ø22 Switches & Pilot Lights

HW Series

Complete with finger-safe contact blocks.
Ensure safety and save wiring time.

(some models only)

• See website for details on approvals and standards.

Conforms to ISO 3864-4 Safety Colors

The new LED lamps comply with the safety color standards defined in ISO 3864-4.
They provide clearer and more vivid color representation for hazard and emergency indications, making them more easily distinguishable by a wider range of users.

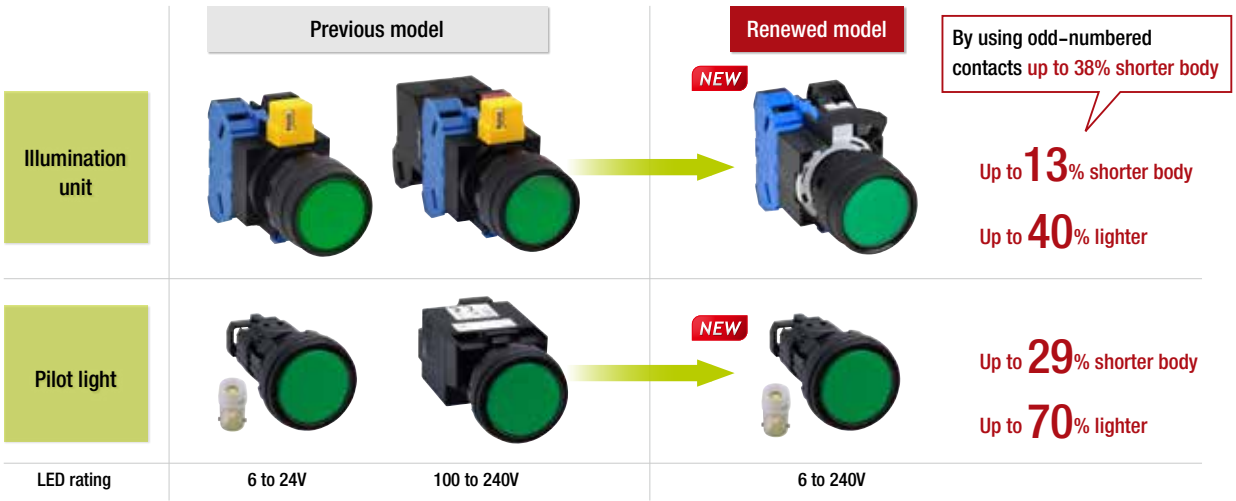
The following models are excluded:

- Illuminated Selector Switch (Illumination color: S (Blue), PW (Pure White))
- Illuminated Pushbutton Switch (Illumination color: S (Blue))
- Pilot Light – Flat Round Type (Illumination color: S (Blue))s possible regardless of individual differences in color perception.

Renewal of Full Voltage Adapter and Pilot Light

The illumination unit and pilot light contribute to space-saving and weight reduction.

With the size and weight of a low-voltage type (6 to 24V), it also supports high-voltage types (100 to 240V).
By replacing transformer types, it helps reduce control panel size and overall equipment weight.
The high-voltage illumination unit now supports 1-contact and 3-contact types. (Previously, only 2-contact and 4-contact types were available)



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HW Series Selection Guide

Function	Pushbutton				
Category	Flush	Extended	ø29mm Mushroom	ø40mm Mushroom	ø60mm Mushroom
	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary
Shape					
Model	HW1B-M1 HW1B-A1	HW1B-M2 HW1B-A2	HW1B-M3 HW1B-A3	HW1B-M4 HW1B-A4	HW1B-M5
Page	B-187	B-187	B-187	B-187	B-187

Function	Pushbutton				
Category	Square Flush	Square Extended	Round Flush w/Square Bezel	Round Extended w/Square Bezel	ø29mm Mushroom w/Square Bezel
	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained
Shape					
Model	HW2B-M1 HW2B-A1	HW2B-M2 HW2B-A2	HW3B-M1 HW3B-A1	HW3B-M2 HW3B-A2	HW3B-M3 HW3B-A3
Page	B-188	B-188	B-189	B-189	B-189

Function	Pilot Light			
Category	Flush (Marking)	Round (Dome)	Square Flush (Marking)	Jumbo Dome
Shape				
Model	HW1P-1	HW1P-2	HW2P-1	HW1P-5
Page	B-190	B-190	B-190	B-190

Function	Illuminated Pushbutton				
Category	Flush	Extended	Extended w/Full Shroud	Square Flush	Flush w/Square Bezel
	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained
Shape					
Model	HW1L-M1 HW1L-A1	HW1L-M2 HW1L-A2	HW1L-MF2 HW1L-AF2	HW2L-M1 HW2L-A1	HW3L-M1 HW3L-A1
Page	B-192	B-192	B-193	B-194	B-194

Function	Illuminated Pushbutton			Short-body pilot light (LED)		
Category	Flush	Extended	Extended w/Full Shroud	Flush	Extended (Dome)	Square Flush
	Momentary/Maintained	Momentary/Maintained	Momentary/Maintained			
Shape						
Model	HW1L-M3 HW1L-A3	HW3L-M3 HW3L-A3	HW1L-M4 HW1L-A4	HW1P-1J	HW1P-2J	HW2P-1J
Page	B-195	B-195	B-196	Web	Web	Web

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HW Series Selection Guide

Function	Dual Pushbutton			
	w/o Pilot Light		w/ Pilot Light	
Category	Flush (top) Flush (bottom)	Flush (top) Extended (bottom)	Flush (top) Flush (bottom)	Flush (top) Flush (bottom)
	Momentary/Interlocking	Momentary/Interlocking	Momentary/Interlocking	Momentary/Interlocking
Shape				
Model	HW7D-B11 HW7D-B21	HW7D-B12 HW7D-B22	HW7D-L11 HW7D-L21	HW7D-L12 HW7D-L22
Page	B-199	B-199	B-200	B-200

Function	Selector Switch			Illuminated Selector		Pushbutton Selector
Category	Selector	Pin Tumbler Key	Disc Tumbler Key	Knob Operator	Lever Operator	
Shape						
Model	HW1S	HW1K-☐P	HW1K	HW1F	HW1F-☐L	HW1R
Page	B-203	B-204	B-206	B-208	B-209	B-214

Function	Mono-Lever Switch	
Category	Standard	Interlocking
Shape		
Model	HW1M	HW1M-L
Page	B-215	B-215

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ø22 HW Series Switches & Pilot Lights

Complete with finger-safe contact blocks
Ensure safety and save wiring time

- Finger-safe terminal blocks
- Self-cleaning rolling action contacts.
- Protective structure that prevents water and oil from entering from the front of the panel: IP65. (However, the dual push-button switch is rated IP40)
- A dual push-button switch is also available, integrating three functions—two independently operating push-button switches and a pilot light—into a single unit.
- A wide range of operating voltages for worldwide application.
- Six different colors with a single LED (LSRD). Only the lens needs to be replaced to change the illumination color.
- ISO 3864-4 safety color compliant
  The bright and clear colors are suited for emergency situations.

Application for dual pushbuttons:
Ideal for use as power switches and start/stop switches (available with I/ON and O/OFF markings on the buttons and a pilot light in the center).
Interlock type prevents two pushbuttons from being pressed at the same time, providing the best solution for up/down switches.

Specifications and Ratings

Contact Ratings

Pushbuttons Illuminated Pushbuttons Dual Pushbuttons Selector Switches Illuminated Selector Switches Selector Pushbuttons	Rated insulation voltage	600V
	Rated continuous current	10A
	Contact ratings by utilization category IEC 60947-5-1	AC-15 (A600) DC-13

Contact Ratings by Utilization Category

HW-U10 (NO contact), HW-U01 (NC contact)

Operating Voltage			24V	48V	50V	110V	220V	440V
Operating Current	AC 50/60 Hz	AC-12 Control of resistive loads and solid state loads	10A	—	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72 VA)	10A	—	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads and solid state loads	10A	5A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—

HW-U10R (EM contact/NO contact), HW-U01R (LB contact/NC contact)

Operating Voltage			24V	48V	50V	110V	220V	440V
Operating Current	AC 50/60 Hz	AC-12 Control of resistive loads and solid state loads	5A	—	5A	5A	3A	1A
		AC-15 Control of electromagnetic loads (> 72 VA)	5A	—	3.5A	2.5A	1.5A	0.5A
	DC	DC-12 Control of resistive loads and solid state loads	5A	2.5A	—	1.1A	0.55A	—
		DC-13 Control of electromagnets	2.5A	1A	—	0.55A	0.3A	—

- The operating current represents the classification by 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 and load types)

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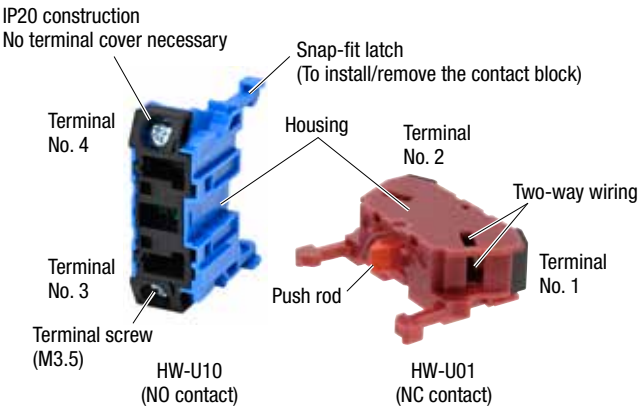
ø22 HW Series Switches & Pilot Lights

HW-U Contact Block



Part No.	HW-U10	HW-U01	HW-U10R	HW-U01R
Contact	1NO	1NC	EM (NO) (early make)	LB (NC) (late break)
Contact No.	3-4	1-2	3-4	1-2
Housing	Blue	Purple red	Blue	Purple red
Push Rod	Green	Red	Black	White
Weight	Approx. 11g			

- Up to 2 layers (4 blocks) can be attached.
- Gold contacts available (gold-plated silver)

LED Illuminated Part Specifications

Illuminated push-button switch, illuminated selector switch, dual push-button switch with pilot light

Rated voltage	Voltage Range		Built-in LED bulb	
			Lamp Base	Part No.
6V AC/DC	6V AC/DC	±10%	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	207to 250V		LSRD-M4

Pilot light

Rated voltage	Voltage Range		Built-in LED bulb	
			Lamp Base	Part No.
6V AC/DC	6V AC/DC	±10%	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	207 to 250V		LSRD-M4
380V AC	380V AC	±10%		LSRD-6
400/440V AC	400/440V AC			
480V AC	480V AC			

- For details about the built-in LED bulb, refer to B-182.

Illuminated Part Type and Shape

	Illuminated Unit	Pilot Light	
Power Unit	Full Voltage Adapter	Direct (integrated adapter type)	Transformer
Rated Voltage	6V AC/DC, 12V AC/DC, 24V AC/DC, 100 to 120V AC/DC, 200 to 240V AC	6V AC/DC, 12V AC/DC, 24V AC/DC, 100 to 120V AC/DC, 200 to 240V AC	380 to 480V AC
Polarity	None	None	None
Shape/Terminal			

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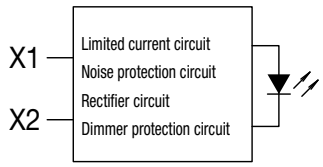
LED Lamp Ratings

LSRD

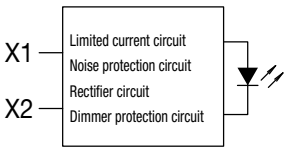
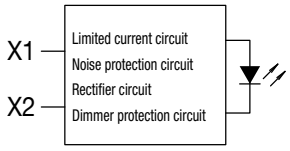
Part No.		LSRD-6	LSRD-1	LSRD-2	LSRD-H2	LSRD-M2	LSRD-M4
Lamp Base		BA9S/13					
Rated Voltage		6V AC/DC	12V AC/DC	24V AC/DC	100/120V AC/DC	200/220V AC	230/240V AC
Voltage Range		6V AC/DC±10%	12V AC/DC±10%	24V AC/DC±10%	100/120V AC/DC±10%	200/220V AC±10%	207 to 250V
Current Draw	DC	10mA	7mA	7mA	2mA	–	–
	AC	14mA	8mA	8mA	2mA	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					Example: LSRD-2 		
Weight		Approx. 2g					

- Since the LSRD bulb is available in a single color, there is no need to specify the color in the Part No.
- For the dual push-button switch with pilot light in G color (green), use the LSRD bulb and attachment lens. Refer to B-221.

Attention: Customers who are using previous models

HW (screw terminal) series products not listed in this catalog are not compatible with high-voltage lamps.
Improper use of these products may cause serious accidents.
If you are unsure, please check the part number and contact an IDEC sales representative.

LSTDB, LSRD-2: Large type (Dome, HW1P-5Q4∗) for pilot light only

Part No.		HW1P-5Q4R	HW1P-5Q4A	HW1P-5Q4G	HW1P-5Q4Y	HW1P-5Q4S	HW1P-5Q4PW
Illumination color		R (Red)	A (Amber)	G (Green)	Y (Yellow)	S (Blue)	PW (Pure white)
Built-in LED bulb part No.		LSTDB-2AN		LSTDB-2GN	LSRD-2		
Lamp Base		BA9S/13					
Rated Voltage		24V AC/DC					
Voltage Range		24V AC/DC±10%					
Current Draw	DC AC	14mA		8mA	7mA		
Life (reference value)		Approx. 20,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.)			Approx. 50,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.)		
Internal Circuit							

- Since the LSRD bulb is available in a single color, there is no need to specify the color in the Part No.

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Specifications

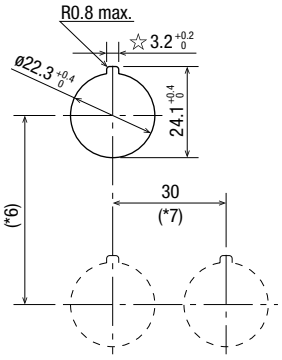
Standard operating conditions	Operating Temperature	Non-illuminated: –25 to +60°C (no freezing) Illuminated: –25 to +50°C (no freezing) Jumbo dome pilot lights: –25 to +55°C (no freezing)
	Operating Humidity	30 to 85% RH (no condensation)
	Storage Temperature	–40 to +80°C (no freezing)
Contact Resistance		50 mΩ maximum (initial value)
Insulation Resistance		100 MΩ minimum (500V DC megger)
Overvoltage category		II
Impulse with stand voltage		4.0kV (2.5kV for illumination unit)
Dielectric Strength		(Full voltage and illuminated units: 2500 AC, 1 minute) (*1)
Vibration Resistance		Damage limits: 30 Hz, amplitude 1.5 mm
		Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance		Damage limits: 1000m/s²
		Operating extremes: 100m/s²
Recommended tightening torque for lock nut		2.0N·m
Terminal style		Screw (SS terminal)
Mechanical Life (minimum operations)		Pushbutton, Illuminated pushbutton Momentary····· 5,000,000 Maintained····· 500,000 Dual pushbutton····· 500,000 Selector switch····· 500,000 Key selector switch (Disc tumbler)····· 500,000 Key selector switch (Pin tumbler)····· 100,000 Illuminated selector switch····· 500,000 Pushbutton selector····· 250,000 Mono-lever switches····· 250,000
Electrical Life (*5)		Pushbutton, Illuminated pushbutton Momentary····· 500,000 (*2) Maintained····· 500,000 (*4) Dual pushbutton····· 500,000 (*2) Selector switch····· 500,000 (*3) Key selector switch (Disc tumbler)····· 500,000 (*3) Key selector switch (Pin tumbler)····· 100,000 (*3) Illuminated selector switch····· 500,000 (*3) Pushbutton selector····· 250,000 (*3) Mono-lever switches····· 250,000 (*4)
Weight (Apporx.)		66g (HW1B-M122) 20g (HW1P-1Q4) 84g (HW1L-M122Q4) 66g (HW1S-2T22) 94g (HW1K-2A22) 72g (HW1K-2JPC11) 84g (HW1F-222Q4) 71g (HW1R-2A22) 82g (HW1M-2222-22N9) 72g (HW7D-B111111) 90g (HW7D-L111111Q4)

*1) Dielectric strength for dual pushbuttons are as follows:
Full voltage type: 1000V AC, 1 minute (between live and dead metal parts)
*2) Switching frequency 1800 operations/h, duty ratio 40%
*3) Switching frequency 1200 operations/h, duty ratio 40%
*4) Switching frequency 900 operations/h, duty ratio 40%
*5) Load condition 220V AC, 3A (AC-15)

Mounting Hole Layout

All dimensions in mm.

Panel Cut (IEC 60947-5-1)



- The minimum mounting centers are applicable to switches with one layer of contact blocks (one to two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers in consideration of convenience for wiring.
- When high temperature is expected, take necessary measures such as securing sufficient mounting centers or using a cooling fan.

Minimum Mounting Centers

(Dimensions in mm)

Unit	A (*6)	B (*7)
ø40mm mushroom button	50	40
Pushbutton selector	50	50
Mono-lever switch	72	72
Pilot light	30	30
Jumbo dome pilot light	85	85
Dual pushbutton switch	55	30
Illuminated selector switch	50	50

- The 3.2 mm recess is for preventing rotation and is not necessary when the nameplate or anti-rotation ring is not used.

Degree of Protection

Unit	IEC 60529
All units except dual pushbutton switches	IP65 (*8)
Dual pushbutton switches	IP40 (*9)

*8) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on B-216 are used.
(IP40 when other ø22 namplates such as NWA are used)
*9) IP65 protection degree when HW9Z-D7D button cover is used.

Ordering Information

Standard models

- Specify Ordering No. when ordering.
- Specify a button or lens color code in place of ∗.
- Pilot lights, illuminated pushbuttons, and illuminated selector switches have an LED lamp installed unless otherwise specified.
- Nameplates and accessories for mono-lever switch are ordered separately. See B-216 to B-218.

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Ordering Information

Pushbuttons (B-187 to B-189)

When specifying gold-plated silver contact / contact configuration:

HW1B-M1 11 R -MAU

Contact specification	MAU:	Gold contact
Contact configuration	10:	1NO
	01:	1NC
	11:	1NO1NC
	20:	2NO
	02:	2NC
	22:	2NO2NC
	40:	4NO
	04:	4NC
	13:	1NO3NC
	31:	3NO1NC
	30:	3NO
	03:	3NC
	12:	1NO2NC
	21:	2NO1NC

Pilot Lights (B-190)

When specifying a different operating voltage for the illumination section:

HW1P-1 Q4 R

Illumination voltage	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
	S2:	380V AC
	T2:	400/440V AC
	T82:	480V AC

Illuminated Pushbuttons (B-192 to B-196)

When specifying gold-plated silver contact / contact configuration / a different operating voltage for the illumination section:

HW1L-M1 11 Q4 R - MAU

Contact specification	MAU	Gold contact
Illumination voltage	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
Contact configuration	10:	1NO
	01:	1NC
	11:	1NO1NC
	20:	2NO
	02:	2NC
	22:	2NO2NC
	40:	4NO
	04:	4NC
	13:	1NO3NC
	31:	3NO1NC
	30:	3NO
	03:	3NC
	12:	1NO2NC
	21:	2NO1NC

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ø22 HW Series Ordering / Part No. Development

Ordering Information

Dual Pushbutton Switches [without pilot light] (B-199)

When specifying gold-plated silver contact / contact configuration:

HW7D-B 1 1 1010 GR 1–MAU

Contact specification	MAU:	Gold-plated
Button legends	Blank:	Without legend
	1:	I/ON + O/OFF
Button color code	GR:	Green (top) Red (bottom)
	WB:	White (top) Black (bottom)
Contact arrangement code (bottom button)	1001:	1NO (top), 1NC (bottom)
	1010:	1NO (top), 1NO (bottom)
	1111:	1NO1NC (top), 1NO1NC (bottom)
	2002:	2NO (top), 2NC (bottom)
Button style	1:	Flush + Flush
	2:	Flush + Extended
Operation	1:	Momentary
	2:	Interlock

Dual Pushbutton Switches [with pilot light] (B-200)

When specifying gold-plated silver contact type / contact configuration / a different operating voltage for the illumination section:

HW7D-L 1 1 1001 Q4 G GR 1–MAU

Contact specification	MAU:	Gold-plated
Button legends	Blank:	Without legend
	1:	I/ON + O/OFF
Button color code	GR:	Green (top), Red (bottom)
	WB:	White (top), Black (bottom)
Lamp color code	G:	Green
	PW:	Pure White
Operating voltage	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
Contact arrangement code (bottom button)	1001:	1NO (top) 1NC (bottom)
	1010:	1NO (top), 1NO (bottom)
	1111:	1NO1NC (top), 1NO1NC (bottom)
	2002:	2NO (top), 2NC (bottom)
Button style	1:	Flush + Flush
	2:	Flush + Extended
Operation	1:	Momentary
	2:	Interlock

Note: No other contact combinations are available besides those listed above.

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Ordering Information

Selector Switches (B-203)

When specifying gold-plated silver contact:

HW1S- 2T11 - MAU

Contact specification	MAU: Gold-plated

• See B-203 for operator position.

Key Selector Switches (Pin Tumbler Key) (B-204 to B-205)

When specifying gold-plated silver contact / key removal position / different key number:

HW1K- 2 J P A 01 -501 - MAU

Contact specification	MAU: Gold-plated
Different key number	-501 - 515
Key removal position	2-position A: Removable in all positions B: Removable in the left only C: Removable in the right only 3-position A: Removable in all positions B: Removable in the left and center C: Removable in the right and center D: Removable in center only E: Removable in right and left G: Removable in left only H: Removable in right only
Cam code	Blank, J, or S
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

Note:
• The key cannot be removed in a spring return position.
• The key number is engraved on the key cylinder. (default key is not engraved with a number)

Key Selector Switches (Disc Tumbler Key) (B-206 to B-207)

When specifying gold-plated silver contact, key removal position, and key number:

HW1K- 3 J A 22 - MAU

Contact specification	MAU: Gold-plated
Key removal position	(same as pin tumbler key shown above)
Cam code	(same as pin tumbler key shown above)
Operator position code	(same as pin tumbler key shown above)

Note:
• The key cannot be removed in a spring return position.
• The key number is engraved on the key cylinder. (default key is not engraved with a number)

Illuminated Selector Switches (B-208 to B-209)

When specifying gold-plated silver contact / LED operating voltage:

HW1F- 2 J L 11 Q4 R - MAU

Contact specification	MAU: Gold-plated
Operating voltage	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
Operator shape	Blank (Knob), L (Lever)
Cam code	Blank, J, or S
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

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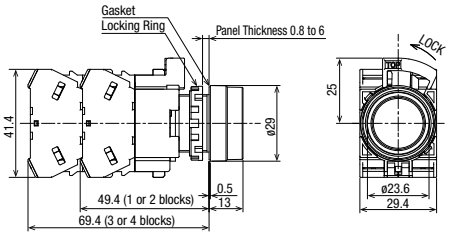
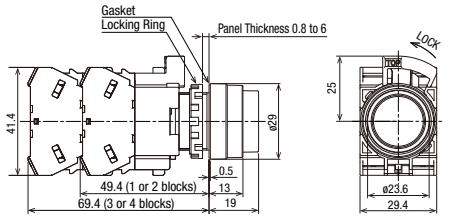
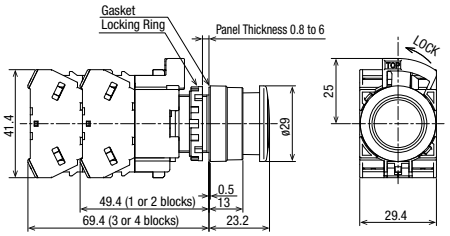
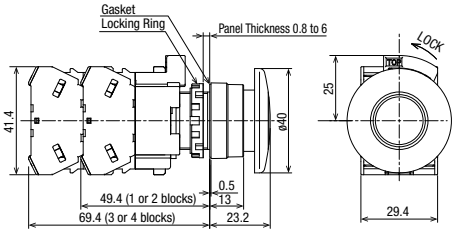
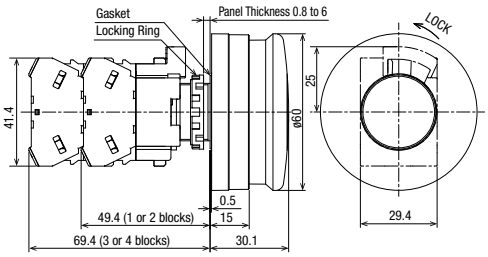
ø22 HW Series Pushbuttons

Flush / Extended / Mushroom Pushbuttons

Quantity: 1

Shape	Operation	Contact	Part No.	Color Code	Dimensions (mm)
Flush HW1B-M1 HW1B-A1 	Momentary	1NO	HW1B-M110∗	B G R Y S W	
		1NC	HW1B-M101∗		
		1NO-1NC	HW1B-M111∗		
		2NO	HW1B-M120∗		
		2NC	HW1B-M102∗		
		2NO-2NC	HW1B-M122∗		
	Maintained	1NO	HW1B-A110∗		
		1NC	HW1B-A101∗		
		1NO-1NC	HW1B-A111∗		
		2NO	HW1B-A120∗		
		2NC	HW1B-A102∗		
		2NO-2NC	HW1B-A122∗		
Extended HW1B-M2 HW1B-A2 	Momentary	1NO	HW1B-M210∗	B G R Y S W	
		1NC	HW1B-M201∗		
		1NO-1NC	HW1B-M211∗		
		2NO	HW1B-M220∗		
		2NC	HW1B-M202∗		
		2NO-2NC	HW1B-M222∗		
	Maintained	1NO	HW1B-A210∗		
		1NC	HW1B-A201∗		
		1NO-1NC	HW1B-A211∗		
		2NO	HW1B-A220∗		
		2NC	HW1B-A202∗		
		2NO-2NC	HW1B-A222∗		
ø29mm Mushroom HW1B-M3 HW1B-A3 	Momentary	1NO	HW1B-M310∗	B G R Y S W	
		1NC	HW1B-M301∗		
		1NO-1NC	HW1B-M311∗		
		2NO	HW1B-M320∗		
		2NC	HW1B-M302∗		
		2NO-2NC	HW1B-M322∗		
	Maintained	1NO	HW1B-A310∗		
		1NC	HW1B-A301∗		
		1NO-1NC	HW1B-A311∗		
		2NO	HW1B-A320∗		
		2NC	HW1B-A302∗		
		2NO-2NC	HW1B-A322∗		
ø40mm Mushroom HW1B-M4 HW1B-A4 	Momentary	1NO	HW1B-M410∗	B G R Y S W	
		1NC	HW1B-M401∗		
		1NO-1NC	HW1B-M411∗		
		2NO	HW1B-M420∗		
		2NC	HW1B-M402∗		
		2NO-2NC	HW1B-M422∗		
	Maintained	1NO	HW1B-A410∗		
		1NC	HW1B-A401∗		
		1NO-1NC	HW1B-A411∗		
		2NO	HW1B-A420∗		
		2NC	HW1B-A402∗		
		2NO-2NC	HW1B-A422∗		
ø60mm Mushroom HW1B-M5 	Momentary	1NO	HW1B-M510∗	B G R	
		1NC	HW1B-M501∗		
		1NO-1NC	HW1B-M511∗		
		2NO	HW1B-M520∗		
		2NC	HW1B-M502∗		
		2NO-2NC	HW1B-M522∗		

- Specify a color code in place of ∗ in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)
- Pushbuttons with 1 or 3 contact blocks have a dummy block.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Terminal screw: M3.5, Terminal cover: Integrated type

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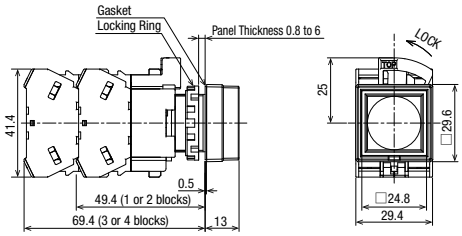
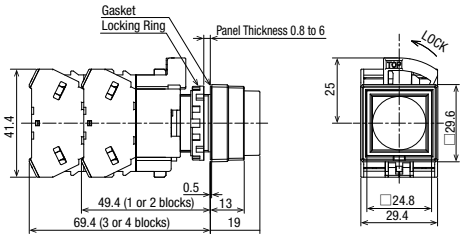
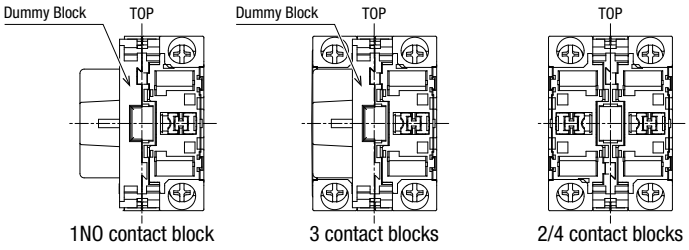
Square Flush / Square Flush Pushbuttons

Quantity: 1

Shape	Operation	Contact	Part No.	Color Code	Dimensions (mm)
Square Flush HW2B-M1 HW2B-A1 	Momentary	1NO	HW2B-M110∗	B G R Y S W	
		1NC	HW2B-M101∗		
		1NO-1NC	HW2B-M111∗		
		2NO	HW2B-M120∗		
		2NC	HW2B-M102∗		
		2NO-2NC	HW2B-M122∗		
	Maintained	1NO	HW2B-A110∗		
		1NC	HW2B-A101∗		
		1NO-1NC	HW2B-A111∗		
		2NO	HW2B-A120∗		
		2NC	HW2B-A102∗		
		2NO-2NC	HW2B-A122∗		
Square Extended HW2B-M2 HW2B-A2 	Momentary	1NO	HW2B-M210∗	B G R Y S W	
		1NC	HW2B-M201∗		
		1NO-1NC	HW2B-M211∗		
		2NO	HW2B-M220∗		
		2NC	HW2B-M202∗		
		2NO-2NC	HW2B-M222∗		
	Maintained	1NO	HW2B-A210∗		
		1NC	HW2B-A201∗		
		1NO-1NC	HW2B-A211∗		
		2NO	HW2B-A220∗		
		2NC	HW2B-A202∗		
		2NO-2NC	HW2B-A222∗		

- Specify a color code in place of ∗ in Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)
- Pushbuttons with 1 or 3 contact blocks have a dummy block.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Terminal screw: M3.5, Terminal cover: Integrated type

Bottom View



- For 1NC contact, the contact block will mount on the opposite side.
- See B-227 for wiring.
- Integrated terminal cover

APEM
Switches & Pilot Lights
Control Boxes
Emergency Stop Switches
Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID
Flush Silhouette
ø16
ø22
ø30
Miniature
Pilot Lights
HW
TW
YW

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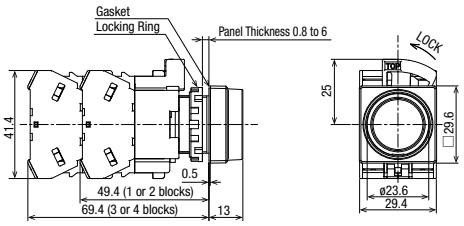
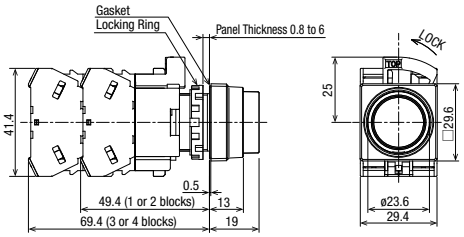
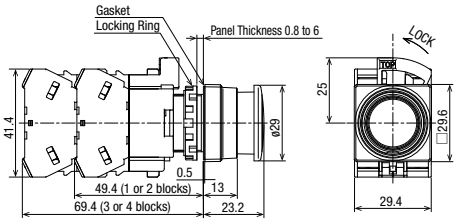
ø22 HW Series Pushbuttons

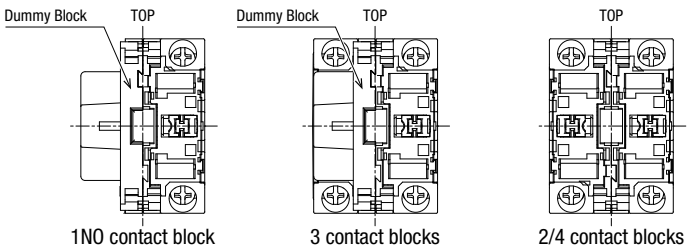
Round Flush / Round Extended /Mushroom with Square Bezel

Quantity: 1

Shape	Operation	Contact	Part No.	Color Code	Dimensions (mm)
Round Flush with Square Bezel HW3B-M1 HW3B-A1 	Momentary	1NO	HW3B-M110∗	B G R Y S W	
		1NC	HW3B-M101∗		
		1NO-1NC	HW3B-M111∗		
		2NO	HW3B-M120∗		
		2NC	HW3B-M102∗		
		2NO-2NC	HW3B-M122∗		
	Maintained	1NO	HW3B-A110∗		
		1NC	HW3B-A101∗		
		1NO-1NC	HW3B-A111∗		
		2NO	HW3B-A120∗		
		2NC	HW3B-A102∗		
		2NO-2NC	HW3B-A122∗		
Round Extended with Square Bezel HW3B-M2 HW3B-A2 	Momentary	1NO	HW3B-M210∗	B G R Y S W	
		1NC	HW3B-M201∗		
		1NO-1NC	HW3B-M211∗		
		2NO	HW3B-M220∗		
		2NC	HW3B-M202∗		
		2NO-2NC	HW3B-M222∗		
	Maintained	1NO	HW3B-A210∗		
		1NC	HW3B-A201∗		
		1NO-1NC	HW3B-A211∗		
		2NO	HW3B-A220∗		
		2NC	HW3B-A202∗		
		2NO-2NC	HW3B-A222∗		
ø29mm Mushroom with Square Bezel HW3B-M3 HW3B-A3 	Momentary	1NO	HW3B-M310∗	B G R Y S W	
		1NC	HW3B-M301∗		
		1NO-1NC	HW3B-M311∗		
		2NO	HW3B-M320∗		
		2NC	HW3B-M302∗		
		2NO-2NC	HW3B-M322∗		
	Maintained	1NO	HW3B-A310∗		
		1NC	HW3B-A301∗		
		1NO-1NC	HW3B-A311∗		
		2NO	HW3B-A320∗		
		2NC	HW3B-A302∗		
		2NO-2NC	HW3B-A322∗		

- Specify a color code in place of ∗ in Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)
- Pushbuttons with 1 or 3 contact blocks have a dummy block.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Terminal screw: M3.5, Terminal cover: Integrated type

Bottom View



1NO contact block　　3 contact blocks　　2/4 contact blocks

- For 1NC contact, the contact block will mount on the opposite side.
- See B-227 for wiring.
- Integrated terminal cover

APEM
Switches & Pilot Lights
Control Boxes
Emergency Stop Switches
Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID
Flush Silhouette
ø16
ø22
ø30
Miniature
Pilot Lights
HW
TW
YW

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Round Flush / Dome / Square Flush / Jumbo Dome Pilot Lights

Quantity: 1

Shape	Lamp	Operating Voltage	Part No.	Color Code
Round Flush (marking type) HW1P-1 	LED	24V AC/DC	HW1P-1Q4∗	R G Y A S PW
		100/120V AC/DC	HW1P-1QH2∗	
		200/220V AC	HW1P-1QM∗	
Round (Dome) HW1P-2 	LED	24V AC/DC	HW1P-2Q4∗	R G Y A S PW
		100/120V AC/DC	HW1P-2QH2∗	
		200/220V AC	HW1P-2QM∗	
Square Flush (marking type) HW2P-1 	LED	24V AC/DC	HW2P-1Q4∗	R G Y A S PW
		100/120V AC/DC	HW2P-1QH2∗	
		200/220V AC	HW2P-1QM∗	
Jumbo Dome (∗1) HW1P-5 	LED	24V AC/DC	HW1P-5Q4∗	R G Y A S PW

- Specify a color code in place of ∗ in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)
- Pilot lights have an LED lamp installed unless otherwise specified.
- See B-184 for other operating voltages.
- See B-191 for bottom view.
- See B-191 for how to specify units without LED lamps.

*1) Jumbo dome pilot lights contain an exclusive LED. See B-182 and B-221.

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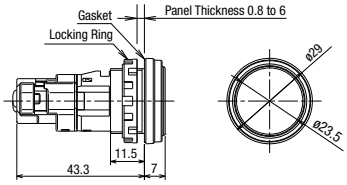
Dimensions

All dimensions in mm.

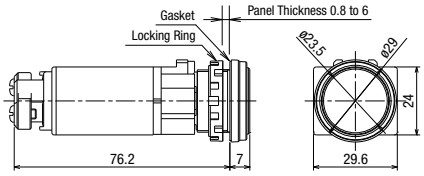
Pilot Lights

Round Flush Terminal screws: M3.5, integrated terminal cover

6 to 120V AC/DC, 200 to 240V AC

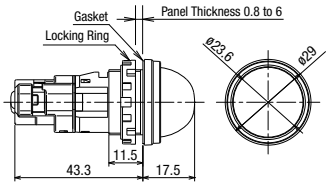


Over 380V AC

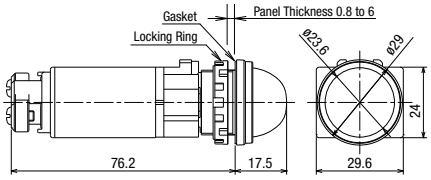


Round (Dome) Terminal screws: M3.5, integrated terminal cover

6 to 120V AC/DC, 200 to 240V AC

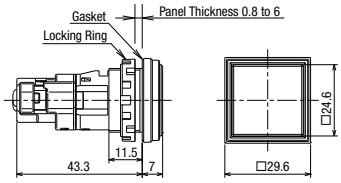


Over 380V AC

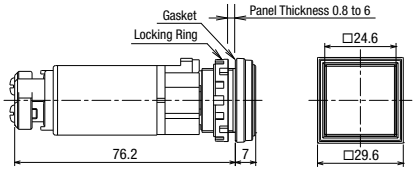


Square Flush Terminal screws: M3.5, integrated terminal cover

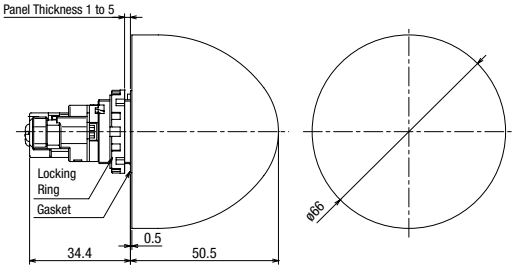
6 to 120V AC/DC, 200 to 240V AC



Over 380V AC



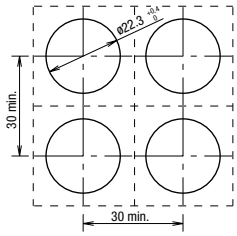
Jumbo Dome Terminal screws: M3.5, integrated terminal cover



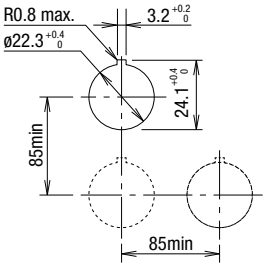
Panel Cut-Out

Mounting Centers
(Except jumbo dome)

Close mounting on 30 mm centers



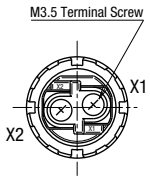
Mounting Centers
(Jumbo dome)



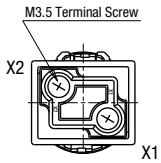
Determine the minimum mounting centers in consideration of convenience for wiring.

Pilot Light Bottom View

6 to 120V AC/DC, 200 to 240V AC



Over 380V AC



• See B-228 for wiring.

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LED | Round Flush / Round Extended (Marking Type)

Quantity: 1

Shape	Illumination	Operation	Rated Voltage	Contact Configuration	Part No.	Color Code
Round Flush (Marking type) HW1L-M1 HW1L-A1	LED	Momentary	24V AC/DC	1NO	HW1L-M110Q4∗	R G Y A S PW
				1NC	HW1L-M101Q4∗	
				1NO-1NC	HW1L-M111Q4∗	
				2NO	HW1L-M120Q4∗	
				2NC	HW1L-M102Q4∗	
			100/120V AC/DC	1NO	HW1L-M110QH2∗	
				1NC	HW1L-M101QH2∗	
				1NO-1NC	HW1L-M111QH2∗	
				2NO	HW1L-M120QH2∗	
				2NC	HW1L-M102QH2∗	
			200/220V AC	1NO	HW1L-M110QM∗	
				1NC	HW1L-M101QM∗	
				1NO-1NC	HW1L-M111QM∗	
				2NO	HW1L-M120QM∗	
				2NC	HW1L-M102QM∗	
		Maintained	24V AC/DC	1NO	HW1L-A110Q4∗	R G Y A S PW
				1NC	HW1L-A101Q4∗	
				1NO-1NC	HW1L-A111Q4∗	
				2NO	HW1L-A120Q4∗	
				2NC	HW1L-A102Q4∗	
			100/120V AC/DC	1NO	HW1L-A110QH2∗	
				1NC	HW1L-A101QH2∗	
				1NO-1NC	HW1L-A111QH2∗	
				2NO	HW1L-A120QH2∗	
				2NC	HW1L-A102QH2∗	
			200/220V AC	1NO	HW1L-A110QM∗	
				1NC	HW1L-A101QM∗	
				1NO-1NC	HW1L-A111QM∗	
				2NO	HW1L-A120QM∗	
				2NC	HW1L-A102QM∗	
Round Extended (Marking type) HW1L-M2 HW1L-A2	LED	Momentary	24V AC/DC	1NO	HW1L-M210Q4∗	R G Y A S PW
				1NC	HW1L-M201Q4∗	
				1NO-1NC	HW1L-M211Q4∗	
				2NO	HW1L-M220Q4∗	
				2NC	HW1L-M202Q4∗	
			100/120V AC	1NO	HW1L-M210QH2∗	
				1NC	HW1L-M201QH2∗	
				1NO-1NC	HW1L-M211QH2∗	
				2NO	HW1L-M220QH2∗	
				2NC	HW1L-M202QH2∗	
			200/220V AC	1NO	HW1L-M210QM∗	
				1NC	HW1L-M201QM∗	
				1NO-1NC	HW1L-M211QM∗	
				2NO	HW1L-M220QM∗	
				2NC	HW1L-M202QM∗	
		Maintained	24V AC/DC	1NO	HW1L-A210Q4∗	R G Y A S PW
				1NC	HW1L-A201Q4∗	
				1NO-1NC	HW1L-A211Q4∗	
				2NO	HW1L-A220Q4∗	
				2NC	HW1L-A202Q4∗	
			100/120V AC/DC	1NO	HW1L-A210QH2∗	
				1NC	HW1L-A201QH2∗	
				1NO-1NC	HW1L-A211QH2∗	
				2NO	HW1L-A220QH2∗	
				2NC	HW1L-A202QH2∗	
			200/220V AC	1NO	HW1L-A210QM∗	
				1NC	HW1L-A201QM∗	
				1NO-1NC	HW1L-A211QM∗	
				2NO	HW1L-A220QM∗	
				2NC	HW1L-A202QM∗	

- Specify a color code in place of ∗ in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See B-184 for other operating voltage such as 6V AC/DC and 12V AC/DC.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbutttons with 2 or 4 contact blocks have a dummy block.
- See B-198 for bottom view.

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ø22 HW Series Illluminated Pushbuttons

LED | Round Extended with Full Shroud (Marking Type)

Quantity: 1

Shape	Illumination	Operation	Rated Voltage	Contact	Part No.	Color Code
Round Extended with Full Shroud (Marking type) HW1L-MF2 HW1L-AF2 	LED	Momentary	24V AC/DC	1NO	HW1L-MF210Q4∗	R G Y A S PW
				1NC	HW1L-MF201Q4∗	
				1NO-1NC	HW1L-MF211Q4∗	
				2NO	HW1L-MF220Q4∗	
				2NC	HW1L-MF202Q4∗	
			100/120V AC/DC	1NO	HW1L-MF210QH2∗	
				1NC	HW1L-MF201QH2∗	
				1NO-1NC	HW1L-MF211QH2∗	
				2NO	HW1L-MF220QH2∗	
				2NC	HW1L-MF202QH2∗	
			200/220V AC	1NO	HW1L-MF210QM∗	
				1NC	HW1L-MF201QM∗	
				1NO-1NC	HW1L-MF211QM∗	
				2NO	HW1L-MF220QM∗	
				2NC	HW1L-MF202QM∗	
		Maintained	24V AC/DC	1NO	HW1L-AF210Q4∗	R G Y A S PW
				1NC	HW1L-AF201Q4∗	
				1NO-1NC	HW1L-AF211Q4∗	
				2NO	HW1L-AF220Q4∗	
				2NC	HW1L-AF202Q4∗	
			100/120V AC/DC	1NO	HW1L-AF210QH2∗	
				1NC	HW1L-AF201QH2∗	
				1NO-1NC	HW1L-AF211QH2∗	
				2NO	HW1L-AF220QH2∗	
				2NC	HW1L-AF202QH2∗	
			200/220V AC	1NO	HW1L-AF210QM∗	
				1NC	HW1L-AF201QM∗	
				1NO-1NC	HW1L-AF211QM∗	
				2NO	HW1L-AF220QM∗	
				2NC	HW1L-AF202QM∗	

- Specify a color code in place of ∗ in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See B-184 for other operating voltage such as 6V AC/DC and 12V AC/DC.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbutttons with 2 or 4 contact blocks have a dummy block.
- See B-198 for bottom view.

APEM
Switches & Pilot Lights
Control Boxes
Emergency Stop Switches
Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID
Flush Silhouette
ø16
ø22
ø30
Miniature
Pilot Lights
HW
TW
YW

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LED | Square Flush / Round Flush with Square Bezel (Marking Type)

Quantity: 1

Shape	Illumination	Operation	Illumination	Contact	Part No.	Color Code
Square Flush (Marking type) HW2L-M1 HW2L-A1	LED	Momentary	24V AC/DC	1NO	HW2L-M110Q4∗	R G Y A S PW
				1NC	HW2L-M101Q4∗	
				1NO-1NC	HW2L-M111Q4∗	
				2NO	HW2L-M120Q4∗	
				2NC	HW2L-M102Q4∗	
			100/120V AC/DC	1NO	HW2L-M110QH2∗	
				1NC	HW2L-M101QH2∗	
				1NO-1NC	HW2L-M111QH2∗	
				2NO	HW2L-M120QH2∗	
				2NC	HW2L-M102QH2∗	
			200/220V AC	1NO	HW2L-M110QM∗	
				1NC	HW2L-M101QM∗	
				1NO-1NC	HW2L-M111QM∗	
				2NO	HW2L-M120QM∗	
				2NC	HW2L-M102QM∗	
		Maintained	24V AC/DC	1NO	HW2L-A110Q4∗	R G Y A S PW
				1NC	HW2L-A101Q4∗	
				1NO-1NC	HW2L-A111Q4∗	
				2NO	HW2L-A120Q4∗	
				2NC	HW2L-A102Q4∗	
			100/120V AC/DC	1NO	HW2L-A110QH2∗	
				1NC	HW2L-A101QH2∗	
				1NO-1NC	HW2L-A111QH2∗	
				2NO	HW2L-A120QH2∗	
				2NC	HW2L-A102QH2∗	
			200/220V AC	1NO	HW2L-A110QM∗	
				1NC	HW2L-A101QM∗	
				1NO-1NC	HW2L-A111QM∗	
				2NO	HW2L-A120QM∗	
				2NC	HW2L-A102QM∗	
Round Flush with Square Bezel (Marking type) HW3L-M1 HW3L-A1	LED	Momentary	24V AC/DC	1NO	HW3L-M110Q4∗	R G Y A S PW
				1NC	HW3L-M101Q4∗	
				1NO-1NC	HW3L-M111Q4∗	
				2NO	HW3L-M120Q4∗	
				2NC	HW3L-M102Q4∗	
			100/120V AC/DC	1NO	HW3L-M110QH2∗	
				1NC	HW3L-M101QH2∗	
				1NO-1NC	HW3L-M111QH2∗	
				2NO	HW3L-M120QH2∗	
				2NC	HW3L-M102QH2∗	
			200/220V AC	1NO	HW3L-M110QM∗	
				1NC	HW3L-M101QM∗	
				1NO-1NC	HW3L-M111QM∗	
				2NO	HW3L-M120QM∗	
				2NC	HW3L-M102QM∗	
		Maintained	24V AC/DC	1NO	HW3L-A110Q4∗	R G Y A S PW
				1NC	HW3L-A101Q4∗	
				1NO-1NC	HW3L-A111Q4∗	
				2NO	HW3L-A120Q4∗	
				2NC	HW3L-A102Q4∗	
			100/120V AC/DC	1NO	HW3L-A110QH2∗	
				1NC	HW3L-A101QH2∗	
				1NO-1NC	HW3L-A111QH2∗	
				2NO	HW3L-A120QH2∗	
				2NC	HW3L-A102QH2∗	
			200/220V AC	1NO	HW3L-A110QM∗	
				1NC	HW3L-A101QM∗	
				1NO-1NC	HW3L-A111QM∗	
				2NO	HW3L-A120QM∗	
				2NC	HW3L-A102QM∗	

- Specify a color code in place of ∗ in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See B-184 for other operating voltage such as 6V AC/DC and 12V AC/DC.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbutttons with 2 or 4 contact blocks have a dummy block.
- See B-198 for bottom view.

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ø22 HW Series Illluminated Pushbuttons

LED | Mushroom (ø29mm) / Mushroom (ø29mm) with Square Bezel (Marking Type)

Quantity: 1

Shape	Illumination	Operation	Illumination	Contact	Part No.	Color Code
ø29mm Mushroom (Marking type) HW1L-M3 HW1L-A3	LED	Momentary	24V AC/DC	1NO	HW1L-M310Q4∗	R G Y A S PW
				1NC	HW1L-M301Q4∗	
				1NO-1NC	HW1L-M311Q4∗	
				2NO	HW1L-M320Q4∗	
				2NC	HW1L-M302Q4∗	
			100/120V AC/DC	1NO	HW1L-M310QH2∗	
				1NC	HW1L-M301QH2∗	
				1NO-1NC	HW1L-M311QH2∗	
				2NO	HW1L-M320QH2∗	
				2NC	HW1L-M302QH2∗	
			200/220V AC	1NO	HW1L-M310QM∗	
				1NC	HW1L-M301QM∗	
				1NO-1NC	HW1L-M311QM∗	
				2NO	HW1L-M320QM∗	
				2NC	HW1L-M302QM∗	
		Maintained	24V AC/DC	1NO	HW1L-A310Q4∗	R G Y A S PW
				1NC	HW1L-A301Q4∗	
				1NO-1NC	HW1L-A311Q4∗	
				2NO	HW1L-A320Q4∗	
				2NC	HW1L-A302Q4∗	
			100/120V AC/DC	1NO	HW1L-A310QH2∗	
				1NC	HW1L-A301QH2∗	
				1NO-1NC	HW1L-A311QH2∗	
				2NO	HW1L-A320QH2∗	
				2NC	HW1L-A302QH2∗	
			200/220V AC	1NO	HW1L-A310QM∗	
				1NC	HW1L-A301QM∗	
				1NO-1NC	HW1L-A311QM∗	
				2NO	HW1L-A320QM∗	
				2NC	HW1L-A302QM∗	
ø29mm Mushroom with Square Bezel (Marking type) HW3L-M3 HW3L-A3	LED	Momentary	24V AC/DC	1NO	HW3L-M310Q4∗	R G Y A S PW
				1NC	HW3L-M301Q4∗	
				1NO-1NC	HW3L-M311Q4∗	
				2NO	HW3L-M320Q4∗	
				2NC	HW3L-M302Q4∗	
			100/120V AC/DC	1NO	HW3L-M310QH2∗	
				1NC	HW3L-M301QH2∗	
				1NO-1NC	HW3L-M311QH2∗	
				2NO	HW3L-M320QH2∗	
				2NC	HW3L-M302QH2∗	
			200/220V AC	1NO	HW3L-M310QM∗	
				1NC	HW3L-M301QM∗	
				1NO-1NC	HW3L-M311QM∗	
				2NO	HW3L-M320QM∗	
				2NC	HW3L-M302QM∗	
		Maintained	24V AC/DC	1NO	HW3L-A310Q4∗	R G Y A S PW
				1NC	HW3L-A301Q4∗	
				1NO-1NC	HW3L-A311Q4∗	
				2NO	HW3L-A320Q4∗	
				2NC	HW3L-A302Q4∗	
			100/120V AC/DC	1NO	HW3L-A310QH2∗	
				1NC	HW3L-A301QH2∗	
				1NO-1NC	HW3L-A311QH2∗	
				2NO	HW3L-A320QH2∗	
				2NC	HW3L-A302QH2∗	
			200/220V AC	1NO	HW3L-A310QM∗	
				1NC	HW3L-A301QM∗	
				1NO-1NC	HW3L-A311QM∗	
				2NO	HW3L-A320QM∗	
				2NC	HW3L-A302QM∗	

- Specify a color code in place of ∗ in Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See B-184 for other operating voltage such as 6V AC/DC and 12V AC/DC.
- See B-184 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbutttons with 2 or 4 contact blocks have a dummy block.
- See B-198 for bottom view.

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LED | Mushroom (ø40mm) (Marking Type)

Quantity: 1

Shape	Illumination	Operation	Illumination	Contact	Part No.	Color Code
ø40mm Mushroom (Marking type) HW1L-M4 HW1L-A4	LED	Momentary	24V AC/DC	1NO	HW1L-M410Q4∗	R G Y A S PW
				1NC	HW1L-M401Q4∗	
				1NO-1NC	HW1L-M411Q4∗	
				2NO	HW1L-M420Q4∗	
				2NC	HW1L-M402Q4∗	
			100/120V AC/DC	1NO	HW1L-M410QH2∗	
				1NC	HW1L-M401QH2∗	
				1NO-1NC	HW1L-M411QH2∗	
				2NO	HW1L-M420QH2∗	
				2NC	HW1L-M402QH2∗	
			200/220V AC	1NO	HW1L-M410QM∗	
				1NC	HW1L-M401QM∗	
				1NO-1NC	HW1L-M411QM∗	
				2NO	HW1L-M420QM∗	
				2NC	HW1L-M402QM∗	
		Maintained	24V AC/DC	1NO	HW1L-A410Q4∗	R G Y A S PW
				1NC	HW1L-A401Q4∗	
				1NO-1NC	HW1L-A411Q4∗	
				2NO	HW1L-A420Q4∗	
				2NC	HW1L-A402Q4∗	
			100/120V AC/DC	1NO	HW1L-A410QH2∗	
				1NC	HW1L-A401QH2∗	
				1NO-1NC	HW1L-A411QH2∗	
				2NO	HW1L-A420QH2∗	
				2NC	HW1L-A402QH2∗	
			200/220V AC	1NO	HW1L-A410QM∗	
				1NC	HW1L-A401QM∗	
				1NO-1NC	HW1L-A411QM∗	
				2NO	HW1L-A420QM∗	
				2NC	HW1L-A402QM∗	

- Specify a color code in place of ∗ in Part No. R (red), G (green), Y (yellow), A (Amber), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See B-184 for other operating voltage such as 6V AC/DC and 12V AC/DC
- See B-184 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbutttons with 2 or 4 contact blocks have a dummy block.
- See B-198 for bottom view.

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ø22 HW Series Illluminated Pushbuttons

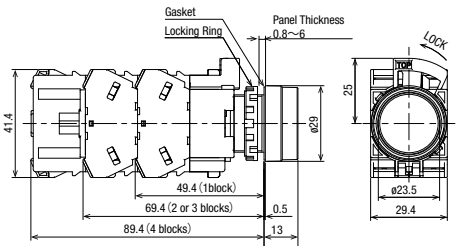
Dimensions

All dimensions in mm.

Illuminated Pushbuttons (Momentary / Maintained)

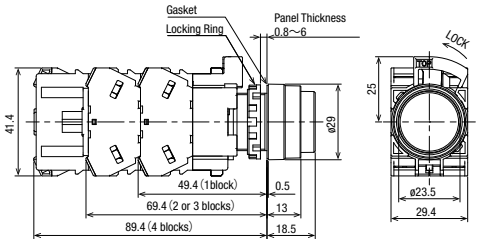
Round Flush

Terminal screws: M3.5, integrated terminal cover



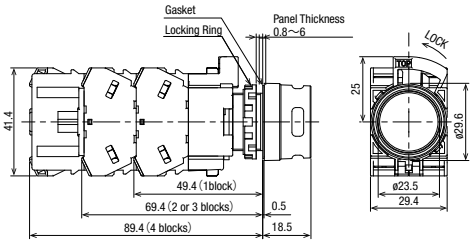
Round Extended

Terminal screws: M3.5, integrated terminal cover



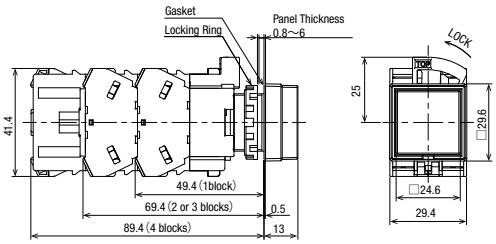
Round Extended with Full Shroud

Terminal screws: M3.5, integrated terminal cover



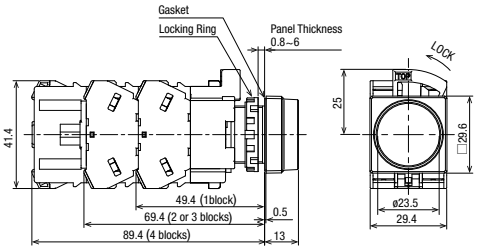
Square Flush

Terminal screws: M3.5, integrated terminal cover



Flush with Square Bezel

Terminal screws: M3.5, integrated terminal cover



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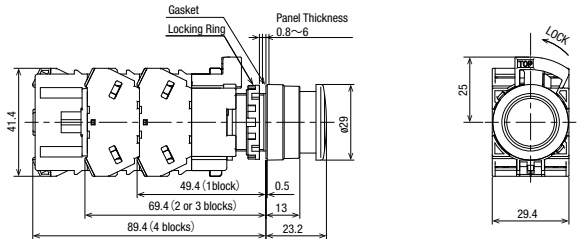
Dimensions

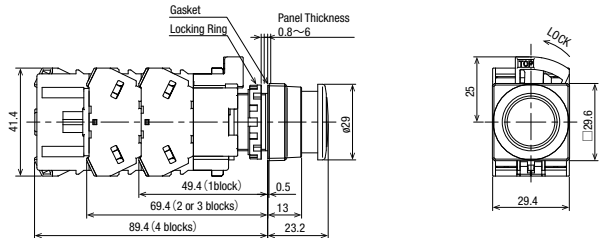
All dimensions in mm.

Illuminated Pushbuttons (Momentary / Maintained)

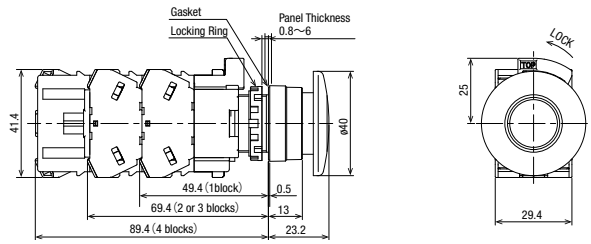
ø29mm Mushroom Terminal screws: M3.5, integrated terminal cover



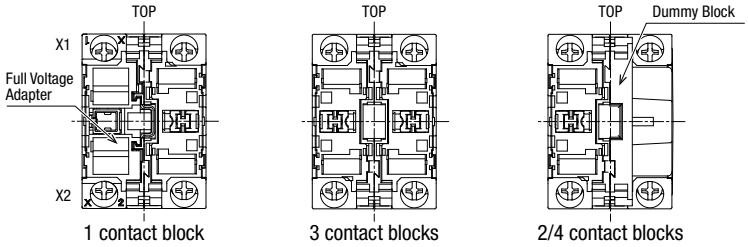
ø29mm Mushroom with Square Bezel Terminal screws: M3.5, integrated terminal cover



ø40mm Mushroom with Square Bezel Terminal screws: M3.5, integrated terminal cover



Bottom View



• See B-227 to B-228 for wiring.

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ø22 HW Series Dual Pushbuttons

Dual Pushbuttons (without Pilot Light)

Specify a button color code in place of 2 and legend code in place of 3 in the Part No.

Quantity: 1

Shape	HW7D-B					
Operation	Button Style	Contact		Part No.	2 Button Color Code	3 Legend Code
		Top Button	Bottom Button			
Momentary	Flush (top) Flush (bottom)	1NO	1NC	HW7D-B111001 2 3	GR: Green (top) Red (bottom) WB: White (top) Black (bottom)	Blank: Without legend 1: I / ON (top) O / OFF (bottom)
		1NO	1NO	HW7D-B111010 2 3		
		1NO-1NC	1NO-1NC	HW7D-B111111 2 3		
		2NO	2NC	HW7D-B112002 2 3		
	Flush (top) Extended (bottom)	1NO	1NC	HW7D-B121001 2 3		
		1NO	1NO	HW7D-B121010 2 3		
		1NO-1NC	1NO-1NC	HW7D-B121111 2 3		
		2NO	2NC	HW7D-B122002 2 3		
Interlock (*1)	Flush (top) Flush (bottom)	1NO	1NC	HW7D-B211001 2 3		
		1NO	1NO	HW7D-B211010 2 3		
		1NO-1NC	1NO-1NC	HW7D-B211111 2 3		
		2NO	2NC	HW7D-B212002 2 3		
	Flush (top) Extended (bottom)	1NO	1NC	HW7D-B221001 2 3		
		1NO	1NO	HW7D-B221010 2 3		
		1NO-1NC	1NO-1NC	HW7D-B221111 2 3		
		2NO	2NC	HW7D-B222002 2 3		

• See B-202 for top and bottom button contact mounting positions.

*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.

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LED | Dual Pushbuttons (with Pilot Light)

Specify a LED color code in place of 1 , button color code in place of 2 , and legend code in place of 3 in the Part No.

Quantity: 1

Shape	HW7D-L							
Operation	Button Style	Illumination	Contact: Top Button	Contact: Bottom Button	Part No.	1 LED	2 Button Color Code	3 Legend Code
Momentary	Flush (top) Flush (bottom)	24V AC/DC	1NO	1NC	HW7D-L111001Q4 1 2 3	G PW	GR: Green (top) Red (bottom) WB: White (top) Black (bottom)	Blank: Without legend 1: I / ON (top) O / OFF (bottom)
			1NO	1NO	HW7D-L111010Q4 1 2 3			
			1NO-1NC	1NO-1NC	HW7D-L111111Q4 1 2 3			
			2NO	2NC	HW7D-L112002Q4 1 2 3			
	Flush (top) Extended (bottom)	24V AC/DC	1NO	1NC	HW7D-L121001Q4 1 2 3			
			1NO	1NO	HW7D-L121010Q4 1 2 3			
			1NO-1NC	1NO-1NC	HW7D-L121111Q4 1 2 3			
			2NO	2NC	HW7D-L122002Q4 1 2 3			
Interlock (*1)	Flush (top) Flush (bottom)	24V AC/DC	1NO	1NC	HW7D-L211001Q4 1 2 3			
			1NO	1NO	HW7D-L211010Q4 1 2 3			
			1NO-1NC	1NO-1NC	HW7D-L211111Q4 1 2 3			
			2NO	2NC	HW7D-L212002Q4 1 2 3			
	Flush (top) Extended (bottom)	24V AC/DC	1NO	1NC	HW7D-L221001Q4 1 2 3			
			1NO	1NO	HW7D-L221010Q4 1 2 3			
			1NO-1NC	1NO-1NC	HW7D-L221111Q4 1 2 3			
			2NO	2NC	HW7D-L222002Q4 1 2 3			

- LED lamp code: G (green), PW (pure white)
- Only W (white) lens is available.
- When replacing a G (green) LED, use an LSRD lamp and attachment lens. For details of the part no. see B-221.
- See B-185 for other operating voltage such as 100/120V AC/DC and 200/220V AC.
- See B-185 for gold-plated silver contacts.
- Dummy blocks are built into the 2 and 4 contact types.
- See B-202 for top and bottom button contact mounting positions.

*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.

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ø22 HW Series Dual Pushbuttons

Dimensions

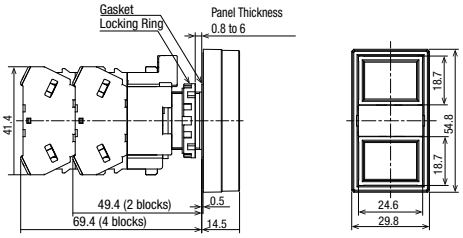
All dimensions in mm.

Dual Pushbuttons

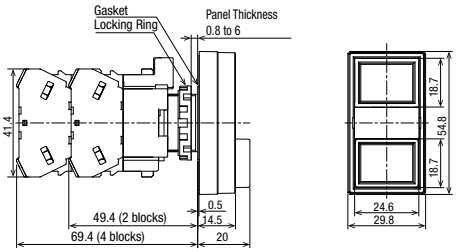
Without Pilot Light

Terminal screws: M3.5, integrated terminal cover

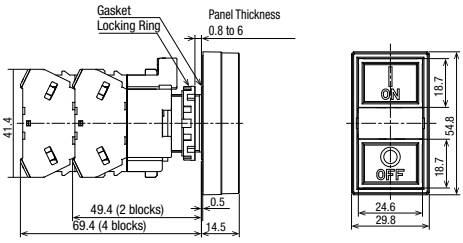
Flush (top), Flush (bottom)



Flush (top), Extended (bottom)



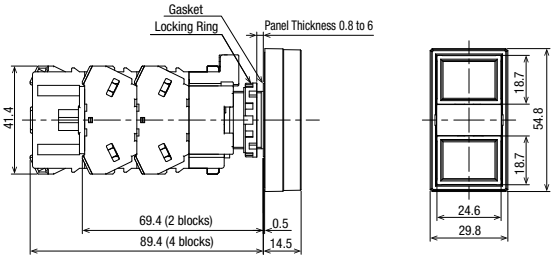
Flush (top), Extended (bottom) (with legend)



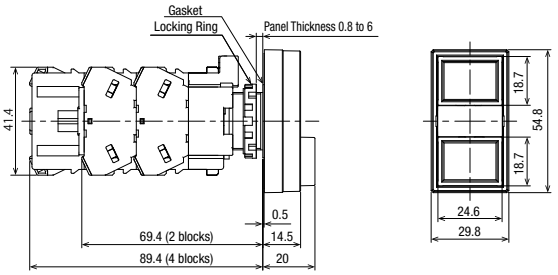
With Pilot Light

Terminal screws: M3.5, integrated terminal cover

Flush (top), Flush (bottom)

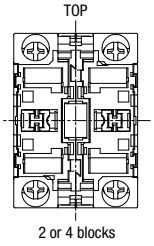


Flush (top), Extended (bottom)

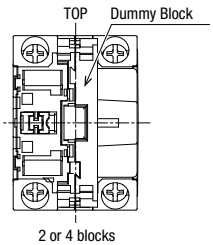


Bottom View

Without Pilot Light



With Pilot Light



- See B-227 to B-228 for wiring.
- Mounting position of the dummy block may change according to the contact configuration of the top and bottom buttons.

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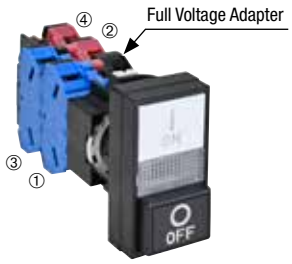
Contact Arrangement Chart

Contact			Contact Block		Top Button		Bottom Button	
Top Button	Bottom Button	Contact Code	Mounting Position	Contact	Normal	Push	Normal	Push
1NO	1NO	1010	①	NO		●		
			②	NO				●
1NO	1NC	1001	①	NO		●		
			②	NC			●	
1NO-1NC	1NO-1NC	1111	①	NO		●		
			②	NO				●
			③	NC	●			
			④	NC			●	
2NO	2NC	2002	①	NO		●		
			②	NC			●	
			③	NO		●		
			④	NC			●	

- Contact blocks ① and ③ are actuated by the top button. Contact blocks ② and ④ are actuated by the bottom button.

Contact Block		Top Button		Bottom Button		← Button Position
Mounting Position	Contact	Normal	Push	Normal	Push	← Pushbutton Operation
①	NO		●			
②	NO				●	
③	NC	●				
④	NC			●		

Contact Block Mounting Position



With Pilot Light

Part No. Example

HW7D-B121111GR

Contact Code

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ø22 HW Series Selector Switches

Selector Switches (Knob Operator)

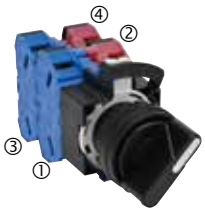
Quantity: 1

Shape	Knob Operator HW1S								
90° 2-position/ 60° 2-position	Contact	Contact Block		Operator Position		Maintained (90°)	Spring Return from Right (60°)	—	—
		Mounting Position	Contact	1	2				
	1NO (10)	①	NO		●	HW1S-2T10	HW1S-21T10		
		②	—	Dummy Block					
	1NO-1NC (11)	①	NO		●	HW1S-2T11	HW1S-21T11		
		②	NC	●					
	2NO (20)	①	NO		●	HW1S-2T20	HW1S-21T20		
		②	NO		●				
	2NO-2NC (22)	①	NO		●	HW1S-2T22	HW1S-21T22		
		②	NC	●					
		③	NO		●				
		④	NC	●					

45° 3-position	Contact	Contact Block		Operator Position			Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
		Mounting Position	Contact	1	0	2				
	2NO (20)	①	NO	●			HW1S-3T20	HW1S-31T20	HW1S-32T20	HW1S-33T20
		②	NO			●				
	2NC (02)	①	NC		▬		HW1S-3T02	HW1S-31T02	HW1S-32T02	HW1S-33T02
		②	NC	▬						
	2NO-2NC (22N1)	①	NO	●			HW1S-3T22N1	HW1S-31T22N1	HW1S-32T22N1	HW1S-33T22N1
		②	NO			●				
		③	NC		▬					
		④	NC	▬						
	4NO (40)	①	NO	●			HW1S-3T40	HW1S-31T40	HW1S-32T40	HW1S-33T40
		②	NO			●				
		③	NO	●						
		④	NO			●				
	4NC (04)	①	NC		▬		HW1S-3T04	HW1S-31T04	HW1S-32T04	HW1S-33T04
		②	NC	▬						
		③	NC		▬					
		④	NC	▬						
	2NO-1NC (21N1) ★☆	①	NO	●			HW1S-3JT21N1	—	—	—
		②	NO			●				
		③	NC		●					
		④	—	Dummy Block						

- Knob operator: white indicator on black body
- On the contact arrangement marked with ★ in the table above, the rated current (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.
- Other contact arrangements are also available. See B-211 to B-213.
- Selector switches with one or three contact blocks contain a dummy block.
- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Contact Block Mounting Position



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Key Selector Switches (Pin Tumbler Key)

Quantity: 1

Shape	No. of Positions	Contact	Contact Block		Operator Position		Cam Code	Maintained 1 2
			Mounting Position	Contact	1	2		
Pin Tumbler Key HW1K (NC contact only)	90° 2-position	1NC (01)	①	NC	●		—	HW1K-2PA01
			②	—	Dummy Block			
		1NO-1NC (11)	①	NO		●	—	HW1K-2PA11
			②	NC	●			
		2NC (02)	①	NC	●		—	HW1K-2PA02
			②	NC	●			
		2NO-1NC (21)	①	NO		●	—	HW1K-2PA21
			②	NC	●			
			③	NO		●		
			④	—	Dummy Block			
		3NC (03)	①	NC	●		—	HW1K-2PA03
			②	NC	●			
			③	NC	●			
			④	—	Dummy Block			
		2NO-2NC (22)	①	NO		●	—	HW1K-2PA22
			②	NC	●			
			③	NO		●		
			④	NC	●			

- Each selector key switch is supplied with two keys.
- 15 types of key numbers are available in addition to standard (500) key. See below for details.
- Spring-return type is also available. See below for details.
- Key retained position can be selected. See below for details.

Ordering Information

Example: HW1K-2JPA01-501

- 501: Not specified: 500 (default key)
  501-515: The key number is engraved on the key cylinder.
  Key numbers 500 to 503 are priced the same; from 504 onward, pricing differs.
- A: Key removable/retained positions
  A: Removable/retained in all positions
  B: Removable in left theft only
  C: Removable in right only
- J: Cam code: Blank or J
- P: Operator position code:
  2: 2-position, maintained
  21: 2-position, spring return from right
- 2: HW1K-2

	Maintained (90° 2-position)		Spring Return (60° 2-position)
Operation	1 2 Manual	2 1 Manual	Spring return from right 1 2 (Right to Left, Auto Return)
Cam Code	Blank	J	Blank
Key Removal	A, B, C	A, B, C	B

- For more contact arrangement, see B-211 to B-212.
- Key selector switches with one or three contact blocks contain a dummy block.
- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Key Retained Position		
A (removable in all positions) ① ②	B (removable in left only) ① ❷	C (removable in right only) ❶ ②
Cam code: blank		

Key Retained Position		
A (removable in all positions) ② ①	B (removable in left only) ② ❶	C (removable in right only) ❷ ①
Cam code: J		

①②: Key removal position
❶❷: Key retained position

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

Contact Block Mounting Position

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ø22 HW Series Key Selector Switches

Key Selector Switches (Pin Tumbler Key)

Quantity: 1

Shape	No. of Positions	Contact Configuration: Contact Code	Contact Configuration: Mounting Position	Contact Configuration: Contact	Operator Position 1	Operator Position 0	Operator Position 2	Cam Code	Maintained (1 0 2)
Pin Tumbler Key HW1K (NC contact only)	45° 3-position	2NC (02)	①	NC		●	●	—	HW1K-3PA02
			②	NC	●	●			
		2NO-2NC (22N1)	①	NO	●			—	HW1K-3PA22N1
			②	NO			●		
			③	NC		●	●		
			④	NC	●	●			
		4NC (04)	①	NC		●	●	—	HW1K-3PA04
			②	NC	●	●			
			③	NC		●	●		
			④	NC	●	●			
		2NO-1NC (21N1) ★☆	①	NO	●			J	HW1K-3JPA21N1
			②	NO			●		
			③	NC		●			
			④	—	Dummy Block				
		4NC (04) ★	①	NC			●	S	HW1K-3SPA04
			②	NC	●				
			③	NC			●		
			④	NC	●				

- On the contact arrangement marked with ★ in the table above, the rated current (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 is changed.
- For contact block mounting position, see the figure on the right.
- Each key selector switch is supplied with two keys.
- 15 types of key numbers are available in addition to standard (500) key. See below for details.
- Spring-return type is also available. See below for details.
- Key retained position can be selected. See table below details.

Contact Block Mounting Position

Ordering Information

Example: HW1K-3SPA04-501

- 501: Not specified: 500 (default key)
  - 501-515: The key number is engraved on the key cylinder. Key numbers 500 to 503 are priced the same; from 504 onward, pricing differs.
- A: Key removal/retained positions
  - A: Removable in all positions
  - B: Removable in left and center
  - C: Removable in right and center
  - D: Removable in center only
  - E: Removable in right and left
  - G: Removable in left only
  - H: Removable in right only
  - Note: The key cannot be removed in a spring return position.
- P: Cam code: Blank, J, or S
- S: Operator position code:
  - 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
- HW1K: Pin Tumbler Key

	Maintained (45°-3position)	Spring Return (45°-3position)		
Operation	Manual (1 0 2)	Spring return from right (1 0 2) Right to Center, Auto Return	Spring return from right (1 0 2) Left to Center, Auto Return	Spring return from both sides (1 0 2) Left & Right to Center, Auto Return
Cam Code	Blank, J, S	Blank		
Key Removal	A, B, C, D, E, G, H	B, D, G	C, D, H	D

Key Retained Position (45° 3-position)			
A (removable in all positions) ① ⓪ ②	B (removable in left and center) ① ⓪ ❷	C (removable in right and center) ❶ ⓪ ②	D (removable in center only) ❶ ⓪ ❷
E (removable in right and left only) ① ⓪ ②	G (removable in left only) ① ⓪ ❷	H (removable in right only) ❶ ⓪ ②	

⓪①②: Key removal position
⓿❶❷: Key retained position

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

- For more contact arrangement, see B-211 to B-212.
- Key selector switches with one or three contact blocks contain a dummy block.
- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

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Key Selector Switches (Disc Tumbler Key)

Quantity: 1

Appearance: Disc Tumbler Key HW1K

(NC contact only)

Angle / No. of Positions	Contact Code	Mounting Position	Contact	Operator Position 1	Operator Position 2	Cam Code	Maintained (90°) 1 2	Spring Return from Right (60°) 1 2
90° 2-position/ 60° 2-position	1NO (10)	①	NO		●	—	HW1K-2A10	HW1K-21B10
		②	—	Dummy Block				
	1NC (01)	①	NC	●		—	HW1K-2A01	HW1K-21B01
		②	—	Dummy Block				
	1NO-1NC (11)	①	NO		●	—	HW1K-2A11	HW1K-21B11
		②	NC	●				
	2NO (20)	①	NO		●	—	HW1K-2A20	HW1K-21B20
		②	NO		●			
	2NC (02)	①	NC	●		—	HW1K-2A02	HW1K-21B02
		②	NC	●				
	2NO-1NC (21)	①	NO		●	—	HW1K-2A21	HW1K-21B21
		②	NC	●				
		③	NO		●			
		④	—	Dummy Block				
	3NC (03)	①	NC	●		—	HW1K-2A03	HW1K-21B03
		②	NC	●				
		③	NC	●				
		④	—	Dummy Block				
	2NO-2NC (22)	①	NO		●	—	HW1K-2A22	HW1K-21B22
		②	NC	●				
		③	NO		●			
		④	NC	●				

- Each key selector switch is supplied with two keys.
- 3 types of key numbers are available in addition to standard key.
- Key retained position can be selected. See table below for key retained positions.

Contact Block Mounting Position

Ordering Information

Example: HW1K-2JA01-1H

- 1H: Not specified: 231 (default key) — The key number is engraved on the key cylinder.
  - 1H
  - 2H
  - 3H
- A: Key removal/retained positions
  - A: Removable in all positions B: Removable in left only C: Removable in right only
- J: Cam code: Blank or J
- 2: Operator position code:
  - 2: 2-position, maintained
  - 21: 2-position, spring return from right

	Maintained (90° 2-position)		Spring Return (60° 2-position)
Operation	1 2 Manual	2 1 Manual	Spring return from right 1 2 (Right to Left, Auto Return)
Cam Code	Blank	J	Blank
Key Removal	A, B, C	A, B, C	B

- For more contact arrangement, see B-211 to B-213.
- Key selector switches with one or three contact blocks contain a dummy block.
- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Key Retained Position		
A (removable in all positions) ① ②	B (removable in left only) ① ❷	C (removable in right only) ❶ ②
Cam code: blank		

Key Removal Position		
A (removable in all positions) ② ①	B (removable in left only) ② ❶	C (removable in right only) ❷ ①
Cam code: J		

①②: Key removal position
❶❷: Key retained position
Note: The key cannot be removed in a spring return position.

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ø22 HW Series Key Selector Switches

Key Selector Switches (Disc Tumbler Key)

Quantity: 1

Appearance: Disc Tumbler Key HW1K

(NC contact only)

Angle / No. of Positions	Contact Code	Mounting Position	Contact	Operator Position 1	Operator Position 0	Operator Position 2	Cam Code	Maintained (1 0 2)	Spring Return from Right (1 0 2)	Spring Return from Left (1 0 2)	Spring Return Two-way (1 0 2)
45° 3-position	2NO (20)	①	NO	●			—	HW1K-3A20	HW1K-31B20	HW1K-32C20	HW1K-33D20
		②	NO			●					
	2NC (02)	①	NC		▬		—	HW1K-3A02	HW1K-31B02	HW1K-32C02	HW1K-33D02
		②	NC	▬							
	2NO-2NC (22N1)	①	NO	●			—	HW1K-3A22N1	HW1K-31B22N1	HW1K-32C22N1	HW1K-33D22N1
		②	NO			●					
		③	NC		▬						
		④	NC	▬							
	4NO (40)	①	NO	●			—	HW1K-3A40	HW1K-31B40	HW1K-32C40	HW1K-33D40
		②	NO			●					
		③	NO	●							
		④	NO			●					
	4NC (04)	①	NC		▬		—	HW1K-3A04	HW1K-31B04	HW1K-32C04	HW1K-33D04
		②	NC	▬							
		③	NC		▬						
		④	NC	▬							
	4NC (04) ★	①	NC			●	S	HW1K-3SA04	—	—	—
		②	NC	●							
		③	NC			●					
		④	NC	●							
	2NO-1NC (21N1) ★☆	①	NO	●			J	HW1K-3JA21N1	—	—	—
		②	NO			●					
		③	NC		●						
		④	—	Dummy Block							

- On the contact arrangement marked with ★ in the table above, the rated current (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 is changed.
- Each key selector switch is supplied with two keys.
- 3 types of key numbers are available in addition to standard key.
- Key retained position can be selected. See table below for key retained positions.

Contact Block Mounting Position

Ordering Information

Example: HW1K-3SA04-1H

- 1H: Not specified: 231 (default key) — The key number is engraved on the key cylinder.
  - 1H
  - 2H
  - 3H
- A: Key removal/retained positions
  - A: Removable in all positions
  - B: Removable in left and center
  - C: Removable in right and center
  - D: Removable in center only
  - E: Removable in right and left
  - G: Removable in left only
  - H: Removable in right only
- S: Cam code: Blank, J, or S
- 3: Operator position code:
  - 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

	Maintained (45°-3position)	Spring Return (45°-3position)		
Operation	1 0 2 Manual	Spring return from right 1 0 2 Right to Center, Auto Return	Spring return from right 1 0 2 Left to Center, Auto Return	Spring return from both sides 1 0 2 Left & Right to Center, Auto Return
Cam Code	Blank, J, S	Blank		
Key Removal	A, B, C, D, E, G, H	B, D, G	C, D, H	D

- For more contact arrangement, see B-211 to B-213.
- Key selector switches with one or three contact blocks contain a dummy block.
- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Key Retained Position			
A (removable in all positions) ① ⓪ ②	B (removable in left and center) ① ⓪ ❷	C (removable in right and center) ❶ ⓪ ②	D (removable in center only) ❶ ⓪ ❷
E (removable in right and left only) ① ❶ ②	G (removable in left only) ① ❶ ❷	H (removable in right only) ❶ ❶ ②	

⓪①②: Key removal position
❶❶❷: Key retained position

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

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LED | Selector Switches (Knob Operator)

Quantity: 1

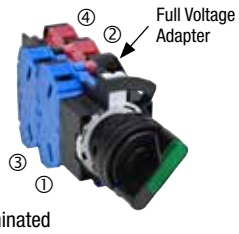
Appearance / Angle / No. of Positions	Knob Operator HW1F

Angle / No. of Positions	Contact Code	Contact Configuration: Mounting Position	Contact Configuration: Contact	Contact 1	Contact 2	Rated Voltage	Maintained (90°) (Manual)	Right return (60°) (Right to left, auto return)	–	–	Color Code
90° 2-position/ 60° 2-position	1NO (10)	①	NO		●	24V AC/DC	HW1F-210Q4∗	HW1F-2110Q4∗			R G Y A S PW
						100/120V AC/DC	HW1F-210QH2∗	HW1F-2110QH2∗			
		②	–			200/220V AC	HW1F-210QM∗	HW1F-2110QM∗			
	1NO-1NC (11)	①	NO		●	24V AC/DC	HW1F-211Q4∗	HW1F-2111Q4∗			
						100/120V AC/DC	HW1F-211QH2∗	HW1F-2111QH2∗			
		②	NC	●		200/220V AC	HW1F-211QM∗	HW1F-2111QM∗			
	2NO (20)	①	NO		●	24V AC/DC	HW1F-220Q4∗	HW1F-2120Q4∗			
						100/120V AC/DC	HW1F-220QH2∗	HW1F-2120QH2∗			
		②	NO		●	200/220V AC	HW1F-220QM∗	HW1F-2120QM∗			
	2NO-2NC (22)	①	NO		●	24V AC/DC	HW1F-222Q4∗	HW1F-2122Q4∗			
		②	NC	●		100/120V AC/DC	HW1F-222QH2∗	HW1F-2122QH2∗			
		③	NO		●						
		④	NC	●		200/220V AC	HW1F-222QM∗	HW1F-2122QM∗			

Angle / No. of Positions	Contact Code	Contact Configuration: Mounting Position	Contact Configuration: Contact	Contact 1	Contact 0	Contact 2	Rated Voltage	Maintained (Manual)	Right Return (Right to Center, Auto Return)	Left Return (Left to Center, Auto Return)	Both-side Return (Left & Right to Center, Auto Return)	Color Code
45° 3-position	2NO (20)	①	NO	●			24V AC/DC	HW1F-320Q4∗	HW1F-3120Q4∗	HW1F-3220Q4∗	HW1F-3320Q4∗	R G Y A S PW
							100/120V AC/DC	HW1F-320QH2∗	HW1F-3120QH2∗	HW1F-3220QH2∗	HW1F-3320QH2∗	
		②	NO			●	200/220V AC	HW1F-320QM∗	HW1F-3120QM∗	HW1F-3220QM∗	HW1F-3320QM∗	
	2NC (02)	①	NC		▬		24V AC/DC	HW1F-302Q4∗	HW1F-3102Q4∗	HW1F-3202Q4∗	HW1F-3302Q4∗	
							100/120V AC/DC	HW1F-302QH2∗	HW1F-3102QH2∗	HW1F-3202QH2∗	HW1F-3302QH2∗	
		②	NC	▬			200/220V AC	HW1F-302QM∗	HW1F-3102QM∗	HW1F-3202QM∗	HW1F-3302QM∗	
	2NO-2NC (22N1)	①	NO	●			24V AC/DC	HW1F-322N1Q4∗	HW1F-3122N1Q4∗	HW1F-3222N1Q4∗	HW1F-3322N1Q4∗	
		②	NO			●	100/120V AC/DC	HW1F-322N1QH2∗	HW1F-3122N1QH2∗	HW1F-3222N1QH2∗	HW1F-3322N1QH2∗	
		③	NC		▬							
		④	NC	▬			200/220V AC	HW1F-322N1QM∗	HW1F-3122N1QM∗	HW1F-3222N1QM∗	HW1F-3322N1QM∗	
	4NO (40)	①	NO	●			24V AC/DC	HW1F-340Q4∗	HW1F-3140Q4∗	HW1F-3240Q4∗	HW1F-3340Q4∗	
		②	NO			●	100/120V AC/DC	HW1F-340QH2∗	HW1F-3140QH2∗	HW1F-3240QH2∗	HW1F-3340QH2∗	
		③	NO	●								
		④	NO			●	200/220V AC	HW1F-340QM∗	HW1F-3140QM∗	HW1F-3240QM∗	HW1F-3340QM∗	
	4NC (04)	①	NC		▬		24V AC/DC	HW1F-304Q4∗	HW1F-3104Q4∗	HW1F-3204Q4∗	HW1F-3304Q4∗	
		②	NC	▬			100/120V AC/DC	HW1F-304QH2∗	HW1F-3104QH2∗	HW1F-3204QH2∗	HW1F-3304QH2∗	
		③	NC		▬							
		④	NC	▬			200/220V AC	HW1F-304QM∗	HW1F-3104QM∗	HW1F-3204QM∗	HW1F-3304QM∗	

- Specify a color code in place of ∗ in the Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white).
- See B-186 for other operating voltage such as 6V AC/DC and 12V AC/DC.
- Dummy blocks are built into the 2-contact and 4-contact types.
- See B-211 to B-212 for other contact arrangements.
- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Contact Block Mounting Position



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ø22 HW Series Illuminated Selector Switches

LED Selector Switches (Lever Operator)

Quantity: 1

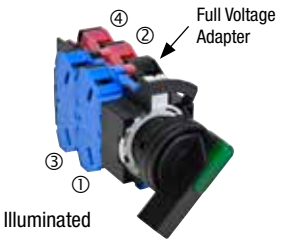
Appearance / Angle / No. of Positions	Lever Operator HW1F□L

	Contact Arrangement					Rated Voltage	Maintained (90°) (Manual)	Right return (60°) (Right to left, auto return)	–	–	Color Code
	Contact Code	Contact Configuration: Mounting Position	Contact Configuration: Contact	Contact 1	Contact 2						
90° 2-position/ 60° 2-position	1NO (10)	①	NO		●	24V AC/DC	HW1F-2L10Q4∗	HW1F-21L10Q4∗			R G Y A S PW
						100/120V AC/DC	HW1F-2L10QH2∗	HW1F-21L10QH2∗			
		②	–			200/220V AC	HW1F-2L10QM∗	HW1F-21L10QM∗			
	1NO-1NC (11)	①	NO		●	24V AC/DC	HW1F-2L11Q4∗	HW1F-21L11Q4∗			
						100/120V AC/DC	HW1F-2L11QH2∗	HW1F-21L11QH2∗			
		②	NC	●		200/220V AC	HW1F-2L11QM∗	HW1F-21L11QM∗			
	2NO (20)	①	NO		●	24V AC/DC	HW1F-2L20Q4∗	HW1F-21L20Q4∗			
						100/120V AC/DC	HW1F-2L20QH2∗	HW1F-21L20QH2∗			
		②	NO		●	200/220V AC	HW1F-2L20QM∗	HW1F-21L20QM∗			
	2NO-2NC (22)	①	NO		●	24V AC/DC	HW1F-2L22Q4∗	HW1F-21L22Q4∗			
		②	NC	●		100/120V AC/DC	HW1F-2L22QH2∗	HW1F-21L22QH2∗			
		③	NO		●						
		④	NC	●		200/220V AC	HW1F-2L22QM∗	HW1F-21L22QM∗			

	Contact Code	Contact Configuration: Mounting Position	Contact Configuration: Contact	Contact 1	Contact 0	Contact 2	Rated Voltage	Maintained (Manual)	Right Return (Right to Center, Auto Return)	Left Return (Left to Center, Auto Return)	Both-side Return (Left & Right to Center, Auto Return)	Color Code
45° 3-position	2NO (20)	①	NO	●			24V AC/DC	HW1F-3L20Q4∗	HW1F-31L20Q4∗	HW1F-32L20Q4∗	HW1F-33L20Q4∗	R G Y A S PW
							100/120V AC/DC	HW1F-3L20QH2∗	HW1F-31L20QH2∗	HW1F-32L20QH2∗	HW1F-33L20QH2∗	
		②	NO			●	200/220V AC	HW1F-3L20QM∗	HW1F-31L20QM∗	HW1F-32L20QM∗	HW1F-33L20QM∗	
	2NC (02)	①	NC		▬		24V AC/DC	HW1F-3L02Q4∗	HW1F-31L02Q4∗	HW1F-32L02Q4∗	HW1F-33L02Q4∗	
							100/120V AC/DC	HW1F-3L02QH2∗	HW1F-31L02QH2∗	HW1F-32L02QH2∗	HW1F-33L02QH2∗	
		②	NC	▬			200/220V AC	HW1F-3L02QM∗	HW1F-31L02QM∗	HW1F-32L02QM∗	HW1F-33L02QM∗	
	2NO-2NC (22N1)	①	NO	●			24V AC/DC	HW1F-3L22N1Q4∗	HW1F-31L22N1Q4∗	HW1F-32L22N1Q4∗	HW1F-33L22N1Q4∗	
		②	NO			●	100/120V AC/DC	HW1F-3L22N1QH2∗	HW1F-31L22N1QH2∗	HW1F-32L22N1QH2∗	HW1F-33L22N1QH2∗	
		③	NC		▬							
		④	NC	▬			200/220V AC	HW1F-3L22N1QM∗	HW1F-31L22N1QM∗	HW1F-32L22N1QM∗	HW1F-33L22N1QM∗	
	4NO (40)	①	NO	●			24V AC/DC	HW1F-3L40Q4∗	HW1F-31L40Q4∗	HW1F-32L40Q4∗	HW1F-33L40Q4∗	
		②	NO			●	100/120V AC/DC	HW1F-3L40QH2∗	HW1F-31L40QH2∗	HW1F-32L40QH2∗	HW1F-33L40QH2∗	
		③	NO	●								
		④	NO			●	200/220V AC	HW1F-3L40QM∗	HW1F-31L40QM∗	HW1F-32L40QM∗	HW1F-33L40QM∗	
	4NC (04)	①	NC		▬		24V AC/DC	HW1F-3L04Q4∗	HW1F-31L04Q4∗	HW1F-32L04Q4∗	HW1F-33L04Q4∗	
		②	NC	▬			100/120V AC/DC	HW1F-3L04QH2∗	HW1F-31L04QH2∗	HW1F-32L04QH2∗	HW1F-33L04QH2∗	
		③	NC		▬							
		④	NC	▬			200/220V AC	HW1F-3L04QM∗	HW1F-31L04QM∗	HW1F-32L04QM∗	HW1F-33L04QM∗	

- Specify a color code in place of ∗ in the Part No. R (red), G (green), Y (yellow), A (amber), S (blue), PW (pure white)
- See B-186 for other operating voltage such as 6V AC/DC and 12V AC/DC.
- Dummy blocks are built into the 2-contact and 4-contact types.
- See B-211 to B-212 for other contact arrangements.
- See B-186 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Contact Block Mounting Position



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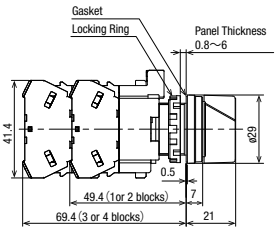
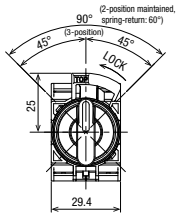
Dimensions

All dimensions in mm.

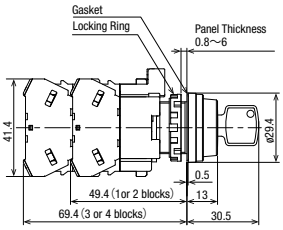
Selector Switch (Knob Operator) Terminal Screws M3.5 Integrated Terminal Cover

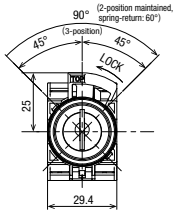




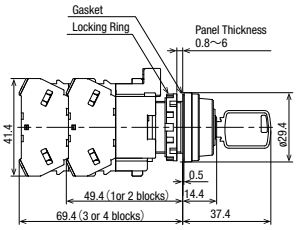
Key Selector Switch Terminal Screws M3.5 Integrated Terminal Cover

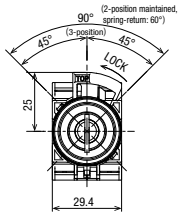
Disc Tumbler Type





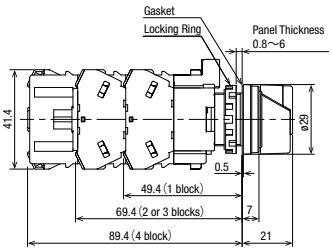
Pin Tumbler Type

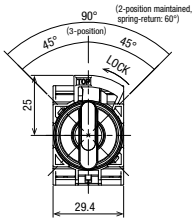




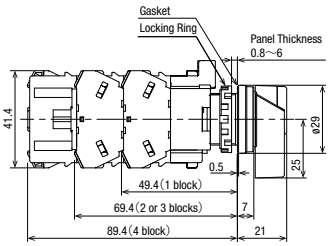
Illuminated Selector Switch Terminal Screws M3.5 Integrated Terminal Cover

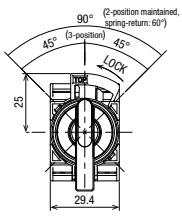
Knob Operator





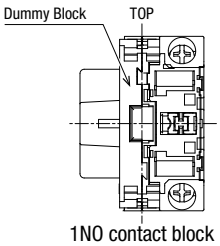
Lever Operator



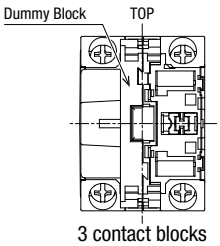


Bottom View

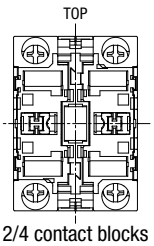
Non-illuminated



1NO contact block

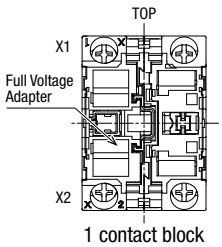


3 contact blocks

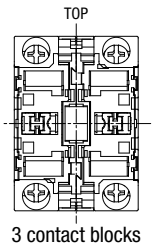


2/4 contact blocks

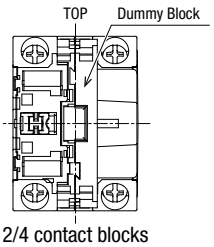
Illuminated



1 contact block



3 contact blocks



2/4 contact blocks

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ø22 HW Series Selector Switch Contact Arrangement Chart

Selector Switch Contact Arrangement

90° 2-position (Spring Return 60° 2-position) <Maintained/Spring Return from Right>

Contact Code	Contact Block		Operator Operation and Circuit Availability						Cam Code
			Maintained			Spring Return from Right			
			Knob/ Lever	Key	Illuminated	Knob/ Lever	Key	Illuminated	
	Mounting Position	Contact	Operator Position			Operator Position			
			1	2		1	2		
1NO (10)	①	NO		●			●		—
	②	—	Dummy Block			Dummy Block			
1NC (01)	①	NC	●			●			—
	②	—	Dummy Block			Dummy Block			
1NO-1NC (11)	①	NO		●			●		—
	②	NC	●			●			
2NO (20)	①	NO		●			●		—
	②	NO		●			●		
2NC (02)	①	NC	●			●			—
	②	NC	●			●			
2NO-2NC (22)	①	NO		●			●		—
	②	NC	●			●			
	③	NO		●			●		
	④	NC	●			●			
3NO-1NC (31N1)	①	NC	●			●			—
	②	NO		●			●		
	③	NO		●			●		
	④	NO		●			●		
4NO (40)	①	NO		●			●		—
	②	NO		●			●		
	③	NO		●			●		
	④	NO		●			●		
1NO-1NC ★ (7S)	①	EM		▬			▬		—
	②	LB	▬			▬			
3NC (03)	①	NC	●			●			—
	②	NC	●			●			
	③	NC	●			●			
	④	—	Dummy Block			Dummy Block			
2NO-1NC (21)	①	NO		●			●		—
	②	NC	●			●			
	③	NO		●			●		
	④	—	Dummy Block			Dummy Block			

90° 2-position Cam Reversed (Maintained)

Contact Code	Contact Block		Operator Operation and Circuit Availability		Cam Code
			Maintained		
			Knob/Key/Illuminated		
	Mounting Position	Contact	Operator Position		
			2	1	
2NC (02)	①	NC		●	J
	②	NC		●	
3NC (03)	①	NC		●	J
	②	NC		●	
	③	NC		●	
	④	—	Dummy Block		

• On the contact arrangement marked with ★ in the table above, the rated current (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.

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45° 3-position
<Maintained>

Contact Code	Contact Block		Operator Position			Circuit Availability			Cam Code
	Mounting Position	Contact	1	0	2	Knob/ Lever	Key	Illuminated	
1NO-1NC ★ ☆ (11N1)	①	NC		●		×	×	×	J
	②	NO			●				
★ 4NC (04)	①	NC			●	×	×	×	S
	②	NC	●						
	③	NC			●				
	④	NC	●						
★ ☆ 2NO-1NC (21N1)	①	NO	●			×	×	×	J
	②	NO			●				
	③	NC		●					
	④	—	Dummy Block						

45° 3-position
<Maintained/Spring Return from Right/Spring Return from Left/Spring Return Two-way>

Contact Code	Contact Block		Operator Position			Circuit Availability			Cam Code
	Mounting Position	Contact	1	0	2	Knob/ Lever	Key	Illuminated	
1NO-1NC (11)	①	NO	●			×	×	×	—
	②	NC	▬	▬					
1NO-1NC (11N1)	①	NC		▬	▬	×	×	×	—
	②	NO			●				
2NO (20)	①	NO	●			×	×	×	—
	②	NO			●				
2NC (02)	①	NC		▬	▬	×	×	×	—
	②	NC	▬	▬					
2NO-2NC (22N1)	①	NO	●			×	×	×	—
	②	NO			●				
	③	NC		▬	▬				
	④	NC	▬	▬					
2NO-2NC (22N2)	①	NC		▬	▬	×	×	×	—
	②	NO			●				
	③	NC		▬	▬				
	④	NO			●				
4NO (40)	①	NO	●			×	×	×	—
	②	NO			●				
	③	NO	●						
	④	NO			●				
4NC (04)	①	NC		▬	▬	×	×	×	—
	②	NC	▬	▬					
	③	NC		▬	▬				
	④	NC	▬	▬					

- On the contact arrangement marked with ★ in the table above, the rated current (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 is changed.

APEM
Switches & Pilot Lights
Control Boxes
Emergency Stop Switches
Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID
Flush Silhouette
ø16
ø22
ø30
Miniature
Pilot Lights
HW
TW
YW

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ø22 HW Series Selector Switch Contact Arrangement Chart

45° 4-position, except for Key Selector, Illuminated Selector

Contact Code	Contact Block		Operator Position				Maintained	Cam Code
	Mounting Position	Contact	1	2	3	4	Knob Operator	
1NO-2NC (12) ★ ☆	①	NO	●				×	—
	②	NC		●				
	③	NC			●			
	④	–	Dummy Block					
1NO-3NC (13N6) ★ ☆	①	LB		▬	▬	▬	×	—
	②	NC		●				
	③	NC			●			
	④	NO				●		
2NO-2NC (22N3) ★ ☆	①	NO	●				×	—
	②	NC		●				
	③	NC			●			
	④	NO				●		

30° 5-position, except for Key Selector, Illuminated Selector

Contact Code	Contact Block		Operator Position					Maintained	Cam Code
	Mounting Position	Contact	1	2	3	4	5	Knob Operator	
2NO-2NC (22N3) ★ ☆	①	NO	●					×	—
	②	NC		●					
	③	NC				●			
	④	NO					●		

- On the contact arrangement marked with ★ in the table above, the rated current (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 is changed.

Part No. Development

Example 1: Knob Operator 2-position

HW1S - 2 T 11

- 11: Contact code
- T: "T" for knob operator
- 2: No. of position/Operator Position
  - 2: 2-position/maintained
  - 21: 2-position/spring return from right

Example 2: Key Selector 3-position

HW1K - 3 J P A 22N1

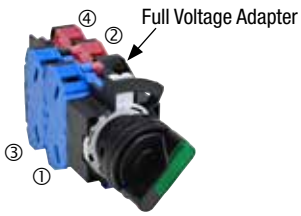
- 22N1: Contact code
- A: Key removal option code
- P: Key Type
  - Blank: disc tumbler
  - P: pin tumbler
- J: Cam Code
- 3: No. of position/Operator Position
  - 3: 3-position/maintained
  - 31: 3-position/spring return from right
  - 32: 3-position/spring return from left
  - 33: 3-position/spring return two-way

Example 3: Illuminated Selector 3-position

HW1F - 33 L 22N2 H2 R

- R: Color code (see B-208 to B-209)
- H2: Operating voltage (see B-186)
- 22N2: Contact code (2NO2NC)
- L: Operator shape: L (lever operator)
- 33: No. of position/Operator Position
  - 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 Block Mounting Position



Illuminated Selector

Non-illuminated Selector

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Pushbutton Selectors

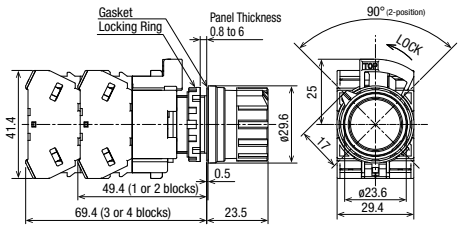
Quantity: 1

Shape	Circuit Category	Contact Code	Contact Block						Rlng Operator	Button Color Code
			Mounting Position	Contact	Normal	Depressed	Normal	Depressed	Part No.	
HW1R	A	1NO-1NC (11)	①	NO		●		●	HW1R-2A11∗	B G R Y S W
			②	NC	●					
		2NO (20)	①	NO		●		●	HW1R-2A20∗	
			②	NO		●	▬	▬		
		2NO-2NC (22)	①	NO		●		●	HW1R-2A22∗	
			②	NC	●					
			③	NO		●		●		
			④	NC	●					
	D	2NO (20)	①	NO		●			HW1R-2D20∗	
			②	NO				●		
		2NO-2NC (22N1)	①	NO		●			HW1R-2D22N1∗	
			②	NO				●		
			③	NC	●		▬	▬		
			④	NC	▬	▬	●			
	E	★ 2NO-2NC (22N1)	①	NO		●			HW1R-2E22N1∗	
			②	NO				●		
			③	NC			▬	▬		
			④	NC	▬	▬				
	F	★ ☆ 2NO-2NC (22N1)	①	NO				●	HW1R-2F22N1∗	
			②	NO		●				
			③	NC			●			
			④	NC	●					
	N	★ ☆ 2NO-2NC (22N2)	①	NC			●		HW1R-2N22N2∗	
			②	NO		●		●		
			③	NC			●			
			④	NO		●		●		
	T	2NO-2NC (22N1)	①	NO		●	●	Blocked	HW1R-2T22N1∗	
			②	NO		●	●			
			③	NC	●					
			④	NC	●					

- Specify a button color code in place of ∗ in the Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)
- 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.
- On the contact arrangement marked page with ★ in the table above, the rated current (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 is changed.

Dimensions

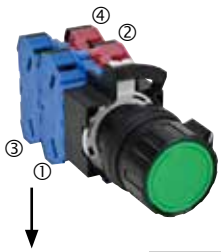
All dimensions in mm.



Terminal Screws M3.5 Integrated Terminal Cover

- See B-210 for the bottom view.

Contact Block Mounting Position



Mounting Position	Contact	Left Normal	Left Push	Right Normal	Right Push
①	NO		●		●
②	NO	●			
③	NC		●		●
④	NC	●			

← Ring Position
← Button

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ø22 HW Series Mono-Lever Switches

Mono-Lever Switches

Quantity: 1

Shape	Positions	Part No.
HW1M Standard Lever	2-position	HW1M-1010-20
		HW1M-2020-20
		HW1M-0101-20
		HW1M-0202-20
		HW1M-0101-40
		HW1M-0202-40
	4-position	HW1M-1111-22N9
		HW1M-2222-22N9
HW1M-L Interlocking Lever	2-position	HW1M-L1010-20
		HW1M-L2020-20
		HW1M-L0101-20
		HW1M-L0202-20
		HW1M-L0101-40
		HW1M-L0202-40
	4-position	HW1M-L1111-22N9
		HW1M-L2222-22N9

- 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.

Contact Arrangement Chart

2-position (Right/Left)

Contact Code	Contact Block		Lever Operator Position		
	Mounting Position	Contact	Left	Center	Right
20	①	NO	●		
	②	NO			●
40	①	NO	●		
	②	NO			●
	③	NO	●		
	④	NO			●

2-position (Up/Down)

Contact Code	Contact Block		Lever Operator Position		
	Mounting Position	Contact	Left	Center	Right
20	①	NO	●		
	②	NO			●
40	①	NO	●		
	②	NO			●
	③	NO	●		
	④	NO			●

4-position

Contact Code	Contact Block		Lever Operator Position				
	Mounting Position	Contact	Down	Left	Center	Up	Right
22N9	①	NC					●
	②	NC	●				
	③	NO		●			
	④	NO				●	

Part No. Development

HW1M-L	–	Up	Right	Down	Left	–	22N9
		1	1	1	1		

Model

HW1M: Standard
HW1M-L: Interlocking

Lever Operation Mode

Order of Entry
Up → Right → Down → Left

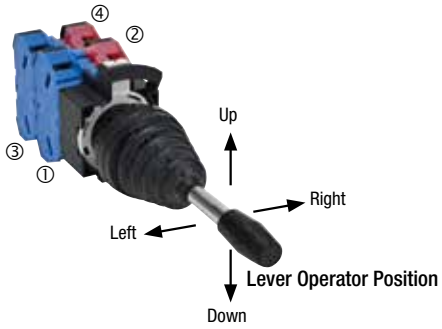
1: Maintained
2: Spring returned
0: Blocked

Contact Code

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

- 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.

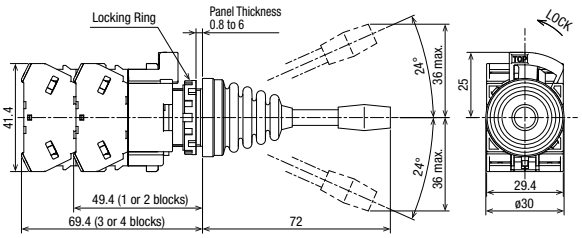
Contact Block Mounting Position and Lever Operation Position



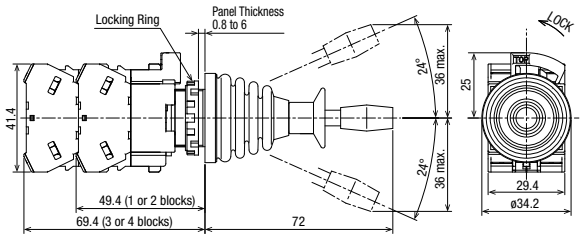
Dimensions

All dimensions in mm.

Standard Lever



Interlocking Lever



Terminal Screws M3.5 Integrated Terminal Cover

- See B-210 for the bottom view.

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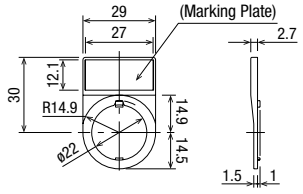
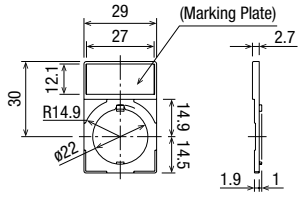
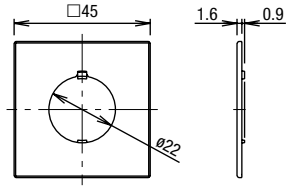
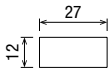
Nameplates

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

• Available for purchase in single units. In such cases, the standard price will differ.

Marking Plates for HWAM/HWAQ

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

• Specify a legend code in place of ☐ in the Part 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 B-226 for how to install nameplates/marking plates, and how to remove marking plates.

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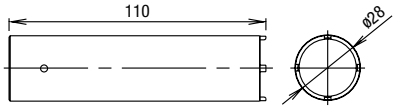
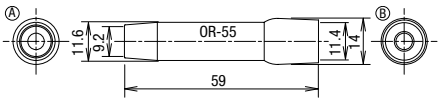
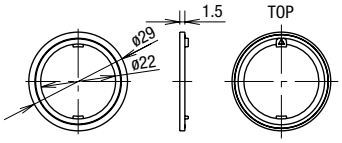
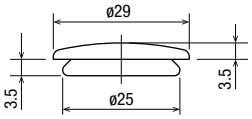
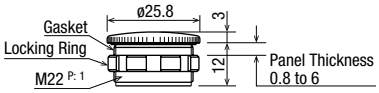
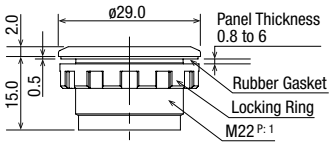
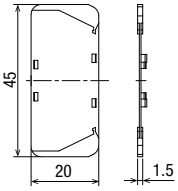
ø22 HW Series Accessories

Accessories

All dimensions in mm.

	Shape	Material	Part No.	Quantity	Dimensions (mm)
Tool	Locking Ring Wrench	Metal (brass) (weight: approx. 150g)	MW9Z-T1	1	• Used to tighten the locking ring when installing the HW switch onto a panel. 
Tool	Lamp Holder Tool	Nitrile rubber (black)	OR-55	1	• Used to install and remove the LED lamps. See B-223 to B-224 for how to install. Ⓐ : BA9S 
	Anti-rotation Ring	Ring: polyamide Gasket: nitril rubber	HW9Z-RL	10	• Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and pushbutton selectors. 
	Rubber Mounting Hole Plug	Nitril rubber (black)	OB-31	5	• Used to plug the unused ø22.2 mm mounting holes. Degree of protection: IP65 (round hole) IP40 (with anti-rotation function) 
	Rubber Mounting Hole Plug	Plug: chrome-plated zinc diecast Locking ring: polyamide Gasket: nitril rubber	LW9Z-BM	1	• Used to plug the unused ø22.2 mm mounting holes. Degree of protection: IP66 (round hole) IP40 (with anti-rotation function) Tightening torque: 1.2 N·m 
	Metallic Mounting Hole Plug	Polyamide	LW9Z-BP1	1	• Used to plug the unused ø22.2 mm mounting holes. Degree of protection: IP65 Tightening torque: 2.0 N·m 
	Barrier	Polyamide	HW-VU1	10	• Used to prevent contact between adjacent lead wires when units are mounted closely (see B-227 for details). Barriers should always be used in close mounting. 

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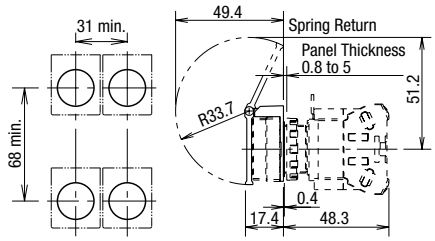
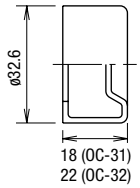
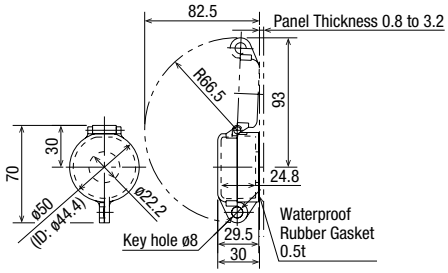
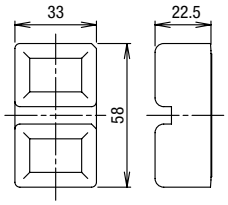
Accessories

All dimensions in mm.

Shape		Material	Part No.	Quantity	Dimensions (mm)
Switch Guard	Spring Return	Guard: polyacetal Cover: polyarylate Gasket: nitril rubber	HW9Z-K1	1	• Used to prevent inadvertent operation for flush pushbuttons and illuminated pushbuttons. • IP65 • Maintained type stops at 90° and 180°. 
	Maintained		HW9Z-K11	1	
Button Clear Boot	For flush pushbuttons	Rubber (EPDM)	OC-31	1	• 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	1	
Padlock Cover		Polyarylate (gasket: nitryl rubber)	HW9Z-KL1	1	• Used to protect pushbuttons, illuminated pushbuttons, selector switches, and key selector switches. 
Rubber Boot for Dual Pushbutton Switches		Clear Silicon Rubber	HW9Z-D7D	1	• IP65 
Ring Adapter		Nitryl rubber	HW9Z-A25	5	• Used to install the HW series units into ø25 mm mounting holes. • IP65 • Cannot be used with anti-rotation, nameplate, and rubber boot for dual pushbutton switches. • Mounting panel thickness: 1.2 to 6.0 mm • See B-225 for details.
Ring Adapter		Gasket: polyamide Washer: metal (brass)	HW9Z-A30	2	• Used to install the HW series units (round type) into ø30 mm mounting holes (except for HW1P-5, HW1B-M5/V5, HW7D, and HW1Z). • IP65 • Cannot be used with anti-rotation ring, nameplate, full-shroud illuminated pushbuttons, pushbutton selectors, and mono-lever switches. • Mounting panel thickness: 1.6 to 4.0 mm
Ring Adapter		Gasket: rubber Washer: metal	HW9Z-A30E	2	• Used to install jumbo dome pilot light HW1P-5Q units into ø30 mm mounting holes. • IP65

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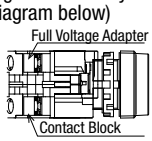
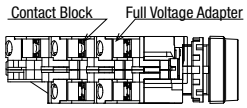
ø22 HW Series Maintenance Parts

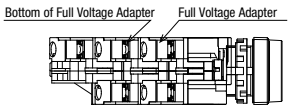
Maintenance Parts

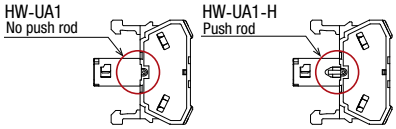
All dimensions in mm.

Shape	Material	Part No.	Quantity	Remarks
Contact Block HW-U Weight: 11g approx.	NO contact	HW-U10 HW-U10-MAU	1	• Housing color: blue/Push rod color: green • MAU has gold contacts
	NC contact	HW-U01 HW-U01-MAU	1	• Housing color: reddish purple/Push rod color: red • MAU has gold contacts
	EM (early make) contact	HW-U10R HW-U10R-MAU	1	• Housing color: blue/Push rod color: black • MAU has gold contacts
	LB (late break) contact	HW-U01R HW-U01R-MAU	1	• Housing color: reddish purple/Push rod color: white • MAU has gold contacts
Dummy Block Weight: 3.5g (approx.)	Polyamide	HW-DB	10	• For HW-U contact blocks • Used when the number of contact blocks and full voltage adapters is odd number.
Full Voltage Adapter for Illuminated Units (*1), (*2) HW-UA1	For single contact only (see diagram below) 	HW-UA1	1	• Compatible Models Illuminated Pushbutton Switch Illuminated Selector Switch 2-point Pushbutton Switch (with pilot light) • Compatible Load (LED Lamp) LSRD-6, LSTD-6 (6V AC/DC) LSRD-1, LSTD-1 (12V AC/DC) LSRD-2, LSTD-2 (24V AC/DC) LSRD-H2 (100/120V AC/DC) LSRD-M2 (200/220V AC) LSRD-M4 (230/240V AC)
HW-UA1-H Weight: 11g approx.	For two or more contacts (see diagram below) 	HW-UA1-H	1	

*1) For use as maintenance parts only. Do not use these parts for system expansion or modification.
*2) There are two types of full voltage adapter specifications. Please confirm your current contact configuration before placing an order.

- **For configurations without a contact block mounted beneath the full voltage adapter (1 contact):** Order model HW-UA1.
- **For configurations with a contact block mounted beneath the full voltage adapter (2 to 4 contacts):** Order model HW-UA1-H.





Shape		Material/Dimensions	Part No.	Quantity	Color Code *
Lens	①Round flush	Polyarylate ø23.5 H4.2	HW9Z-L11*-K	5	R (red), G (green), Y (yellow), A (amber), C (clear), S (blue) (*3)
	②Square flush	Polyarylate ø24.6 H4	HW9Z-L21*-K	5	
	③Round extended	Polyarylate ø23.3 H10	HW9Z-L12*-K	5	
	④ø29 mushroom	AS, marking type ø29 H12.7	ALW31LD-*-K	2	R (red), G (green),Y (yellow), A (amber), S (blue), C (clear) (*3)
	⑤ø40 mushroom	AS, marking type ø40 H12.7	ALW41LD-*-K	1	R (red), G (green), Y (yellow), A (amber), S (blue), C (clear) (*3)
	⑥Jumbo dome	Polycarbonate ø66 H50	HW1A-P5*	1	R (red), G (green), Y (yellow), A (amber), W (white), S (blue) (*4)
	⑦Dome for pilot light	AS ø23.5 H15.1	HW1A-P2*-K	5	R (red), G (green), Y (yellow), A (amber), W (white), S (blue) (*4)
Button	①Round flush with round or square bezel	Polyacetal ø23.6 H3	HW1A-B1*	5	Use ① for pushbutton selectors. 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*	5	
	③Square flush	Polyacetal □24.8 H3	HW2A-B1*	5	
	④Square extended	Polyacetal □24.5 H9.2	HW2A-B2*	5	
	⑤ø29 mushroom	Polyacetal ø29 H12.7(M18P1.0)	HW1A-B3*	2	
	⑥ø40 mushroom	Polyacetal ø40 H12.7(M18P1.0)	HW1A-B4*	2	

*3) Use C (clear) lens for PW (pure white) illumination.
*4) Use W (white) lens for PW (pure white) illumination.

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Maintenance Parts

All dimensions in mm.

Shape		Material/Dimensions	Part No.	Quantity	Remarks
Marking Plate	Round flush	Acrylic ø21.5 Thickness = 1	HW9Z-P11	5	• White • See B-225 for dimensions and engraving area.
Marking Plate	Round extended	Acrylic ø21.3 Thickness = 6.5	HW9Z-P12	5	
Marking Plate	Square flush	Acrylic 22.7 Thickness = 1	HW9Z-P21	5	
Marking Plate	ø29/40 mm mushroom	Acrylic ø15.7 H3.4	ALW3B	5	
Operator Knob for Illuminated Selector Switch		AS resin	HW9Z-FDY∗-K	1	• Specify a color code in place of ∗. R (red), G (green), Y (yellow), A (amber), W (white), S (blue) • Use W (white) knob/lever for pure white illumination.
Operator Lever for Illuminated Selector Switch		AS resin	HW9Z-FDL∗-K	1	
Spare Key (Disc Tumber Key)		Metal (nickel-plated brass)	HW9Z-SK-231	2	
Spare Key (Pin Tumber Key)		Metal (nickel-plated brass)	LW9Z-SK-500	2	• Standard key number
			LW9Z-SK-□		• Key number □ : 501 to 515
Lockig Ring		Polyamide (black) ø28.4 H5 M22P1	HW9Z-LN	5	
Cap for Mono-lever Switch	Standard	Nitryl rubber ø10 L20	HW9Z-CPM	1	
Boot for Mono-lever Switch	Standard	Nitryl rubber ø29.2 L34.4	HW9Z-BLM	1	
Diffusing Lens		Polycarbonate ø22.2 H21	HW9Z-PP5C	1	• Used for LED type jumbo dome pilot lights only. Do not use for incandescent lamp illumination.
Gasket		Nitryl rubber (black)	HW9Z-WM	10	Thickness = 0.5 ø21.6 ±0.15 ø28.0 ±0.15

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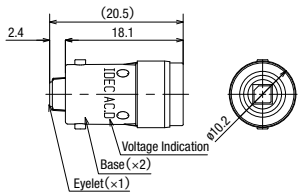
ø22 HW Series Maintenance Parts

Maintenance Parts

All dimensions in mm.

LEDs

Except HW Jumbo Dome Pilot Lights (except colors R, A, and G)

Shape/Dimensions	Operating Voltage	Current Draw DC	Current Draw AC	Part No.	Quantity	Base
	AC/DC6V	10mA	14mA	LSRD-6	10	BA9S/13
	AC/DC12V	7mA	8mA	LSRD-1	10	
	AC/DC24V	7mA	8mA	LSRD-2	10	
	AC/DC100/120V	2mA	2mA	LSRD-H2	10	
	AC200/220V	–	2mA	LSRD-M2	10	
	AC230/240V	–	2mA	LSRD-M4	10	

- Only one color is available for LSRD so there are no codes to specify the color in the part no.
- Also available for purchase individually. Standard pricing differs in this case.
- Use a LSRD-2 lamp for dome pilot lights with Y (yellow), S (blue), or PW (pure white) illumination
- When replacing the LED lamp, please check the part no. and voltage of the product currently in use.

Accessory for green dual pushbutton (with pilot light)

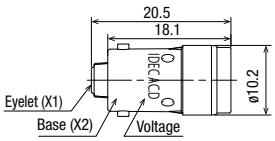
Quantity: 5

Shape	Part No.	Dimensions
Attachment lens	LSRD-LG	• For PW (pure white) illumination, use only a LSRD lamp and not an attachment lens. • The attachment lens is available with 5 pieces connected as shown on the right.

- See B-227 for the installation method.

For HW Jumbo Dome Pilot Lights

Quantity: 1

Shape	Operating Voltage	Current Draw DC	Current Draw AC	Part No.	Dimensions
LSTDB	24V AC/DC	A: 14mA	A: 14mA	LSTDB-2AN	
		G: 8mA	G: 8mA	LSTDB-2GN	

- Use an A (amber) LED for (R) red illumination.
- Use a LSRD-2 lamp for dome pilot lights with Y (yellow), S (blue), or PW (pure white) illumination.

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Transformer

Quantity: 1

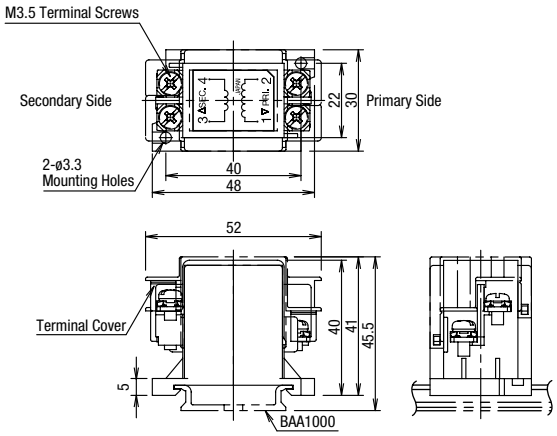
Shape	Operating Voltage	Operating Voltage Range	Part No.	Applicable Load
6V	AC100/110V	100/110V AC ±10%	TWR516	LSRD-6 (6V AC/DC, LED lamp)
	AC200/220V	200/220V AC ±10%	TWR526	
	AC380V	380V AC ±10%	TWR5386	
	AC400/440V	400/440V AC ±10%	TWR546	
	AC460/480V	460/480V AC ±10%	TWR5486	
24V	AC100/110V	100/110V AC ±10%	TWR512	LSRD-2 (24V AC/DC, LED lamp) or LSTDB-2∗ (24V AC/DC, LED lamp) ∗Color codes:G (green), A (amber)
	AC200/220V	200/220V AC ±10%	TWR522	
	AC400/440V	400/440V AC ±10%	TWR542	

- Terminal cover (TWR-VL3) is installed on transformers as standard.
- Only one illuminated unit can be connected.

Specifications

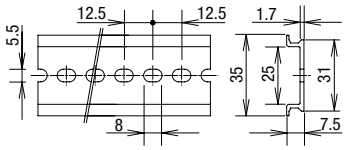
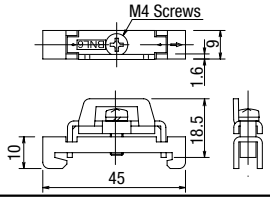
Part No.	TWR5□6	TWR5□2
Operating Voltage	100/110V AC 200/220V AC 380V AC 400/440V AC 460/480V AC (50/60Hz)	100/110V AC 200/220V AC 400/440V AC (50/60Hz)
Current Draw	2.4VA	
Rated Insulation Voltage	600V	
Insulation Resistance	100MΩ minimum (500V DC megger)	
Operating Temperature	–30 to +60°C (no freezing)	
Operating Humidity	35 to 85% RH (no condensation)	
Storage Temperature	–40 to +80°C (no freezing)	
Vibration Resistance	Damage limits: 30Hz, amplitude 1.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm	
Shock Resistance	Damage limits: 1000 m/s² Operating extremes: 100 m/s²	
Dielectric Strength	2500V AC, 1 minute	
Terminal Screw	M3.5	
Applicable Wire	2mm² maximum, 2 wires maximum	
Weight (approx.)	87g	

Dimensions



All dimensions in mm.

Accessories

Shape	Material	Part No.	Quantity	Dimensions (mm)
DIN 35 mm Rail Weight: 200g approx.	Aluminum Length: 1000 mm	BAA1000	10	
End Clip Weight: 15g approx.	Metal (zinc-plated steel) Applicable rail: BAA1000	BNL6	10	

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ø22 HW Series Instructions

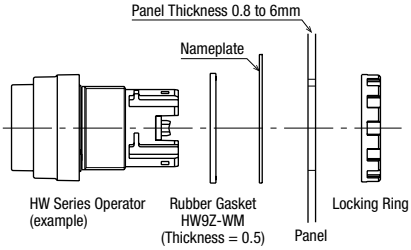
Safety Precautions

- Turn off the power to the HW series switches & pilot lights before starting installation, removal, wiring, maintenance, and starting installation, removing, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.
- For wiring, use wires of a proper size to meet the voltage and current requirements. Tighten the terminal screws to the recommended tightening torque (see B-228). Failure to tighten terminal screws may cause overheat and fire.

Operating Instructions

Panel Mounting

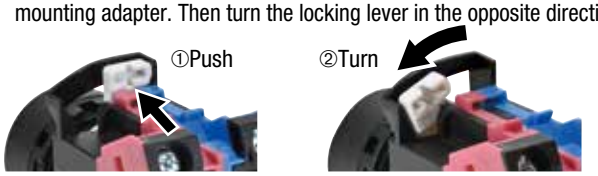
- Remove the contact block from the operator (for transformer type pilot lights, remove the transformer from the illumination unit). Remove the locking ring from the operator (for pilot lights, remove the locking ring from the illuminated unit). Insert the operator into the panel cut-out from the front. Tighten the locking ring from the back to install the contact block to the operator.



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 in the direction shown in ① and then turn the lever to the left shown in ②. 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.



Notes for Panel Mounting

Locking ring wrench recommended torque

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

Locking ring wrench

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

Locking ring wrench (MW9Z-T1)

Panel Thickness

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

Replacement of LED Lamps

LED lamps can be replaced by using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator unit. (See B-217 for lamp holder tool.)

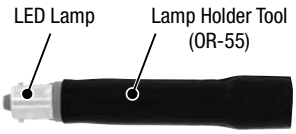
How to Remove

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

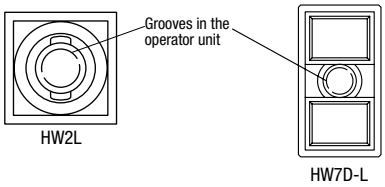
Photo: Extended pilot light

How to Install

Insert the lamp head into the lamp holder tool.



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



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Operating 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/Mushroom

Lens has threads. Turn clockwise to install the lens.

Turn the lens counterclockwise to remove.

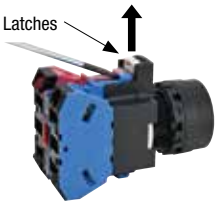
• Round Flush/Square Flush

Push in the lens holder into the operator unit.

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

Removing the Contact Blocks

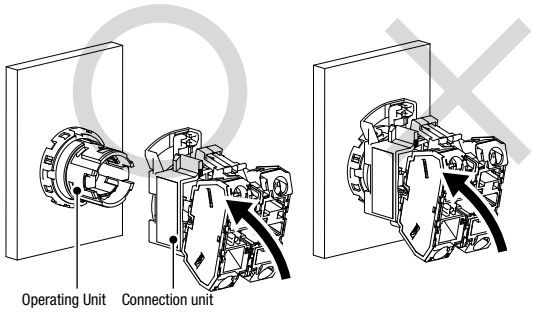
Insert a flat screwdriver (4 to 6 mm) into the snap-fit latch at the rear of the unit and gently lift to remove the contact block.



- Make sure to lift both latches. Contact blocks cannot be removed by lifting one latch only.
- Do not apply excessive force to the latches, otherwise damage maybe caused.

Full Voltage Adapter

Attach or remove the full voltage adapter only after detaching the connection unit from the operating unit.
Insert a flat screwdriver (4 to 6 mm) into the quick-lock tab at the rear of the unit and lift to remove the full voltage adapter.



⚠ **Caution When Replacing Units:** When replacing parts (such as contact blocks, dummy blocks, or full voltage adapters) during maintenance, make sure to reinstall them in their original positions. Changes to the original configuration will void the warranty.

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Operating Instructions

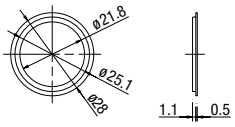
Using a Ring Adapter

HW9Z-A25

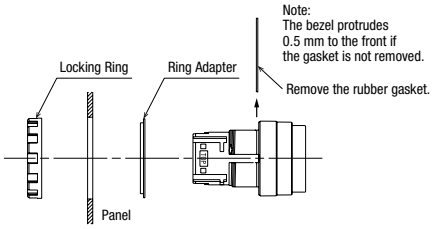
Install the ring adapter between the HW series unit and panel. Make sure that the side with ridges face the panel.

Nitryl Rubber

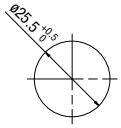
Dimensions



Installation



Panel Cut-out



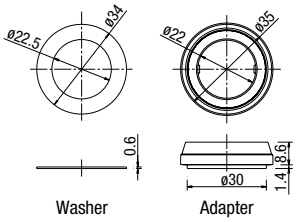
HW9Z-A30

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)

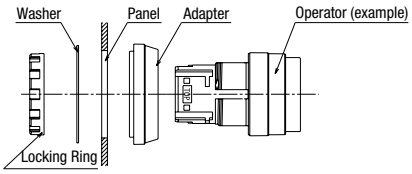
Adapter:
polyamide

Dimensions

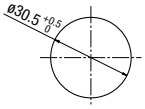


Washer Adapter

Installation



Panel Cut-out



Replacement of Lens and Marking Plate

Removing the Lens Unit

Remove the lens unit (color lens, marking plate, and lens holder) by inserting a small flat screwdriver into the recess of the lens through the bezel. Knob on illuminated selector switches can be removed by tilting sideways. No tool is required.

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. Marking plate can be removed after the lens is removed from the lens holder.

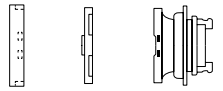
Note: The translucent filter in the lens holder cannot be removed because this filter is sealed to make the unit waterproof and oiltight.

Installing

[For Round Lens]

Lens Marking Plate Lens Holder

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.

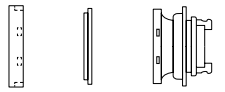


Lens Marking Plate Lens Holder

[For Square Lens]

Lens Marking Plate Lens Holder

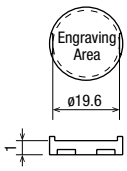
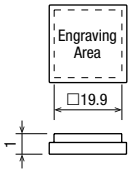
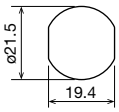
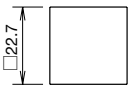
1. Place the marking plate on the lens holder and press the lens onto the lens holder to engage the latches.
2. Place the marking plate in the correct orientation (note the directionality of marking plate).



Lens Marking Plate Lens Holder

Marking

For HW series illuminated pushbuttons and 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. Films are not supplied with illuminated pushbuttons, and may be provided by the user.

Lens Style	Round Lens (Round Flush/Round Flush with Square Bezel)	Square Lens (Square Flush)
Built-in Marking Plate	 Outside diameter ø21.5	 Outside diameter □22.7
	• Engraving must be made on the engraving area within 0.5 mm deep. • The marking plate is made of white acrylic resin.	
Applicable Marking Film		
	• Two 0.1 mm-thick films or one 0.2 mm-thick film can be installed in the lens (marking film is not supplied and must be provided by the user). • Recommended marking film: polyester	

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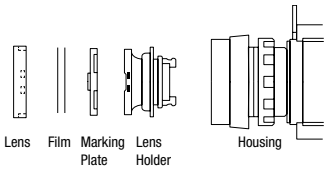
Operating Instructions

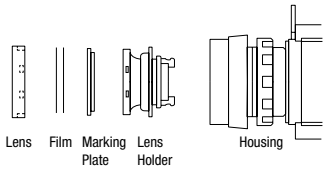
Insertion Order of Marking Plate and Film

[Round Lens]



Note: Films are not supplied.

[Square Lens]



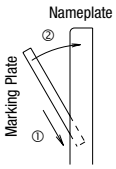
Note: Films are not supplied. When inserting a film, make sure that the marking plate is installed with its uneven side facing the lens holder.

Nameplate

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

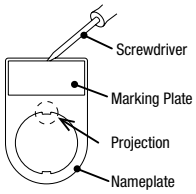
Installing a Marking Plate

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



Removing a Marking Plate

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



Replacing the Lens of Dual Pushbuttons

Removing

Remove the lens by inserting a small flat screwdriver into the recess of the lens through the bezel.

Installing

Install the lens in the recess between the buttons by pressing against the bezel.

Selector Switches

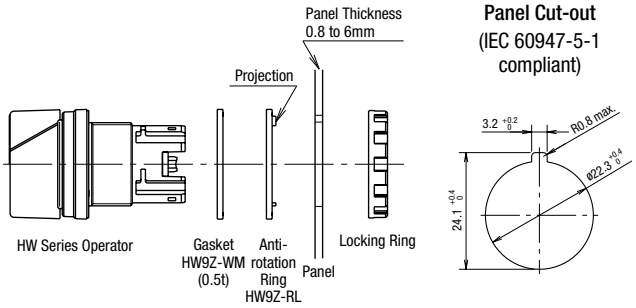
Turn the operator such as knob, lever, and key to each position accurately. Releasing halfway may cause the operator to return to the former position, or to get stuck between. On spring return two-way types, the center of operators may be misaligned slightly.

Key Selector Switches

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

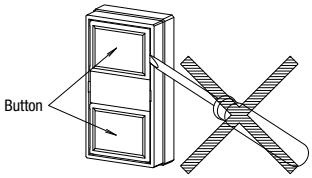
Anti-rotation Ring and Panel Cut-out

Align the TOP marking on the operator, TOP marking on the anti-rotation ring with the recess in the mounting panel.



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.

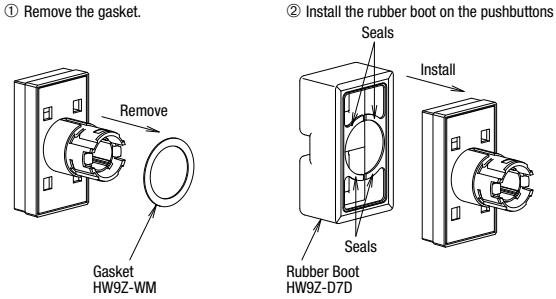


Installing the Rubber Boot for Dual Pushbuttons

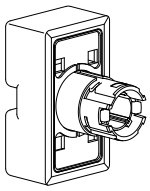
When using the HW7D pushbuttons in places where the pushbuttons are subject to water splash or an excessive amount of dust, make sure to use the HW9Z-D7D rubber boot (IP65) which is ordered separately. Recombs the rubber gasket pre-installed on the operator, and install the rubber boot from the front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

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



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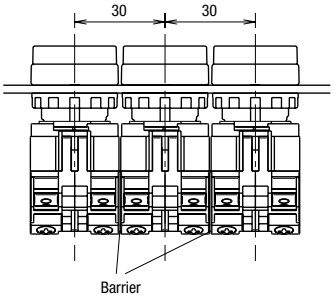
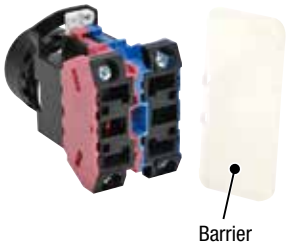
Operating Instructions

Close Mounting

When mounting the units closely in a horizontal row on 30 mm centers, use optional barriers to prevent interconnection between adjoining terminals, and to increase the creepage distance. The barriers can be attached simply by pressing them onto the sides of contact blocks.





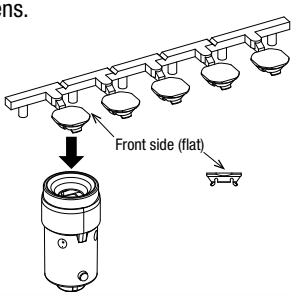
Use a barrier (HW-VU1) between the contact blocks.

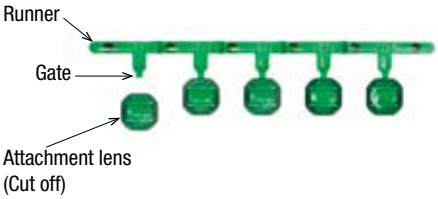
Note: Sufficient insulation distance cannot be obtained if barriers are not installed, or when other barriers such as HW-VG1 is used.

When using transformer type pilot lights closely mounted in horizontal and vertical rows on 30 mm centers, keep the ambient temperature below 40°C.

Installing the attachment lens

Install the lens on to the LED lamp with the lens remaining on the runner. (The lens will be cut off when installed). Note the front and back sides of the lens.





Applicable Wiring

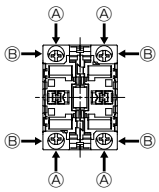
(1) Contact Block 0.3 to 3.5 mm² (solid wire ø0.5 to 2.0 mm)

Pushbutton/illuminated pushbutton/dual pushbuttons (without pilot light), selector switch, illuminated selector switch, pushbutton selector, mono-lever switch

Ⓐ and Ⓑ show the wiring direction to the terminals.

<Contact Block>

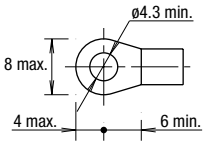
Terminal screws M3.5 (spring-up)

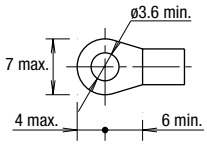


Applicable Crimping Terminal

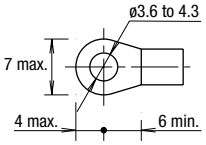
Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

Crimping terminal for Ⓐ

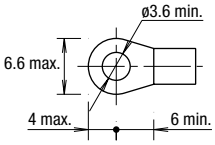




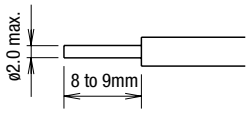
IP20 crimping terminal



Crimping terminal for Ⓑ (IP20)



Solid wire



- Strip the wire insulation 8 to 9 mm from the end.
- Insert the wire until the insulation comes into contact with the terminal metal part.

APEM
Switches & Pilot Lights
Control Boxes
Emergency Stop Switches
Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID
Flush Silhouette
ø16
ø22
ø30
Miniature
Pilot Lights
HW
TW
YW

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Operating Instructions

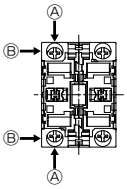
(2) Full Voltage Adapter 0.3 to 3.5 mm² (solid wire ø0.5 to 2.0 mm)

Illuminated pushbutton, illuminated selector switch, dual pushbuttons with pilot light

Ⓐ and Ⓑ show the wiring direction to the terminals.

<Full Voltage Adapter>

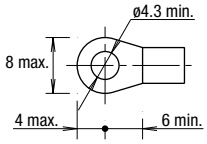
Terminal screws M3.5 (spring-up)

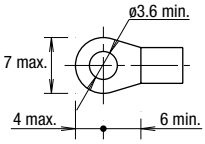


Applicable Crimping Terminal

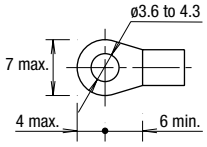
Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

Crimping terminal for Ⓐ

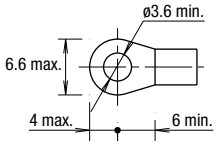




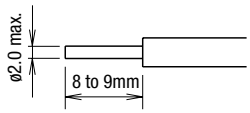
IP20 crimping terminal



Crimping terminal for Ⓑ (IP20)



Solid wire



- Strip the wire insulation 8 to 9 mm from the end.
- Insert the wire until the insulation comes into contact with the terminal metal part.

(2)-1 IP20 Degree of Protection

The terminal of HW-U contact block and full voltage adapter has IP20 degree of protection. When IP20 is required for wiring, observe the followings.
Make sure to insert the crimping terminal or wire to the terminal straight and fully.

When using a crimping terminal

Use IP20 crimping terminals.

When using a solid wire

Strip the wire insulation 8 to 9 mm from the end and insert the wire to the terminal fully.

When using a stranded wire

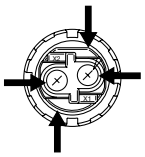
Strip the wire insulation 8 to 9 mm from the end and insert the wire to the terminal fully. Make sure that the wires are not loosened.

(3) Pilot Light 0.3 to 2 mm² (solid wire ø0.5 to 1.6 mm)

(Arrows show the wiring direction)

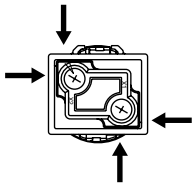
<Full Voltage Adapter>

6 to 120V AC/DC, 200 to 240V AC
Terminal screws M3.5 (spring-up)



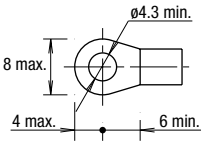
<Transformer>

380V AC minimum
Terminal screws M3.5 (spring-up)



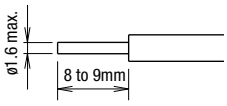
Applicable Crimping Terminal

Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.



Solid Wire

- Strip the wire insulation 8 to 9 mm from the end.
- Inset the wire until the insulation comes into contact with the terminal metal part.
- Terminal cover is integrated but not IP20.
- When selecting mounting centers and crimping terminals, take sufficient insulation distance into consideration.



Recommended Tightening Torque Number of Wires

Unit	Wire		Number of Wires	Recommended Tightening Torque (N·m)	Terminal Screw
HW-U Contact Block Full Voltage Adapter(*1)	Crimping Terminal		2	1.0 to 1.3	M3.5
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3	
		ø1.7 to 2.0 mm (AWG12)	1	1.2 to 1.3	
	Stranded Wire	0.3 to 2.0 mm² (AWG14 to 22)	2	1.0 to 1.3	
		2.1 to 3.5 mm² (AWG12)	1	1.2 to 1.3	
Pilot Light	Crimping Terminal		2	1.0 to 1.3	M3.5
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)			
	Stranded Wire	0.3 to 2.0 mm² (AWG14 to 22)			

*1) Lamp terminal of illuminated pushbuttons, illuminated selector switches, dual pushbuttons with pilot lights

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Ordering Terms and Conditions

Thank you for using IDEC Products.

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

1. Notes on contents of Catalogs

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

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

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

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

2. Note on applications

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

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

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

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

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

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

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

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

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

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

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

3. Inspections

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

4. Warranty

(1) Warranty period

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

(2) Warranty scope

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

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

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

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

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

v. The product was used outside of its original purpose

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

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

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

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

5. Limitation of liability

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

6. Service scope

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

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

(2) Maintenance inspections, adjustments, and repairs

(3) Technical instructions and technical training

(4) Product tests or inspections specified by you

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

IDEC CORPORATION

Head Office 6-64, Nishi-Miyahara-2-Chome, Yodogawa-ku, Osaka 532-0004, Japan

www.idec.com

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EMEA	APEM SAS	**Thailand**	IDEC Asia (Thailand) Co., Ltd.		IDEC Hong Kong Co. Ltd.		
		India	IDEC Controls India Private Ltd.	**Taiwan**	IDEC Taiwan Corporation		

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