



Push-in Switches & Pilot Lights

Simple wiring with Push-in technology

IDEC CORPORATION



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

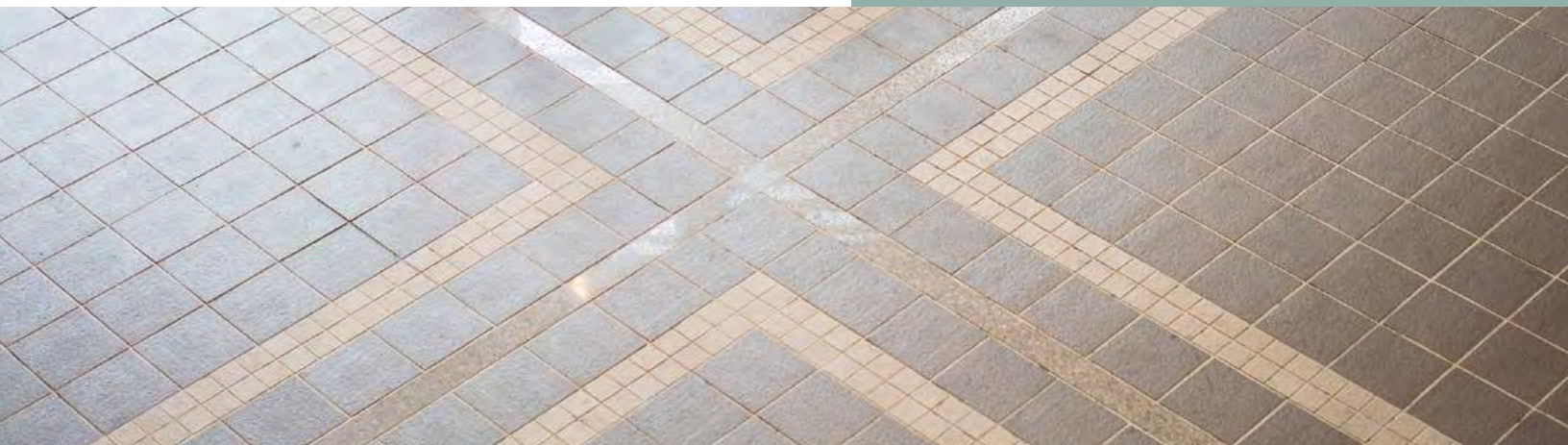
Products anyone can use with safety and assurance, from a company seeking to be number one in safety

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



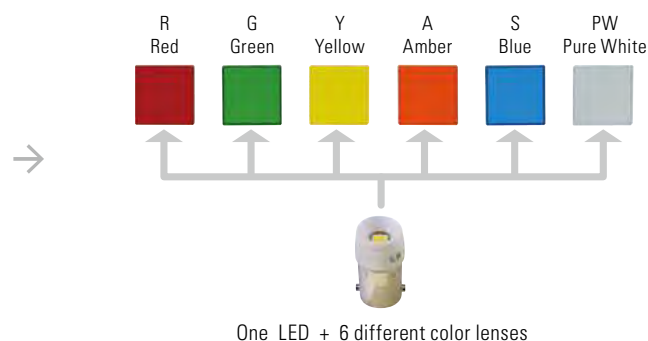
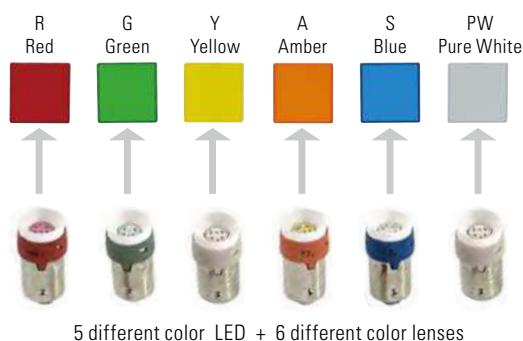
Innovative

We provide easy and user-friendly products with new technology.

First in the industry Six different colors with a single LED

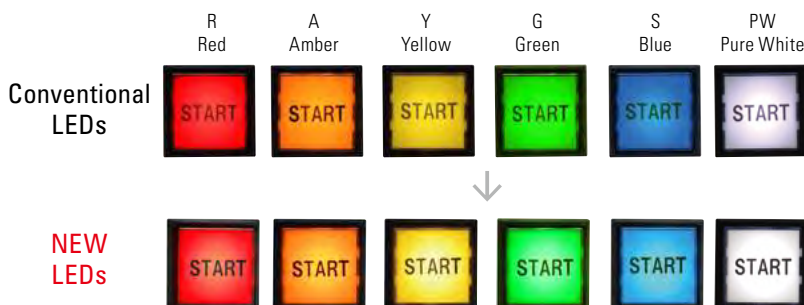
Previously, 5 different color LEDs were required but with the new illuminated LED unit, only a single LED is used. Only the lens needs to be replaced to change the illumination color.

The new LED reduces maintenance time, makes stock control easier, and is environmentally friendly.



High visibility with new LED

Brighter and clearer compared to conventional LEDs



ISO3864-4 Safety color compliant

Safety colors are defined with ISO standards.

The bright and clear colors improve visibility in safety applications.

*Except for products below

- Illuminated selector switches (illumination color: S (Blue), PW (Pure white))
- Illuminated pushbuttons (illumination color: S (Blue))

Push-in

Smart

Simple

Simple wiring for greater work efficiency

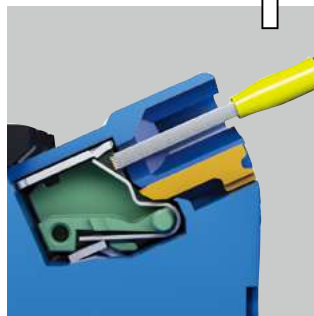
Ferrules and solid wires can be connected simply by push-in insertion, without a screwdriver. ^(*1)

To remove, a flat-blade screwdriver is inserted in a simple two-action process.

Since wiring can be performed regardless of operators' 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.

2



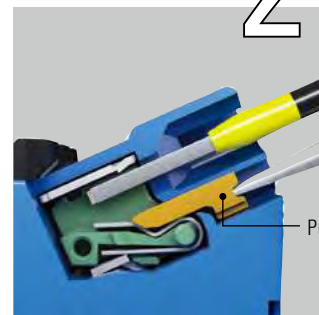
Connection is completed. Pull lightly to make sure it is firmly in place.

Removing



Hold down the pusher with a flat-blade screwdriver.

2



While holding down the pusher, pull out the wire. Release the flat-blade screwdriver.

Smart

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.

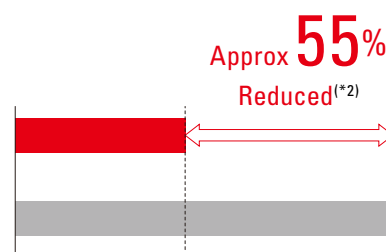
[Conditions]

Push-in: Insert wire with ferrule.

Screw terminals: With screw loosened, insert wire, then tighten with electric driver.

Push-in
HW Series

Conventional
screw terminals



(*2) As of IDEC research (as of January 2020)

Safe

Reliable and easy

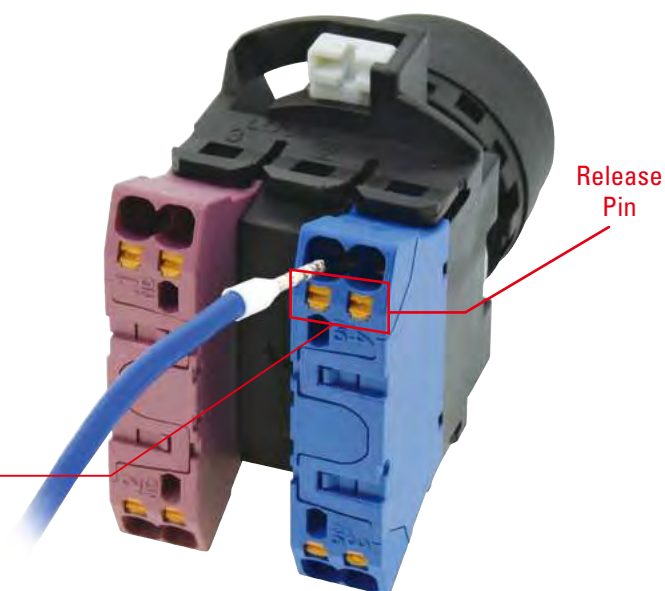
Finger-safe structure and vibration resistance.
What's more, the space-saving design means better workability in a smaller space.

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 protection enables wiring to be performed without direct contact between screwdriver and conductive part.



Smart Simple

Wiring procedure comparison

Work can be performed without using tools and regardless of operators' skill level.

*1) When ferrule is used.

Conventional screw terminal

Remove screw

Pass wire through crimping terminal

Tighten screw

Check

Push-in Terminal ^(*)

Insert wire

Simple one-step operation

Pull lightly to confirm

Smart

No additional tightening needed

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

Product Upgrade

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

Space-Saving

Smart

Contact block depth reduced

Saves space inside panel and enables downsizing of equipment.

Pilot light
full voltage type



Conventional HW Series

Panel depth
reduced by

50%
DOWN



Push-in HW Series

Illuminated pushbuttons
6V, 12V, 24V AC/DC



Conventional HW Series

Panel depth
reduced by

30%
DOWN



Push-in HW Series

Illuminated pushbuttons
100/120V AC/DC, 200/220V
AC, 230/240V AC



Conventional HW Series

Panel depth
reduced by

40%
DOWN



Push-in HW Series

No transformers required for high voltage types

Smart

Smart

High-voltage pilot lights

No transformer required

Applicable for a wide range of voltage
(100/120V AC/DC, 200/240V AC).

Mounts directly on control and power panels
without transformers.

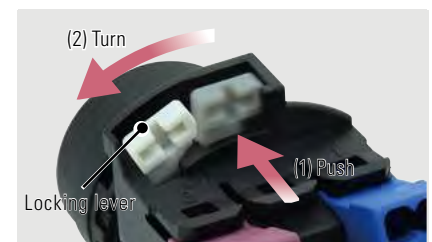
Ideal for use in Europe and north America
for applications requiring high voltage.



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 conventional 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.

4-contact configuration available with double contact blocks

Double contact blocks available for all models including emergency stop switches, selector switches, key selector switches.



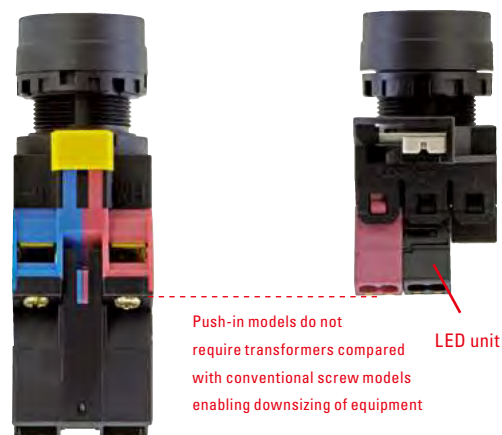
High voltage LED illuminated unit for illuminated pushbuttons

100/120V AC/DC, 200/220V AC, 230/240V AC types available. No transformers required and same depth behind the panel for all illuminated voltages.

High voltage models do not require transformers enabling downsizing of equipment and panels.
1-contact types also available.

Conventional screw terminal

Push-in

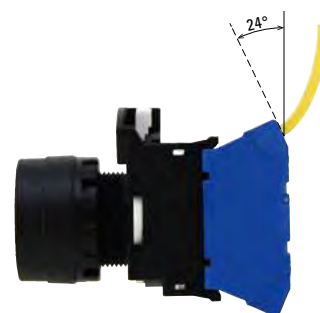


100/120V AC/DC, 200/220V AC,
230/240V AC types

Angled connections

Angled connections make wiring easy even when switches are mounted on a panel.

Also, 24-degree inclination faced to the panel improves the fit of the wires, and contributes to downsizing of the panel and equipment.



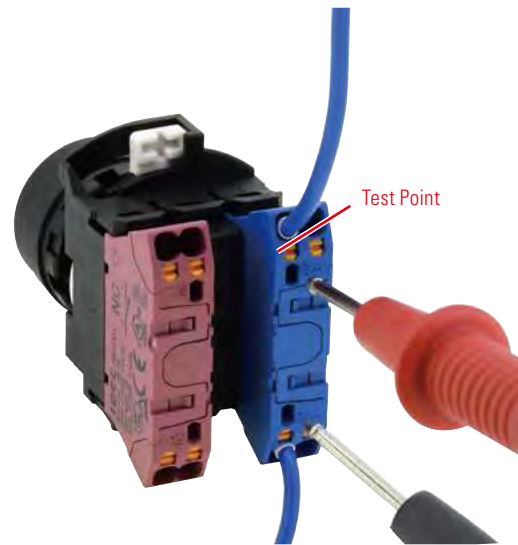


Added Value

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 multimeter.



Sub-Assembled Units

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



ø22 HW Series Push-in Switches & Pilot Lights

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



File No. E68961

- See website for details on approvals and standards.

Note) Approvals for pushbuttons, selector switches, pilot lights only.

For illuminated/non-illuminated buzzer (page 45) and emergency stop switches (page 46), see each page.

Specifications and Ratings

Contact Ratings

Pushbuttons Illuminated Pushbuttons Dual Pushbuttons Selector Switches Key Selector Switches Illuminated Selector Switches Selector Pushbuttons Monolever 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.

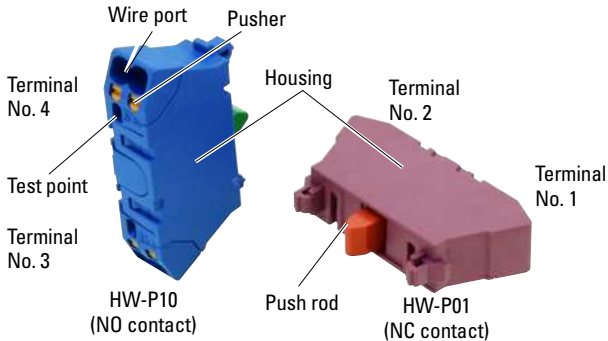
Rated Operating Voltage and Current by Utilization Category

HW-P10 (NO contact), HW-P01 (NC contact), HW-PW20 (2NO contact),
HW-PW11 (1NO-1NC contact), HW-PW02 (2NC 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..)



	Single Contact Block		Double Contact Block		
Contact	1NO	1NC	2NO	2NC	1NO-1NC
Part No.	HW-P10	HW-P01	HW-PW20	HW-PW02	HW-PW11
Shape					
Housing	Blue	Purple red	Blue	Purple red	Blue/Purple red
Push Rod	Green	Red	Green	Red	Light Blue
Contact No.	3-4	1-2	1st deck: 13-14 2nd deck: 23-24	1st deck: 11-12 2nd deck: 21-22	1st deck: 13-14 2nd deck: 21-22
Weight	8g		16g		

LED Illuminated Part Specifications

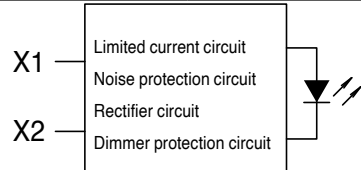
Illuminated Pushbuttons, Illuminated Selector Switches, Dual Pushbuttons (with pilot light)

Rated Voltage	Operating Voltage	LED Lamp	
		Ramp Base	Part No.
6V AC/DC	6V AC/DC	BA9S/13	LSRD-6
12V AC/DC	12V AC/DC		LSRD-1
24V AC/DC	24V AC/DC		LSRD-2
100/120V AC/DC	100/120V AC/DC		LSRD-H2
200/220V AC	200/220V AC		LSRD-M2
230/240V AC	230/240V AC		LSRD-M4

Pilot Light (Short Body)

Rated Voltage	Operating Voltage	LED Lamp	
		Ramp Base	Part No.
6V AC/DC	6V AC/DC	BA9S/13	LSRD-6
12V AC/DC	12V AC/DC		LSRD-1
24V AC/DC	24V AC/DC		LSRD-2
100/120V AC	100/120V AC		LSRD-6
200/240V AC	200/240V AC		

LED Lamp Ratings

Part No.	LSRD-6	LSRD-1	LSRD-2	LSRD-H2	LSRD-M2	LSRD-M4
Ramp Base	BA9S/13					
Rated Voltage	6V AC/DC	12V AC/DC	24V AC/DC	100/120V AC/DC	200/220V AC	230/240V AC
Voltage Range	6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%	100/120V AC/DC ±10%	200/220V AC ±10%	230/240V AC ±10%
Current Draw	DC	10mA	7mA	7mA	2mA	2mA
	AC	14mA	8mA	8mA	2mA	2mA
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						

Direct Opening of Key Selector Switch

Applicable Type	2-position	3-position
Minimum Operator Angle for Direct Opening Action	60° (90° Maintained)	45°
Minimum Operator Torque for Direct Opening Action	0.4 N·m	
Maximum Operator Angle	60° (90° Maintained)	45°

Degree of Protection

IEC60529

Unit	IEC 60529
All models except illuminated selector switches, dual pushbuttons, pilot lights	IP65 (*1)
Illuminated selectors, pilot lights	IP65
Dual pushbuttons	IP40 (*2)

*1) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 50 are used.
(IP40 when other ø22 namplates such as NWA are used)

*2) IP65 when used with button covers (HW9Z-D7D).

UL50

Unit	UL50
All models except illuminated selector switches	Type 4X (*3)(*4)

*3) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 50 are used.

*4) For dual pushbuttons, Type 4X is achieved when used with button covers (HW9Z-D7D).

Specifications

Switches (except for emergency stop switch)

Operating Temperature	-25 to +60°C (no freezing) Illuminated unit: -25 to +50°C
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 Illuminated unit: 2.5kV
Pollution Degree	3 (IEC60947-5-1)
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)	Pushbuttons, Illuminated Pushbuttons
	Momentary 5,000,000 (*5)
	..... 1,000,000 (*6)
	Maintained 500,000 (*5)
	..... 100,000 (*6)
	Dual pushbuttons 500,000 (*5)
	..... 100,000 (*6)
	Selector switches 500,000 (*5)
	..... 100,000 (*6)
	Key selector switches (Disc tumbler) 500,000 (*5)
	..... 100,000 (*6)
	Key selector switches (Pin tumbler) 100,000 (*5)
	..... 100,000 (*6)
	Illuminated selector switches 500,000 (*5)
	..... 100,000 (*6)
	Selector pushbuttons 250,000 (*5)
	..... 100,000 (*6)
	Monolever switches 250,000 (*5)
	..... 100,000 (*6)
Electrical Life (*5)	Pushbuttons, Illuminated Pushbuttons
	Momentary 500,000 (*1)(*5)
	..... 50,000 (*1)(*6)
	Maintained 500,000 (*3)(*5)
	..... 50,000 (*3)(*6)
	Dual pushbuttons 500,000 (*1)(*5)
	..... 50,000 (*1)(*6)
	Selector switches 500,000 (*2)(*5)
	..... 50,000 (*2)(*6)
	Key selector switches (Disc tumbler) 500,000 (*2)(*5)
	..... 50,000 (*2)(*6)
	Key selector switches (Pin tumbler) 100,000 (*2)(*5)
	..... 50,000 (*2)(*6)
	Illuminated selector switches 500,000 (*2)(*5)
	..... 50,000 (*2)(*6)
	Selector pushbuttons 250,000 (*2)(*5)
	..... 50,000 (*2)(*6)
	Monolever switches 250,000 (*3)(*5)
	..... 50,000 (*3)(*6)
Weight (approx.)	38g (HW1B-M1P11), 54g (HW1B-M1P22)
	38g (HW1S-2TP11), 54g (HW1S-2TP22)
	76g (HW1K-2AP11), 92g (HW1K-2AP22N2)
	66g (HW1K-2PCP11), 45g (HW1L-M1P11Q4)
	44g (HW1F-2P11Q4), 43g (HW1R-2AP11)
	55g (HW1M-1010P-20), 45g (HW7D-B11P1001)

*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)

*5) Single contact block

*6) Double contact block

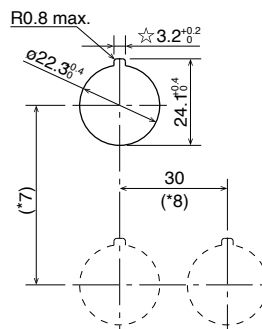
Pilot lights

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)
	27g (HW1P-2JPRH2)
	28g (HW1P-2JPCM2)

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 (*7)	Horizontal (*8)
ø40mm mushroom buttons	50	40
Selector pushbuttons	50	50
Monolever switches	72	72
Pilot lights	50	30
Dual pushbuttons	55	30
Illuminated selector switches	50	50

- For emergency stop switch mounting centers, see page 46.
- Determine the mounting centers in consideration of the operation, wiring, and testing terminals.

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 50 to 55.

Illuminated / non-illuminated buzzer specifications: see page 45



Emergency stop switch specifications: see page 46

Pushbuttons

Assembled



Package Quantity: 1

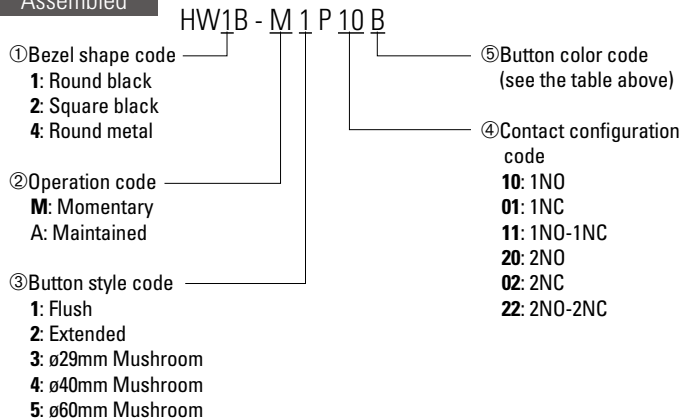
Name / Shape	Operation	Contact Configuration	Part No. Coded	⑤ Color Code
 Flush HW1B-M1 / HW1B-A1 HW1B-A1 / HW4B-A1	Momentary	1NO	HW1B-M1P10⑤ HW4B-M1P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	HW1B-M1P01⑤ HW4B-M1P01⑤	
		1NO-1NC	HW1B-M1P11⑤ HW4B-M1P11⑤	
		2NO	HW1B-M1P20⑤ HW4B-M1P20⑤	
		2NC	HW1B-M1P02⑤ HW4B-M1P02⑤	
		2NO-2NC	HW1B-M1P22⑤ HW4B-M1P22⑤	
 Extended HW1B-M2 / HW4B-M2	Momentary	1NO	HW1B-M2P10⑤ HW4B-M2P10⑤	
		1NC	HW1B-M2P01⑤ HW4B-M2P01⑤	
		1NO-1NC	HW1B-M2P11⑤ HW4B-M2P11⑤	

• For other configurations, select from sub-assembled units (page 13 to 14).

Pushbuttons Part No. Example

Assembled and sub-assembled unit

Assembled



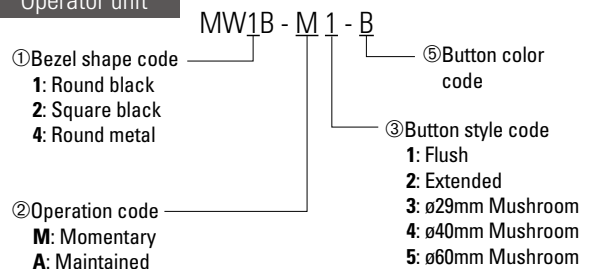
• For available assembled products, see above table.

Package Quantity: 1

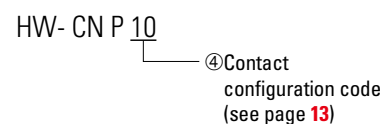
Name / Shape	Operation	Contact Configuration	Part No. Coded	⑤ Color Code
ø60mm Mushroom HW1B-M5	Momentary	1NO	HW1B-M5P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) * W (white) *
		1NC	HW1B-M5P01⑤	
ø40mm Mushroom HW1B-M4 / HW4B-M4	Momentary	1NO	HW1B-M4P10⑤ HW4B-M4P10⑤	
		1NC	HW1B-M4P01⑤ HW4B-M4P01⑤	
		1NC-1NC	HW1B-M4P11⑤ HW4B-M4P11⑤	

- 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.

Operator unit



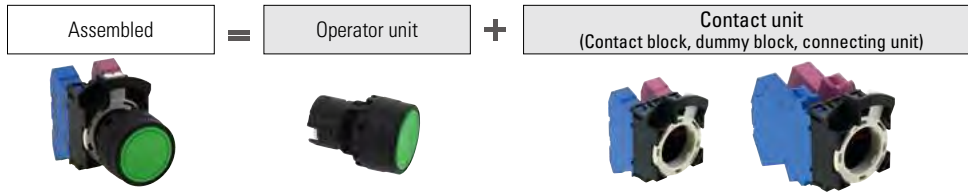
Contact unit



Pushbuttons

Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 12 for available assembled products.



Sub-Assembled Ordering No.

Package Quantity: 1

Name / Shape	Operation	Contact Configuration	<Reference> Assembled Part No. ① = 1 or 4	⑤ Button Color Code
Flush	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	2NO-2NC	HW①B-M1P22⑤	
		1NO	HW①B-A1P10⑤	
		1NC	HW①B-A1P01⑤	
		1NO-1NC	HW①B-A1P11⑤	
		2NO	HW①B-A1P20⑤	
Flush	Momentary	2NC	HW①B-A1P02⑤	
	Maintained	2NO-2NC	HW①B-A1P22⑤	
		1NO	HW①B-M2P10⑤	
		1NC	HW①B-M2P01⑤	
		1NO-1NC	HW①B-M2P11⑤	
	Momentary	2NO	HW①B-M2P20⑤	
		2NC	HW①B-M2P02⑤	
		2NO-2NC	HW①B-M2P22⑤	
	Maintained	1NO	HW①B-A2P10⑤	
		1NC	HW①B-A2P01⑤	
ø29mm Mushroom	Momentary	1NO-1NC	HW①B-A2P11⑤	
		2NO	HW①B-A2P20⑤	
		2NC	HW①B-A2P02⑤	
		2NO-2NC	HW①B-A2P22⑤	
	Maintained	1NO	HW①B-M3P10⑤	
		1NC	HW①B-M3P01⑤	
		1NO-1NC	HW①B-M3P11⑤	
		2NO	HW①B-M3P20⑤	
		2NC	HW①B-M3P02⑤	
	Momentary	2NO-2NC	HW①B-M3P22⑤	
	Maintained	1NO	HW①B-A3P10⑤	
		1NC	HW①B-A3P01⑤	
		1NO-1NC	HW①B-A3P11⑤	
		2NO	HW①B-A3P20⑤	
		2NC	HW①B-A3P02⑤	
		2NO-2NC	HW①B-A3P22⑤	

Operator Unit	
Name / Shape	Part No.
Flush	HW①B-M1-⑤
Extended	HW①B-M2-⑤
ø29mm Mushroom	HW①B-M3-⑤
	HW①B-A2-⑤
	HW①B-A3-⑤

Contact Unit		
Shape	Contact Configuration	Part No. (Ordering No.)
	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22
	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22
	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22
	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22
	1NO	HW-CNP10

- Specify a bezel type code in place of ① in the Part No. See page 12.
- Specify a button color code in place of ⑤ in the Part No.
B (black), G (green), R (red), Y (yellow), S (blue), W (white)

For Part No. (Ordering No.)/ mounting positions of contact units, see page 51.





Pushbuttons

Sub-Assembled



When ordering, specify the sub-assembled ordering no. See page 12 for available assembled products.

Sub-Assembled Ordering No.

Package Quantity: 1

Name / Shape	Operation	Contact Configuration	<Reference> Assembled Part No. ① = 1 or 4	⑤ Button Color Code
 ø40mm Mushroom	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	
		2NO-2NC	HW①B-M4P22⑤	
	Maintained	1NO	HW①B-A4P10⑤	
		1NC	HW①B-A4P01⑤	
		1NO-1NC	HW①B-A4P11⑤	
		2NO	HW①B-A4P20⑤	
		2NC	HW①B-A4P02⑤	
		2NO-2NC	HW①B-A4P22⑤	
 ø60mm Mushroom	Momentary	1NO	HW1B-M5P10⑤	B (black) G (green) R (red) Y (yellow)
		1NC	HW1B-M5P01⑤	
		1NO-1NC	HW1B-M5P11⑤	
		2NO	HW1B-M5P20⑤	
		2NC	HW1B-M5P02⑤	
		2NO-2NC	HW1B-M5P22⑤	
 Square Flush	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	
		2NC	HW2B-M1P02⑤	
		2NO-2NC	HW2B-M1P22⑤	
	Maintained	1NO	HW2B-A1P10⑤	
		1NC	HW2B-A1P01⑤	
		1NO-1NC	HW2B-A1P11⑤	
		2NO	HW2B-A1P20⑤	
		2NC	HW2B-A1P02⑤	
		2NO-2NC	HW2B-A1P22⑤	
 Square Extended	Momentary	1NO	HW2B-M2P10⑤	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		1NC	HW2B-M2P01⑤	
		1NO-1NC	HW2B-M2P11⑤	
		2NO	HW2B-M2P20⑤	
		2NC	HW2B-M2P02⑤	
		2NO-2NC	HW2B-M2P22⑤	
	Maintained	1NO	HW2B-A2P10⑤	
		1NC	HW2B-A2P01⑤	
		1NO-1NC	HW2B-A2P11⑤	
		2NO	HW2B-A2P20⑤	
		2NC	HW2B-A2P02⑤	
		2NO-2NC	HW2B-A2P22⑤	

Operator Unit	
Name / Shape	Part No.
 ø40mm Mushroom	HW(1)B-M4-⑤
	HW(1)B-A4-⑤
 ø60mm Mushroom	HW1B-M5⑤-PS (*1)
 Square Flush	HW2B-M1⑤-PS
	HW2B-A1⑤-PS
 Square Extended	HW2B-M2⑤-PS
	HW2B-A2⑤-PS

Contact Unit		
Shape	Contact Configuration	Part No. (Ordering No.)
 ø40mm	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22
 ø60mm	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22
 Square	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22
 Square Extended	1NO	HW-CNP10
	1NC	HW-CNP01
	1NO-1NC	HW-CNP11
	2NO	HW-CNP20
	2NC	HW-CNP02
	2NO-2NC	HW-CNP22

- Specify a bezel type code in place of ① in the Part No. See page 12.
- Specify a button color code in place of ⑤ in the Part No.
B (black), G (green), R (red), Y (yellow), S (blue), W (white)
- *1) Only B (black), G (green), R (red), Y (yellow) available for ø60mm mushroom.

For Part No. (Ordering No.) / mounting positions of contact units, see page 51.

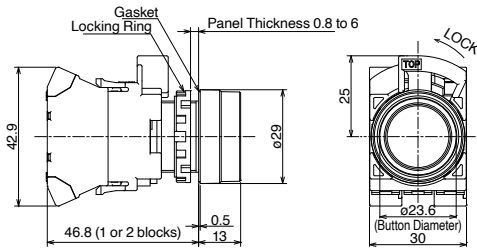
Pushbuttons Dimensions

All dimensions in mm.

Flush

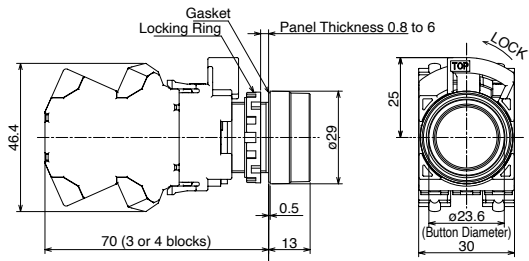
1 to 2 contacts

HW1B-□1P



3 to 4 contacts

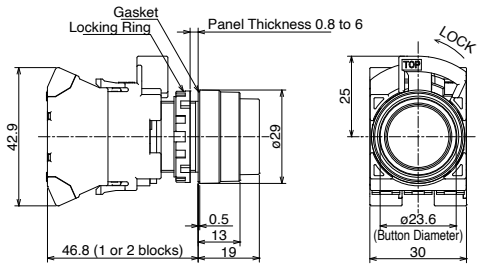
HW1B-□1P



Extended

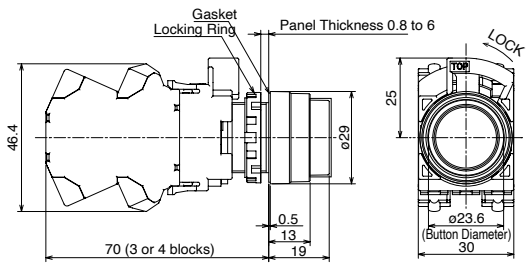
1 to 2 contacts

HW1B-□2P



3 to 4 contacts

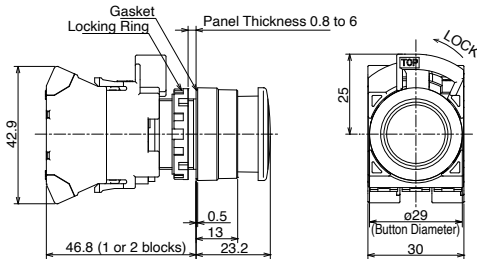
HW1B-□2P



ø29mm Mushroom

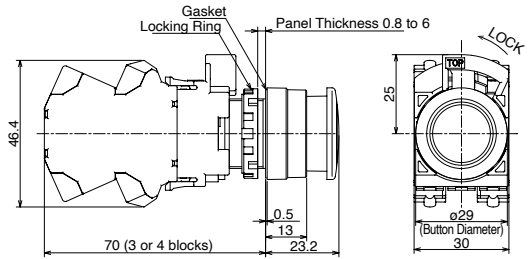
1 to 2 contacts

HW1B-□3P



3 to 4 contacts

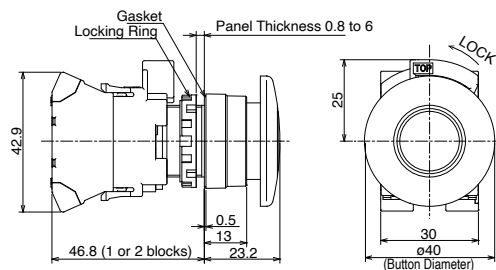
HW1B-□3P



ø40mm Mushroom

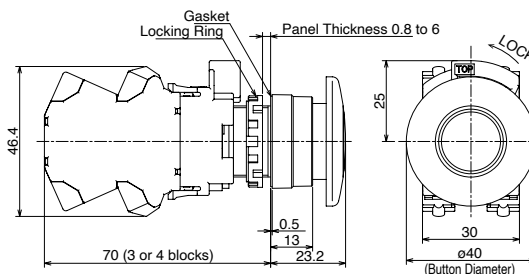
1 to 2 contacts

HW1B-□4P



3 to 4 contacts

HW1B-□4P

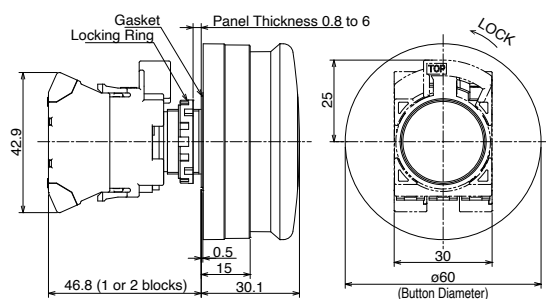


Pushbuttons Dimensions

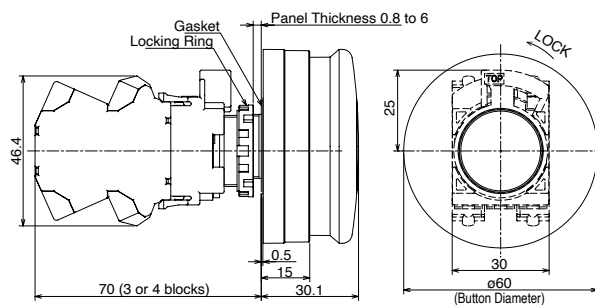
All dimensions in mm.

ø60mm Mushroom

1 to 2 contacts
HW1B-M5P

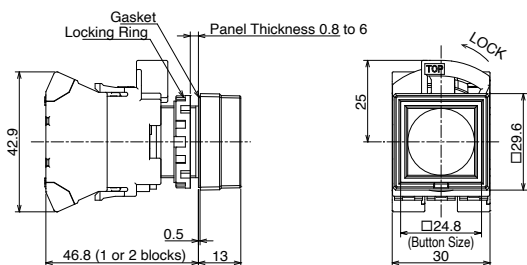


3 to 4 contacts
HW1B-M5P

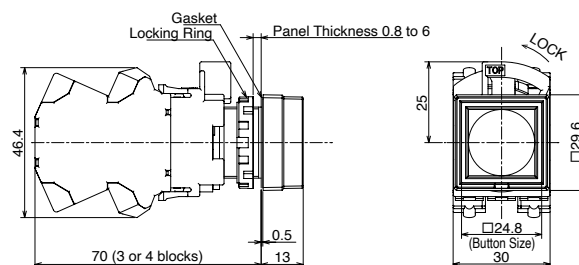


Square Flush

1 to 2 contacts
HW2B-□1P

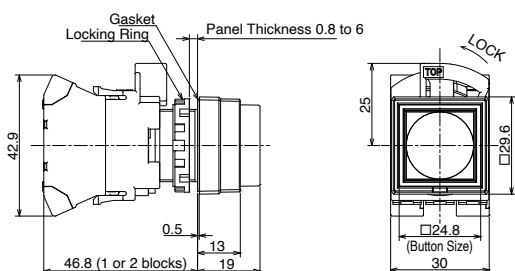


3 to 4 contacts
HW2B-□1P

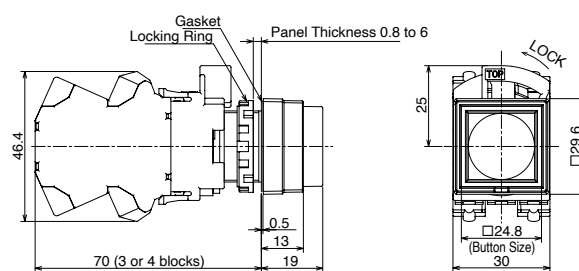


Square Extended

1 to 2 contacts
HW2B-□2P



3 to 4 contacts
HW2B-□2P



Illuminated Pushbuttons

Assembled



Package Quantity: 1

Name / Shape	Operation	Rated Voltage	Contact Configuration	Part No. (coded) ① = 1 or 4	⑥ Illumination Color Code
Round Flush (marking) HW1L-M1 HW1L-A1 HW4L-M1 HW4L-A1 	Momentary	24V AC/DC	1NO	HW①L-M1P10Q4⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
			1NO-1NC	HW①L-M1P11Q4⑥	
		100/120V AC/DC	1NO	HW①L-M1P10QH2⑥	
	Maintained	24V AC/DC	1NO	HW①L-A1P10Q4⑥	
			1NO-1NC	HW①L-A1P11Q4⑥	
			2NO	HW①L-A1P20Q4⑥	
Round Extended (marking) HW1L-M2 / HW4L-M2 	Momentary	24V AC/DC	1NO	HW①L-M2P10Q4⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
			1NO-1NC	HW①L-M2P11Q4⑥	
Round Extended with Full Shroud (marking) HW1L-MF2 	Momentary	24V AC/DC	1NO	HW①L-MF2P10Q4⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
		100/120V AC/DC	1NO	HW①L-MF2P10QH2⑥	
Square Flush (marking) HW2L-M1 	Momentary	24V AC/DC	1NO	HW2L-M1P10Q4⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
			1NO-1NC	HW2L-M1P11Q4⑥	

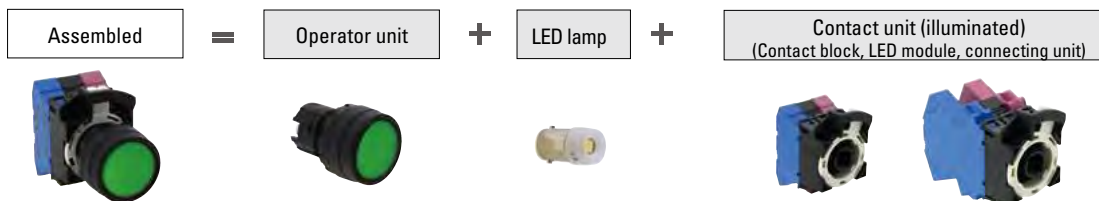
- Specify a bezel type code in place of ① in the Part No. See page 12.
- Specify an illumination color code in place of ⑥ in the Part No.

- For other configurations, select from sub-assembled units (page 18 to 19).

Illuminated Pushbuttons

Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 17 for available assembled products.



Sub-Assembled Ordering No.

Package Quantity: 1

Name / Shape	Operation	Contact Configuration	<Reference> Assembled Part No. ① = 1 or 4	⑥ Illumination Color Code
Round Flush (marking) 	Momentary	1NO	HW①L-M1P10⑤⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
		1NC	HW①L-M1P01⑤⑥	
		1NO-1NC	HW①L-M1P11⑤⑥	
		2NO	HW①L-M1P20⑤⑥	
		2NC	HW①L-M1P02⑤⑥	
	Maintained	2NO-2NC	HW①L-M1P22⑤⑥	
		1NO	HW①L-A1P10⑤⑥	
		1NC	HW①L-A1P01⑤⑥	
		1NO-1NC	HW①L-A1P11⑤⑥	
		2NO	HW①L-A1P20⑤⑥	
Round Extended (marking) 	Momentary	1NO	HW①L-M2P10⑤⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
		1NC	HW①L-M2P01⑤⑥	
		1NO-1NC	HW①L-M2P11⑤⑥	
		2NO	HW①L-M2P20⑤⑥	
		2NC	HW①L-M2P02⑤⑥	
	Maintained	2NO-2NC	HW①L-M2P22⑤⑥	
		1NO	HW①L-A2P10⑤⑥	
		1NC	HW①L-A2P01⑤⑥	
		1NO-1NC	HW①L-A2P11⑤⑥	
		2NO	HW①L-A2P20⑤⑥	
Round Extended with Full Shroud (marking) 	Momentary	1NO	HW①L-MF2P10⑤⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
		1NC	HW①L-MF2P01⑤⑥	
		1NO-1NC	HW①L-MF2P11⑤⑥	
		2NO	HW①L-MF2P20⑤⑥	
		2NC	HW①L-MF2P02⑤⑥	
	Maintained	2NO-2NC	HW①L-MF2P22⑤⑥	
		1NO	HW①L-AF2P10⑤⑥	
		1NC	HW①L-AF2P01⑤⑥	
		1NO-1NC	HW①L-AF2P11⑤⑥	
		2NO	HW①L-AF2P20⑤⑥	
		2NC	HW①L-AF2P02⑤⑥	
		2NO-2NC	HW①L-AF2P22⑤⑥	

Operator unit	
Name / Shape	<Reference> Assembled Part No. ① = 1 or 4
Round Flush (marking) 	HW①L-M1⑥-PI-USA
Round Extended (marking) 	HW①L-M2⑥-PI-USA
Round Extended with Full Shroud (marking) 	HW①L-MF2⑥-PI-USA
	HW①L-A2⑥-PI-USA
	HW①L-AF2⑥-PI-USA

Contact Unit		
Shape	Contact Configuration	Part No. (Ordering No.)
	1NO	HW-CNP10Q0
	1NC	HW-CNP01Q0
	1NO-1NC	HW-CNP11Q0
	2NO	HW-CNP20Q0
	2NC	HW-CNP02Q0
	2NO-2NC	HW-CNP22Q0
	1NO	HW-CNP10Q0
	1NC	HW-CNP01Q0
	1NO-1NC	HW-CNP11Q0
	2NO	HW-CNP20Q0
	2NC	HW-CNP02Q0
	2NO-2NC	HW-CNP22Q0
	1NO	HW-CNP10Q0
	1NC	HW-CNP01Q0
	1NO-1NC	HW-CNP11Q0
	2NO	HW-CNP20Q0
	2NC	HW-CNP02Q0
	2NO-2NC	HW-CNP22Q0

- Specify a bezel type code in place of ① in the Part No. See page 12.
- Specify a rated voltage code in place of ⑤ in the Part No.

Code	Rated voltage	Code	Rated voltage
Q2	6V AC/DC	QH2	100/120V AC/DC
Q3	12V AC/DC	QM	200/220V AC
Q4	24V AC/DC	QM4	230/240V AC




- Specify an illumination color code in place of ⑥ in the Part No.
R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

Note) LED lamp is not supplied. When ordering contact units (illuminated) selected LED from below table.

LED lamp (package quantity:1)	
Rated Voltage	Part No. (Ordering No.)
6V AC/DC	LSRD-6
12V AC/DC	LSRD-1
24V AC/DC	LSRD-2
100/120V AC/DC	LSRD-H2
200/220V AC	LSRD-M2
230/240V AC	LSRD-M4

For Part No. (Ordering No.)/ mounting positions of contact units, see page 52.

Illuminated Pushbuttons

Name / Shape	Operation	Contact Configuration	<Reference> Assembled Part No. ① = 1 or 4	⑥ Color Code
Square Flush (marking) 	Momentary	1NO	HW2L-M1P10⑤⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
		1NC	HW2L-M1P01⑤⑥	
		1NO-1NC	HW2L-M1P11⑤⑥	
		2NO	HW2L-M1P20⑤⑥	
		2NC	HW2L-M1P02⑤⑥	
	Maintained	2NO-2NC	HW2L-M1P22⑤⑥	
		1NO	HW2L-A1P10⑤⑥	
		1NC	HW2L-A1P01⑤⑥	
		1NO-1NC	HW2L-A1P11⑤⑥	
		2NO	HW2L-A1P20⑤⑥	
ø29 Mushroom (marking) 	Momentary	1NO	HW①L-M3P10⑤⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
		1NC	HW①L-M3P01⑤⑥	
		1NO-1NC	HW①L-M3P11⑤⑥	
		2NO	HW①L-M3P20⑤⑥	
		2NC	HW①L-M3P02⑤⑥	
	Maintained	2NO-2NC	HW①L-M3P22⑤⑥	
		1NO	HW①L-A3P10⑤⑥	
		1NC	HW①L-A3P01⑤⑥	
		1NO-1NC	HW①L-A3P11⑤⑥	
		2NO	HW①L-A3P20⑤⑥	
ø40 Jumbo Mushroom (marking) 	Momentary	1NO	HW①L-M4P10⑤⑥	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)
		1NC	HW①L-M4P01⑤⑥	
		1NO-1NC	HW①L-M4P11⑤⑥	
		2NO	HW①L-M4P20⑤⑥	
		2NC	HW①L-M4P02⑤⑥	
	Maintained	2NO-2NC	HW①L-M4P22⑤⑥	
		1NO	HW①L-A4P10⑤⑥	
		1NC	HW①L-A4P01⑤⑥	
		1NO-1NC	HW①L-A4P11⑤⑥	
		2NO	HW①L-A4P20⑤⑥	
		2NC	HW①L-A4P02⑤⑥	
		2NO-2NC	HW①L-A4P22⑤⑥	

- Specify a bezel type code in place of ① in the Part No. See page 12.
- Specify a rated voltage code in place of ⑤ in the Part No.



Code	Rated voltage	Code	Rated voltage
Q2	6V AC/DC	QH2	100/120V AC/DC
Q3	12V AC/DC	QM	200/220V AC
Q4	24V AC/DC	QM4	230/240V AC

- Specify an illumination color code in place of ⑥ in the Part No.
R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)


Sub-Assembled Ordering No.

Operator unit	
Name / Shape	<Reference> Assembled Part No. ① = 1 or 4
Square Flush (marking) 	HW2L-M1⑥-PI-USA HW2L-A1⑥-PI-USA
ø29 Mushroom (marking) 	HW①L-M3⑥-PI-USA HW①L-A3⑥-PI-USA
ø40 Jumbo Mushroom (marking) 	HW①L-M4⑥-PI-USA HW①L-A4⑥-PI-USA

Package Quantity: 1

Contact Unit		
Shape	Contact Configuration	Part No. (Ordering No.)
	1NO	HW-CNP10Q0
	1NC	HW-CNP01Q0
	1NO-1NC	HW-CNP11Q0
	2NO	HW-CNP20Q0
	2NC	HW-CNP02Q0
	2NO-2NC	HW-CNP22Q0
	1NO	HW-CNP10Q0
	1NC	HW-CNP01Q0
	1NO-1NC	HW-CNP11Q0
	2NO	HW-CNP20Q0
	2NC	HW-CNP02Q0
	2NO-2NC	HW-CNP22Q0
	1NO	HW-CNP10Q0
	1NC	HW-CNP01Q0
	1NO-1NC	HW-CNP11Q0
	2NO	HW-CNP20Q0
	2NC	HW-CNP02Q0
	2NO-2NC	HW-CNP22Q0
	1NO	HW-CNP10Q0
	1NC	HW-CNP01Q0
	1NO-1NC	HW-CNP11Q0
	2NO	HW-CNP20Q0
	2NC	HW-CNP02Q0
	2NO-2NC	HW-CNP22Q0
	1NO	HW-CNP10Q0

Note) LED lamp is not supplied. When ordering contact units (illuminated) selected LED from below table.

LED lamp (package quantity:1)	
	
Rated Voltage	Part No. (Ordering No.)
6V AC/DC	LSRD-6
12V AC/DC	LSRD-1
24V AC/DC	LSRD-2
100/120V AC/DC	LSRD-H2
200/220V AC	LSRD-M2
230/240V AC	LSRD-M4

For Part No. (Ordering No.)/ mounting positions of contact units, see page 52.

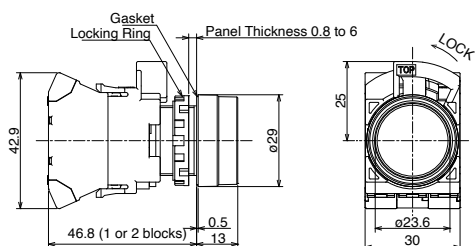
Illuminated Pushbuttons Dimensions

All dimensions in mm.

Round Flush

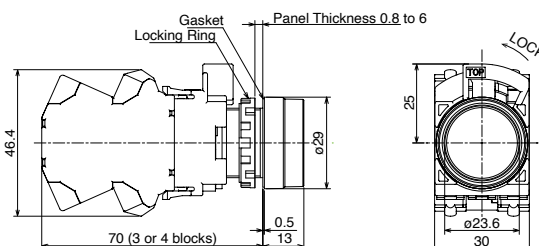
1 to 2 contacts

HW1L-□1P



3 to 4 contacts

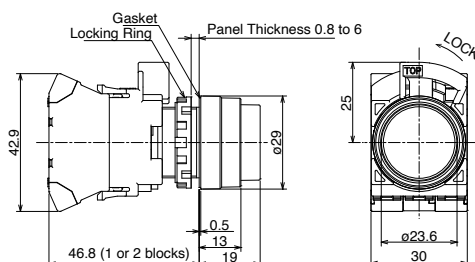
HW1L-□1P



Round Extended

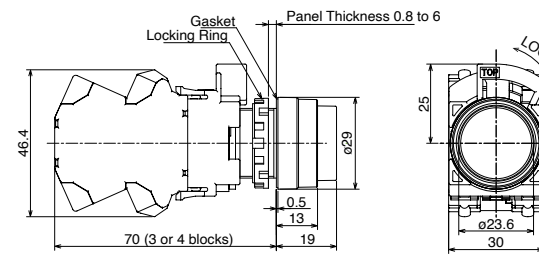
1 to 2 contacts

HW1L-□2P



3 to 4 contacts

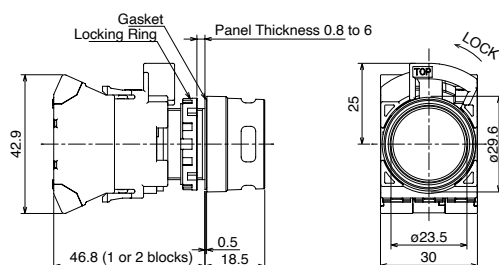
HW1L-□2P



Round Extended with Full Shroud

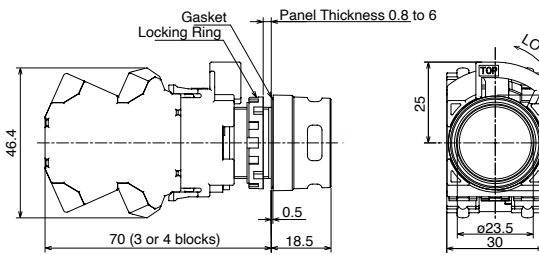
1 to 2 contacts

HW1L-□F2P



3 to 4 contacts

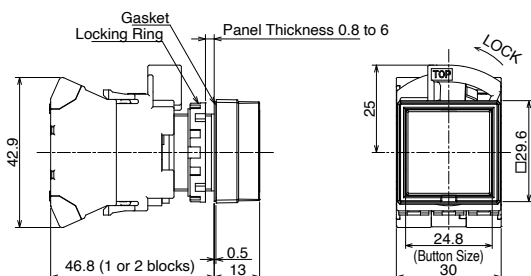
HW1L-□F2P



Square Flush

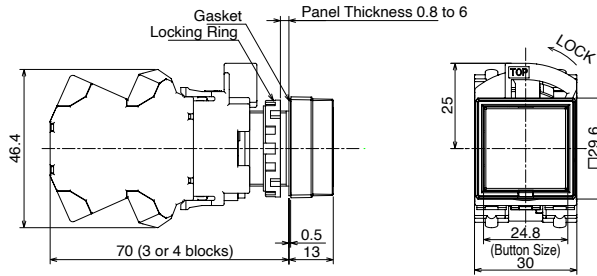
1 to 2 contacts

HW2L-□1P



3 to 4 contacts

HW2L-□1P



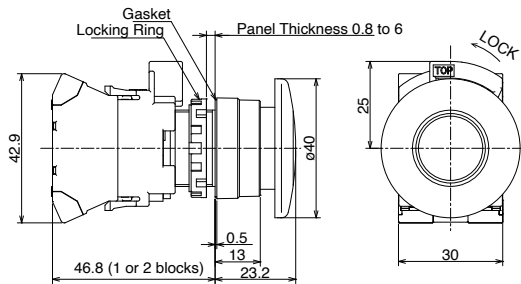
Illuminated Pushbuttons Dimensions

All dimensions in mm.

ø29 Mushroom

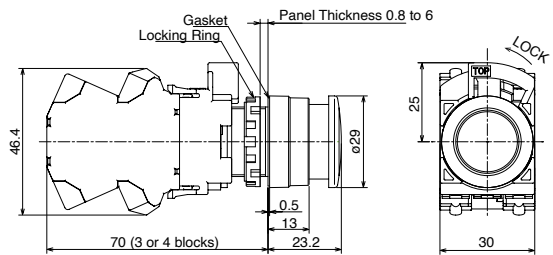
1 to 2 contacts

HW1L-□3P



3 to 4 contacts

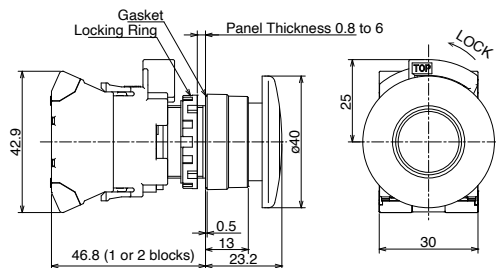
HW1L-□3P



ø40 Jumbo Mushroom

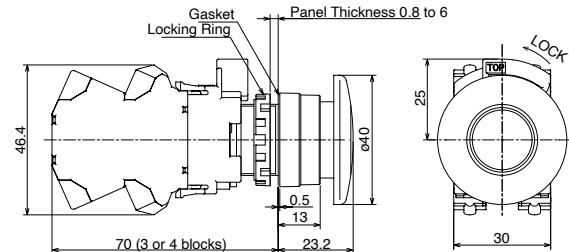
1 to 2 contacts

HW1L-□4P



3 to 4 contacts

HW1L-□4P



Illuminated Pushbuttons Part No. Example

Assembled and sub-assembled unit

Assembled

HW1L - M 1 P 11 Q4 R

- ① Bezel shape code
1: Round black
2: Square black
4: Round Metal
- ② Operation code
M: Momentary
A: Maintained
- ③ Button style code
1: Flush
2: Extended
F2: Round Extended with full Shroud
3: ø29mm Mushroom
4: ø40mm Mushroom
- ④ Contact configuration code
10: 1NO
01: 1NC
11: 1NO1NC
20: 2NO
02: 2NC
22: 2NO-2NC
- ⑤ Rated voltage code
Q2 : 6V AC/DC
Q3 : 12V AC/DC
Q4 : 24V AC/DC
QH2 : 100/120V AC/DC
QM : 200/220V AC
QM4 : 230/240V AC
- ⑥ Button color code
(see page 17)

Operator unit

HW1L - M 1 R - PI-USA

- ① Bezel shape code
1: Round black
2: Square black
4: Round metal
- ② Operation code
M: Momentary
A: Maintained
- ③ Button style code
1: Flush
2: Extended
F2: Round Extended with full Shroud
3: ø29mm Mushroom
4: ø40mm Mushroom
- ⑥ Button color code
(see page 18)

Contact unit (illuminated)

HW - CN P 10 Q0

- ④ Contact configuration code
(see page 18)

• LED lamps are not supplied.

LED lamp

LSRD - 6

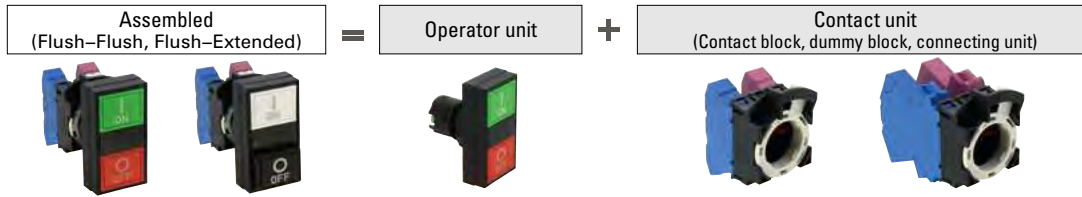
- ⑤ Rated voltage code
6 : 6V AC/DC
1 : 12V AC/DC
2 : 24V AC/DC
H2 : 100/120V AC/DC
M2 : 200/220V AC
M4 : 230/240V AC

• For available assembled products, see table on page 17.

Dual Pushbuttons without Pilot Light

Sub-Assembled

Dual pushbuttons can be purchased only as a sub-assembled product.




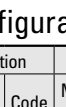


Without Pilot Light

Sub-Assembled Ordering No.

Package Quantity: 1

<Reference>				
Operation	Button style	Contact Configuration		<Reference> Assembled Part No
		Top Button	Bottom Button	
Momentary	Flush-Flush	1NO	1NC	HW7D-B11P1001⑥⑦
		1NO	1NO	HW7D-B11P1010⑥⑦
		1NO-1NC	1NO-1NC	HW7D-B11P1111⑥⑦
		2NO	2NC	HW7D-B11P2002⑥⑦
	Flush-Extended	1NO	1NC	HW7D-B12P1001⑥⑦
		1NO	1NO	HW7D-B12P1010⑥⑦
		1NO-1NC	1NO-1NC	HW7D-B12P1111⑥⑦
		2NO	2NC	HW7D-B12P2002⑥⑦
Interlocking (*1)	Flush-Flush	1NO	1NC	HW7D-B21P1001⑥⑦
		1NO	1NO	HW7D-B21P1010⑥⑦
		1NO-1NC	1NO-1NC	HW7D-B21P1111⑥⑦
		2NO	2NC	HW7D-B21P2002⑥⑦
	Flush-Extended	1NO	1NC	HW7D-B22P1001⑥⑦
		1NO	1NO	HW7D-B22P1010⑥⑦
		1NO-1NC	1NO-1NC	HW7D-B22P1111⑥⑦
		2NO	2NC	HW7D-B22P2002⑥⑦

Operator Unit Part No. (Ordering No.)

HW7D-B11⑥⑦

HW7D-B12⑥⑦

HW7D-B21⑥⑦

HW7D-B22⑥⑦

Contact Unit		
Contact Configuration		Part No. (Ordering No.)
Top Button	Bottom Button	
1NO	1NC	HW-CNP11
1NO	1NO	HW-CNP20
1NO-1NC	1NO-1NC	HW-CNP22
2NO	2NC	HW-CNP22N1
1NO	1NC	HW-CNP11
1NO	1NO	HW-CNP20
1NO-1NC	1NO-1NC	HW-CNP22
2NO	2NC	HW-CNP22N1

*1) Interlock: Momentary operation. When one of the buttons is pressed, the other button cannot be operated.

Do not operate top and bottom buttons at the same time. Operating the buttons at the same time may lead to malfunctions.

- For contact mounting position, see page 51.
- Specify a code in place of ⑥⑦ in the Part No. See tables below

⑥Button Color Code

Code	
GR	Top Button Green Bottom Button Red
WB	Top Button White Bottom Button Black

⑦Button Legends Code

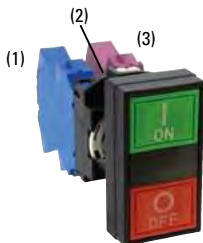
Code	
Blank	Blank
1	Top Button: I & ON / Bottom Button: O & OFF

Contact Configuration

Contact Configuration			Contact Block		Top Button		Bottom Button	
Top Button	Bottom Button	Code	Mounting Position	Contact	Nomal	Push	Nomal	Push
1NO	1NC	1001	(1)	NO		X		
			(3)	NC			X	
1NO	1NO	1010	(1)	NO		X		
			(3)	NO				X
1NO-1NC	1NO-1NC	1111	(1)	NONC	NO	X		
			(3)	NONC	NO			X
2NO	2NC	2002	(1)	2NO	NO	X		
			(3)	2NC	NC		X	
					NC			X

Contact block (1) is actuated by the top button.
Contact block (3) is actuated by the bottom button.

Contact Block Mounting Position



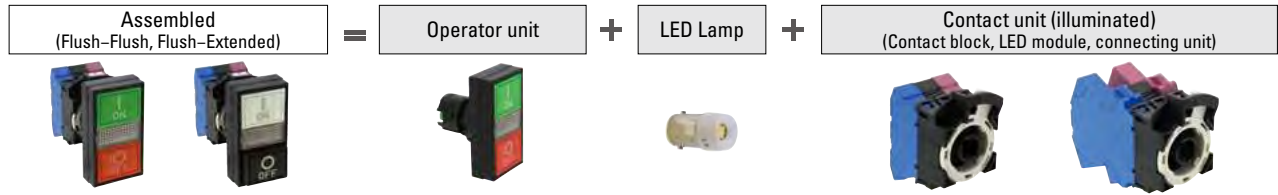
Note) (2) can only be mounted with a dummy block.

For Part No. (Ordering No.) / mounting positions of contact units, see page 51.

Dual Pushbuttons with Pilot Light

Sub-Assembled

Dual pushbuttons can be purchased only as a sub-assembled product.



With Pilot Light

Sub-Assembled Ordering No.

Package Quantity: 1

<Reference>				
Operation	Button Style	Contact Configuration		<Reference> Assembled Part No
		Top Button	Bottom Button	
Momentary	Flush-Flush	1NO	1NC	HW7D-L11P1001PW⑥⑦
		1NO	1NO	HW7D-L11P1010PW⑥⑦
		1NO-1NC	1NO-1NC	HW7D-L11P1111PW⑥⑦
		2NO	2NC	HW7D-L11P2002PW⑥⑦
	Flush-Extended	1NO	1NC	HW7D-L12P1001PW⑥⑦
		1NO	1NO	HW7D-L12P1010PW⑥⑦
		1NO-1NC	1NO-1NC	HW7D-L12P1111PW⑥⑦
		2NO	2NC	HW7D-L12P1010PW⑥⑦
Interlocking (*1)	Flush-Flush	1NO	1NC	HW7D-L21P1001PW⑥⑦
		1NO	1NO	HW7D-L21P1010PW⑥⑦
		1NO-1NC	1NO-1NC	HW7D-L21P1111PW⑥⑦
		2NO	2NC	HW7D-L21P2002PW⑥⑦
	Flush-Extended	1NO	1NC	HW7D-L22P1001PW⑥⑦
		1NO	1NO	HW7D-L22P1010PW⑥⑦
		1NO-1NC	1NO-1NC	HW7D-L22P1111PW⑥⑦
		2NO	2NC	HW7D-L22P2002PW⑥⑦

Operator Unit Part No. (Ordering No.)
HW7D-L11⑥⑦
HW7D-L12⑥⑦
HW7D-L21⑥⑦
HW7D-L22⑥⑦

Contact Unit		
Contact Configuration		Part No. (Ordering No.)
Top Button	Bottom Button	
1NO	1NC	HW-CNP11Q0
1NO	1NO	HW-CNP20Q0
1NO-1NC	1NO-1NC	HW-CNP22Q0
2NO	2NC	HW-CNP22N1Q0
1NO	1NC	HW-CNP11Q0
1NO	1NO	HW-CNP20Q0
1NO-1NC	1NO-1NC	HW-CNP22Q0
2NO	2NC	HW-CNP22N1Q0

*1) Interlock: Momentary operation. When one of the buttons is pressed, the other button cannot be operated.

- Do not operate top and bottom buttons at the same time.
Operating the buttons at the same time may lead to malfunctions.
- For contact mounting position, see page 52.
- Specify a code in place of ⑥⑦ in the Part No. See tables below

Code	Rated Voltage	Code	Rated Voltage
Q2	6V AC/DC	QH2	100/120V AC/DC
Q3	12V AC/DC	QM	200/220V AC
Q4	24V AC/DC	QM4	230/240V AC

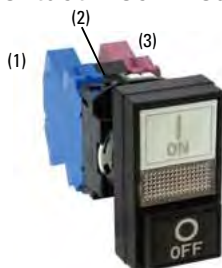
⑥Button Color Code

Code	
GR	Top Button Green Bottom Button Red
WB	Top Button White Bottom Button Black

⑦Button Legends Code

Code	
Blank	Blank
1	Top Button: I & ON / Bottom Button: O & OFF

Contact Block Mounting Position



Note) (2) can only be mounted with a full voltage adapter.

For Part No. (Ordering No.) mounting positions of contact units, see page 52.

Note) LED lamp is not supplied. When ordering contact units (illuminated) selected LED from below table.

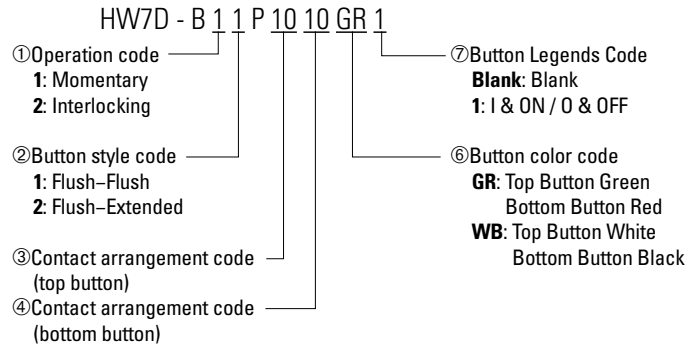
LED lamp (Package Quantity: 1)	
Rated Voltage	Part No. (Ordering No.)
6V AC/DC	LSRD-6
12V AC/DC	LSRD-1
24V AC/DC	LSRD-2
100/120V AC/DC	LSRD-H2
200/220V AC	LSRD-M2
230/240V AC	LSRD-M4

Dual Pushbuttons

Dual Pushbuttons Part No. Example

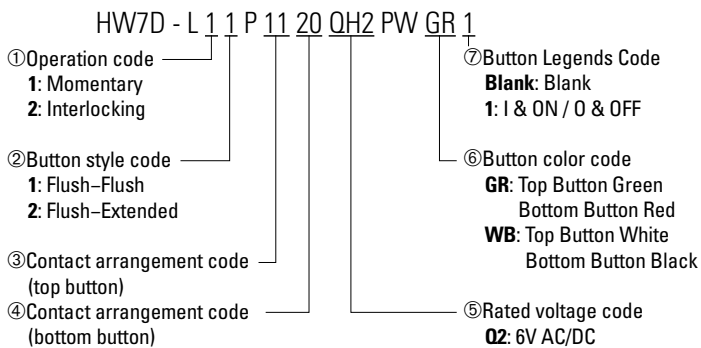
Assembled and sub-assembled unit

Assembled (without pilot light)



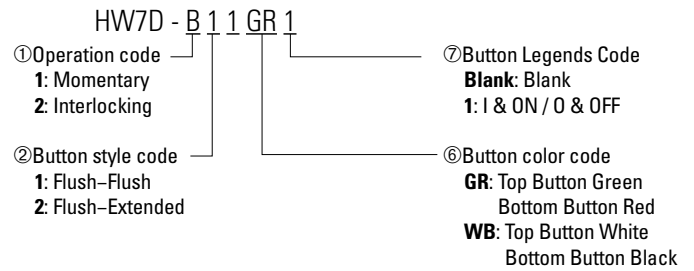
Top button	Bottom button	Contact configuration	
		Top button	Bottom button
1NO	1NC	10	01
1NO	1NO	10	10
1NO-1NC	1NO-1NC	11	11
2NO	2NC	20	02

Assembled (with pilot light)

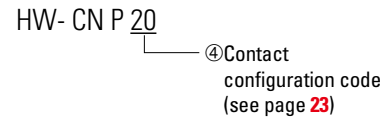


Top button	Bottom button	Contact configuration	
		Top button	Bottom button
1NO	1NC	10	01
1NO	1NO	10	10
1NO-1NC	1NO-1NC	11	11
2NO	2NC	20	02

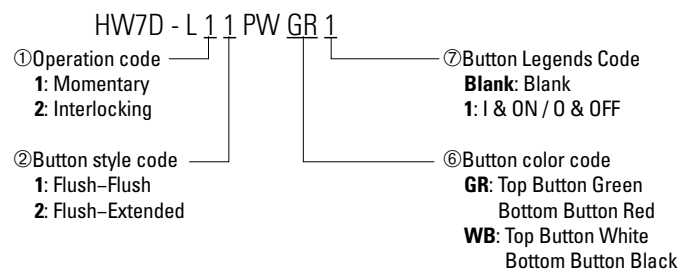
Operator unit (without pilot light)



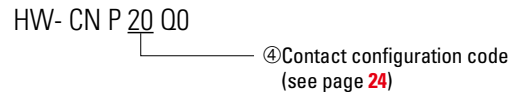
Contact unit



Operator unit (with pilot light)

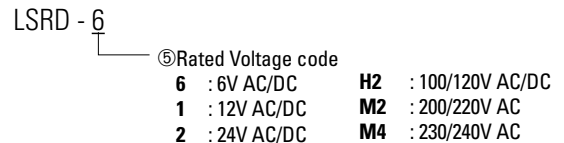


Contact unit (for illuminated unit)



• LED lamps are not supplied.

LED Lamp



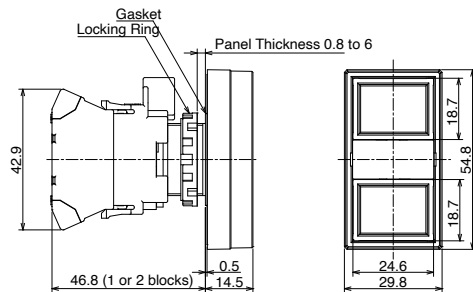
Dual Pushbuttons Dimensions

All dimensions in mm.

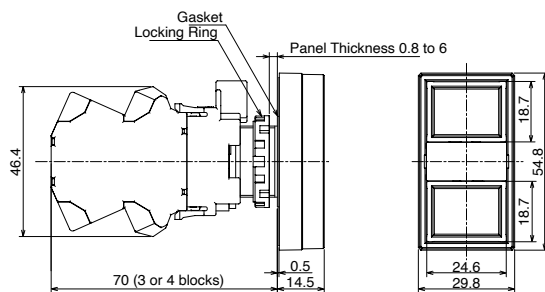
Without Pilot Light

Flush-Flush

1 to 2 contacts

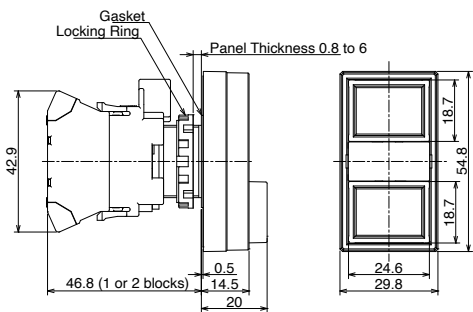


3 to 4 contacts

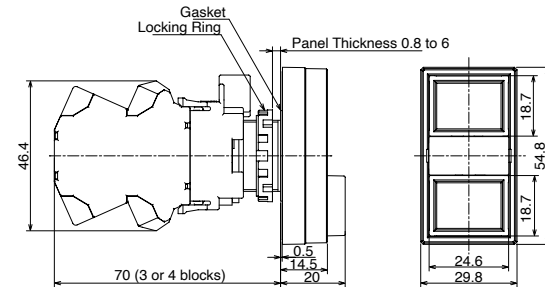


Flush-Extended

1 to 2 contacts



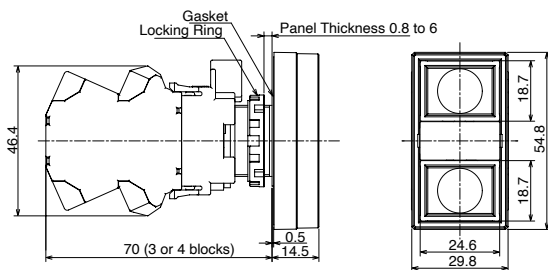
3 to 4 contacts



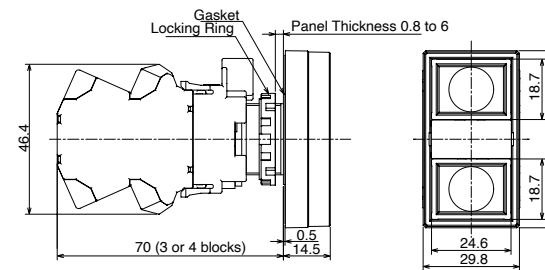
With Pilot Light

Flush-Flush

1 to 2 contacts

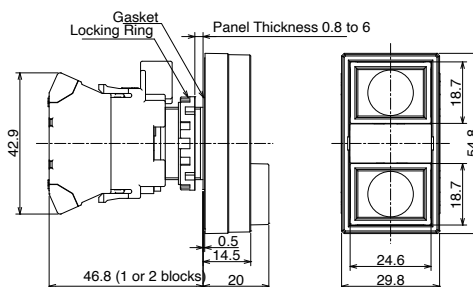


3 to 4 contacts

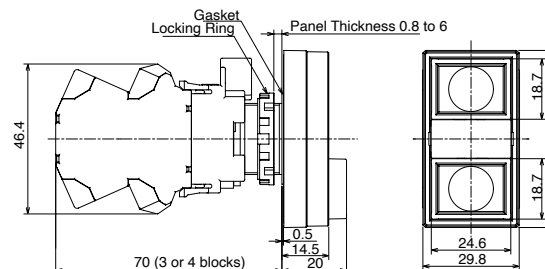


Flush-Extended

1 to 2 contacts



3 to 4 contacts



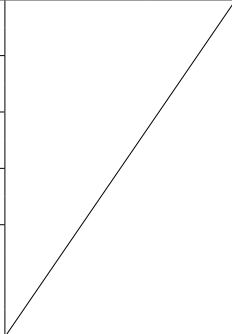




Selector Switches (Knob Operator)

Assembled



Package Quantity: 1

Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	Maintained			
			Mounting Position	Contact	1	2						
 HW◎S ◎: Bezel Type 1: Black 2: Metal	90° 2-position	1NO (10)	(1)	NO		X		—	HW◎S-2TP10			
			(3)	—		Dummy						
		1NC (01)	(1)	—		Dummy					HW◎S-2TP01	
			(3)	NC	X							
		1NO-1NC (11)	(1)	NO		X					HW◎S-2TP11	
			(3)	NC	X							
		2NO (20)	(1)	NO		X					HW◎S-2TP20	
			(3)	NO		X						
		2NO-2NC (22)	(1)	NONC	NO		X				HW◎S-2TP22	
					NC	X						
	(3)		NONC	NO		X						
				NC	X							
	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	X			—	HW◎S-3TP20	HW◎S-33TP20		
			(3)	NO			X					
2NO-1NC (21N1) ★☆			(1)	NONC	NO	X		J	HW◎S-3JTP21N3			
					NC		X					
2NO-2NC (22)			(1)	NONC	NO	X		—	HW◎S-3TP22			
					NC		X				X	
			(3)	NONC	NO						X	
					NC		X				X	
4NO (40)			(1)	2NO	NO	X			HW◎S-3TP40			
					NO	X						
			(3)	2NO	NO						X	
					NO						X	

- On the contact configuration 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.
- On the contact configuration marked with ☆ in the table above, contacts may overlap when the operator position is changed.
- Knob operator: white indicator on black body
- Selector switches with 1 contact block contain 2 dummy blocks. Selector switches with 2 contact blocks contain 1 dummy block.
- Turn the operator to each position accurately.

• For other contact configuration or operator position, select from sub-assembled units (page 27 to 28).

Contact Block Mounting Position



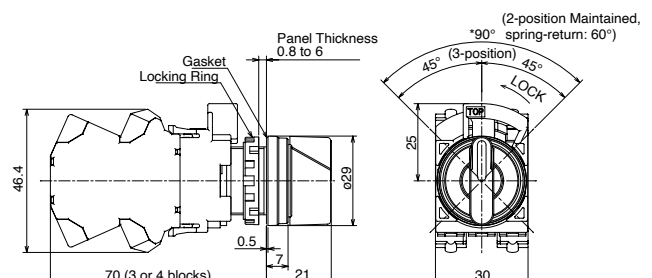
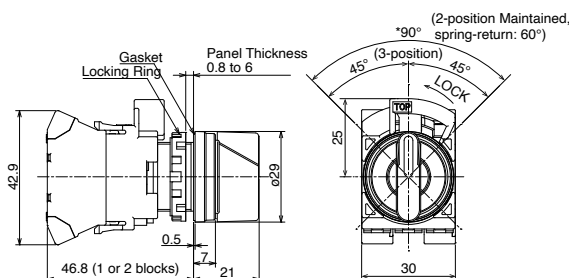
Note) (2) can only be mounted with a dummy block.

Dimensions

1 to 2 contacts

3 to 4 contacts

All dimensions in mm.



Selector Switches (Knob / Lever Operator) 2-Position

Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 26 for available assembled products.








90° 2-position

Package Quantity: 1

<Reference> Assembled Part No.						Operator Unit Ordering No.		Contact Unit			
No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position		Cam Code	Operator Position Code	Operator type ④	Operator Position Code	Shape	Part No. (Ordering No.)
		Mounting Position	Contact	1	2		Maintained		Maintained (90°)		
<Reference> Assembled Part No.						Part No. (Ordering No.)					
90° 2-position	1NO (10)	(1)	NO		X		HW⓪S-2④P10	Knob Operator 	HW⓪S-2④		HW-CNP10
	(3)	—		Dummy			HW⓪S-2④P01				HW-CNP01
	1NC (01)	(1)	—		Dummy		HW⓪S-2④P11	HW-CNP11			
	(3)	NC	X				HW⓪S-2④P20	HW-CNP20			
	1NO-1NC (11)	(1)	NO		X		HW⓪S-2④P02	HW-CNP02			
	(3)	NC	X				HW⓪S-2④22	HW-CNP22			
	2NO (20)	(1)	NO		X		HW⓪S-2④31N1	HW-CNP31N1			
	(3)	NO		X			HW⓪S-2④40	HW-CNP40			
	2NC (02)	(1)	NC	X			HW⓪S-2④03N2	HW-CNP03N2			
	(3)	NC	X				HW⓪S-2④21N1	HW-CNP21N1			
	2NO-2NC (22)	(1)	NO		X						
	(3)	NC	X								
	3NO-1NC (31N1)	(1)	NO		X						
	(3)	NO		X							
	4NO (40)	(1)	NO		X						
	(4)	NO		X							
	(5)	NO		X							
	3NC (03N2)	(1)	NC	X							
	(3)	NC	X								
2NO-1NC (21N1)	(1)	2NO	NO		X						
(3)	NC	NC	X								

90° 2-position Reversed Cam

Package Quantity: 1

<Reference> Assembled Part No.							Operator Unit Ordering No.		Contact Unit		
No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position		Cam Code	Operator position code	Shape	Operator position code	Shape	Part No. (Ordering No.)
		Mounting Position	Contact	2	1		Maintained		Maintained (90°)		
											
<Reference> Assembled Part No.							Part No. (Ordering No.)				
90° 2-position	2NC (02)	(1)	NC		X	J	HW①S-2J④TP02	Knob Operator	HW①S-2J④		HW-CNP02
		(3)	NC		X			Lever Operator			

• For part no. other than maintained position, see Part No. Example on page 29.

Note: Turn the operator to each position accurately.

• Specify an operator unit code in place of ④ in the Part No.

• ⓪ Bezel Type: 1: Black, 4: Metal

④Operator Unit Code

Code	Operator style	Code	Operator style
T	Knob Operator	L	Lever Operator

For Part No. (Ordering No.)/ mounting positions of contact units, see page 51.

Selector Switches (Knob / Lever Operator) 3-Position

Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 26 for available assembled products.



45° 3-position

Package Quantity: 1

<Reference> Assembled Part No.							Operator Unit Ordering No.		Contact unit			
No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	Operator position code		Shape	Part No. (Ordering No.)	
		Mounting Position	Contact	1	0	2		Maintained	1 0 2			
								<Reference> Assembled Part No.				
45° 3-position	1NO-1NC (11)	(1)	NO	X			—	HWⓈS-3④P11		HWⓈS-3④		HW-CNP11
	(3)	NC	X	X		HWⓈS-3④P11N1		HW-CNP11N1				
	1NO-1NC (11N1)	(1)	NC			X		HWⓈS-3④P20				HHW-CNP20
	(3)	NO			X	HWⓈS-3④P02		HW-CNP02				
	2NO (20)	(1)	NO	X					HWⓈS-3J④P11N1	HWⓈS-3J④		HW-CNP11N1
	(3)	NO			X	HWⓈS-3J④P21N3						HW-CNP21N3
	2NC (02)	(1)	NC		X	X		HWⓈS-3④P22N1	HWⓈS-3④	HW-CNP22N1		
	(3)	NC	X	X		HWⓈS-3④P22N2					HW-CNP22N2	
	1NO-1NC (11N1) ☆★	(1)	NC		X			HWⓈS-3④P40	HWⓈS-3④	HW-CNP40		
	(3)	NO			X	HWⓈS-3④P04					HW-CNP04	
	2NO-1NC (21N3) ☆★	(1)	NONC	NO	X			HWⓈS-3④P22N1	HWⓈS-3④	HW-CNP22N1		
	(3)	NONC	NO		X	HWⓈS-3④P22N2					HW-CNP22N2	
	2NO-2NC (22N2)	(1)	2NC	NO		X		HWⓈS-3④P40	HWⓈS-3④	HW-CNP40		
	(3)	2NO	NC		X	HWⓈS-3④P04					HW-CNP04	
	4NO (40)	(1)	2NO	NO	X			HWⓈS-3④P40	HWⓈS-3④	HW-CNP40		
	(3)	2NO	NO		X	HWⓈS-3④P04					HW-CNP04	
	4NC (04)	(1)	2NC	NC		X		HWⓈS-3④P40	HWⓈS-3④	HW-CNP40		
	(3)	2NC	NC		X	HWⓈS-3④P04					HW-CNP04	

• On the contact configuration 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.

• On the contact configuration marked with ☆ in the table above, contacts may overlap when the operator position is changed.

• For part no. other than maintained position, see Part No. Example on page 29.

• ◎ Bezel Type: 1: Black, 4: Metal

• Specify an operator unit code in place of ④ in the Part No.

④Operator Unit Code

Code	Operator style	Code	Operator style
T	Knob Operator	L	Lever Operator

Note: Turn the operator to each position accurately.

Contact Block Mounting Position



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

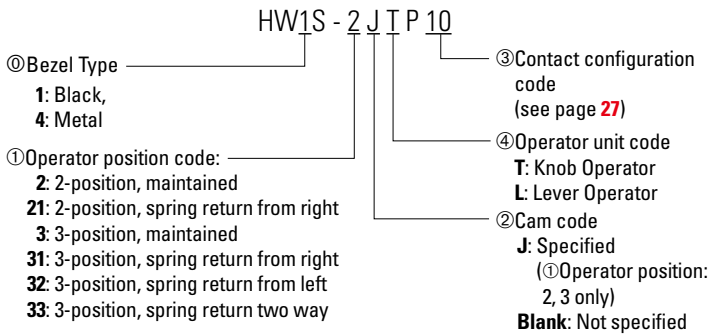
For Part No. (Ordering No.)/ mounting positions of contact units, see page 51.

Selector Switches (Knob / Lever Operator)

Selector Switches Part No. Example

Assembled and sub-assembled unit

Assembled (Without Pilot Light)



① Operator position code

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

• For available assembled products, see table on page 26.

Operator Truth Tables

2 Position Selector Switches

	Contact	Mounting Position	Operator Position	
			Left	Right
HW①S-2T HW①K-2* HW①F-2	HW-P10 (NO)	1	0	X
		3	0	X
	HW-P01 (NC)	1	X	0
		3	X	0
	HW-P10R (NO-EM)	1	0	X
		3	0	X

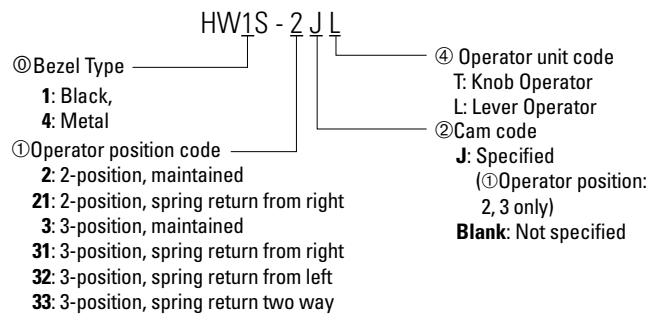
3 Position Selector Switches

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
HW①S-3T HW①K-3* HW①F-3	HW-P10 (NO)	1	X	0	0
		3	0	0	X
	HW-P01 (NC)	1	0	X	X
		3	X	X	0
	HW-P10R (NO-EM)	1	X	0	0
		3	0	0	X

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
HW①S-3ST HW①K-3S*	HW-P10 (NO)	1	X	0	0
		3	0	0	X
	HW-P01 (NC)	1	0	0	X
		3	X	0	0
	HW-P10R (NO-EM)	1	X	X	0
		3	0	X	X

1. Mounting position indicates which side of operator each contact should be mounted (as viewed from the front of the panel).
2. *For key removable code see page 33

Operator (Without Pilot Light)



Contact Unit

HW- CN P 10

③ Contact configuration code (see page 27, 28)

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

3 Position Selector Switches can't

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
HW①S-3JT HW①K-3J*	HW-P10 (NO)	1	X	0	0
		3	0	0	X
	HW-P01 (NC)	1	0	X	0
		3	0	X	0
	HW-P10R (NO-EM)	1	X	0	X
		3	X	0	X

4 Position Selector Switches

	Contact	Mounting Position	Operator Position			
			1	2	3	4
HW①S-4T	HW-P10 (NO)	1	X	0	0	0
		3	0	0	0	X
	HW-P01 (NC)	1	0	0	X	0
		3	0	X	0	0
	HW-P10R (NO-EM)	1	X	X	0	X
		3	X	0	X	X

5 Position Selector Switches

	Contact	Mounting Position	Operator Position				
			1	2	3	4	5
HW①S-5T	HW-P10 (NO)	1	X	0	0	0	0
		3	0	0	0	0	X
	HW-P01 (NC)	1	0	0	0	X	0
		3	0	X	0	0	0
	HW-P10R (NO-EM)	1	X	X	X	0	X
		3	X	0	X	X	X


3. HW1S-3T is identified by white plungers on the operator.
4. HW1S-3ST is identified by red plungers on the operator.
5. HW1S-3JT is identified by black plungers on the operator.

Key Selector Switches (Disc Tumbler Key)

Assembled



Package Quantity: 1

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	Operator position code	
			Mounting Position	Contact	1	2			Maintained (90°)	
 (NC contact only)	90° 2-position	1NO (10)	(1)	NO		X		—	HW®K-2AP10 (Key removable in all positions) HW®K-2BP10 (Key removable at left)	
			(3)	—	Dummy					
		1NO-1NC (11)	(1)	NO		X			HW®K-2AP11 (Key removable in all positions) HW®K-2BP11 (Key removable at left)	
			(3)	NC	X					
		2NO (20)	(1)	NO		X			HW®K-2AP20 (Key removable in all positions) HW®K-2BP20 (Key removable at left)	
			(3)	NO		X				
		2NO-2NC (22)	(1)	NONC	NO	X			HW®K-2AP22N2 (Key removable in all positions) HW®K-2BP22N2 (Key removable at left)	
					NC	X				
			(3)	NONC	NO	X				
					NC	X				
	45° 3-position	2NO (20)	(1)	NO	X			—	HW®K-3AP20 (Key removable in all positions) HW®K-3BP20 (Key removable at left/center) HW®K-3DP20 (Key removable at center)	
			(3)	NO			X			
		1NO-1NC (11N1)	(1)	NC		X		J	HW®K-3JBP11N1 (Key removable at left/center) HW®K-3JGP11N1 (Key removable at left)	
			(3)	NO			X			
		2NO-2NC (22)	(1)	NONC	NO	X		—	HW®K-31BP22 (Key removable at left/center) HW®K-31GP22 (Key removable at left)	
					NC		X			
			(3)	NONC	NO		X			
					NC	X	X			
		2a-2b (22N2)	(1)	2NC	NC		X	—	HW®K-31BP22N2 (Key removable at left/center) HW®K-31GP22N2 (Key removable at left)	
					NC		X			
			(3)	2NO	NO		X			
					NO		X			

- Selector switches with 1 contact block contain 2 dummy blocks. Selector switches with 2 contact blocks contain 1 dummy block.



- Standard key number (231) is available for assembled products. *For numbers other than standard key numbers, contact IDEC.

- For other contact configuration or operator position, select from sub-assembled units (page 31 to 32).

Key removal position





⓪ Bezel Type 1: Black, 4: Metal

① 90° 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

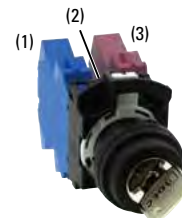
② 45° 3-position

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 

⓪①② : Key removal position ①①② : 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.

Pin tumbler keys can be purchased only as a sub-assembled product.

Key Selector Switches (Disc Tumbler Key / Pin Tumbler Key) 2-Position




Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 30 for available assembled products.



90° 2-position

Package Quantity: 1

<Reference> Assembled Part No.							Operator Unit Ordering No.			Contact Unit						
No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position			Cam Code	Operator position code		③Key Operator Type	Operator position code		Shape	Part No. (Ordering No.)		
		Mounting Position	Contact	1	2			Maintained	1		2	Maintained			1	2
								<Reference> Assembled Part No.			Part No. (Ordering No.)					
90° 2-position	1NO (10)	(1)	NO		X		—	HW①K-2③④P10				HW-CNP10				
	1NC (01)	(1)	—	Dummy				HW①K-2③④P01				HW-CNP01				
		(3)	NC	X				HW①K-2③④P11				HW-CNP11				
	1NO-1NC (11)	(1)	NO		X			HW①K-2③④P20				HW-CNP20				
	2NO (20)	(1)	NO		X			HW①K-2③④P02				HW-CNP02				
		(3)	NO		X			HW①K-2③④P22				HW-CNP22				
	2NC (02)	(1)	NC	X				HW①K-2③④P31		HW-CNP31						
		(3)	NC	X				HW①K-2③④P40		HW-CNP40						
	2NO-2NC (22)	(1)	NONC	NO	X			HW①K-2③④P03N2		HW-CNP03N2						
		(3)	NONC	NO	X			HW①K-2③④P21N1		HW-CNP21N1						
			NC	X												
			NC	X												
	3NO-1NC (31)	(1)	NONC	NO	X											
		(3)	NONC	NO	X											
			NC	X												
	4NO (40)	(1)	2NO	NO	X											
		(3)	2NO	NO	X											
				NO	X											
3NC (03N2)	(1)	2NC	NC	X												
	(3)	NC	NC	X												
2NO-1NC (21N1)	(1)	2NO	NO		X											
			NO		X											
	(3)	NC	NC	X												

• For part no. other than maintained position, see Part No. Example on page 33.

• Each selector key switch is supplied with two keys.

• ① Bezel Type 1: Black, 4: Metal

• Specify the key style in ③.

③Key type code

Code	Key Operator Shape
Blank	Disc tumbler
P	Pin tumbler

} See page 33 Part No.
} Development for details.

• Specify the desired key removal position in ④.

• Specify the key number in ⑥.

For Part No. (Ordering No.)/ mounting positions of contact units, see page .

Key Selector Switches (Disc Tumbler Key / Pin Tumbler Key) 3-Position

Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 30 for available assembled products.



45° 3-position

Package Quantity: 1

<Reference> Assembled Part No.						Operator Unit Ordering No.		Contact Unit						
No. of Positions	Contact Configuration (Code)	Contact Block		Operator Position		Cam Code	Operator position code	③Key Operator Type	Operator position code	Shape	Part No. (Ordering No.)			
		Mounting Position	Contact	1	0		2		Maintained			1	0	2
									<Reference>					
Assembled Part No.														
45° 3-position	1NO-1NC (11)	(1)	NO	X			HW④K-3③④P11				HW-CNP11			
		(3)	NC	X	X								HW-CNP11N1	
	1NO-1NC (11N1)	(1)	NC		X	X		HW④K-3③④P11N1				HHW-CNP20		
		(3)	NO				X						HW-CNP02	
	2NO (20)	(1)	NO	X				HW④K-3③④P20				HW-CNP11N1		
		(3)	NO				X						HW-CNP21N3	
	2NC (02)	(1)	NC		X	X		HW④K-3③④P02				HW-CNP22N1		
		(3)	NC	X	X								HW-CNP22N2	
	1NO-1NC (11N1) ★☆☆	(1)	NC		X			HW④K-3J③④P11N1				HW-CNP40		
		(3)	NO				X						HW-CNP04	
	2NO-1NC (21N3) ★☆☆	(1)	NONC	NO	X			HW④K-3J③④P21N3						
		(3)	NO				X							
	2NO-2NC (22)	(1)	NONC	NO	X			HW④K-3③④P22						
		(3)	NONC	NO			X							
	2NO-2NC (22N2)	(1)	NONC	NC		X	X	HW④K-3③④P22N2						
		(3)	NONC	NC	X	X								
	4NO (40)	(1)	NONC	NC		X		HW④K-3③④P40						
		(3)	NONC	NO			X							
	4NC (04)	(1)	NONC	NC		X	X	HW④K-3③④P04						
		(3)	NONC	NC	X	X								

- 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 33.
- Each selector key switch is supplied with two keys.

- ④ Bezel Type 1: Black, 4: Metal

- Specify the key style in ③.

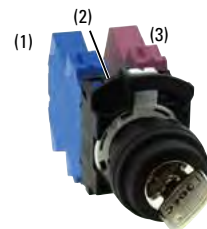
③Key type code

Code	Key Operator Shape
Blank	Disc tumbler
P	Pin tumbler

See page 33 Part No.
Developent for details.

- Specify the desired key removal position in ④.
- Specify the key number in ⑥.

Contact Block Mounting Position



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

For Part No. (Ordering No.)/ mounting positions of contact units, see page 51.

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

Key Selector Switches Part No. Example

Assembled and sub-assembled unit

Assembled Part No. Example

HW1K - 2 J P A P 01 - 501

① Bezel Type

- 1: Black,
- 4: Metal

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 (① Operator position: 2, 3 only)
- Blank: Not specified

③ Key Style

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

⑥ Key No.

- Disc Tumbler Key
- Blank: Standard (231)

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

⑤ Contact configuration code

④ Key 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

HW1K - 2 J P A - 501

① Bezel Type

- 1: Black,
- 4: Metal

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 (① Operator position: 2, 3 only)
- Blank: Not specified

③ Key Style

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

⑥ Key No.

- Disc Tumbler Key
- Blank: Standard (231)

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

④ Key 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

④ Key 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 	

①①② : Key removal position ①①② : Key retained position

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

Contact unit

HW- CN P 10

⑤ Contact configuration code
(see page 31, 32)

① Operator position code

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

Maintained (45° 3-position)	Spring Return (45° 3-position)		
	Spring return from right 	Spring return from left 	Spring return two-way
Cam code: Blank, J, or S	Cam code: blank		

• For available assembled products, see table on page 30.

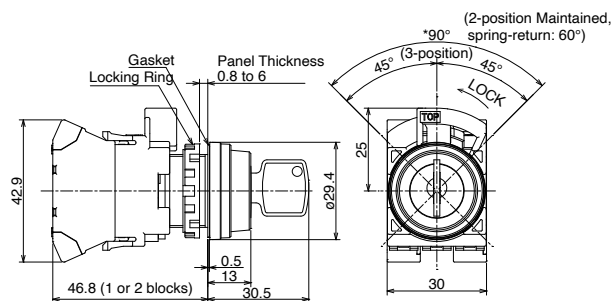
Key Selector Switches (Pin Tumbler Key)

All dimensions in mm.

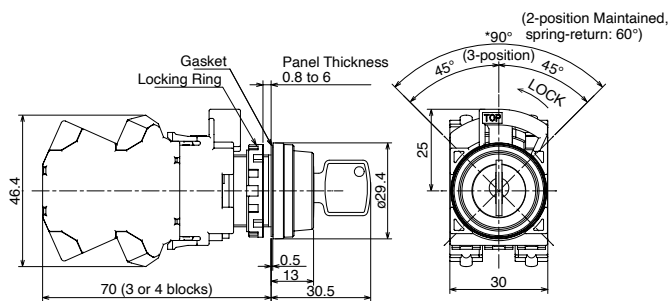
Dimensions

Disc Tumbler Key

1 to 2 contacts

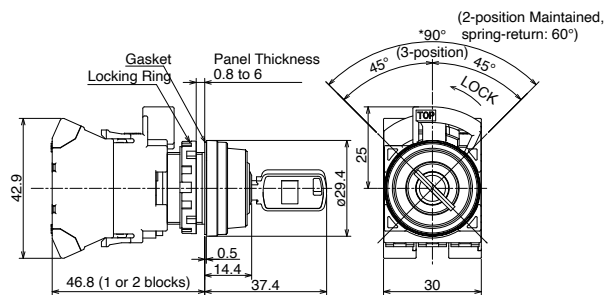


3 to 4 contacts

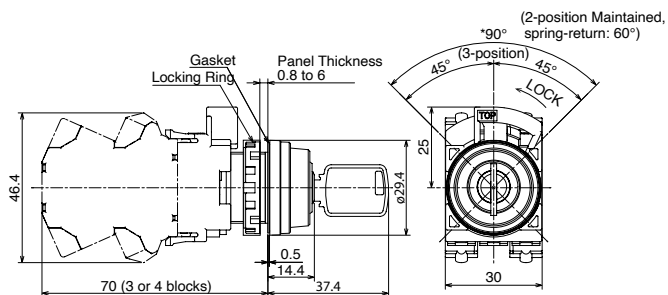


Pin Tumbler Key

1 to 2 contacts



3 to 4 contacts




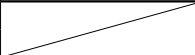

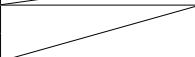
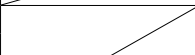
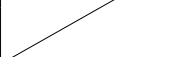
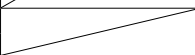
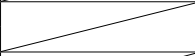
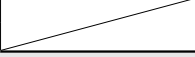
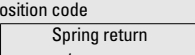
Lever operator can be purchased only as a sub-assembled product.

Illuminated Selector Switches (Knob / Lever Operator) (LED)

Assembled



Package Quantity: 1

Name / Shape	No. of Positions	Contact Configuration Table						Operating Voltage	Functional Specifications		® Illumination Color Code			
		Contact Configuration	Contact Block		Operator Position				Maintained	—				
			Mounting Position	Contact	1	2			<div><div>1</div><div>2</div></div>					
	90° 2-position	1NO (10)	(1)	NO		X		24V AC/DC	HW®F-2P10Q4®		R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)			
			(3)	Dummy						HW®F-2P11Q4®				
		1NO-1NC (11)	(1)	NO		X				HW®F-2P11Q4®				
			(3)	—	X					HW®F-2P20Q4®				
		2NO (20)	(1)	NO		X				HW®F-2P22Q4®				
			(3)	NO		X								
		2NO-2NC (22)	(1)	NONC	NO		X		100/120V AC/DC	HW®F-2P10QH2®				
					NC	X								
			(3)	NONC	NO		X							
					NC	X								
		1NO (10)	(1)	NO		X			100/120V AC/DC	HW®F-2P10QH2®				
			(3)	—	Dummy									
		1NO-1NC (11)	(1)	NO		X							HW®F-2P11QH2®	
			(3)	NC	X									
		2NO (20)	(1)	NO		X							HW®F-2P20QH2®	
			(3)	NO		X								
	No. of Positions	Contact Configuration	Contact Configuration Table						Cam Code	Operator position code		® Illumination Color Code		
			Contact Configuration	Contact Block		Operator Position				Maintained	Spring return two-way			
Mounting Position				Contact	1	0	2	<div><div>1</div><div>0</div><div>2</div></div>		<div><div>1</div><div>0</div><div>2</div></div>				
45° 3-position	2NO (20)	(1)	NO	X			24V AC/DC	HW®F-3P20Q4®	HW®F-3P20Q4®	R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white)				
		(3)	NO			X								

- ® Bezel Type 1: Black, 4: Metal
- Specify an illumination color code in place of ® in the Part No.
- Turn the operator to each position accurately.

• For other contact configuration or operator position, select from sub-assembled units. (page 36 to 37).

Contact Block Mounting Position

(1) (2) (3)

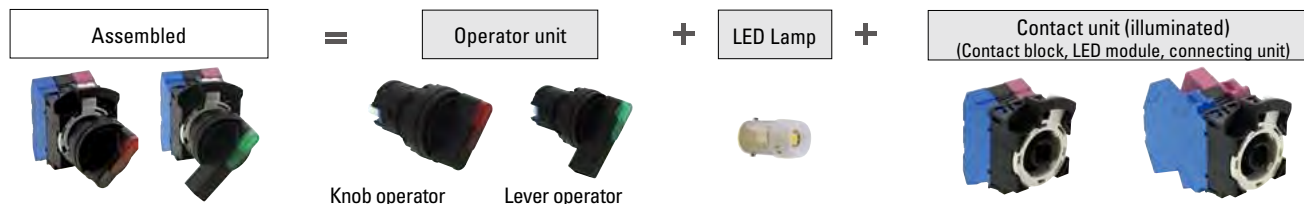


Note) (2) can only be mounted with a full voltage adapter.

Illuminated Selector Switches (Knob / Lever Operator) (LED) 2-Position




Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 35 for available assembled products.



90° 2-position

Package Quantity: 1

<Reference> Assembled Part No							Operator Unit		Contact Unit (Illuminated)				
No. of Positions	Contact Configuration	Contact Block		Operator Position		Cam Code	Operator position code		Name / Shape	Operator position code		Shape	Part No. (Ordering No.)
		Mounting Position	Contact	1	2		Maintained	1 2		Maintained	1 2		
							<Reference> Assembled Part No.			Part No. (Ordering No.)			
90° 2-position	1NO (10)	(1)	NO		X	—	HW⓪F-2ⓓP10ⓓⓖ		Knob Operator 	HW⓪F-2ⓓⓓⓖ-PI-USA		HW-CNP10Q0	
		(3)	—	Dummy			HW⓪F-2ⓓP01ⓓⓖ					HW-CNP01Q0	
	1NC (01)	(1)	—	Dummy			HW⓪F-2ⓓP01ⓓⓖ		Lever Operator 		HW⓪F-2ⓓP11ⓓⓖ	HW-CNP11Q0	
		(3)	NC	X			HW⓪F-2ⓓP20ⓓⓖ					HW-CNP20Q0	
	1NO-1NC (11)	(1)	NO		X		HW⓪F-2ⓓP11ⓓⓖ		HW⓪F-2ⓓP02ⓓⓖ		HW-CNP02Q0		
		(3)	NC	X			HW⓪F-2ⓓP22ⓓⓖ					HW-CNP22Q0	
	2NO (20)	(1)	NO		X		HW⓪F-2ⓓP31ⓓⓖ		HW⓪F-2ⓓP40ⓓⓖ		HW-CNP40Q0		
		(3)	NO		X		HW⓪F-2ⓓP03N2ⓓⓖ					HW-CNP03N2Q0	
	2NC (02)	(1)	NC	X			HW⓪F-2ⓓP02ⓓⓖ		HW⓪F-2ⓓP22ⓓⓖ		HW-CNP22Q0		
		(3)	NC	X			HW⓪F-2ⓓP31ⓓⓖ					HW-CNP31Q0	
	2NO-2NC (22)	(1)	NONC	NO			X	HW⓪F-2ⓓP22ⓓⓖ			HW⓪F-2ⓓP40ⓓⓖ	HW-CNP40Q0	
		(3)	NONC	NO			X	HW⓪F-2ⓓP03N2ⓓⓖ					HW-CNP03N2Q0
	3NO-1NC (31)	(1)	NONC	NO			X	HW⓪F-2ⓓP31ⓓⓖ			HW⓪F-2ⓓP40ⓓⓖ	HW-CNP40Q0	
		(3)	NONC	NO			X	HW⓪F-2ⓓP03N2ⓓⓖ					HW-CNP03N2Q0
	4NO (40)	(1)	2NO	NO			X	HW⓪F-2ⓓP40ⓓⓖ			HW⓪F-2ⓓP03N2ⓓⓖ	HW-CNP03N2Q0	
		(3)	2NO	NO			X	HW⓪F-2ⓓP03N2ⓓⓖ					HW-CNP03N2Q0
	3NC (03N2)	(1)	2NC	NC	X			HW⓪F-2ⓓP03N2ⓓⓖ			HW⓪F-2ⓓP03N2ⓓⓖ	HW-CNP03N2Q0	
		(3)	NC	NC	X			HW⓪F-2ⓓP03N2ⓓⓖ					HW-CNP03N2Q0

- Ⓢ Bezel Type 1: Black, 4: Metal

- Specify an operator unit code in place of Ⓢ in the Part No.

ⓈOperator Unit Code

Code	Operator style
Blank	Knob Operator
L	Lever Operator

- Specify a rated voltage code in place of Ⓢ in the Part No.

Code	Rated voltage	Code	Rated voltage
Q2	6V AC/DC	QH2	100/120V AC/DC
Q3	12V AC/DC	QM	200/220V AC
Q4	24V AC/DC	QM4	230/240V AC

- Specify an illumination color code in place of Ⓢ in the Part No.
R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

- For part no. other than maintained position, see Part No. Example on page 38.

Note) LED lamp is not supplied. When ordering contact units (illuminated) selected LED from below table.

LED lamp (package quantity:1)	
Rated Voltage	Part No. (Ordering No.)
6V AC/DC	LSRD-6
12V AC/DC	LSRD-1
24V AC/DC	LSRD-2
100/120V AC/DC	LSRD-H2
200/220V AC	LSRD-M2
230/240V AC	LSRD-M4

For Part No. (Ordering No.)// mounting positions of contact units, see page 51.

Illuminated Selector Switches (Knob / Lever Operator) (LED) 3-Position

Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 35 for available assembled products.

45° 3-position

Package Quantity: 1

<Reference> Assembled Part No							Operator Unit		Contact Unit (Illuminated)						
No. of Positions	Contact Configuration	Contact Block		Operator Position			Operator position code		Name / Shape	Operator position code		Shape	Part No. (Ordering No.)		
		Mounting Position	Contact	1	0	2	Maintained	1		0	2				
<Reference> Assembled Part No.									Part No. (Ordering No.)						
45° 3-position	1NO-1NC (11)	(1)	NO	X			HW①F-3③P11⑤⑥	Knob Operator	HW①F-3③⑥-PI-USA		HW-CNP11Q0				
		(3)	NC	X	X							HW-CNP11N1Q0			
	1NO-1NC (11N1)	(1)	NC		X	X	HW①F-3③P11N1⑤⑥	Lever Operator		HW①F-3J③⑥-PI-USA		HHW-CNP20Q0			
		(3)	NO			X							HW-CNP02Q0		
	2NO (20)	(1)	NO	X			HW①F-3③P20⑤⑥				HW①F-3③⑥-PI-USA		HW-CNP11N1Q0		
		(3)	NO			X								HW-CNP30N1Q0	
	2NC (02)	(1)	NC		X	X	HW①F-3③P02⑤⑥					HW①F-3③⑥-PI-USA		HW-CNP22N1Q0	
		(3)	NC	X	X										HW-CNP22N2Q0
	1NO-1NC (11N1) ★ ☆	(1)	NC		X		HW①F-3J③P11N1⑤⑥						HW①F-3③⑥-PI-USA		HW-CNP40Q0
		(3)	NO			X										HW-CNP04Q0
	2NO-1NC (21N3) ★ ☆	(1)	NONC	NO	X		HW①F-3J③P21N3⑤⑥		HW①F-3③⑥-PI-USA						HW-CNP22N1Q0
			NC		X											HW-CNP22N2Q0
		(3)	NO			X				HW①F-3③⑥-PI-USA					HW-CNP40Q0
	2NO-2NC (22)	(1)	NONC	NO	X		HW①F-3③P22⑤⑥				HW①F-3③⑥-PI-USA				HW-CNP22N1Q0
			NC		X	X										HW-CNP22N2Q0
		(3)	NONC	NO		X						HW①F-3③⑥-PI-USA			HW-CNP40Q0
			NC	X	X											HW-CNP04Q0
	2NO-2NC (22N2)	(1)	2NC	NO	X	X	HW①F-3③P22N2⑤⑥						HW①F-3③⑥-PI-USA		HW-CNP22N1Q0
			NC		X	X										HW-CNP22N2Q0
		(3)	2NO	NO		X			HW①F-3③⑥-PI-USA						HW-CNP40Q0
			NC			X										HW-CNP04Q0
	4NO (40)	(1)	2NO	NO	X		HW①F-3③P40⑤⑥			HW①F-3③⑥-PI-USA					HW-CNP22N1Q0
			NC		X											HW-CNP22N2Q0
		(3)	2NO	NO		X					HW①F-3③⑥-PI-USA				HW-CNP40Q0
			NC			X										HW-CNP04Q0
	4NC (04)	(1)	2NC	NC	X	X	HW①F-3③P04⑤⑥					HW①F-3③⑥-PI-USA			HW-CNP22N1Q0
			NC		X	X										HW-CNP22N2Q0
		(3)	2NC	NC	X	X							HW①F-3③⑥-PI-USA		HW-CNP40Q0
		NC	X	X		HW-CNP04Q0									

- ① Bezel Type 1: Black, 4: Metal

- Specify an operator unit code in place of ③ in the Part No.

③ Operator Unit Code

Code	Operator style
Blank	Knob Operator
L	Lever Operator

- Specify a rated voltage code in place of ⑤ in the Part No.

Code	Rated voltage	Code	Rated voltage
Q2	6V AC/DC	QH2	100/120V AC/DC
Q3	12V AC/DC	QM	200/220V AC
Q4	24V AC/DC	QM4	230/240V AC

- Specify an illumination color code in place of ⑥ in the Part No.
R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)

Contact Block Mounting Position


(1) (2) (3)



Note) (2) can only be mounted with a LED module.

- For part no. other than maintained position, see Part No. Example on page 38.

Note) LED lamp is not supplied. When ordering contact units (illuminated) selected LED from below table.

LED lamp (package quantity:1)	
	
Rated Voltage	Part No. (Ordering No.)
6V AC/DC	LSRD-6
12V AC/DC	LSRD-1
24V AC/DC	LSRD-2
100/120V AC/DC	LSRD-H2
200/220V AC	LSRD-M2
230/240V AC	LSRD-M4

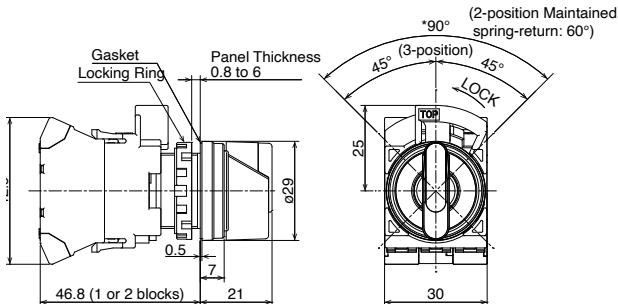
Illuminated Selector Switches (Knob / Lever Operator) (LED)

All dimensions in mm.

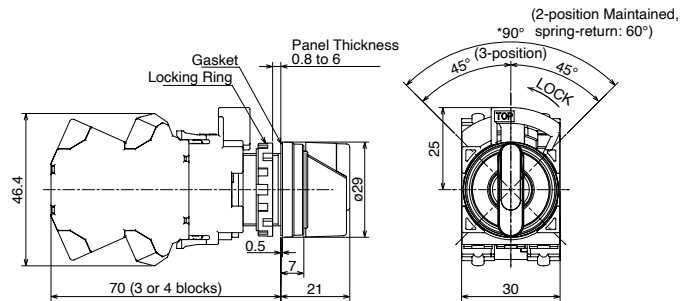
Dimensions

Knob Operator

1 to 2 contacts

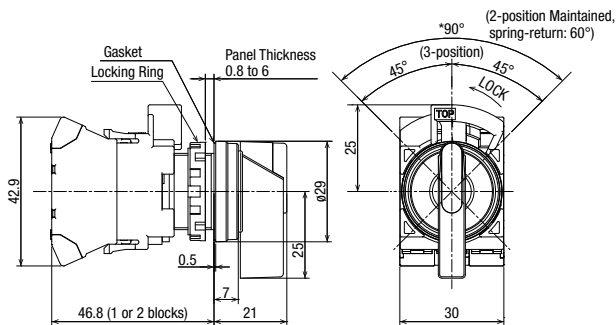


3 to 4 contacts

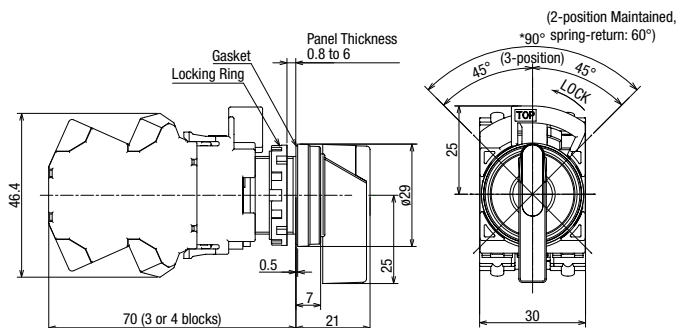


Lever Operator

1 to 2 contacts



3 to 4 contacts



Illuminated Selector Switches Part No. Example

Assembled and sub-assembled unit

Assembled Part No. Example

HW1F - 2 J L P 11 Q4 R	⑥ Illuminated color code (see page 37)
① Operator position code:	⑤ Operating voltage
2: 2-position, maintained	Q2 : 6V AC/DC
21: 2-position, spring return from right	Q3 : 12V AC/DC
3: 3-position, maintained	Q4 : 24V AC/DC
31: 3-position, spring return from right	QH2 : 100/120V AC/DC
32: 3-position, spring return from left	QM : 200/220V AC
33: 3-position, spring return two way	QM4 : 200/240V AC
② Cam code	④ Contact configuration code (see page 35)
J: Specified (① Operator position: 2, 3 only)	
Blank: Not specified	
③ Operator unit code	
Blank: Knob Operator	
L: Lever Operator	

• For available assembled products, see table on page 35.

Operator unit

HW1F - 2 L R - PI-USA	⑥ Illuminated color code (see page 37)
① Operator position code	④ Operator unit code
2: 2-position, maintained	T: Knob Operator
21: 2-position, spring return from right	L: Lever Operator
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	

Contact Unit (for illuminated unit)

HW- CN P 20 Q0

④ Contact configuration code
(see page 36, 37)

Note) LED lamps are not supplied.

LED Lamp

LSRD - 6


⑤ Rated voltage code	
6: 6V AC/DC	H2: 100/120V AC/DC
1: 12V AC/DC	M2: 200/220V AC
2: 24V AC/DC	M4: 230/240V AC

Selector Pushbuttons

Assembled



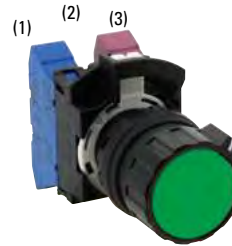
Package Quantity: 1

Name / Shape	Circuit Code.	Contact Configuration	Contact Block		Left		Right		Ring Operator	③ Button Color Code
			Mounting Position	Contact	Normal	Push	Normal	Push	Part No. (Ordering No.)	
	D	2NO (20)	(1)	NO		X			HW1R-2DP20③	B (black) G (green)
			(3)	NO				X		

- Specify a button color code in place of ③ in the part No.
- When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.

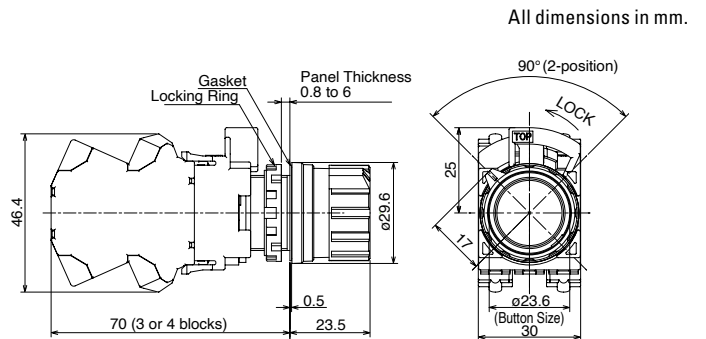
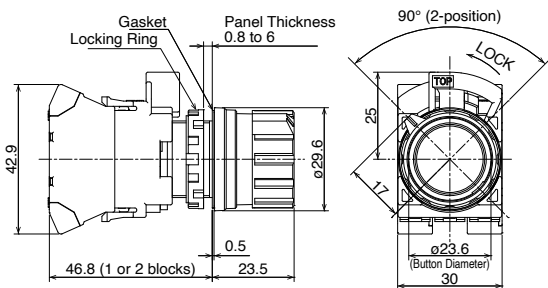
• For other circuit codes, select from sub-assembled units (page 40).

Contact Block Mounting Position



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

Dimensions



All dimensions in mm.

Selector Pushbuttons Part No. Example

Assembled and sub-assembled unit

Assembled Part No. Example

HW1R - 2 D P 20 B

①Circuit code (see page 40) ——— ⑤Button color code (see page 40)

②Contact configuration code

11: 1NO1NC
20: 2NO
22: 2NO-2NC
11N1: 1NO-1NC
22N2: 2NO-2NC

• For available assembled products, see table on page 40.

Operator unit

HW1R - 2 A B

①Circuit code (see page 40) ——— ③Button color code (see page 40)

Contact unit

HW - CN P 10

⑤Contact configuration code (see page 40)

Selector Pushbuttons

Sub-Assembled



When ordering, specify the sub-assembled ordering no. See page 39 for available assembled products.

$$\text{Assembled} = \text{Operator unit} + \text{Contact unit (Contact block, dummy block, connecting unit)}$$



Sub-Assembled Ordering No.

Package Quantity: 1

<Reference> Assembled Part No.									
Circuit Code	Contact Configuration (Code)	Contact Block		Left 		Right 		Ring Operator	③ Button Color Code
		Mounting Position	Contact	Normal	Push	Normal	Push	Part No. (Ordering No.)	
A	1NO-1NC (11)	(1)	NO		X		X	HW1R-2AP11③	B (black) G (green) R (red) Y (yellow) S (blue) W (white)
		(3)	NC	X					
	2NO (20)	(1)	NO		X		X	HW1R-2AP20③	
		(3)	NO		X	X	X		
	2NO-2NC (22)	(1)	2NO	NO	X			HW1R-2AP22N1③	
				NO	X				
		(3)	2NC	NC	X				
				NC	X				
D	2NO (20)	(1)	NO		X			HW1R-2DP20③	
		(3)	NO				X		
	2NO-2NC (22)	(1)	NONC	NO		X		HW1R-2DP22③	
				NC	X		X		X
		(3)	NONC	NO			X		
				NC	X	X			
E	2NO-2NC (22)★	(1)	NONC	NO		X		HW1R-2EP22③	
				NC			X		X
		(3)	NONC	NO			X		
				NC	X	X			
F	2NO-2NC (22)★☆☆	(1)	NONC	NO			X	HW1R-2FP22③	
				NC			X		
		(3)	NONC	NO		X			
				NC	X				
N	2NO-2NC (22N2)★☆☆	(1)	2NC	NC			X	HW1R-2NP22N2③	
				NC			X		
		(3)	2NO	NO		X			X
				NO		X			X
T	2NO-2NC (22)	(1)	NONC	NO		X	X	HW1R-2TP22③	
				NC	X				
		(3)	NONC	NO		X	X		Operation Blocked
				NC	X				

Operator unit Part No. (Ordering No.)	Contact unit	
 HW1R-2A③	1NO-1NC (11)	HW-CNP11
	2NO (20)	HW-CNP20
	2NO-2NC (22N1)	HW-CNP22N1
 HW1R-2D③	2NO (20)	HW-CNP20
	2NO-2NC (22)	HW-CNP22
 HW1R-2E③	2NO-2NC (22)	HW-CNP22
 HW1R-2F③	2NO-2NC (22)	HW-CNP22
 HW1R-2N③	2NO-2NC (22N2)	HW-CNP22N2
 HW1R-2T③	2NO-2NC (22)	HW-CNP22

- 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.
- When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.
- For contact mounting position, see page 51.

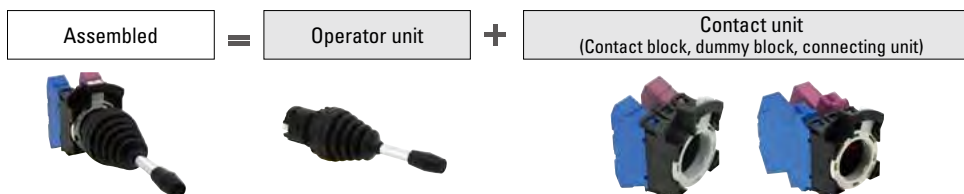
For Part No. (Ordering No.) / mounting positions of contact units, see page 51.

Momoloever switches can be purchased only as a sub-assembled product.

Monolever Switches


Sub-Assembled



When ordering, specify the sub-assembled ordering no.



Sub-Assembled Ordering No.

Package Quantity: 1

Name / Shape	Positions	<Reference> Assembled Part No.
HW1M Standard 	2-position	HW1M-P1010-20
		HW1M-P2020-20
		HW1M-P0101-20
		HW1M-P0202-20
		HW1M-P0101-40
		HW1M-P0202-40
	4-position	HW1M-P1111-22N9
		HW1M-P2222-22N9
HW1M-L Interlocking 	2-position	HW1M-LP1010-20
		HW1M-LP2020-20
		HW1M-LP0101-20
		HW1M-LP0202-20
		HW1M-LP0101-40
		HW1M-LP0202-40
	4-position	HW1M-LP1111-22N9
		HW1M-LP2222-22N9

Operator unit	
Name / Shape	Part No. (Ordering No.)
HW1M Standard 	HW1M-1010
	HW1M-2020
	HW1M-0101
	HW1M-0202
	HW1M-0101
	HW1M-0202
	HW1M-1111
	HW1M-2222
HW1M-L Interlocking 	HW1M-L1010
	HW1M-L2020
	HW1M-L0101
	HW1M-L0202
	HW1M-L0101
	HW1M-L0202
	HW1M-L1111
	HW1M-L2222

Contact unit		
Shape	Contact Configuration	Part No. (Ordering No.)
	2NO (20)	HW-CNP20
	4NO (40)	HW-CNP40
	2NO (20)	HW-CNP20
	4NO (40)	HW-CNP40
	2NO-2NC (22)	HW-CNP22
	2NO-2NC (22)	HW-CNP22

• On all mono-lever switches, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

• For contact mounting position, see page 51.

For Part No. (Ordering No.)/ mounting positions of contact units, see page 51.

Monolever Switches

Contact Configuration

2-position (Right/Left)

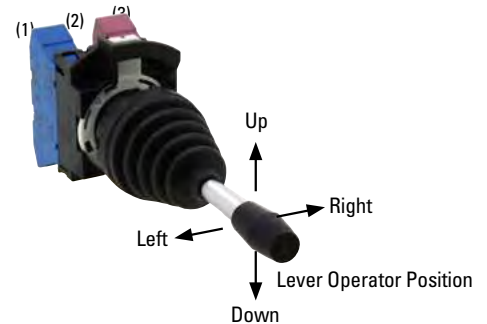
Contact Code	Contact Block		Lever Operator Position		
	Mounting Position	Contact	Left	Center	Right
20	(1)	NO	X		
	(3)	NO			X
40	(1)	2NO	NO	X	
			NO	X	
	(3)	2NO	NO		X
			NO		X

2-position (Up/Down)

Contact Code	Contact Block		Lever Operator Position		
	Mounting Position	Contact	Down	Center	Up
20	(1)	NO	X		
		NO			X
	(1)	2NO	NO	X	
			NO	X	
	(3)	2NO	NO		X
			NO		X

Contact Code	Contact Block		Lever Operator Position				
	Mounting Position	Contact	Down	Left	Center	Up	Right
22	(1)	NONC	NO		X		
			NC				X
	(3)	NONC	NO			X	
			NC	X			

Contact Block Mounting Position



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

Note) The lever operator of the interlocking type HW1M-L is locked only in the center position. Pull on the interlocking lever before operating the lever up/down/right/left.

Monolever Switches Part No. Example

Assembled and sub-assembled unit

Assembled Part No. Example

HW1M-L P 1 0 1 0 - 20

- ① Model
HW1M: Standard
HW1M-L: Interlocking
- ② Lever operation mode
Order of Entry
Up - Right - Down - Left
1: Maintained
2: Spring returned
0: Blocked
- ③ Contact configuration code
Select a required contact operation at each lever operator position from the contact arrangement charts above and specify the Contact Code.

Operator unit

HW1M-L 1 0 1 0

- ① Model
HW1M: Standard
HW1M-L: Interlocking
- ② Lever operation mode
Order of Entry
Up - Right - Down - Left
1: Maintained
2: Spring returned
0: Blocked

Contact unit

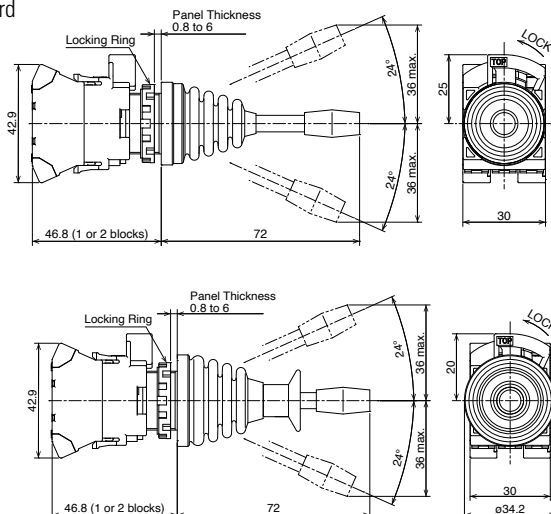
HW- CN P 10 20

- ③ Contact configuration code
Select a required contact operation at each lever operator position from the contact arrangement charts above and specify the Contact Code.

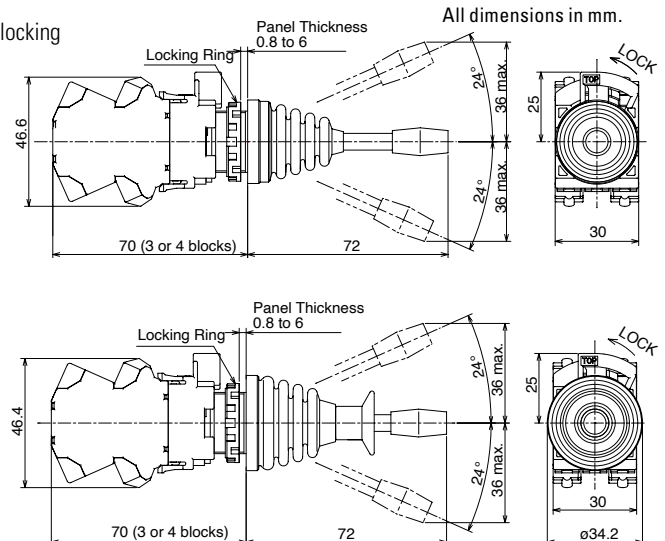
• For available assembled products, see table on page 41.

Dimensions

Standard



Interlocking





Short Body Pilot Lights

Assembled



Package Quantity: 1

Name / Shape	Operating Voltage	Part No. (Ordering No.)	① Lens Color Code
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-2JPRH2①	
	200/240V AC/DC	HW1P-2JPCM2①	
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-1JPRH2①	
	200/240V AC/DC	HW2P-1JPCM2①	

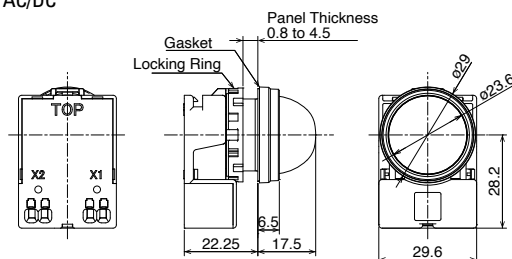
- Built-in BA9S base LED lamp. See page 57 for LED Lamps.
- For square flush pilot lights, legends and symbols can be engraved on marking plates, or printed film can be inserted. For details on marking plates or film, see page 63. Engraving and films must be prepared by the customer.
- Specify a lens color code in place of ① in the Part No.

Short Body Pilot Lights

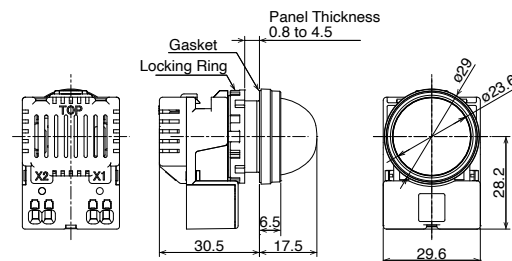
Dimensions

All dimensions in mm.

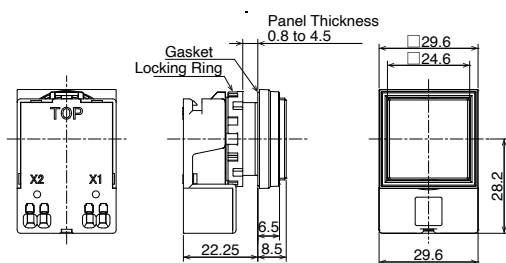
Extended (Dome)
6V, 12V, 24V AC/DC



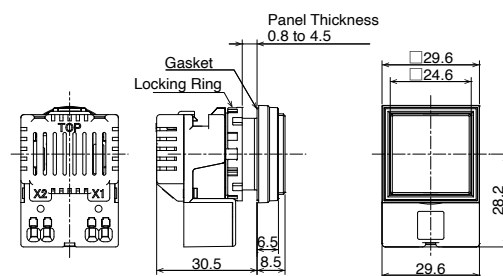
100/120V AC/DC, 200/240V AC



Square Flush
6V, 12V, 24V AC/DC



100/120V AC/DC, 200/240V AC



Illuminated / Non-Illuminated Buzzers



Easy installation of buzzers and lamps

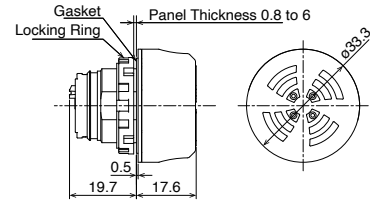
- Short, 19.7 mm depth behind panel.
- Buzzer and lamp functions are integrated. (Illuminated buzzers)
- IP65 waterproof from the front of the panel
- Installing an optional terminal rubber boot upgrades the terminal's waterproof characteristics to IP54 without the need to use a rear enclosure.



- 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 54 for details on terminal rubber boot.

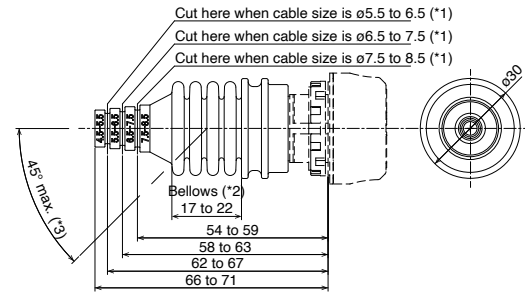
Specifications and Ratings

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

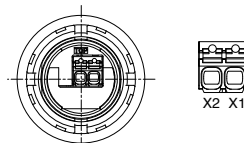
All dimensions in mm.

With terminal rubber boot



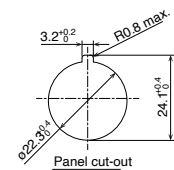
- *1: ø4.5-5.5 cable needs no cutting.
*2: The bellows must be 17 to 22mm long after installing the terminal rubber boot.
*3: Maintain a cable angle of 45° max. to the HW1Z axis.

Terminal Arrangement (bottom view)



X1 and X2 have no polarity.

Mounting Hole Layout



3.2^{0.2} hole is for anti-rotation.
Not required when nameplate/anti-rotation is not used.

Instructions for Illuminated / Non-illuminated buzzers: see page 66

Emergency Stop Switches

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.

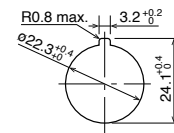
Specifications

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		80N
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
Life	Mechanical	Single contact block: 100,000 operations minimum Double contact block: 50,000 operations minimum
	Electrical	Single contact block: 100,000 operations minimum Double contact block: 50,000 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) 67g (HW1B-V4P04) 48g (HW1B-Y2P02)



Mounting Hole Layout

All dimensions in mm.



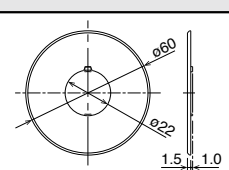
Minimum Mounting Centers for HW1B (emergency stop switch)

	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

Name / Shape	Contact Configuration	Part No. (Coded)
 ø29mm Mushroom Pushlock Turn Reset HW@B-V3	1NC	HW@B-V3P01R
	1NO-1NC	HW@B-V3P11R
	2NC	HW@B-V3P02R
	3NC	HW@B-V3P03N2R
	1NO-1NC	HW@B-V3P22R
	4NC	HW@B-V3P04R

Package Quantity: 1

Name / Shape	Contact Configuration	Part No. (Coded)
 ø40mm Mushroom Pushlock Turn Reset HW1B-V4 HW4B-V4	1NC	HW@B-V4P01R
	1NO-1NC	HW@B-V4P11R
	2NC	HW@B-V4P02R
	3NC	HW@B-V4P03N2R
	1NO-1NC	HW@B-V4P22R
	4NC	HW@B-V4P04R

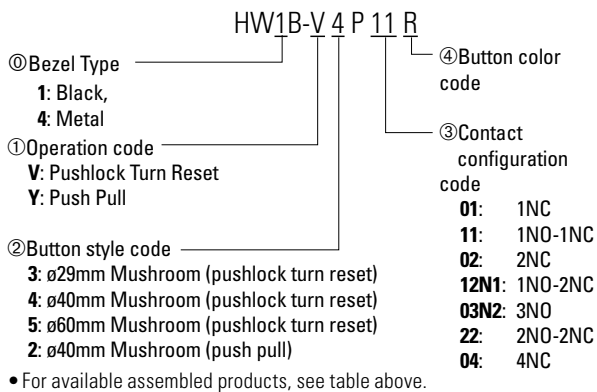
- Pushlock turn reset – Button is maintained when pressed and is reset when turned clockwise.
- Emergency stop switches with 1 contact block contain 2 dummy blocks. Pushbuttons with 2 contact block contains 1 dummy block.

• For other specifications, select from sub-assembled units (page 48).

Part No. Example

Assembled and sub-assembled unit

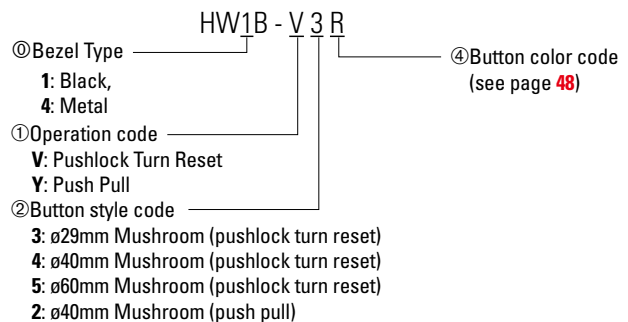
Assembled Part No. Example



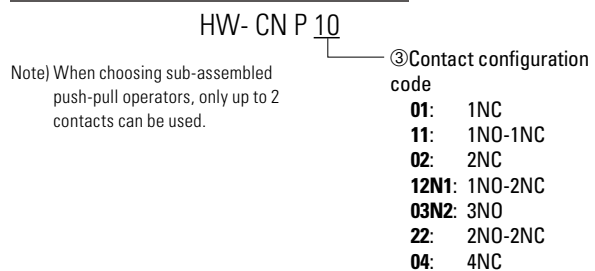
Note

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

Sub-assembled operator unit



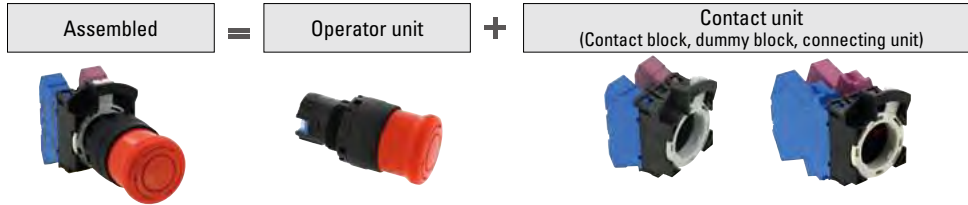
Sub-assembled contact unit





Emergency Stop Switches

Sub-Assembled

When ordering, specify the sub-assembled ordering no. See page 47 for available assembled products.



Pushlock Turn Reset

Name / Shape	Contact Configuration	<Reference> Assembled Part No. ④ = 1 or 4	④ Button Color Code
 ø29mm Mushroom HW®B-V3	1NC	HW®B-V3P01④	R (red) Y (yellow)
	1NO-1NC	HW®B-V3P11④	
	2NC	HW®B-V3P02④	
	1NO-2NC	HW®B-V3P12N1④	
	3NC	HW®B-V3P03N2④	
	2NO-2NC	HW®B-V3P22④	
 ø40mm Mushroom HW®B-V4	1NC	HW®B-V4P01④	R (red) Y (yellow)
	1NO-1NC	HW®B-V4P11④	
	2NC	HW®B-V4P02④	
	1NO-2NC	HW®B-V4P12N1④	
	3NC	HW®B-V4P03N2④	
	2NO-2NC	HW®B-V4P22④	
 ø60mm Mushroom HW®B-V5	1NC	HW®B-V5P01④	R (red) Y (yellow)
	1NO-1NC	HW®B-V5P11④	
	2NC	HW®B-V5P02④	
	1NO-2NC	HW®B-V5P12N1④	
	3NC	HW®B-V5P03N2④	
	2NO-2NC	HW®B-V5P22④	

- Pushlock turn reset – Button is maintained when pressed and is reset when turned clockwise.

Sub-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	HW®B-V3④		1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NC	HW-CNP02
			1NO-2NC	HW-CNP12N1
			3NC	HW-CNP03N2
			2NO-2NC	HW-CNP22
 ø40mm Mushroom	HW®B-V4④		1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NC	HW-CNP02
			1NO-2NC	HW-CNP12N1
			3NC	HW-CNP03N2
			2NO-2NC	HW-CNP22
 ø60mm Mushroom	HW®B-V5④		1NC	HW-CNP01
			1NO-1NC	HW-CNP11
			2NC	HW-CNP02
			1NO-2NC	HW-CNP12N1
			3NC	HW-CNP03N2
			2NO-2NC	HW-CNP22

- Specify a button color code in place of ④ in the Part No. R (red), Y (yellow)
Note) Y (yellow) cannot be used as a emergency stop switch by EN standards.



Push Pull

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

- Push-Pull – 2-position switches with button maintained in both depressed and reset positions.
- Bezel Type: 1: Black, 4: Metal

Push Pull

Package Quantity: 1

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

- Specify a button color code in place of ④ in the Part No. R (red), Y (yellow)
Note) Y (yellow) cannot be used as a emergency stop switch by EN standards.
Note) Only up to 2 contacts can be used for push-pull switches.

For Part No. (Ordering No.) / mounting positions of contact units, see page 51.

Emergency Stop Switches Dimensions

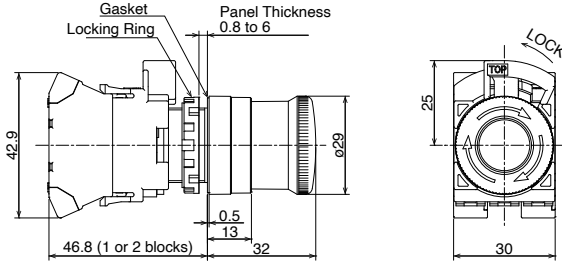
All dimensions in mm.

Dimensions

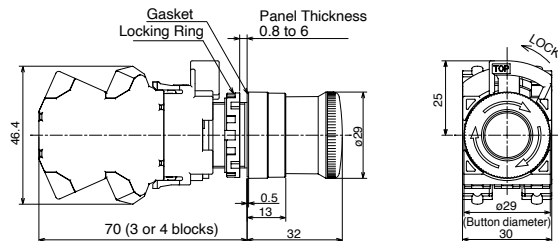
All dimensions in mm.

ø29mm Mushroom Pushlock Turn Reset
HW1B-V3

1 to 2 contacts

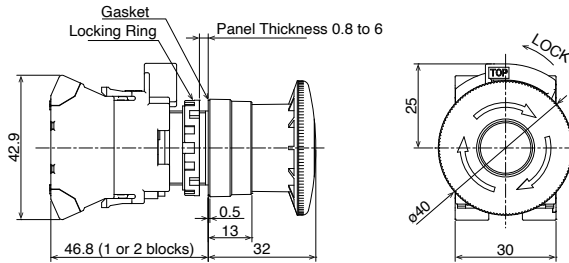


3 to 4 contacts

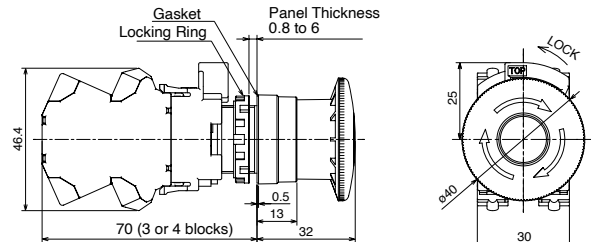


ø29mm Mushroom Pushlock Turn Reset
HW1B-V4

1 to 2 contacts

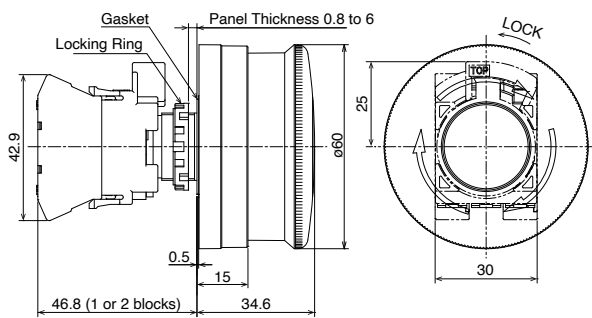


3 to 4 contacts

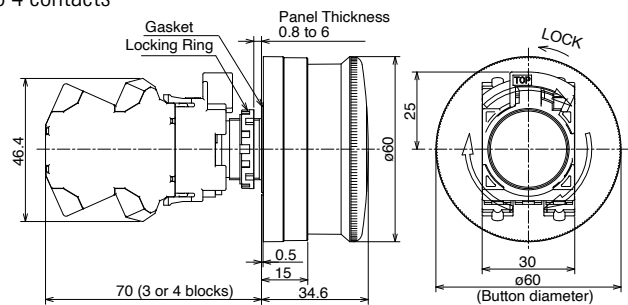


ø60mm Mushroom Pushlock Turn Reset
HW1B-V5

1 to 2 contacts

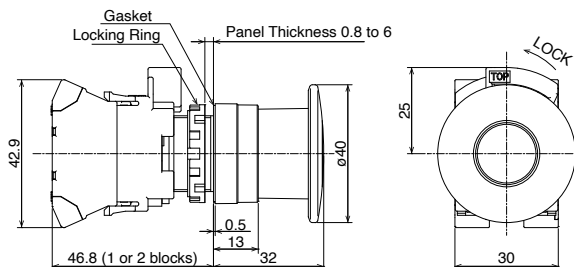


3 to 4 contacts



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

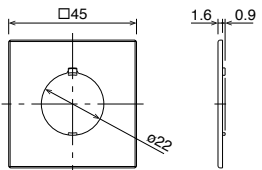
1 to 2 contacts



Nameplates


All dimensions in mm

When ordering, specify the Ordering No.

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

Marking Plates for HWAM/HWAQ

When ordering, specify the Ordering No.

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



- 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 63 for how to install nameplates/marketing plates, and how to remove marking plates.

E-Stop Shrouds

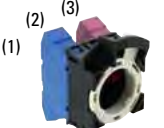
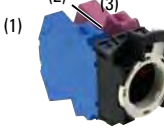
Style	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG1	40mm Mushroom Head	SEMI S2-0703, 12.5.1 Compliant
	HW9Z-KG2	40mm Mushroom Head	SEMI S2-0703, 12.5.1 & SEMATECH Compliant

Style	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG3	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV) ISO 13850
	HW9Z-KG4	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV) & SEMATECH ISO 13850

Contact Unit

Contact Unit Part No. / Contact Configuration

Package Quantity: 1

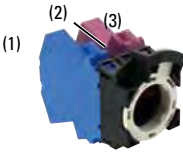
Shape / Contact Block Mounting Position									
 <p>1 to 2 contacts</p>					 <p>3 to 4 contacts</p>				
					Note) (2) can only be mounted with a dummy block.				
Contact Configuration (Code)	Part No. (Ordering No.)	Mounting Position	Contact	Component Part No.	Contact Configuration (Code)	Part No. (Ordering No.)	Mounting Position	Contact	Component Part No.
1NO (10)	HW-CNP10	(1)	1NO	HW-P10	3NO (30N1)	HW-CNP30N1	(1)	2NO	HW-PW20
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	Dummy	CW-DB			(3)	1NO	HW-P10
1NC (01)	HW-CNP01	(1)	Dummy	CW-DB	3NC (03N2)	HW-CNP03N2	(1)	2NC	HW-PW02
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	1NC	HW-P01			(3)	1NC	HW-P01
1NO-1NC (11)	HW-CNP11	(1)	1NO	HW-P10	1NO-2NC (12N1)	HW-CNP12N1	(1)	1NO-1NC	HW-PW11
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	1NC	HW-P01			(3)	1NC	HW-P01
1NO-1NC (11N1)	HW-CNP11N1	(1)	1NC	HW-P01	1NO-3NC (13)	HW-CNP13	(1)	1NO-1NC	HW-PW11
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	1NO	HW-P10			(3)	2NC	HW-PW02
2NO (20)	HW-CNP20	(1)	1NO	HW-P10	2NO-1NC (21N3)	HW-CNP21N3	(1)	1NO-1NC	HW-PW11
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	1NO	HW-P10			(3)	1NO	HW-P10
2NC (02)	HW-CNP02	(1)	1NC	HW-P01	3NO-1NC (31)	HW-CNP31N1	(1)	1NO-1NC	HW-PW11
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	1NC	HW-P01			(3)	2NO	HW-PW20
2NO-2NC (22)	HW-CNP22	(1)	1NO-1NC	HW-PW11	1NO-3NC (13)	HW-CNP13	(1)	1NO-1NC	HW-PW11
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	1NO-1NC	HW-PW11			(3)	2NC	HW-PW02
2NO-2NC (22N1)	HW-CNP22N1	(1)	2NO	HW-PW20	4NO (40)	HW-CNP40	(1)	2NO	HW-PW20
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	2NC	HW-PW02			(3)	2NO	HW-PW20
2NO-2NC (22N2)	HW-CNP22N2	(1)	2NC	HW-PW02	4NC (04)	HW-CNP04	(1)	2NC	HW-PW02
		(2)	Dummy	CW-DB			(2)	Dummy	CW-DB
		(3)	2NO	HW-PW20			(3)	2NC	HW-PW02

- Contact unit includes a contact block(s), and a connecting unit.
- Switches with 1 contact block contain 2 dummy blocks. Switches with 2 contact blocks contain 1 dummy block.

Contact Unit


Contact Unit (illuminated) Part No. / Contact Configuration

Package Quantity: 1

Shape / Contact Block Mounting Position				
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>1 to 2 contacts</p> </div> <div style="text-align: center;">  <p>3 to 4 contacts</p> </div> <div style="text-align: right;"> <p>Note) (2) can only be mounted with a dummy block.</p> </div> </div>				
Contact Configuration (Code)	Part No. (Ordering No.)	Mounting Position	Contact	Component Part No.
1NO (10)	HW-CNP10Q0	(1)	1NO	HW-P10
		(2)	Full voltage adapter	HW-DP
		(3)	Dummy	CW-DB
1NC (01)	HW-CNP01Q0	(1)	Dummy	CW-DB
		(2)	Full voltage adapter	HW-DP
		(3)	1NC	HW-P01
1NO-1NC (11)	HW-CNP11Q0	(1)	1NO	HW-P10
		(2)	Full voltage adapter	HW-DP
		(3)	1NC	HW-P01
1NO-1NC (11N1)	HW-CNP11N1Q0	(1)	1NC	HW-P01
		(2)	Full voltage adapter	HW-DP
		(3)	1NO	HW-P10
2NO (20)	HW-CNP20Q0	(1)	1NO	HW-P10
		(2)	Full voltage adapter	HW-DP
		(3)	1NO	HW-P10
2NC (02)	HW-CNP02Q0	(1)	1NC	HW-P01
		(2)	Full voltage adapter	HW-DP
		(3)	1NC	HW-P01
2NO-2NC (22)	HW-CNP22Q0	(1)	1NO-1NC	HW-PW11
		(2)	Full voltage adapter	HW-DP
		(3)	1NO-1NC	HW-PW11
2NO-2NC (22N1)	HW-CNP22N1Q0	(1)	2NO	HW-PW20
		(2)	Full voltage adapter	HW-DP
		(3)	2NC	HW-PW02
2NO-2NC (22N2)	HW-CNP22N2Q0	(1)	2NC	HW-PW02
		(2)	Full voltage adapter	HW-DP
		(3)	2NO	HW-PW20
3NO (30N1)	HW-CNP30N1Q0	(1)	2NO	HW-PW20
		(2)	Full voltage adapter	HW-DP
		(3)	1NO	HW-P10
3NC (03N2)	HW-CNP03N2Q0	(1)	2NC	HW-PW02
		(2)	Full voltage adapter	HW-DP
		(3)	1NC	HW-P01
1NO-2NC (12N1)	HW-CNP12N1Q0	(1)	1NO-1NC	HW-PW11
		(2)	Full voltage adapter	HW-DP
		(3)	1NC	HW-P01
1NO-3NC (13)	HW-CNP13Q0	(1)	1NO-1NC	HW-PW11
		(2)	Full voltage adapter	HW-DP
		(3)	2NC	HW-PW02
2NO-1NC (21N3)	HW-CNP21N3Q0	(1)	1NO-1NC	HW-PW11
		(2)	Full voltage adapter	HW-DP
		(3)	1NO	HW-P10
3NO-1NC (31)	HW-CNP31Q0	(1)	1NO	HW-P10
		(2)	Full voltage adapter	HW-DP
		(3)	1NO-1NC	HW-PW11
1NO-3NC (13)	HW-CNP13Q0	(1)	1NO-1NC	HW-PW11
		(2)	Full voltage adapter	HW-DP
		(3)	2NC	HW-PW02
4NO (40)	HW-CNP40Q0	(1)	2NO	HW-PW20
		(2)	Full voltage adapter	HW-DP
		(3)	2NO	HW-PW20
4NC (04)	HW-CNP04Q0	(1)	2NC	HW-PW02
		(2)	Full voltage adapter	HW-DP
		(3)	2NC	HW-PW02

- Contact unit (illuminated) includes a contact block(s), full voltage adapter, and a connecting unit.
- Switches with 1 contact block contain 2 dummy blocks. Switches with 2 contact blocks contain 1 dummy block.

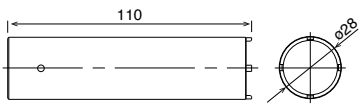
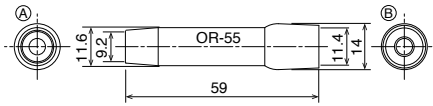
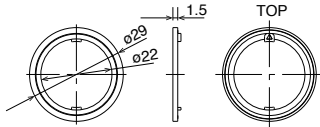
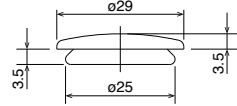
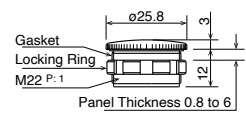
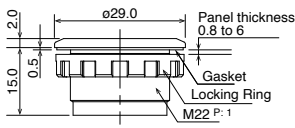
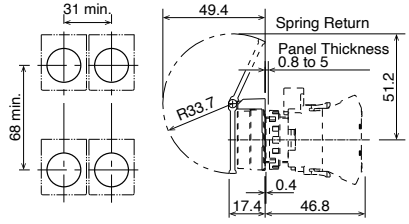
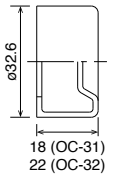
Note) LED lamp is not installed. When ordering a contact unit (illuminated), select a LED lamp from below.

LED lamp (package quantity:1)	
	
Rated Voltage	Part No. (Ordering No.)
6V AC/DC	LSRD-6
12V AC/DC	LSRD-1
24V AC/DC	LSRD-2
100/120V AC/DC	LSRD-H2
200/220V AC	LSRD-M2
230/240V AC	LSRD-M4

Accessories

All dimensions in mm


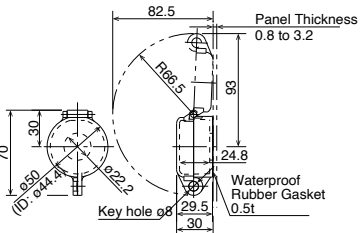

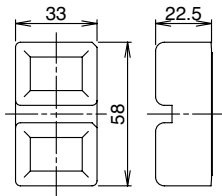



When ordering, specify the Ordering No.

Name / Shape		Material	Part No.	Remarks
Tool	Locking Ring Wrench	Metal (nickel-plated brass) Weight: approx. 150g	MW9Z-T1	<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	<ul style="list-style-type: none"> Used to install and remove the LED lamps. See page 59 for how to install. Ⓐ: BA9S 
Anti-rotation Ring		Ring: polyamide Gasket: nitril rubber	HW9Z-RL	<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	<ul style="list-style-type: none"> 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	<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	<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	<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	
Button Clear Boot	For flush pushbuttons	Rubber (EPDM)	OC-31	<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 HWAV. 
	For extended pushbuttons		OC-32	

Accessories

All dimensions in mm

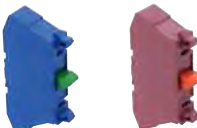




When ordering, specify the Ordering No.

Name / Shape	Material	Part No.	Remarks
Padlock Cover 	Polyarylate Gasket: Nitrile rubber	HW9Z-KL1	<ul style="list-style-type: none"> Used to protect pushbuttons, selector switches, and key selector switches. 
Rubber Boot for Dual Pushbutton Switches 	Clear Silicon Rubber	HW9Z-D7D	<ul style="list-style-type: none"> IP65 
Ring Adapter 	Nitril rubber	HW9Z-A25	<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 62 for details.
Ring Adapter 	Gasket: polyamide Washer: metal (brass)	HW9Z-A30	<ul style="list-style-type: none"> Used to install the HW series units (round type) into ø30 mm mounting holes (except HW1P-5, HW1E, HW1B-M5/V5, HW7D). Degree of protection: IP65 Cannot be used with anti-rotation ring and nameplate. Cannot be used on full shroud illuminated pushbuttons, selector pushbuttons, and mono-lever switches. Mounting panel thickness: 1.6 to 4.0 mm
For Illuminated Buzzer Terminal Rubber Boot 	Nitrile rubber	HW9Z-CZ1	<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 66). Weight: 10 g (approx.)

Accessories

All dimensions in mm


When ordering, specify the Ordering No.

Name / Shape	Material	Part No.	Remarks	
Contact Block 	NO contact Housing color: blue	HW-P10	Terminal no.: 1st deck 3-4	Note) Switches with 1 contact block contain 2 dummy blocks. Switches with 2 contact blocks contain 1 dummy block.
	NC contact Housing color: reddish purple	HW-P01	Terminal no.: 1st deck: 1-2	
	NO (Early Make) contact Housing color: blue / black	HW-P10R	Terminal no.: 1st deck: 1-2	
	2NO contact Housing color: blue	HW-PW20	Terminal no.: 1 deck: 13-14 2 deck: 23-24	
	2NC contact Housing color: reddish purple	HW-PW02	Terminal no.: 1 deck: 11-12 2 deck: 21-22	
	NONC contact Housing color: blue / reddish purple	HW-PW11	Terminal no.: 1 deck: 13-14 2 deck: 21-22	
	NONC (Early Make) contact Housing color: blue / reddish purple	HW-PW1R1	Terminal no.: 1 deck: 13-14 2 deck: 21-22	
	2NO (Early Make) contact Housing color: blue / black	HW-PW2R0	Terminal no.: 1 deck: 13-14 2 deck: 21-22	
Full voltage adapter 	Nylon (black)	HW-DP	Terminal No: X1, X2	
Connecting unit 	Weight: approx. 9g	HW-CNP	Connecting unit for Push-in terminal	
Dummy Block 	Polyamide (black)	CW-DB	Note) Switches with 1 contact block contain 2 dummy blocks. Switches with 2 contact blocks contain 1 dummy block.	

Maintenance Parts

All dimensions in mm






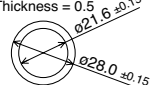
When ordering, specify the Ordering No.

Name / Shape		Material/Dimensions	Part No.	Color Code *
	①Round flush	Polyarylate ø23.5 H4.2	HW1A-L1-*	R (red), G (green), Y (yellow), A (amber), C (clear), S (blue)
	②Square flush	Polyarylate ø24.6 H4	HW2A-L1-*	
	③Round extended	Polyarylate ø23.3 H10	HW1A-L2-*	
	④ø29 mushroom	AS, marking type ø29 H12.7	ALW31LD-*	
	⑤ø40 mushroom	AS, marking type ø40 H12.7	ALW41LD-*	
	⑥Dome for pilot light	AS ø23.5 H15.1	HW1A-P2-*	R (red), G (green), Y (yellow), A (amber), W (white), S (blue)
	①Round flush with round or square bezel	Polyacetal ø23.6 H3	HW1A-B1-*	• Use ① for Selector pushbuttons B (black), G (green), R (red), Y (yellow), S (blue), W (white)
	②Round extended with round or square bezel	Polyacetal ø23.6 H9.2	HW1A-B2-*	
	③Square flush	Polyacetal □24.8 H3	HW2A-B1-*	
	④Square extended	Polyacetal □24.5 H9.2	HW2A-B2-*	
	⑤ø29 mushroom	Polyacetal ø29 H12.7 (M18P1.0)	HW1A-B3-*	
	⑥ø40 mushroom	Polyacetal ø40 H12.7 (M18P1.0)	HW1A-B4-*	
	Round flush 	Acrylic ø21.5 Thickness = 1	HW9Z-P11	• White • See page 63 for dimensions and engraving area.
	Round extended 	Acrylic ø21.3 Thickness = 6.5	HW9Z-P12	
	Square flush 	Acrylic 22.7 Thickness = 1	HW9Z-P21	
	ø29/40 mm mushroom 	Acrylic ø15.7 H3.4	ALW3B	
Operator Knob for Illuminated Selector Switch 		AS resin	HW9Z-FDY*	R (red), G (green), Y (yellow), A (amber), W (white), S (blue)
Operator Lever for Illuminated Selector Switch 			HW9Z-FDL*	
Spare Key (Disc Tumbler Key) 		Metal (nickel-plated brass)	HW9Z-SKP	

Maintenance Parts


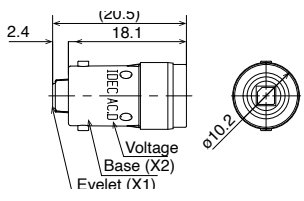
All dimensions in mm

When ordering, specify the Ordering No.

Name / Shape	Material/Dimensions	Part No.	Remarks
Spare Key (Pin Tumbler Key) 	Metal (nickel-plated brass)	LW9Z-SK-500	• Standard key number
		LW9Z-SK- <input type="text"/>	• Key number <input type="text"/> : 501 to 515
Locking Ring 	Polyamide (black) ø28.4 H5 M22P1	HW9Z-LN	
Cap for Mono-lever Switch 	Standard Nitril rubber ø10 L20	HW9Z-CPM	
Boot for Mono-lever Switch 	Standard Nitril rubber ø29.2 L34.4	HW9Z-BLM	
Gasket 	Nitril rubber (black)	HW9Z-WM	Thickness = 0.5 

HW Series LED Lamps

When ordering, specify the Ordering No.

Shape/Dimensions	Operating Voltage	Current Draw		Part No.	Base
		DC	AC		
 	6V AC/DC	10mA	14mA	LSRD-6	BA9S/13
	12V AC/DC	7mA	8mA	LSRD-1	
	24V AC/DC	7mA	8mA	LSRD-2	
	100/120V AC/DC	2mA	2mA	LSRD-H2	
	200/220V AC	2mA	2mA	LSRD-M2	
	230/240V AC	2mA	2mA	LSRD-M4	



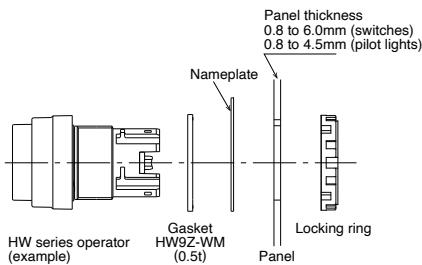
Safety Precautions

- 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, current requirements, and the number of connectable wires (page 65). 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.

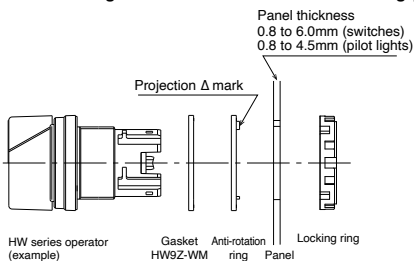
Removing the Contact Block

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.

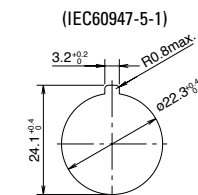


Anti-rotation Ring and Mounting Panel

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



Panel Cut



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

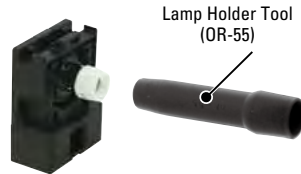
Replacing LED Lamps

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 53 for lamp holder tool.)

Removing the LED lamp from the front of the panel

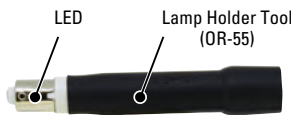
Removing

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



Installing

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 and Installing the Contact Blocks, Dummy Blocks, and LED Units

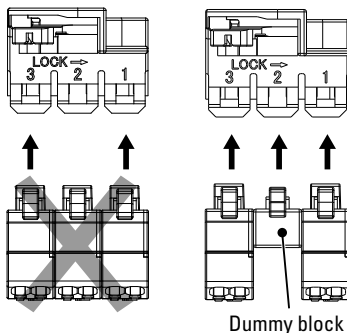
Removing

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



Installing

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.

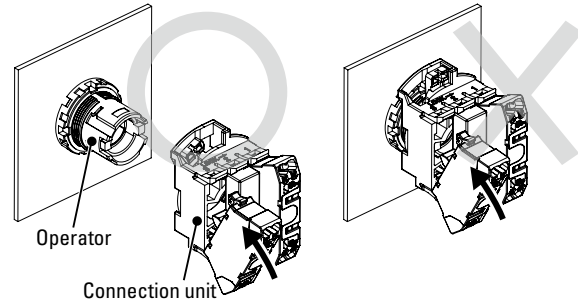


Note) Make sure to attach a correctly assembled connection unit to the operator.

Note) 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.

Note) Full voltage adapters cannot be removed or attached with contact blocks attached.

Note) Attach the full voltage adapter vertically to the connection unit.

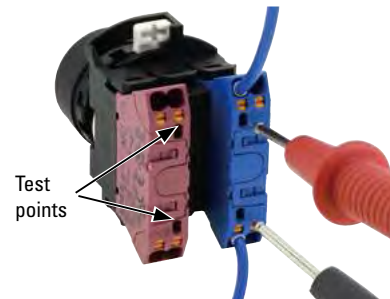


Test Points

Note) Do not insert wires into the test point.

Single contact block

Note) When conducting a continuity test on the contact block, make sure that probes (ø2.0 maximum) of the tester are inserted vertically to the panel.



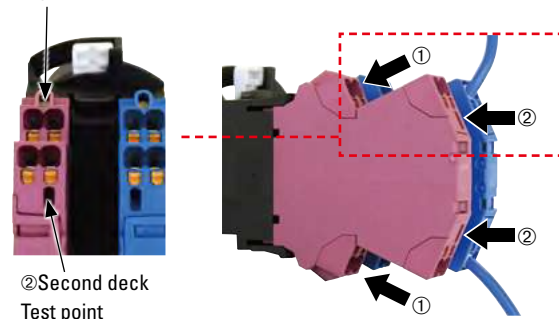
Double contact block

When conducting a continuity test on the first deck, make sure that probes (ø2.0 maximum) of the tester are inserted in an angle of the contact block, in two places as shown below.

When conducting a continuity test on the second deck, make sure that probes (ø2.0 maximum) of the tester are inserted vertically to the panel.

① First deck

Test point location



Instructions

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.

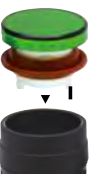
Note: Jumbo mushroom button cannot be removed.



Illuminated Pushbutton Lens

• Flush/Extended

Push in the lens holder into the operator unit.



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



• Mushroom/Jumbo Mushroom

Lens has threads. Turn clockwise to install the lens.



Lens has threads. Turn counterclockwise to remove the lens.



Pilot Light Lens

• Extended

Lens has threads. Turn clockwise to install the lens.



Turn the lens counterclockwise to remove.



• 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/marketing 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.

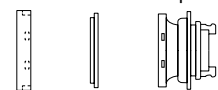


Note: The translucent filter in the lens holder cannot be removed because this filter is sealed to make the unit waterproof and oiltight.

Installing

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.



Lens Marking plate Lens holder

Instructions

Using a Ring Adapter

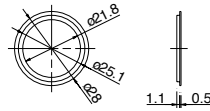
HW9Z-A25

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

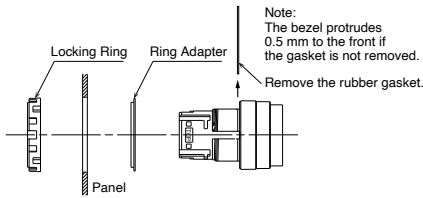


Nitryl Rubber

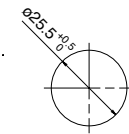
Dimensions



Installation



Panel Cut-out



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.

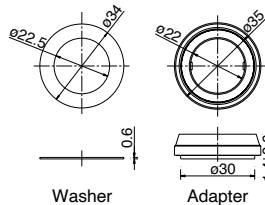


Washer:
metal (brass)

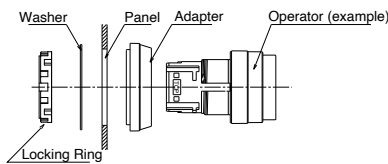


Adapter:
polyamide

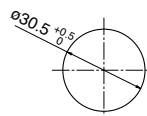
Dimensions



Installation

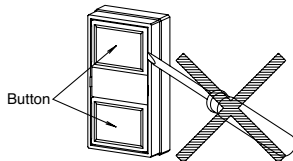


Panel Cut-out



Dual Pushbutton Switches

The pushbuttons cannot be removed or replaced. Do not attempt to remove using a flat screwdriver or pincers, otherwise the pushbuttons may be damaged.

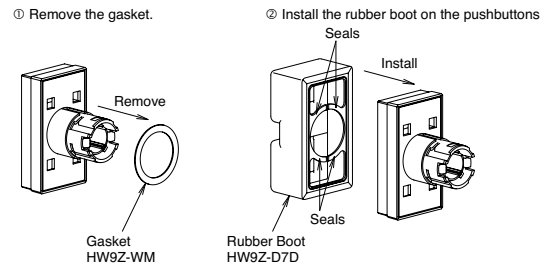


Installing the Rubber Boot for Dual Pushbuttons

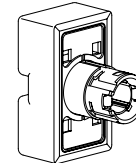
When using the HW7D pushbuttons in places where the pushbuttons are subject to water splash or an excessive amount of dust, make sure to use the HW9Z-D7D rubber boot (IP65) which is ordered separately. Remove the rubber gasket pre-installed on the operator, and install the rubber boot from the front of the button.

Notes for Installing the Rubber Boot

Remove the gasket from the operator, and install the rubber boot on the operator. Pull out the seals of the rubber boot and place them around the operator sleeve as shown. Make sure that the seals are not twisted or tucked inside and that the gasket does not remain, otherwise the normal waterproof and dustproof characteristics are not ensured.



Rubber Boot Installed



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

Observe the following instructions to prevent malfunction or damage.

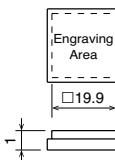
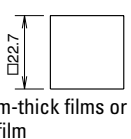
- Turn the key securely to each position.
- Insert the key to the bottom of the key hole.
- Do not remove the key from any key retained position.
- Use a key that matches with the number on the key cylinder. However, for standard keys, the key number is engraved on the key but not on the key cylinder.

Instructions

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.

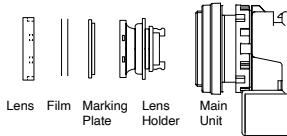
Marking plate and marking film size (mm)

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>• 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)



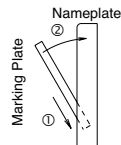
Note: Films are not supplied. When inserting a film, make sure that the marking plate is installed with its uneven side facing the lens holder.

Nameplate

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

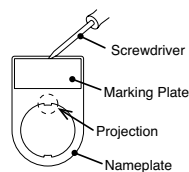
Installing a Marking Plate

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.



Applicable Wire

When wiring, use the applicable wires shown below.

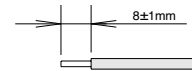
Applicable Wire and Specifications

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 insulated cover) H0.25 to H1.5 (with insulated 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 insulated 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 insulated covers

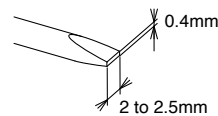
Applicable Wire (Stranded Wire)		Wire Strip Length	Weidmüller Recommended Part No.
AWG	mm ²		
24	0.25	10 to 11mm	H0.25/12 HBL
22	0.34	10 to 11mm	H0.34/12 TK
20	0.50	10 to 11mm	H0.5/14 OR
18	0.75	10 to 11mm	H0.75/14 W
18	1.00	10 to 11mm	H1.0/14 GE
16	1.50	10 to 11mm	H1.5/14 R

Recommended Tools (Optional)

Name	Weidmüller Recommended Part No.
Crimping tool	PZ 6 ROTO L
Flat blade screwdriver	SDS 0.4×2.0×60
	SDS 0.4×2.5×75

Note 1) Note the crimping dimensions. When using tools other than the recommended crimping tool. For details, see page 65.

Note 2) Use a flat blade screwdriver with a blade size of 0.4×2 to 2.5 mm.



• For details on crimping tools, see page 55.

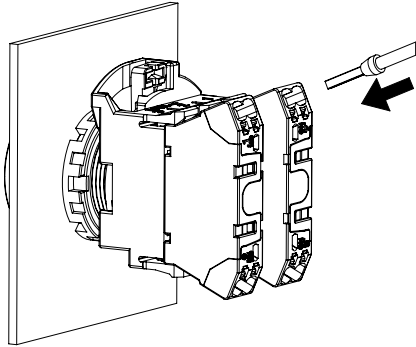
Instructions

Wiring Procedure

Connecting the wire

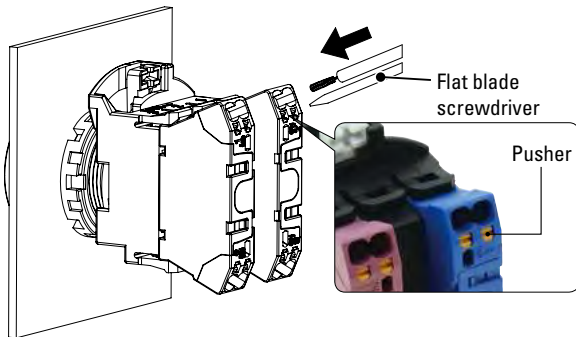
Stranded wires with ferrules or solid wire

- 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.



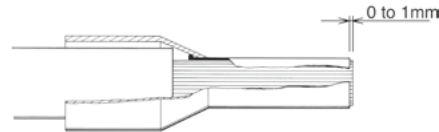
Stranded wire

- 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

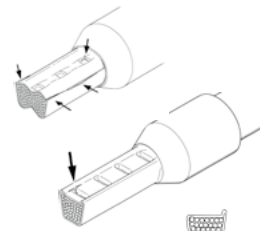
- Choose an appropriate ferrule for the wire.
- Cut the wire carefully to get a flat end.
- Make sure that ferrule sleeve is completely filled by the conductor. Depending on the cross section, the conductor should protrude approx. 0 to 1 mm from the ferrule sleeve.



- 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 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 split open

Formation of cracks at the impressions of the crimping jaw

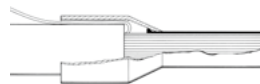
Asymmetrical crimping shape.
Burr formation on one side



Asymmetrical crimping shape.
Burr formation on one side



Single conductor squeezed off

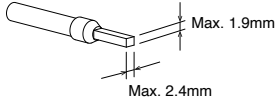


Single conductor pushed back

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)

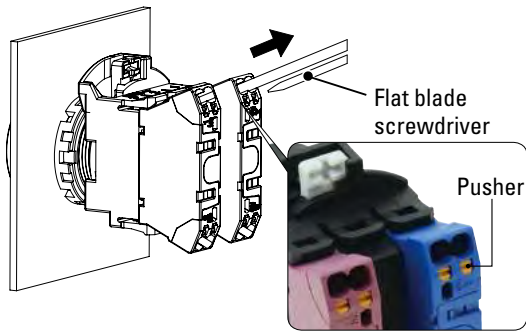


Note 1) If a tool other than the recommended crimping tool is used, the ferrule may not be crimped to the appropriate size and the clamp or spring inside the contact block may be deformed and may not operate normally.

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 (optional: see page 55)) 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.

Instructions (Emergency Stop Switches)

When using the HW series control units in a safety-related circuit of a control system, observe safety rules and regulations of each country concerning particular applications of the actual machines and facilities. Perform risk assessment before operation to ensure safety.

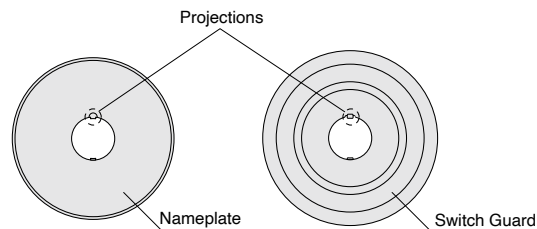
Chattering / Contact Bounce

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.

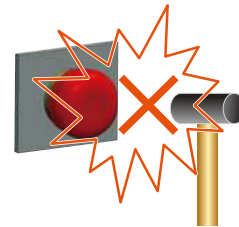
Nameplate or Switch Guard

When anti-rotation is not required, remove the projection from the nameplate or switch guard using pliers. Mechanical indicator types have projections on the operator. Make sure to remove the projection on the nameplate or switch guard.



Handling

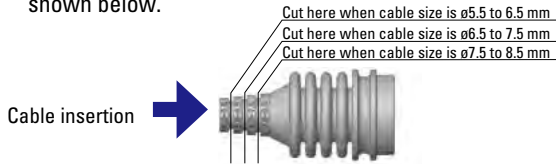
Do not expose the switch to excessive shocks and vibrations, otherwise the switch may be deformed or damaged, causing malfunction or operation failure.



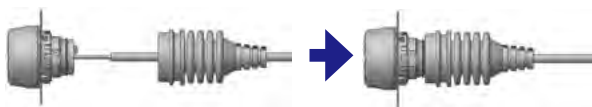
Instructions (Illuminated / Non-illuminated Buzzers)

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.



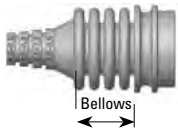
3. Strip the insulation of the cable 30 mm from the end and wire as instructed in "Wiring".
4. Install the terminal rubber boot as shown below.



5. Cover part B with part A.

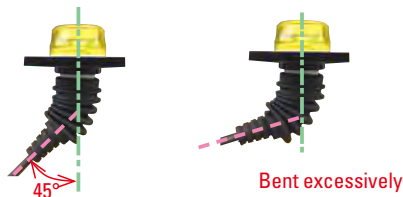


6. Make sure that the bellows is 17 to 22 mm long.



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 buzzer, otherwise the terminal rubber boot may come off.



Panel Mounting

- Insert the buzzer 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 buzzer 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.

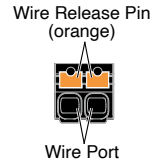
After wiring, tug lightly to make sure that the wire is properly connected.

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.

Stranded wire

Strip the wire insulation 8mm from the end and push in the wire release pin above the wire port using a small flat screwdriver. Release the wire release pin. Make sure that the wire does not loosen.



Wire removal

Push in the orange color wire release pin above the wire ports using a small flat screw driver, and pull out the wire.










Flat blade screwdriver

Use a flat blade screwdriver 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 excessively.

S³ Connect[®] Push-in Wiring Enabled Product Selection Guide

Switches		Relay Sockets		PLCs & Modules	Safety Control Module	
HW Series	CW Series	RU Series	RJ Series	FC6A Series	HR6S series	HR5S series
						
22mm Industrial Heavy-duty Switches	22mm Industrial Switches with Flush Mount Bezel	2 or 4 pole Din rail mount sockets for industrial relays and timers	Space-saving 1 or 2 pole Din rail mount sockets for industrial relays	Powerful and compact controller with industrial protocols and IIoT features	Safety control modules with diagnostic outputs	The first CAT 2 safety control module in the industry
Push buttons and dual pushbuttons	Push buttons with thin bezel	Fit RU series relays and GT5Y timers	Fit RJ or RF2 series relays	FC6A All-in-one models FC6A Plus models	Advanced diagnostic and output functions	Ideal for low risk applications
Illuminated push buttons	Illuminated push buttons	2 pole model P/N: SU2S-21L	1 pole model P/N: SJ1S-21L		Connect to various safety input devices	Front access push-in wiring terminals
Selector switches	Selector switches	4 pole model P/N: SU4S-21L	2 pole model P/N: SJ2S-21L		Screw clamping or push-in wiring terminals	Slim body
Key switches	Key switches	IP20	IP20			
Pilot Lights	Pilot Lights					
Illuminated selector	USB & RJ45 Ports					
Selector push buttons	IP65 & Type 4X					
Monolever switches						
Emergency stop switches						
Illuminated buzzers						
IP65 & Type 4X						
					RFID Reader & Tags KW2D  RFID Solution for industrial authentication & access control KW2D RFID Reader RFID Fobs and tags IP65/67	Tools & Accessories  Crimping tool Wire stripping tool Ferrules



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Catalog No. FM9Y-B110-0 1/21 5K

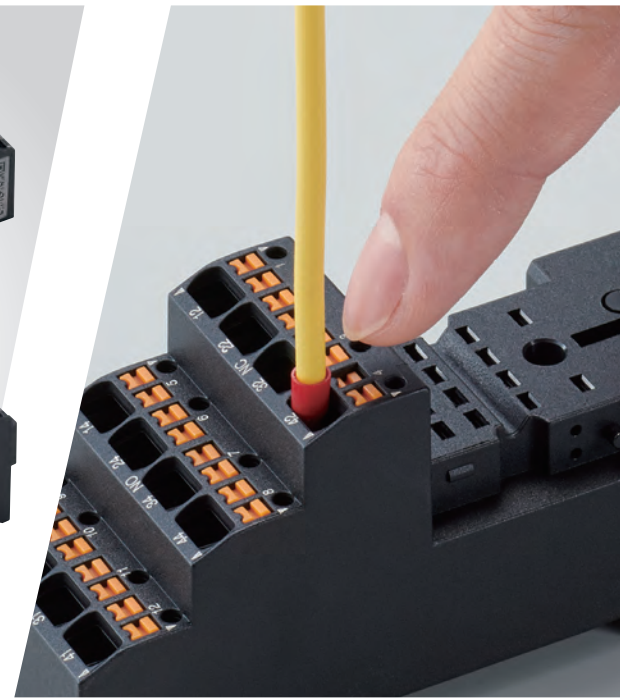
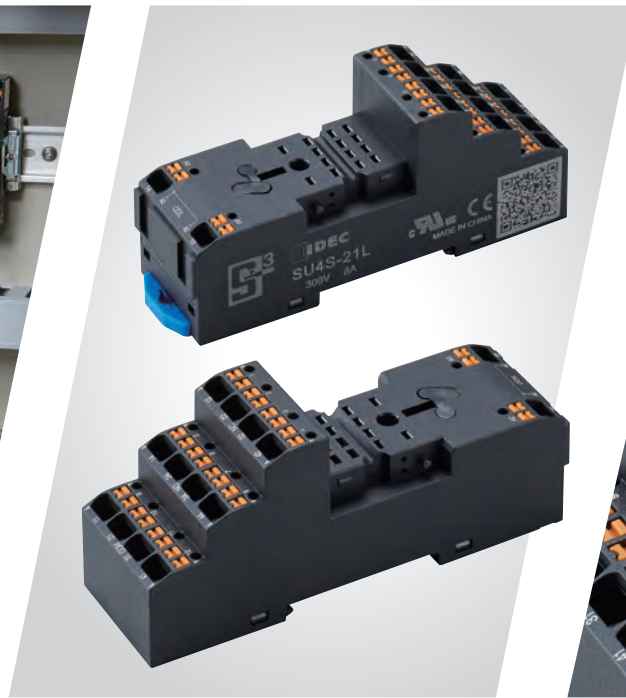
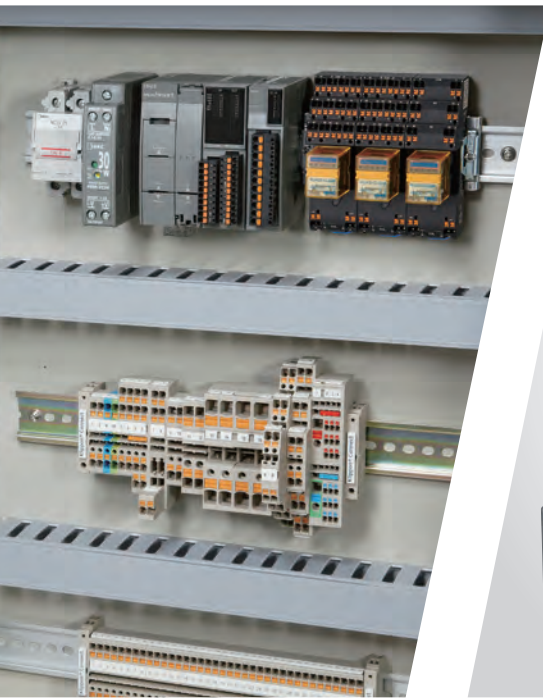
Specifications and other descriptions in this catalog are subject to change without notice.



Think Automation and beyond...



Relay Sockets SU series



One step wiring
Easy & quick connection

IDEC CORPORATION



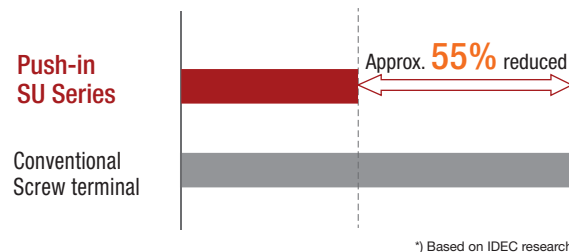
+ Push-in

Time saving & efficient

Save up to **55%** in wiring time

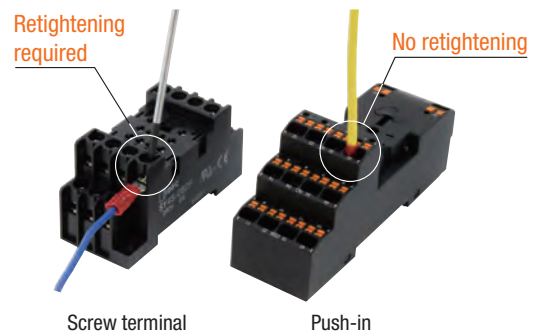
Wiring time reduced greatly compared with conventional screw terminals.

(Compared with IDEC products)



Reduce maintenance work

Push-in terminals eliminate the need for torque maintenance such as tightening of screws because screws are not used.



Wide range of options

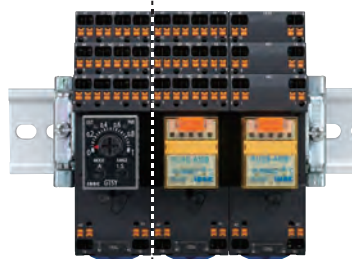
Easy wiring to coil side connection using jumpers

Can be used with polarized relays.



*) The rated current is 2A.

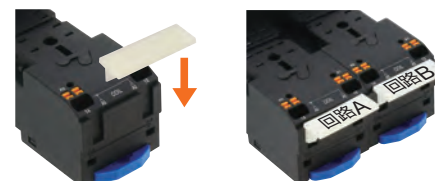
IDEC GT5Y timers can be mounted



GT5Y timer RU relay

Marking plate allows for easy identification

A marking plate enables easy identification of connections. Maintenance time is reduced.



One step wiring, easy & quick connection

Safe and efficient SU series Push-in relay sockets



Highly reliable

High visibility

The terminal number on the socket can be clearly seen on the socket preventing incorrect wiring. Also, the distinct color pusher prevents a flat blade screwdriver from being inserted into the wire port.

Vibration-resistant

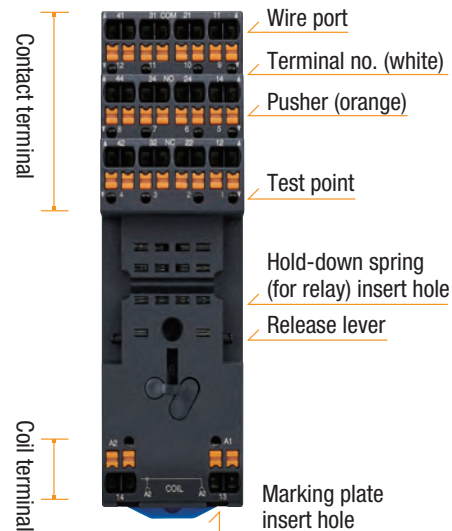
Safe and reliable Push-in connection achieves high contact reliability and vibration resistance regardless of the wire size or shape.



Before inserting wire

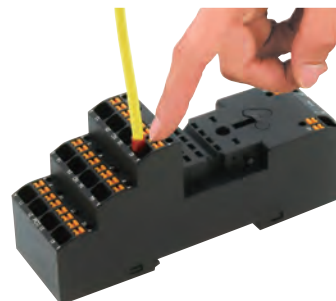


Wire inserted



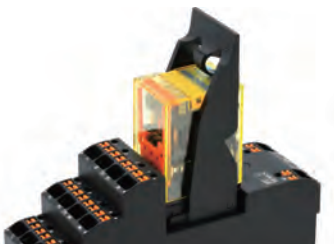
IP20 Finger-safe

IEC60529 finger-safe design. IP20 protection. Safe contact protection structure prevents electric shock.



Release lever

The release lever can be mounted to hold and remove the relay easily.





SU Series Relay Sockets

Push-in relay sockets reduce wiring by 55%*

* Compared with conventional screw terminal relay sockets.

Relay Sockets

Package Quantity: 1

Shape	No. of Poles	Part No. (Ordering No.)
	2	SU2S-21L
	4	SU4S-21L

Specifications and Ratings

Part No.	SU2S-21L	SU4S-21L
No. of Poles	2	4
Rated Insulation Voltage	300V AC/DC	
Rated Thermal Current (*1)	12A	8A
Applicable Wire	Solid wire / stranded wire: 0.14 to 1.5mm ² , AWG26 to 16 Stranded wire with ferrule (without insulated cover): 0.5 to 1.5mm ² , AWG20 to 16 Stranded wire with ferrule (with insulated cover): 0.14 to 1.0mm ² , AWG26 to 18	
Insulation Resistance	100MΩ min. (500V DC megger)	
Dielectric Strength	2500V AC, 1 min. (between live and dead metal parts, between live metal parts of the different poles)	
Vibration Resistance (Damage Limits)	10 to 55 Hz, amplitude 1.0 mm	
Shock Resistance (Damage Limits)	50G (when using SU9Z-S21R/-S21T hold-down spring or SU9Z-C21R release lever)	
Operating Temperature	-40 to +65°C (no freezing)	
Operating Humidity	5 to 85% RH (no condensation)	
Storage Temperature	-40 to +65°C (no freezing)	
Storage Humidity	5 to 85% RH (no condensation)	
Degree of Protection	IP20 (IEC 60529)	
Weight (approx.)	80g	
Applicable Standards	UL508, CSA C22.2 No.14, IEC61984	

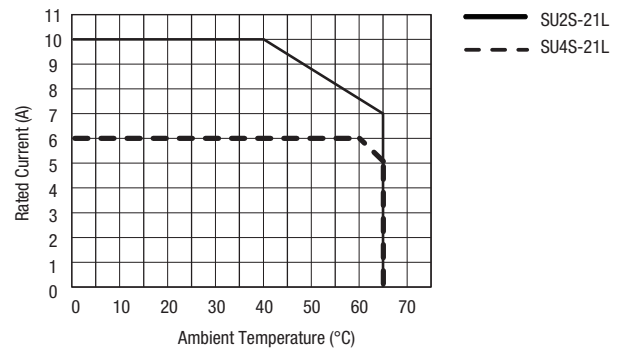
*1) Be sure to note the derating characteristics.

Applicable Relay / Timer

No. of Poles	Socket	Relay	Timer
2	SU2S-21L	RU2S	GT5Y-2
4	SU4S-21L	RU4S, RU42S	GT5Y-4

- For details on RU series relay, RN series relay, and GT5Y timer, see catalog.
- When using the SU socket with RU series relay, be sure to note the derating characteristics.

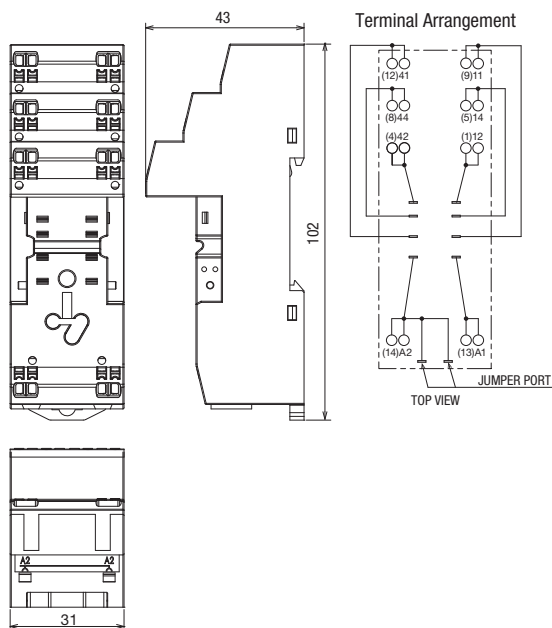
Derating Curve



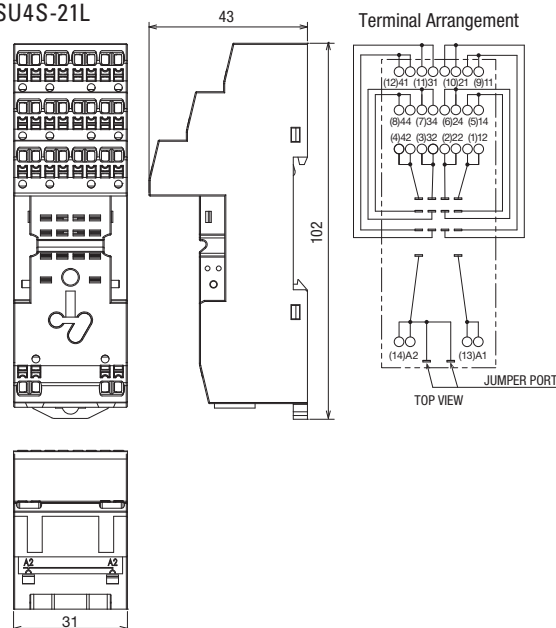
Dimensions

All dimensions in mm.

SU2S-21L




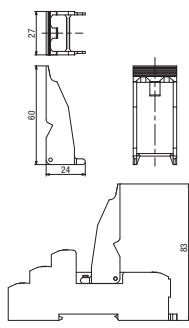





SU4S-21L



Note) The numbers in parentheses () are values according to NEMA standards.

Accessories

When ordering, specify the Ordering No.

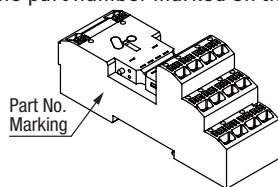
Function	Shape	Material	Part No.	Ordering No.	Remarks
Release Lever (For Relay)		Plastic	SU9Z-C21R	SU9Z-C21R	 <p>Note) Release lever cannot be used on timers.</p>
Marking Plate		Plastic (white)	SU9Z-P2100W	SU9Z-P2100W	
Jumper		Bronze (tin-plated) Insulation: PBT plastic	SU9Z-J2102A	SU9Z-J2102A	A2 terminal of the coil is connected. The rated current is 2A.
Hold-down Spring	For Relay	Stainless steel	SU9Z-S21R	SU9Z-S21R	See P.8 for Applicable Relay / Timer.
	For Timer	Stainless steel	SU9Z-S21T		
DIN Rail		Aluminum	BAA1000	BAA1000	<ul style="list-style-type: none"> Length: 1m Width: 35mm Weight: 200g (approx.)
End Clip		Metal (zinc-plated steel)	BNL6	BNL-6	Weight: 15g (approx.) Use end clips when mounting multiple sockets on the DIN rail.
DIN Rail Spacer		Plastic (black)	SA-406B	SA-406B	Thickness: 5 mm Used for adjusting spacing between sockets mounted on a DIN rail.

Instructions

Identifying the Socket

SU2S and SU4S can be identified by the part number marked on the side.

No. of Poles	Part No.
2	SU2S-21L
4	SU4S-21L



Applicable Wire

When wiring, use the applicable wires shown below.

Applicable Wire and Specifications

Applicable Wire (Stranded Wire, Solid Wire)	0.14 to 1.50mm ² (AWG16 to 26)
Wire Strip Length (*1)	10 to 11mm
Ferrule Size (*2) (Weidmüller)	H0.5 to H1.5 (Without insulated cover) H0.14 to H1.0 (With insulated cover)

*1) Strip the sheath of the wire 10 to 11 mm from the end.

*2) When using a ferrule, refer to "Wire Size and Recommended Ferrule" 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

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

Ferrules with Insulated Covers

Applicable Wire (Stranded Wire)		Wire Strip Length	Part No.
AWG	mm ²		
26	0.14	10 to 11 mm	H0.14/12 GR SV
24	0.25	10 to 11 mm	H0.25/12 HBL
22	0.34	10 to 11 mm	H0.34/12 TK
20	0.50	10 to 11 mm	H0.5/14 OR
		12 to 13 mm	H0.5/16 OR
18	0.75	10 to 11 mm	H0.75/14 W
		12 to 13 mm	H0.75/16 W
18	1.00	10 to 11 mm	H1.0/14 GE
		12 to 13 mm	H1.0/16 GE

Recommended Tools (Optional)

Name	Part No.
Crimping tool	PZ6 ROTO L
Flat blade screwdriver	SDS 0.4×2.5×75

Note 1) Note the crimping dimensions when using tools other than the recommended crimping tool. For details, see page 7.

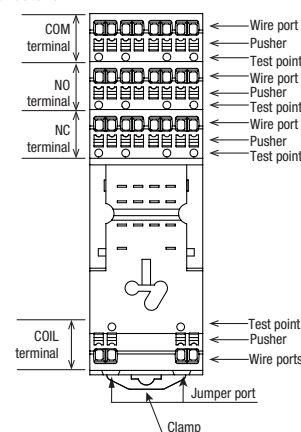
Note 2) Use a flat blade screwdriver with a blade size of 0.4×2.5mm.

Refer to the table below for other companies' ferrules that correspond to "Wire Size and Recommended Ferrules".

Applicable Wire (Stranded Wire)		PHOENIX CONTACT		WAGO	
		Without Insulation Cover	With Insulation Cover	Without Insulation Cover	With Insulation Cover
26	0.14	—	AI 0.14-8 GY-1000	—	—
24	0.25	—	AI 0.25-8 YE	—	FE-0.25-8N-YE
22	0.34	—	AI 0.34-8 TQ	—	FE-0.34-8N-TQ
20	0.50	A 0.5-8	AI 0.5-8 WH	FE-0.5-8	FE-0.5-8N-WH
		A 0.5-10	AI 0.5-10 EH	FE-0.5-10	FE-0.5-10N-WH
18	0.75	A 0.75-8	AI 0.75-8 GY	FE-0.75-8	FE-0.75-8N-GY
		A 0.75-10	AI 0.75-10 GY	FE-0.75-10	FE-0.75-10N-GY
18	1.00	A 1.0-8	—	FE-1.0-8	—
		A 1.0-10	—	FE-1.0-10	—
16	1.50	A 1.5-10	—	FE-1.5-10	—

Note) Check each company's catalog for details.

Parts Description

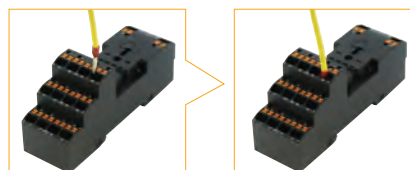


Note: Two wire ports for each terminal

Inserting the Wire

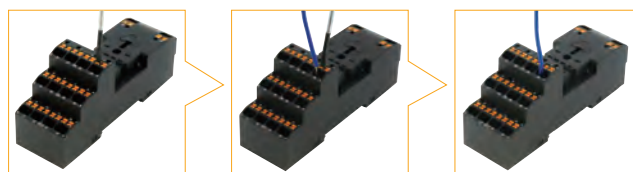
Wire with ferrule or solid wire

- 1) Insert the wire to the back of the wire port.
- 2) Wiring is complete. Pull the wire lightly to make sure that the wire does not pull out from the socket.



Stranded wire

- 1) Push the pusher (orange button) using a flat blade screwdriver.
- 2) Insert the wire fully in the wiring port while pressing the pusher
- 3) Release the flat blade screwdriver. Wiring is complete. Pull the wire lightly to make sure that the wire does not pull out from the socket.



Removing the Wire

- 1) Push the pusher using a flat blade screwdriver.
- 2) Pull out the wire while pressing the pusher.
- 3) Release the flat blade screwdriver.



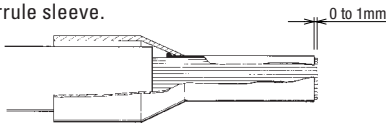
Instructions

Note

- After wiring, tug lightly to make sure that the wire is properly connected.
- Operate the pusher with a force of 40N. Do not press excessively.
- 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.
- Use a recommended flat blade screwdriver with the blade size of 0.4×2.5mm.
- When mounting multiple sockets on a DIN rail, be sure to secure both side with end clips (BNL6).

Crimping of Ferrules and Wiring

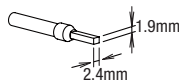
- Choose an appropriate ferrule for the wire.
- Cut the wire carefully to get a flat end.
- Make sure that ferrule sleeve is completely filled by the conductor. Depending on the cross section, the conductor should not protrude approx. 0 to 1 mm from the ferrule sleeve.



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

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.



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

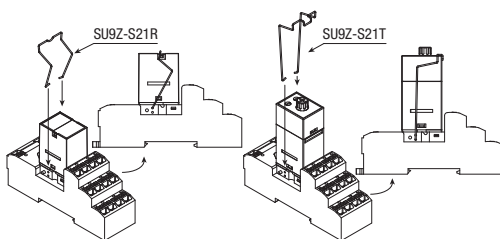
Note 2) Pin crimp terminals cannot be used.

Installing the Hold-down Spring

Use SU9Z-S21R (for relay) or SU9Z-S21T (for timer) hold-down springs.

Install the hold-down springs into appropriate spring insert hole.

To install, see below diagram.



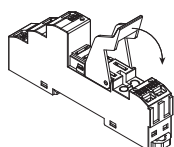
Note) Confirm that the Hold-down Spring is securely installed into the spring insert hole. The relay may fall off if it is not installed properly.

Installing / Removing the Relay

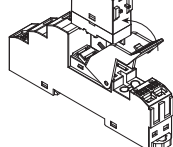
Installing the Relay

1. Unlock the release lever by pulling down as shown with arrow ①.
2. Press the relay against the socket as shown with arrow ②. Make sure that the relay is firmly in place.

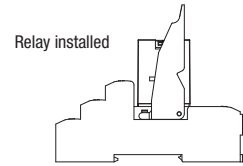
①



②

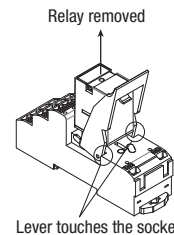
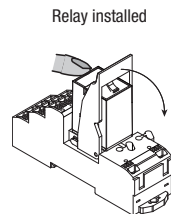


Note: Confirm that the relay is securely installed in the socket. The relay may fall off if it is not installed properly.



Removing the Relay

Lightly press the relay to prevent it from falling off. Then pull down the release lever to the direction shown by the arrow and the remove the socket.



Note)

Make sure that wire or finger is not caught between the release lever and socket.

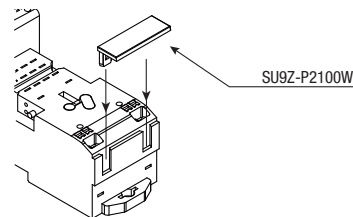
Because release lever is removable, make sure not to apply excessive force. Otherwise the relay may fall and result in damage.

Installing the Marking Plate

Install the marking plate as shown in the diagram below.

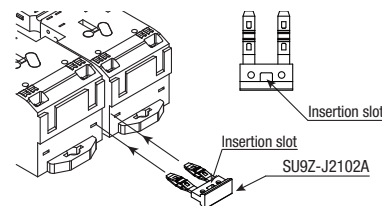
Mark on the surface using an oil-based marker, or affix a sticker with markings.

The size of the marking surface is 8.4mm × 25mm.



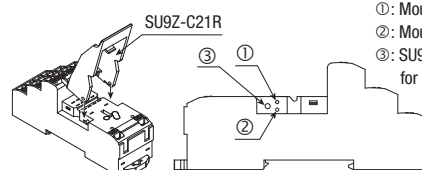
Using the Jumper

Insert the jumper to the back of the jumper slot. To remove, insert the small flat blade driver into the slot below and pull out. Because the rated current is 2A, use at 2A maximum.



Installing the Release Lever

To install the release lever, SU9Z-S21R (for relay), attach to the protrusion on the socket as shown below.




①: Mounting hole for SU9Z-S21R

②: Mounting hole for SU9Z-S21T

③: SU9Z-C21R protrusion for installation

Applicable Relay / Timer


Applicable Relay (RU Series)

Shape	Model	Single Contact		Bifurcated Contact		Coil Voltage Code *
		Part No. (DPDT)	Part No. (4PDT)	Part No. (4PDT)		
	With Latching Lever	Standard	RU2S- *	RU4S- *	RU42S- *	A24, A100, A110, A200, A220, D6, D12, D24, D48, D100, D110
		With diode (DC coil only)	RU2S-D- *	RU4S-D- *	RU42S-D- *	D6, D12, D24, D48, D100, D110
		Reverse polarity coil	RU2S-D1- *	RU4S-D1- *	RU42S-D1- *	D24
		With RC (AC coil only)	RU2S-R- *	RU4S-R- *	RU42S-R- *	A100, A110, A200, A220
	Without Latching Lever	Standard	RU2S-C- *	RU4S-C- *	RU42S-C- *	A24, A100, A110, A200, A220, D6, D12, D24, D48, D100, D110
		With diode (DC coil only)	RU2S-CD- *	RU4S-CD- *	RU42S-CD- *	D6, D12, D24, D48, D100, D110
		Reverse polarity coil	RU2S-CD1- *	RU4S-CD1- *	RU42S-CD1- *	D24
		With RC (AC coil only)	RU2S-CR- *	RU4S-CR- *	RU42S-CR- *	A100, A110, A200, A220

Rated Coil Voltage

Coil Voltage Code	Coil Rating
A24	24V AC
A100	100-110V AC
A110	110-120V AC
A200	200-220V AC
A220	220-240V AC
D6	6V DC
D12	12V DC
D24	24V DC
D48	48V DC
D100	100V DC
D110	110V DC

Applicable Timer (GT5Y)

Shape	Operation Mode	Contact Configuration	Output	Time Range	Operating Voltage	Part No.
	A: ON Delay B: Interval ON C: Cycle OFF D: Cycle ON	2PDT	220V AC/ 30V DC, 5A	0.1S to 10H	100 to 120V AC	GT5Y-2SN1A100
				0.1S to 30H		GT5Y-2SN3A100
				0.1S to 60H		GT5Y-2SN6A100
				0.1S to 10H	200 to 240V AC	GT5Y-2SN1A200
				0.1S to 30H		GT5Y-2SN3A200
				0.1S to 10H	12V DC	GT5Y-2SN1D12
				0.1S to 30H		GT5Y-2SN3D12
				0.1S to 60H		GT5Y-2SN6D12
				0.1S to 10H	24V DC	GT5Y-2SN1D24
				0.1S to 30H		GT5Y-2SN3D24
				0.1S to 60H		GT5Y-2SN6D24
		4PDT	220V AC/ 30V DC, 3A	0.1S to 10H	100 to 120V AC	GT5Y-4SN1A100
				0.1S to 30H		GT5Y-4SN3A100
				0.1S to 60H		GT5Y-4SN6A100
				0.1S to 10H	200 to 240V AC	GT5Y-4SN1A200
				0.1S to 30H		GT5Y-4SN3A200
				0.1S to 60H		GT5Y-4SN6A200
				0.1S to 30H	12V DC	GT5Y-4SN3D12
				0.1S to 10H	24V DC	GT5Y-4SN1D24
				0.1S to 30H		GT5Y-4SN3D24
				0.1S to 60H		GT5Y-4SN6D24

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Catalog No. EP1720-USA01

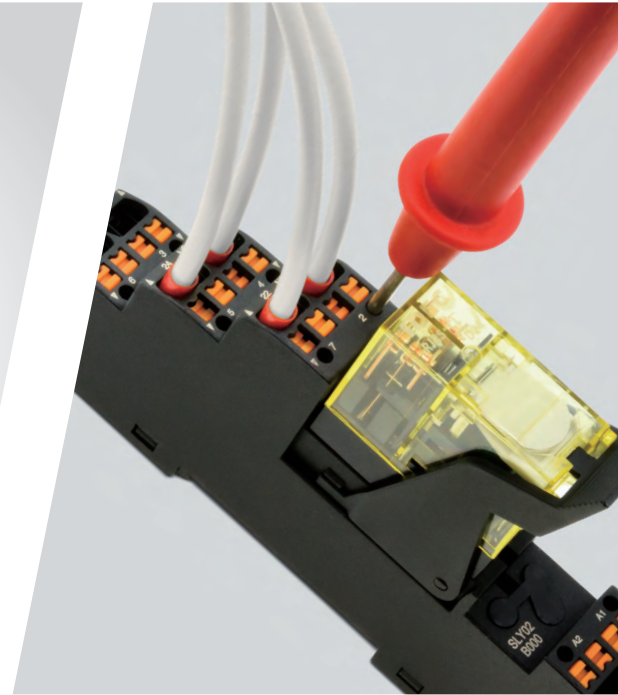
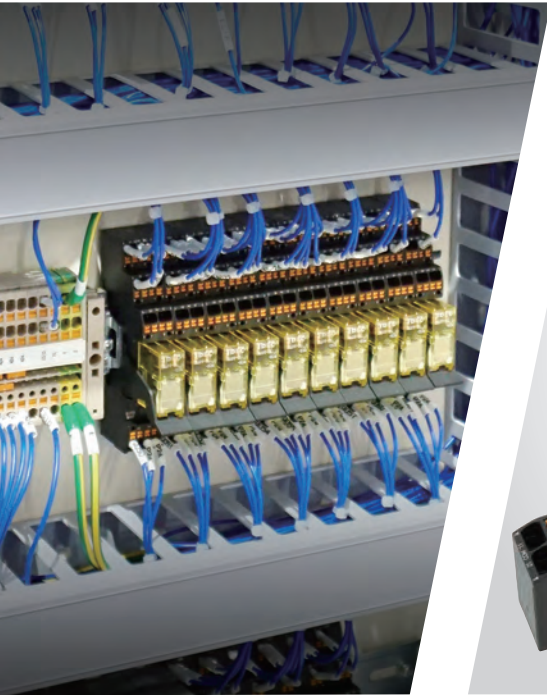
Specifications and other descriptions in this catalog are subject to change without notice.



Think Automation and beyond...



Relay Sockets
SJ series



One step wiring
Easy & quick connection

IDEC CORPORATION

Push-in

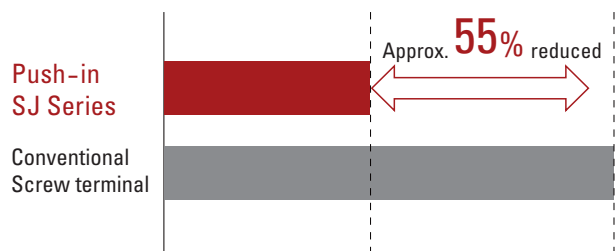


One step wiring,
easy & quick connection
Safe and efficient
SJ series Push-in relay sockets

Time saving & efficient

Save up to **55%** in wiring time

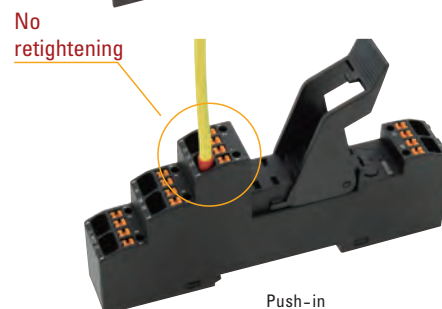
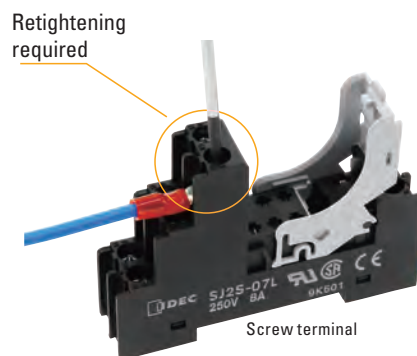
Wiring time reduced greatly compared with conventional screw terminals. (Compared with IDEC products)



*) Based on IDEC research

Reduce maintenance work

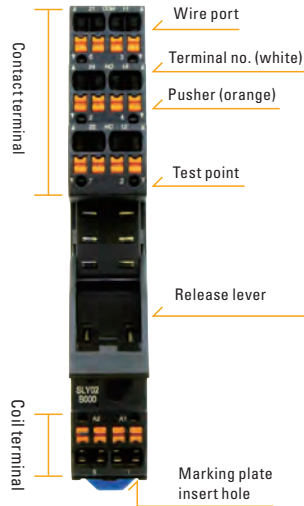
Push-in terminals eliminate the need for torque maintenance such as tightening of screws because screws are not used.



Highly reliable

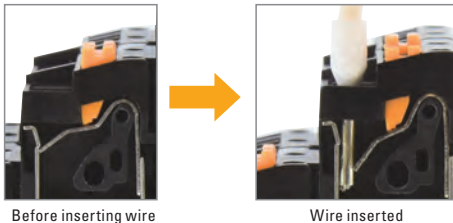
High visibility

The terminal number on the socket can be clearly seen on the socket preventing incorrect wiring. Also, the distinct color pusher prevents a flat blade screwdriver from being inserted into the wire port.



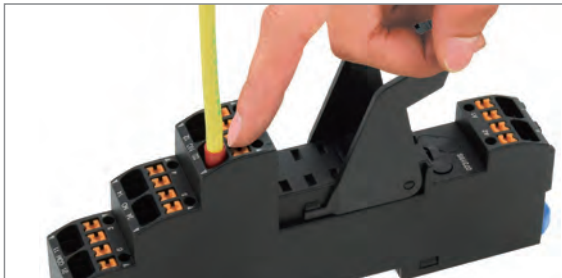
Vibration-resistant

Safe and reliable Push-in connection achieves high contact reliability and vibration resistance regardless of the wire size or shape.



IP20 Finger-safe

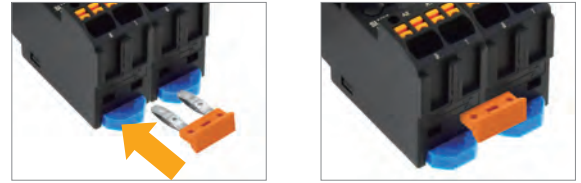
IEC60529 finger-safe design. IP20 protection. Safe contact protection structure prevents electric shock.



Wide range of options

Terminal jumpers

Easy wiring to coil side.



Note) The rated current is 2A.

Marking plate

A marking plate enables easy identification of connections. Maintenance time is reduced.



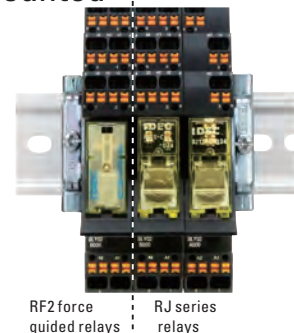
Safe & easy

Equipped with a release lever

The release lever easily holds and removes the relay.



IDEC RF2 force guided relays can be mounted



Note) When using with RF2S force guided relay, use at 150V maximum.



SJ Series Relay Sockets

Push-in relay sockets reduce wiring by 55%*

* Compared with conventional screw terminal relay sockets.

Relay Sockets

Package Quantity: 1

Shape	No. of Poles	Part No. (Ordering No.)
	1	SJ1S-21L
	2	SJ2S-21L

Specifications and Ratings

Part No.	SJ2S-21L	SJ4S-21L
No. of Poles	1	2
Rated Insulation Voltage	300V AC/DC (*1)	
Rated Thermal Current (*2)	12A	8A
Applicable Wire	Solid wire / stranded wire: 0.14 to 1.5mm ² , AWG26 to 16 Stranded wire with ferrule (without insulated cover): 0.5 to 1.5mm ² , AWG20 to 16 Stranded wire with ferrule (with insulated cover): 0.14 to 1.0mm ² , AWG26 to 18	
Insulation Resistance	100MΩ min. (500V DC megger)	
Dielectric Strength	2500V AC, 1 min. (between live and dead metal parts, between live metal parts of the different poles)	
Vibration Resistance (Damage Limits)	10 to 55 Hz, amplitude 1.5 mm	
Shock Resistance (Damage Limits)	50G (when using release lever)	
Operating Temperature	-40 to +70°C (no freezing)	
Operating Humidity	5 to 85% RH (no condensation)	
Storage Temperature	-40 to +70°C (no freezing)	
Storage Humidity	5 to 85% RH (no condensation)	
Degree of Protection	IP20 (IEC 60529)	
Weight (approx.)	35g	43g
Applicable Standards	UL508, CSA C22.2 No.14, IEC61984	

*1) When using the socket with RF2S Force Guided Relay, the rated insulation voltage is 150V AC/DC.

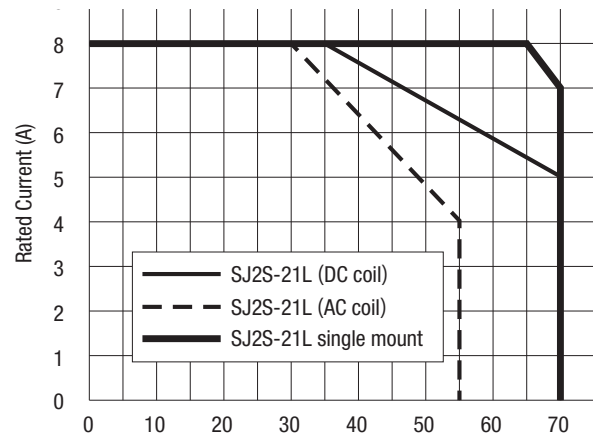
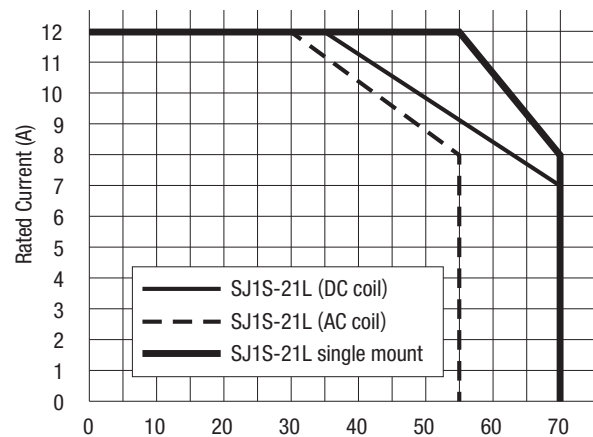
*2) Be sure to note the derating characteristics.

Applicable Relay

No. of Poles	Socket	Relay
1	SJ1S-21L	RJ1S
2	SJ2S-21L	RJ2S, RJ22S, RF2S

- For details on RJ series relay, see catalog.
- When using the SJ socket with RJ series relay, be sure to note the derating characteristics.

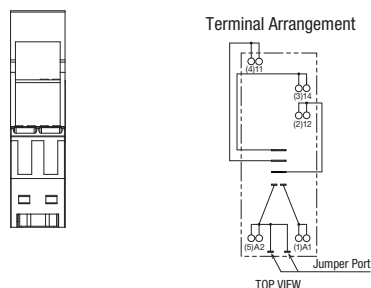
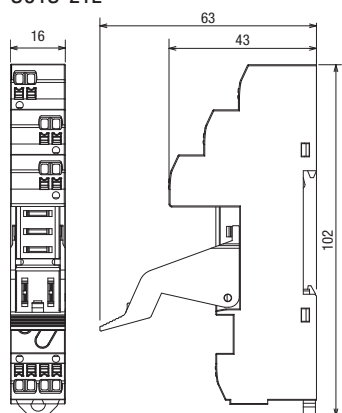
Derating Curve



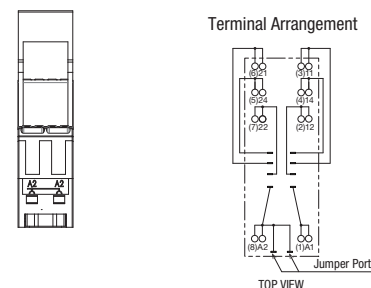
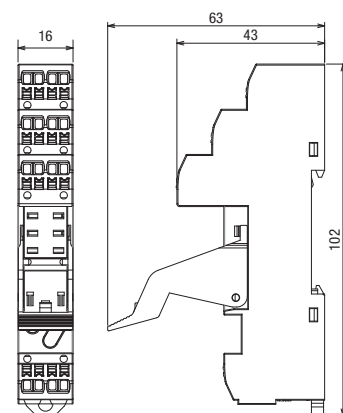
Dimensions

All dimensions in mm.

SJ1S-21L


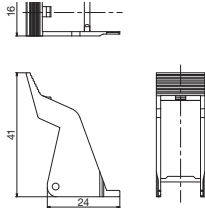


SJ2S-21L








Note) The numbers in parentheses () are values according to NEMA standards.

Maintenance Parts

Function	Shape	Material	Part No.	Ordering No.	Remarks
Release Lever		Plastic	SJ9Z-C21R	SJ9Z-C21R	

Accessories

When ordering, specify the Ordering No.

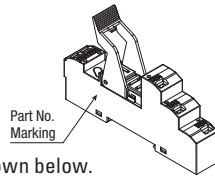
Function	Shape	Material	Part No.	Ordering No.	Remarks
Marking Plate		Plastic (white)	SJ9Z-P2100W	SJ9Z-P2100W	
Jumper		Bronze (tin-plated) Insulation: PBT plastic	SU9Z-J2102A	SU9Z-J2102A	A2 terminal of the coil is connected. The rated current is 2A.
DIN Rail		Aluminum	BAA1000	BAA1000	<ul style="list-style-type: none"> Length: 1m Width: 35mm Weight: 200g (approx.)
End Clip		Metal (zinc-plated steel)	BNL6	BNL-6	Weight: 15g (approx.) Use end clips when mounting multiple sockets on the DIN rail.
DIN Rail Spacer		Plastic (black)	SA-406B	SA-406B	Thickness: 5 mm Used for adjusting spacing between sockets mounted on a DIN rail.

Instructions

Identifying the Socket

SJ1S and SJ2S can be identified by the part number marked on the side.

No. of Poles	Part No.
1	SJ1S-21L
2	SJ2S-21L



Applicable Wire

When wiring, use the applicable wires shown below.

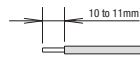
Applicable Wire and Specifications

Applicable Wire (Stranded Wire, Solid Wire)	0.14 to 1.50mm ² (AWG16 to 26)
Wire Strip Length (*1)	10 to 11mm
Ferrule Size (*2) (Weidmüller)	H0.5 to H1.5 (Without insulated cover) H0.14 to H1.0 (With insulated cover)

*1) Strip the sheath of the wire 10 to 11 mm from the end.

*2) When using a ferrule, refer to "Wire Size and Recommended Ferrules" 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

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

Ferrules with Insulated Covers

Applicable Wire (Stranded Wire)		Wire Strip Length	Part No.
AWG	mm ²		
26	0.14	10 to 11 mm	H0.14/12 GR SV
24	0.25	10 to 11 mm	H0.25/12 HBL
22	0.34	10 to 11 mm	H0.34/12 TK
20	0.50	10 to 11 mm	H0.5/14 OR
		12 to 13 mm	H0.5/16 OR
18	0.75	10 to 11 mm	H0.75/14 W
		12 to 13 mm	H0.75/16 W
18	1.00	10 to 11 mm	H1.0/14 GE
		12 to 13 mm	H1.0/16 GE

Recommended Tools (Optional)

Name	Part No.
Crimping tool	PZ6 R0T0 L
Flat blade screwdriver	SDS 0.4×2.5×75

Note 1) Note the crimping dimensions when using tools other than the recommended crimping tool. For details, see page 7.

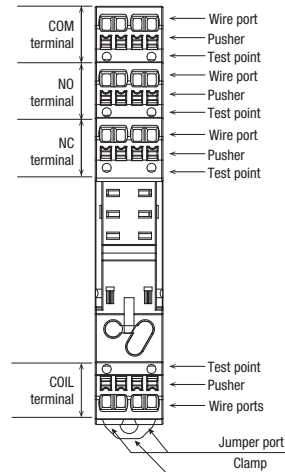
Note 2) Use a flat blade screwdriver with a blade size of 0.4×2.5mm.

Refer to the table below for other companies' ferrules that correspond to "Wire Size and Recommended Ferrules".

Applicable Wire (Stranded Wire)		PHOENIX CONTACT		WAGO	
		Without Insulation Cover	With Insulation Cover	Without Insulation Cover	With Insulation Cover
26	0.14	—	AI 0.14-8 GY-1000	—	—
24	0.25	—	AI 0.25-8 YE	—	FE-0.25-8N-YE
22	0.34	—	AI 0.34-8 TQ	—	FE-0.34-8N-TQ
20	0.50	A 0.5-8	AI 0.5-8 WH	FE-0.5-8	FE-0.5-8N-WH
		A 0.5-10	AI 0.5-10 EH	FE-0.5-10	FE-0.5-10N-WH
18	0.75	A 0.75-8	AI 0.75-8 GY	FE-0.75-8	FE-0.75-8N-GY
		A 0.75-10	AI 0.75-10 GY	FE-0.75-10	FE-0.75-10N-GY
18	1.00	A 1.0-8	—	FE-1.0-8	—
		A 1.0-10	—	FE-1.0-10	—
16	1.50	A 1.5-10	—	FE-1.5-10	—

Note) Check each company's catalog for details.

Parts Description

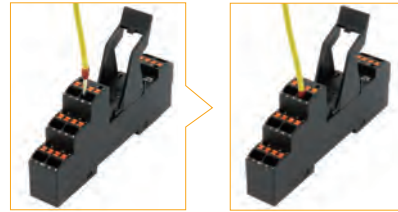


Note: Two wire ports for each terminal

Inserting the Wire

Wire with ferrule or solid wire

- 1) Insert the wire to the back of the wire port.
- 2) Wiring is complete. Pull the wire lightly to make sure that the wire does not pull out from the socket.



Stranded wire

- 1) Push the pusher (orange button) using a flat blade screwdriver.
- 2) Insert the wire fully in the wiring port while pressing the pusher
- 3) Release the flat blade screwdriver. Wiring is complete. Pull the wire lightly to make sure that the wire does not pull out from the socket.



Removing the Wire

- 1) Push the pusher using a flat blade screwdriver.
- 2) Pull out the wire while pressing the pusher.
- 3) Release the flat blade screwdriver.



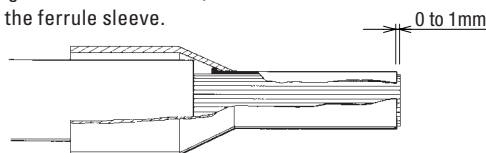
Instructions

Note

- After wiring, tug lightly to make sure that the wire is properly connected.
- Operate the pusher with a force of 40N. Do not press excessively.
- 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.
- Use a recommended flat blade screwdriver with the blade size of 0.4×2.5mm.
- When mounting multiple sockets on a DIN rail, be sure to secure both side with end clips (BNL6).

Crimping of Ferrules and Wiring

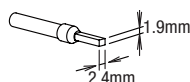
- Choose an appropriate ferrule for the wire.
- Cut the wire carefully to get a flat end.
- Make sure that ferrule sleeve is completely filled by the conductor. Depending on the cross section, the conductor should protrude approx. 0 to 1 mm from the ferrule sleeve.



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

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.



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

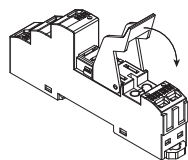
Note 2) Pin crimp terminals cannot be used.

Installing / Removing the Relay

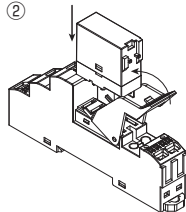
Installing the Relay

1. Unlock the release lever by pulling down as shown with arrow ①.
2. Press the relay against the socket as shown with arrow ②. Make sure that the relay is firmly in place.

①

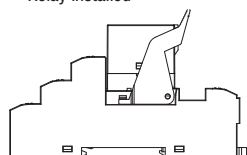


②



Note: Confirm that the relay is securely installed in the socket. The relay may fall off if it is not installed properly.

Relay installed



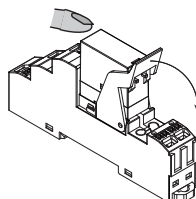
Relay case



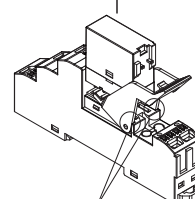
Removing the Relay

Lightly press the relay to prevent it from falling off. Then pull down the release lever to the direction shown by the arrow and the remove the socket.

Relay installed



Relay removed



Lever touches the socket

Note)

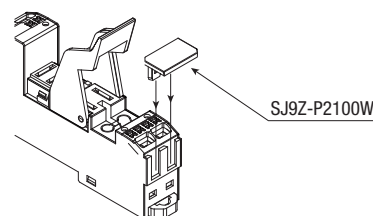
- Make sure that wire or finger is not caught between the release lever and socket.
- Because release lever is removable, make sure not to apply excessive force. Otherwise the relay may fall and result in damage.

Installing the Marking Plate

Install the marking plate as shown in the diagram below.

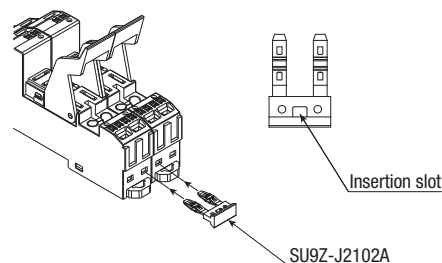
Mark on the surface using an oil-based marker, or affix a sticker with markings.

The size of the marking surface is 8.4mm × 15mm.



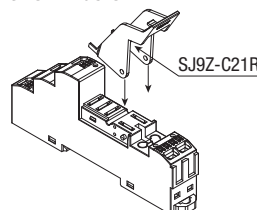
Using the Jumper

Insert the jumper to the back of the jumper slot. To remove, insert the small flat blade driver into the slot below and pull out. Because the rated current is 2A, use at 2A maximum.

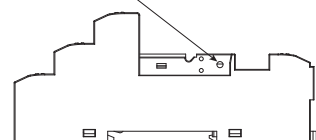


Installing the Release Lever

To install the release lever, attach to the protrusion on the socket as shown below.



SJ9Z-C21R protrusion for installation



Applicable Relay

Applicable Relay (RJ Series Terminal Style: Plug-in)

Style	1-pole (SPDT)		2-pole (DPDT)		2-pole (bifurcated contacts DPDT)	
	Part No.	Code	Part No.	Code	Part No.	Code
Standard (with LED Indicator)	RJ1S-CL-*	A12, A24, A100, A110	RJ2S-CL-*	A12, A24, A100, A110	RJ22S-CL-*	A12, A24, A100, A110, A115, A120
		A200, A220		A200, A220		A200, A220, A230, A240
		D5, D6, D12, D24, D48		D5, D6, D12, D24, D48		D5, D6, D12, D24, D48
		D100		D100		D100
Standard (*1)	RJ1S-C-*	A12, A24, A100, A110	RJ2S-C-*	A12, A24, A100, A110	RJ22S-C-*	A12, A24, A100, A110, A115, A120
		A200, A220		A200, A220		A200, A220, A230, A240
		D5, D6, D12, D24, D48		D5, D6, D12, D24, D48		D5, D6, D12, D24, D48
		D100		D100		D100
With forward polarity diode (with LED indicator)	RJ1S-CLD-*	D5, D6, D12, D24, D48	RJ2S-CLD-*	D5, D6, D12, D24, D48	RJ22S-CLD-*	D5, D6, D12, D24, D48
		D100		D100		D100
With forward polarity diode (without LED indicator)	RJ1S-CD-*	D5, D6, D12, D24, D48	RJ2S-CD-*	D5, D6, D12, D24, D48	RJ22S-CD-*	D5, D6, D12, D24, D48
		D100		D100		D100
With reverse polarity diode (with LED indicator)	RJ1S-CLD1-*	D5, D6, D12, D24, D48	RJ2S-CLD1-*	D5, D6, D12, D24, D48	RJ22S-CLD1-*	D5, D6, D12, D24, D48
		D100		D100		D100
With reverse polarity diode (without LED indicator)	RJ1S-CD1-*	D5, D6, D12, D24, D48	RJ2S-CD1-*	D5, D6, D12, D24, D48	RJ22S-CD1-*	D5, D6, D12, D24, D48
		D100		D100		D100
With RC (with LED indicator)	RJ1S-CLR-*	A12, A24, A100, A110	RJ2S-CLR-*	A12, A24, A100, A110	RJ22S-CLR-*	A12, A24, A100, A110, A115, A120
		A200, A220		A200, A220		A200, A220, A230, A240
With RC (without LED indicator)	RJ1S-CR-*	A12, A24, A100, A110	RJ2S-CR-*	A12, A24, A100, A110	RJ22S-CR-*	A12, A24, A100, A110, A115, A120
		A200, A220		A200, A220		A200, A220, A230, A240

Coil voltage other than the above are available (A115, A120, A230, A240)

Applicable Relay (RF2 Series)

Terminal Style	Contact Configuration	Rated Coil Voltage	LED Indicator	w/diode of reverse polarity coil	Degree of Protection		Part No.
					Flux-tight (RTII)	Sealed (RTIII)	
Plug-in	SPST-NO + SPST-NC	12V DC	√	√	√	—	RF2S-1A1BLD1-D12
			—	—	√	—	RF2S-1A1B-D24
		24V DC	—	√	√	—	RF2S-1A1BD1-D24
			√	√	√	—	RF2S-1A1BLD1-D24
			√	√	—	√	RF2S-1A1BLD1K-D24
			—	—	√	—	RF2S-1A1B-D48
		48V DC	√	√	√	—	RF2S-1A1BLD1-D48
			√	√	—	√	RF2S-1A1BLD1K-D48
			—	—	√	—	RF2S-2C-D24
			—	√	√	—	RF2S-2CD1-D24
	DPDT (*2)	24V DC	√	√	√	—	RF2S-2CLD1-D24
			√	√	—	√	RF2S-2CLD1K-D24

*1) When using with RF2S force guided relay, use at AC/DC 150V maximum.

*2) When using DPDT model as a force guided relay, use in SPST-NO+SPST-NC wiring (EN50205).

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