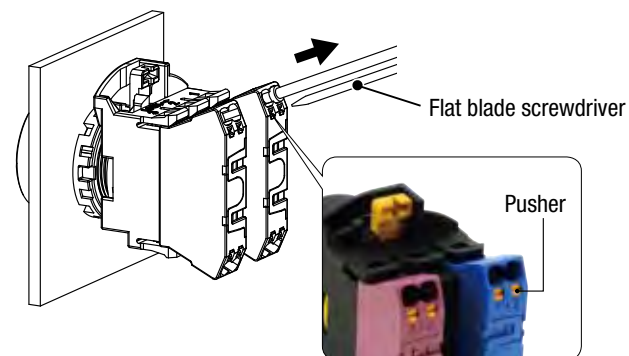


Note 1) If a tool other than the recommended crimping tool is used, the ferrule may not be crimped to the appropriate size and the clamp or spring inside the contact block may be deformed and may not operate normally.

Note 2) Pin crimp terminals cannot be used.

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

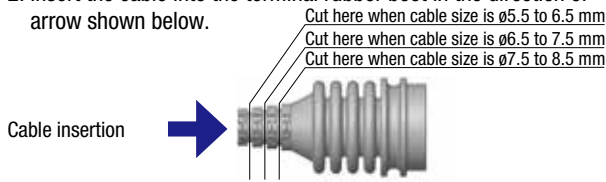
Unit	Connectable wires		No. of connectable wires
HW-P Contact block Pilot light	Solid wire	0.25 to 1.5mm ² (AWG16 to 24)	2
	Stranded wire	0.25 to 1.5mm ² (AWG16 to 24)	
	Ferrule	Without insulation cover 0.25mm ² : conductor length: 5 to 10mm 0.5 to 1.0mm ² : conductor length: 6 to 10mm 1.5mm ² : conductor length 8 to 10mm With insulation 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.

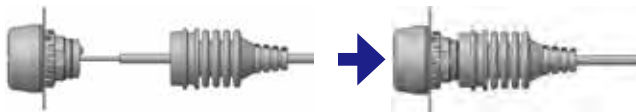
Instructions (Illuminated / Non-illuminated Buzzers)

Installing the terminal rubber boot

1. Cut the end of terminal rubber boot to fit the cable size.
2. Insert the cable into the terminal rubber boot in the direction of arrow shown below.



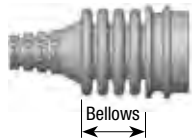
3. Strip the insulation of the cable 30 mm from the end and wire as instructed in "Wiring".
4. Install the terminal rubber boot as shown below.



5. Cover part B with part A.

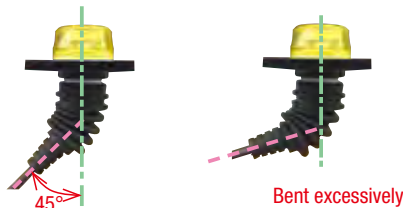


6. Make sure that the bellows is 17 to 22 mm long.



Note for terminal rubber boot

- Be sure to use bellows with an appropriate length. Otherwise, waterproof characteristics cannot be achieved.
- Maintain a cable angle of 45° maximum to the axis of the HW1Z, otherwise the terminal rubber boot may come off.

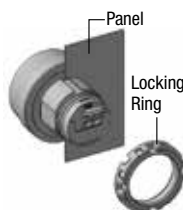


Panel Mounting

- Insert the HW1Z into the panel cut-out from the front, and tighten the locking ring from the back.

Note for panel mounting

- Use the optional locking ring wrench (MW9Z-T1) to tighten the locking ring to a recommended tightening torque of 1.5 to 2.0 N·m.
- Do not use pliers and do not tighten excessively, otherwise the HW1Z may be damaged.



Wiring Procedure

Connecting the wire

Solid wire

Strip the insulation of the cable from 8mm from the end and insert into the wire port.

After wiring, tug lightly to make sure that the wire is properly connected.

Stranded wire with ferrule

Crimp a ferrule with a conductor length of 8mm and insert to the back of the wire port. After wiring, tug lightly to make sure that the wire is properly connected.

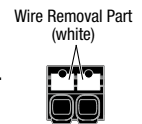
Recommended ferrule

Item	Phoenix Contact Recommended Part No.	Weidmüller Recommended Part No.
Ferrule (without insulation cover)	A0,5-8	—
	A0,75-8	
	A1-8	
Ferrule (with insulation cover)	AI0,25-8YE	H0,25/12HBL
	AI0,5-8WH	H0,5/14OR
	AI0,75-8GY	H0,75/14W

Stranded wire

Strip the wire insulation 8mm from the end and push in the wire removal part above the wire port using a small flat screwdriver. Release the wire removal part.

Make sure that the wire does not loosen



Wire removal

Push in the white wire removal part above the wire ports using a small flat screw driver, and pull out the wire.

Flat blade screwdriver

Use a optional flat blade screwdriver (SDS 0.4×2.5×75) or a commercial screwdriver (blade shape: straight, blade size 2.5mm)

Notes for wiring

- Make sure that the terminal is not constantly pulled by the wire.
- Wiring must be performed in environments of -5 to +50°C.
- Do not damage the conductor wire when stripping the wire insulation.
- Do not use wires with bent or deformed conductors wires. Deformed wiring may cause failures such as strength degradation and overheating. Connect one wire per terminal. Connecting two wires to a terminal may cause loose wiring and strength degradation.
- Do not solder the conductor lines. Connecting soldered stranded wires may loose wiring and strength degradation.
- If a stranded wire has loose wires, twist the conductor wires before connection. However be careful not to twist too much.



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