

Ø22mm

HW Series Switches & Pilot Lights



ø22 HW Series Selection Guide

Function	Pushbutton				
Category	Flush	Extended	ø29mm Mushroom	ø40mm Mushroom	ø60mm Mushroom
Shape	 	 	 	 	 
Model	HW1B-M1 HW1B-A1	HW1B-M2 HW1B-A2	HW1B-M3 HW1B-A3	HW1B-M4 HW1B-A4	HW1B-M5
Page	10	10	10	10	10

Function	Pushbutton				
Category	Square Flush	Square Extended	Round Flush w/Square Bezel	Round Extended w/Square Bezel	ø29mm Mushroom w/Square Bezel
Shape	 	 	 	 	 
Model	HW2B-M1 HW2B-A1	HW2B-M2 HW2B-A2	HW3B-M1 HW3B-A1	HW3B-M2 HW3B-A2	HW3B-M3 HW3B-A3
Page	11	11	12	12	12

Function	Pilot Light (LED/Incandescent)			
Category	Flush (Marking)	Extended (Dome)	Square Flush (Marking)	Jumbo Dome
Shape	 	 	 	 
Model	HW1P-1	HW1P-2	HW2P-1	HW1P-5
Page	13	13	13	13

Function	Illuminated Pushbutton (LED/Incandescent)				
Category	Flush	Extended	Extended w/Full Shroud	Square Flush	Flush w/Square Bezel
Shape	 	 	 	 	 
Model	HW1L-M1 HW1L-A1	HW1L-M2 HW1L-A2	HW1L-MF2 HW1L-AF2	HW2L-M1 HW2L-A1	HW3L-M1 HW3L-A1
Page	11	11	12	12	12

Function	Illuminated Pushbutton (LED/Incandescent)		
Category	Flush	Extended	Extended w/Full Shroud
Shape	 	 	 
Model	HW1L-M3 HW1L-A3	HW1L-M3 HW1L-A3	HW1L-M4 HW1L-A4
Page	13	13	13

Function	Dual Pushbutton (w/o Pilot Light)		Dual Pushbutton (LED/Incandescent)	
Category	Flush (top) Flush (bottom)	Flush (top) Extended (bottom)	Flush (top) Flush (bottom)	Flush (top) Flush (bottom)
Shape	 	 	 	 
Model	HW7D-B11 HW7D-B21	HW7D-B12 HW7D-B22	HW7D-L11 HW7D-L21	HW7D-L12 HW7D-L22
Page	24	24	25	25

Function	Selector Switch			Illuminated Selector (LED/Incandescent)	
Category	Selector	Pin Tumbler Key	Disc Tumbler Key	Knob Operator	Lever Operator
Shape	 	 	 	 	 
Model	HW1S	HW1K-□P	HW1K	HW1F	HW1F-□L
Page	29	30	32	34	34

Function	Pushbutton Selector	Mono-Lever Switch	
Category		Standard	Interlocking
Shape	 	 	 
Model	HW1R	HW1M	HW1M-L
Page	42	43	43

ø22 HW Series Switches & Pilot Lights

Complete with finger-safe contact blocks

Ensure safety and save wiring time

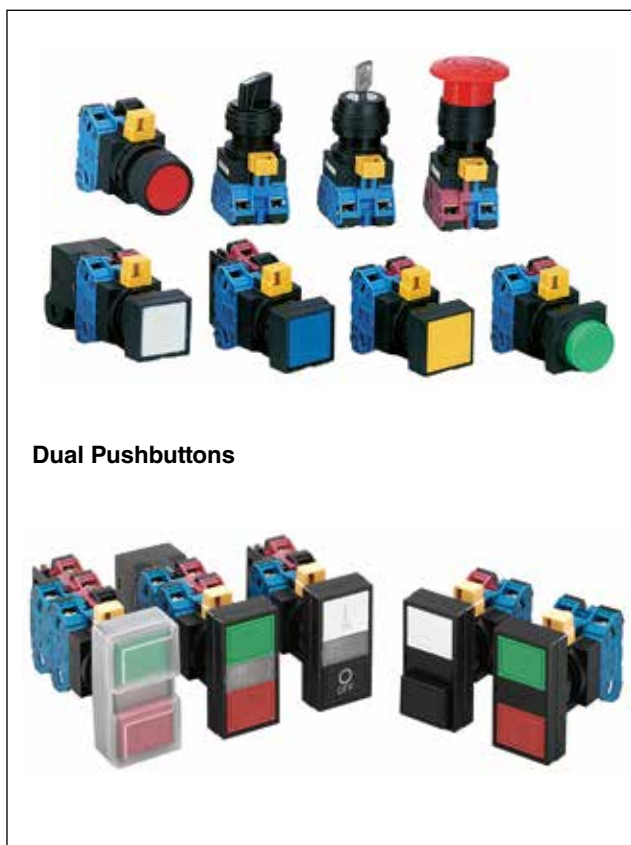
- Locking lever removable contact blocks
- Spring-up screw contact blocks.
- Self-cleaning rolling action contacts have a raked contact surface.
- Degree of protection: IP65 (except dual pushbutton: IP40)
- Dual pushbutton switches available with two pushbuttons and a pilot light integrated into one space-saving unit.
- A wide range of operating voltages for worldwide application
- UL, CSA rated, and EN compliant.

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.

Applicable Standards	Mark	File No. or Organization
UL508		UL Listing File No. E68961
CSA C22.2 No.14		CSA File No. LR92374
EN60947-5-1		TÜV Rheinland
		EU Low Voltage Directive
GB14048.5		CCC No. 2005010305145656 No. 2011010304454933 (pilot light)



Dual Pushbuttons

- DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Specifications and Ratings

Contact Ratings

Pushbuttons Illuminated Pushbuttons Dual Pushbuttons Selector Switches Illuminated Selector Switches Pushbutton Selectors	Contact Block	HW-G
	Rated Insulation Voltage	600V
	Rated Thermal Current	10A
	Contact Ratings by Utilization Category IEC 60947-5-1	AC-15 (A600) DC-13 (P600)

Characteristics

Contact Ratings by Utilization Category

Operating Voltage			24V	48V	50V	110V	220V	440V
Operational 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	8A	4A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	4A	2A	—	1.1A	0.6A	—

Note: The operational current represents the classification by making and breaking currents (IEC 60947-5-1).

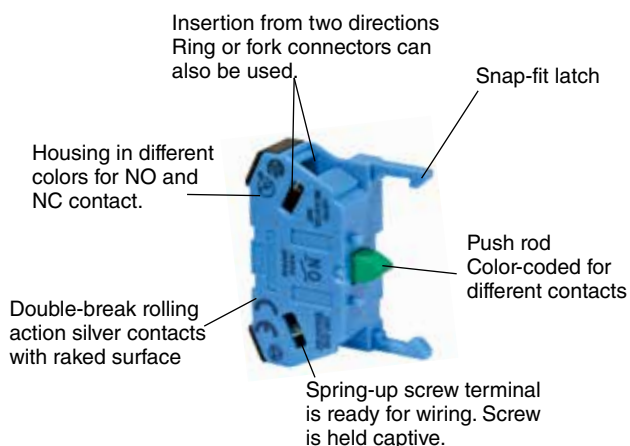
- Minimum applicable load: 3V AC/DC, 5 mA (applicable range may vary with operating conditions and load types)

For the switches listed below, the rated current (load switching current) is reduced to a half of the rated operational current of the contact block. The rated insulation voltage (600V) and the rated thermal current (10A) remain unchanged.

- 3-position selector switches which contain J or S following 3 in the Part No. and which have cam code J or S. Example: HW1S-3JT21N1
- All 4-position and 5-position selector switches
- All mono-lever switches
- All pushbutton selectors (circuit symbols E, F, N)

Contact Blocks

HW-G (Spring-up Screw Terminal)



Part No.	HW-G10	HW-G01	HW-G10R	HW-G01R
Contact	NO	NC	EM (early make)	EO (late break)
Housing	Blue	Purple red	Blue	Purple red
Push Rod	Green	Red	Black	White
Contact	3 — 4	1 — 2	7 — 8	5 — 6

- Up to 2 layers (4 blocks) can be attached.

Note: For dimensions, see page 61.

LED Illuminated Unit Specifications

Unit	Color Code ②	Input Type	Operating Voltage	LED Lamp		
				Lamp Base	Part No.	Voltage
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	Full Voltage	6V AC/DC	BA9S/13	LSTD-6②	6V AC/DC±10%
			12V AC/DC		LSTD-1②	12V AC/DC±10%
			24V AC/DC		LSTD-2②	24V AC/DC±10%
		Transformer	100/110V AC 115/120V AC 200/220V AC 230/240V AC 380V AC 400/440V AC 480V AC (50/60 Hz)		LSTD-6②	6V AC/DC±10%
		DC-DC Converter	110V DC		LSTD-6②	6V AC/DC±10%

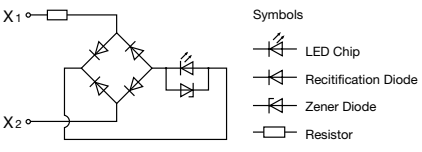
- Use a pure white (PW) LED for yellow (Y) illumination.
- Yellow (Y) cannot be used with dual pushbuttons.

Incandescent Illuminated Unit Specifications

Unit	Color Code ②	Input Type	Operating Voltage	Lamp		
				Lamp Base	Part No.	Voltage
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber G: green R: red S: blue W: white	Full Voltage	6V AC/DC	BA9S/13	LS-6	1W (6.3V)
			12V AC/DC		LS-8	1W (18V)
			24V AC/DC		LS-3	1W (30V)
		Transformer	100/110V AC 115/120V AC 200/220V AC 230/240V AC 380V AC 400/440V AC 480V AC (50/60 Hz)		LS-6	1W (6.3V)

- For LED and incandescent unit specifications of jumbo dome pilot lights, see page 6.

LED Lamp Ratings (LSTD) (Except Jumbo Dome Pilot Lights)

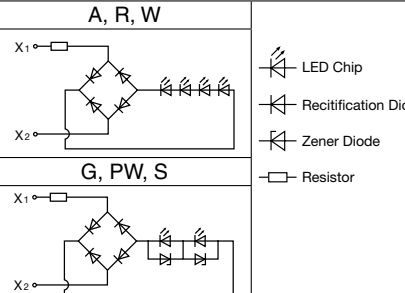
Part No.	LSTD-6②	LSTD-1②	LSTD-2②
Lamp Base	BA9S/13		
Rated Voltage	6V AC/DC	12V AC/DC	24V AC/DC
Voltage Range	6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%
Current Draw	AC	8 mA	11 mA
	DC	A, R, W: 7 mA G, PW, S: 5.5 mA	10 mA
Color Code	A (amber), G (green), PW (pure white), R (red), S (blue), W (white)		
Lamp Base Color	Same as illumination color		
Voltage Marking	Die stamped on the base		
Life (reference value)	Approx. 50,000 hours (until the brightness reduces to 50% the initial value when lit at complete direct current of the rated voltage under 25°C environment.)		
Internal Circuit	 Symbols - LED Chip - Recitification Diode - Zener Diode - Resistor		

- Use a pure white (PW) LED for yellow (Y) illumination.

Incandescent Lamp Ratings (LS) (Except Jumbo Dome Pilot Lights)

Part No.	LS-6	LS-8	LS-2	LS-3
Lamp Base	BA9S/13			
Rated Voltage	6V AC/DC	12V AC/DC	18V AC/DC	24V AC/DC
Wattage	1W (6.3V)	1W (18V)	1W (24V)	1W (30V)
Voltage Marking	Die stamped on the base			
Life (reference value)	Approx. 1,000 hours minimum (Mean value at the rated AC voltage.)			

LED Lamp Ratings (LSTDB) (For Jumbo Dome Pilot Lights Only)

Part No.	LSTDB-2②
Lamp Base	BA9S/13
Rated Voltage	24V AC/DC
Voltage Range	24V AC/DC ±10%
Current Draw	15 mA
Color Code	A (amber), G (green), PW (pure white), R (red), S (blue), W (white)
Life (reference value)	Approx. 20,000 hours (until the brightness reduces to 50% the initial value when lit at complete direct current of the rated voltage under 25°C environment.)
Internal Circuit	 A, R, W G, PW, S LED Chip Recitification Diode Zener Diode Resistor

- Use a pure white (PW) LED for yellow (Y) illumination.

Incandescent Lamp Ratings (LSB) (For Jumbo Dome Pilot Lights Only)

Part No.	LSB-2
Rated Voltage	24V AC/DC
Wattage	3.6W
Lamp Rating	28V, 0.17A
Life (reference value)	Approx. 1,000 hours (Mean value at the rated AC voltage.)

- Use incandescent lamp types for displaying the muting status (temporary automatic suspension of a safety function, required by IEC61496-1) of equipment such as light curtains.

Specifications

Operating Temperature	-25 to +60°C (no freezing) Illuminated units: -25 to +50°C Jumbo dome pilot lights: -25 to +55°C		
Storage Temperature	-40 to +80°C		
Operating Humidity	45 to 85% RH (no condensation)		
Contact Resistance	50 mΩ maximum (initial value)		
Insulation Resistance	100 MΩ minimum (500V DC megger)		
Dielectric Strength (Note)	Between live and dead metal parts: 2,500V AC, 1 minute (Full voltage illuminated units: 2,000V AC, 1 minute)		
Vibration Resistance	Damage limits, Operating extremes: 5 to 55 Hz, amplitude 0.5 mm		
Shock Resistance	Damage limits: 1000 m/s ² Operating extremes: 100 m/s ²		
Mechanical Life (minimum operations)	Pushbuttons, Illuminated pushbuttons		Key selector switches
	Momentary:	5,000,000	Disc tumbler: 500,000
	Maintained:	500,000	Pin tumbler: 100,000
	Dual pushbuttons:	500,000	Illuminated selector switches: 500,000
	Selector switches:	500,000	Pushbutton selectors: 250,000
			Mono-lever switches: 250,000
Electrical Life (minimum operations)	Pushbuttons, Illuminated pushbuttons: 500,000 *1		Illuminated selector switches: 500,000 *2
	Dual pushbuttons: 500,000 *1		Pushbutton selectors: 250,000 *2
	Selector switches: 500,000 *2		Mono-lever switches: 250,000 *3
	Key selector switches		
	Disc tumbler: 500,000 *2		
	Pin tumbler: 100,000 *2		
	*1 Switching frequency 1,800 operations/h, duty ratio 40%		
	*2 Switching frequency 1,200 operations/h, duty ratio 40%		
	*3 Switching frequency 900 operations/h, duty ratio 40%		
	Weight	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)	

Note: Dielectric strength for dual pushbuttons are as follows:

Without pilot light: 2,500V AC, 1 minute (between live and dead metal parts)

With pilot light:

Full voltage type: 1,000V AC, 1 minute (between live and dead metal parts)

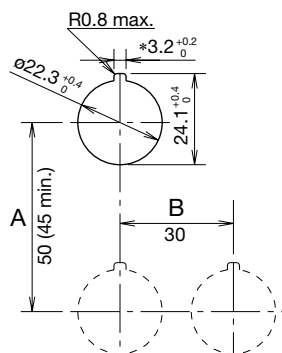
Transformer and DC-DC converter types: 2,000V AC, 1 minute (between live and dead metal parts)

Degree of Protection

Unit	IEC 60529
All units except dual pushbutton switches	IP65 (Note 1)
Dual pushbutton switches	IP40 (Note 2)

Note 1: When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 44 are used.
 Note 2: IP65 protection degree when HW9Z-D7D button cover is used.

Mounting Hole Layout



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

The minimum mounting centers are applicable to switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers in consideration of convenience for wiring.

Minimum Mounting Centers

Unit	A	B
ø40mm mushroom button	50 mm	40 mm
Pilot light	30 mm	30 mm
Pushbutton selector	50 mm	50 mm
Mono-lever switch	72 mm	72 mm
Jumbo dome pilot	85 mm	85 mm
Dual pushbutton switches	55 mm	30 mm
Illuminated selector switches	50 mm	50 mm

- When using the safety lever lock, determine the vertical spacing (A) in consideration of convenience for installing and removing the safety lever lock.
Recommended vertical spacing: 100 mm
- See page 14 for close mounting of pilot lights.

Ordering Information

The Part No. development charts shown below can be used to specify the HW series other than those listed on the following pages. Gold-plated silver contacts are also available.

Pushbuttons

HW1B-M1 11 R -MAU

Optional contact
 MAU: Gold-plated silver contact
 Button/lens color code

Contact arrangement code

10: 1NO	01: 1NC
11: 1NO-1NC	20: 2NO
02: 2NC	21: 2NO-1NC
12: 1NO-2NC	30: 3NO
03: 3NC	31: 3NO-1NC
22: 2NO-2NC	13: 1NO-3NC
40: 4NO	04: 4NC

Illuminated Pushbuttons

HW1L-M1 11 H 2 R -MAU

Optional contact
 MAU: Gold-plated silver contact
 Lens color code
 Lamp code

Operating voltage code

0: Without lamp
 2: LED (6V: LSTD)
 3: LED (12V: LSTD)
 4: LED (24V: LSTD)
 5: Incandescent (6V: LS-6)
 6: Incandescent (12V: LS-8)
 7: Incandescent (24V: LS-3)

Pilot Lights

HW1P-1 H 2 R

Lens color code
 Lamp code

0: Without lamp
 3: LED (12V: LSTD)
 5: Incandescent (6V: LS-6)
 7: Incandescent (24V: LS-3)

Operating voltage code

LED	Incandescent
Q2: 6V AC/DC	Q5: 6V AC/DC
Q3: 12V AC/DC	Q6: 12V AC/DC
Q4: 24V AC/DC	Q7: 24V AC/DC
H2: 100/110V AC	H5: 100/110V AC
H22: 115/120V AC	H25: 115/120V AC
M2: 200/220V AC	M5: 200/220V AC
M42: 230/240V AC	M45: 230/240V AC
S2: 380V AC	S5: 380V AC
T2: 400/440V AC	T5: 400/440V AC
T82: 480V AC	T85: 480V AC
D2: 110V DC	—

LED

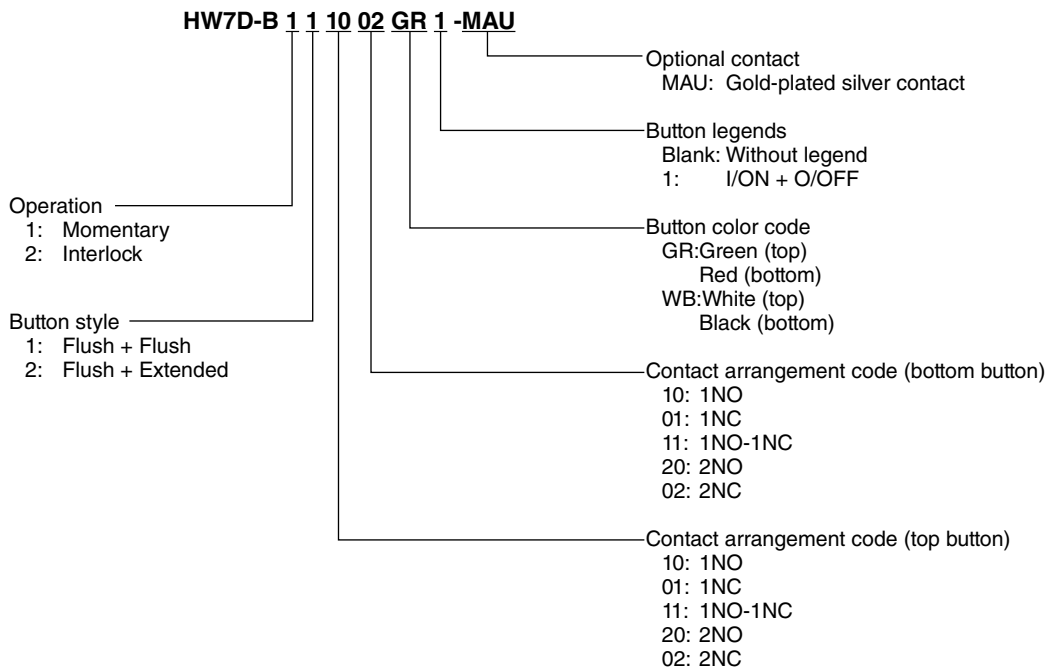
Q2: 6V AC/DC
 Q3: 12V AC/DC
 Q4: 24V AC/DC
 H2: 100/110V AC
 H22: 115/120V AC
 M2: 200/220V AC
 M42: 230/240V AC
 S2: 380V AC
 T2: 400/440V AC
 T82: 480V AC
 D2: 110V DC

Incandescent

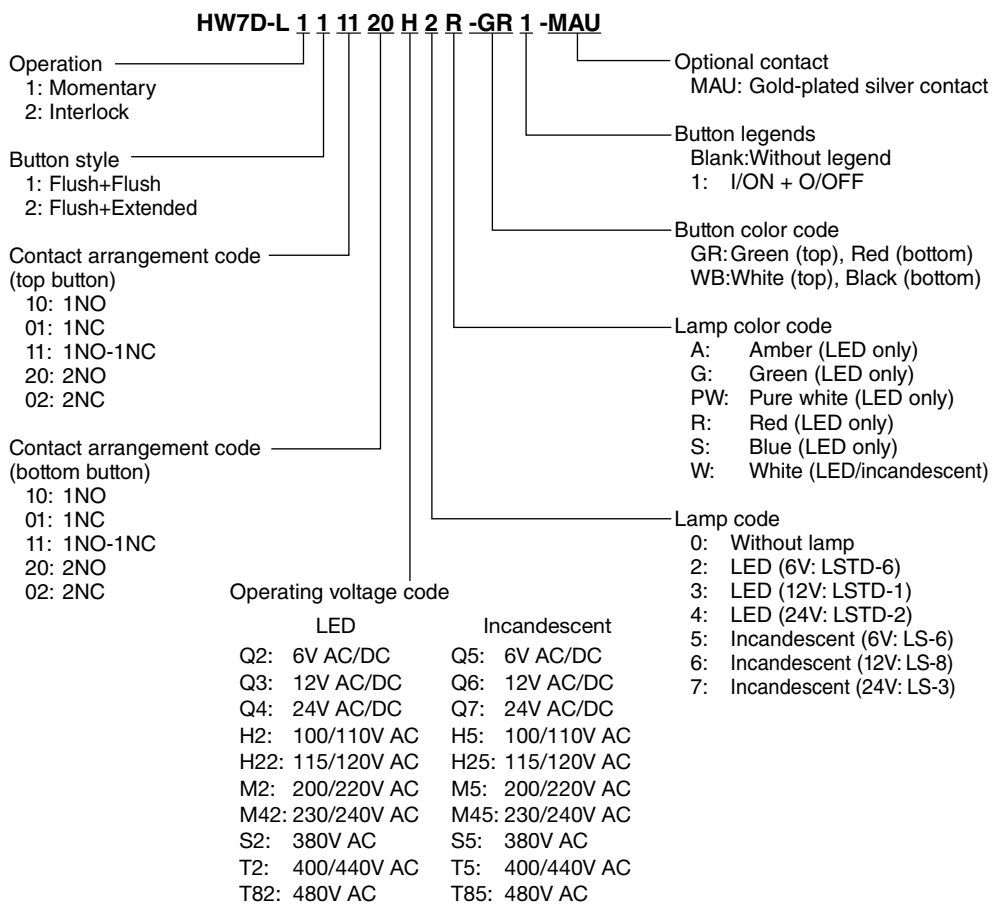
Q5: 6V AC/DC
 Q6: 12V AC/DC
 Q7: 24V AC/DC
 H5: 100/110V AC
 H25: 115/120V AC
 M5: 200/220V AC
 M45: 230/240V AC
 S5: 380V AC
 T5: 400/440V AC
 T85: 480V AC
 —

Note: Transformer and DC-DC converter types can have two or four contact blocks only.

Dual Pushbutton Switches

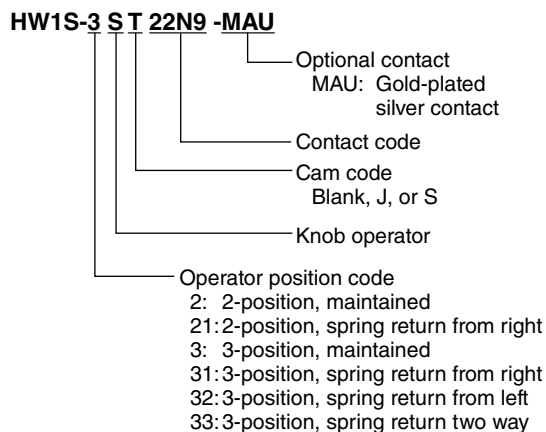


Dual Pushbutton Switches with Pilot Light

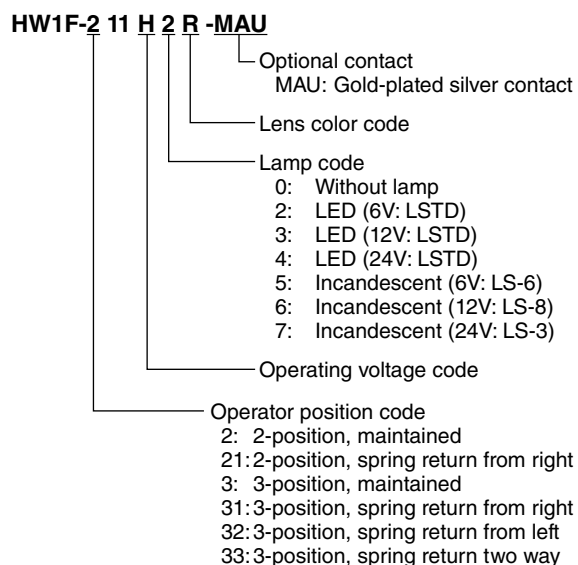


Note: Transformer type can have two or four contact blocks only.

Selector Switches

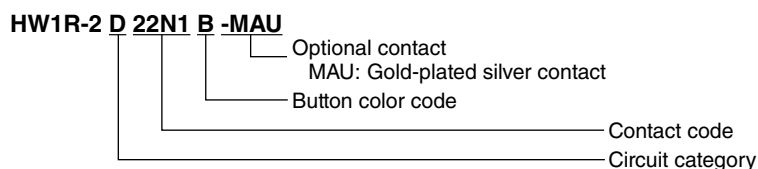


Illuminated Selector Switches

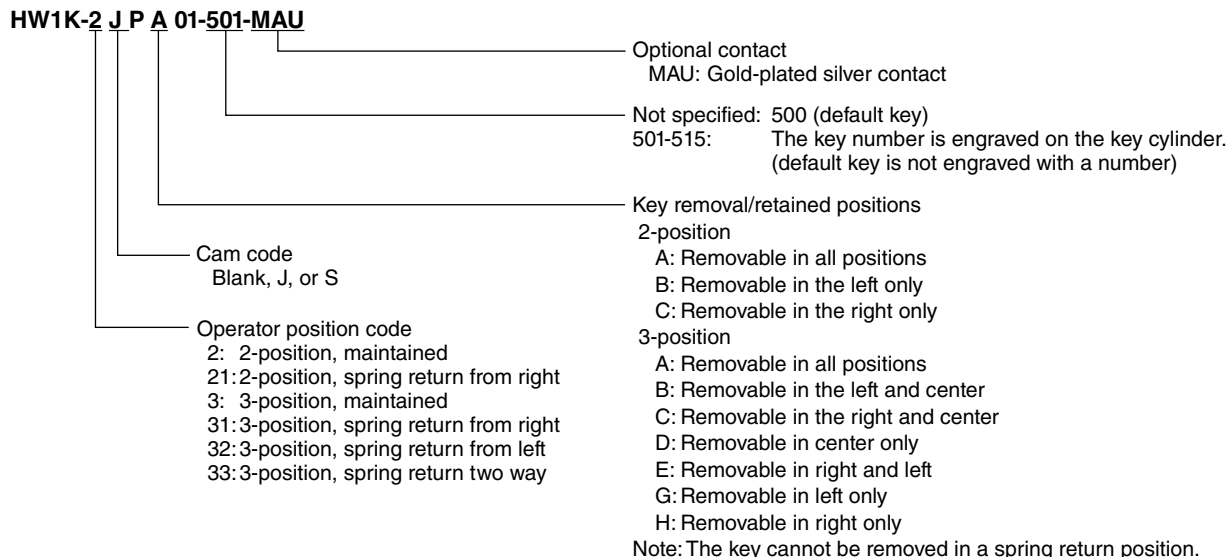


Note: Transformer and DC-DC converter types can have two or four contact blocks only.

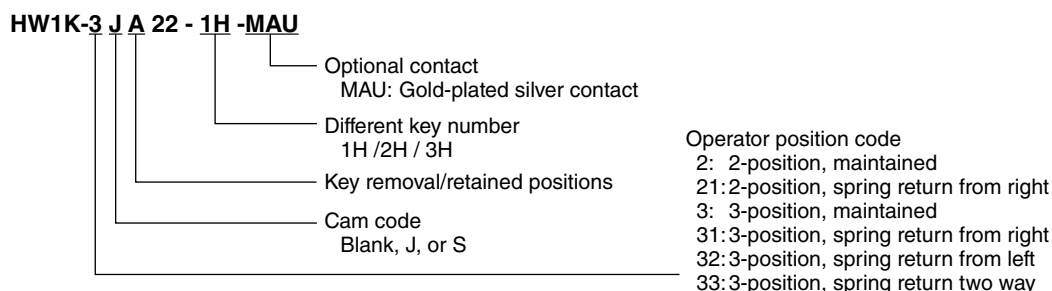
Pushbutton Selectors



Key Selector Switches (Pin Tumbler Key)



Key Selector Switches (Disc Tumbler Key)

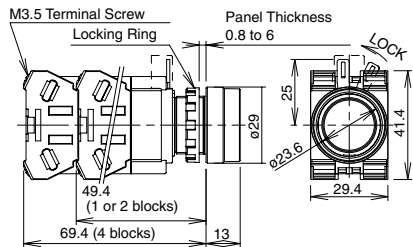
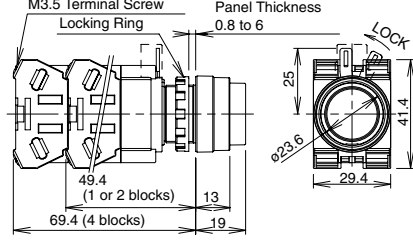
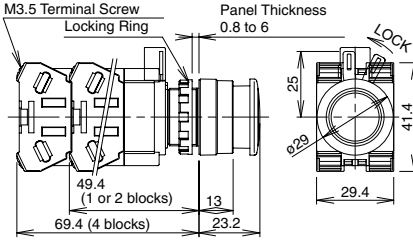
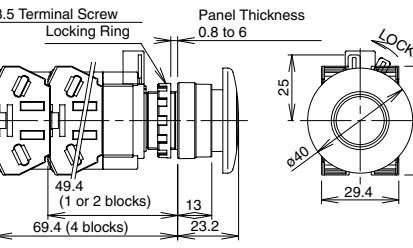
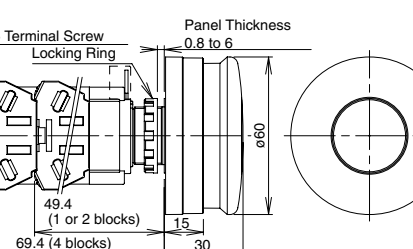


Note: Key removal/retained positions, cam codes, and operator position codes are the same as pin tumbler keys.

ø22 HW series Pushbuttons

Flush / Extended / Mushroom Pushbuttons

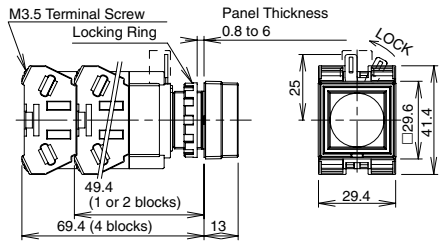
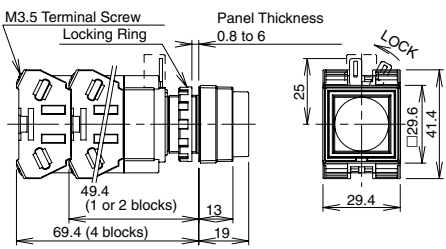
Package Quantity: 1

Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Flush HW1B-M1 HW1B-A1  	Momentary	1NO	HW1B-M110①	Specify a button color code in place of ① in the Part No. B: black G: green R: red S: blue W: white Y: yellow	
		1NC	HW1B-M101①		
		1NO-1NC	HW1B-M111①		
		2NO	HW1B-M120①		
		2NC	HW1B-M102①		
	Maintained	2NO-2NC	HW1B-M122①		
		1NO	HW1B-A110①		
		1NC	HW1B-A101①		
		1NO-1NC	HW1B-A111①		
		2NO	HW1B-A120①		
Extended HW1B-M2 HW1B-A2  	Momentary	1NO	HW1B-M210①		
		1NC	HW1B-M201①		
		1NO-1NC	HW1B-M211①		
		2NO	HW1B-M220①		
		2NC	HW1B-M202①		
	Maintained	2NO-2NC	HW1B-M222①		
		1NO	HW1B-A210①		
		1NC	HW1B-A201①		
		1NO-1NC	HW1B-A211①		
		2NO	HW1B-A220①		
ø29mm Mushroom HW1B-M3 HW1B-A3  	Momentary	2NC	HW1B-A202①		
		2NO-2NC	HW1B-A222①		
	Maintained	1NO	HW1B-M310①		
		1NC	HW1B-M301①		
		1NO-1NC	HW1B-M311①		
ø40mm Mushroom HW1B-M4 HW1B-A4  	Momentary	2NO	HW1B-M320①		
		2NC	HW1B-M302①		
		2NO-2NC	HW1B-M322①		
	Maintained	1NO	HW1B-A310①		
		1NC	HW1B-A301①		
ø60mm Mushroom HW1B-M5  	Momentary	1NO-1NC	HW1B-A311①		
		2NO	HW1B-A320①		
		2NC	HW1B-A302①		
		2NO-2NC	HW1B-A322①		
	Momentary	1NO	HW1B-M410①		
		1NC	HW1B-M401①		
		1NO-1NC	HW1B-M411①		
		2NO	HW1B-M420①		
		2NC	HW1B-M402①		
	Momentary	2NO-2NC	HW1B-M422①		
		1NO	HW1B-A410①		
		1NC	HW1B-A401①		
		1NO-1NC	HW1B-A411①		
		2NO	HW1B-A420①		
	Momentary	2NC	HW1B-A402①		
		2NO-2NC	HW1B-A422①		
		1NO	HW1B-M510①		
		1NC	HW1B-M501①		
		1NO-1NC	HW1B-M511①		
		2NO	HW1B-M520①		
		2NC	HW1B-M502①		
		2NO-2NC	HW1B-M522①		

- Pushbuttons with one or three contact blocks contain a dummy block.
- Other contact arrangements and gold-plated silver contacts are also available. See page 7.

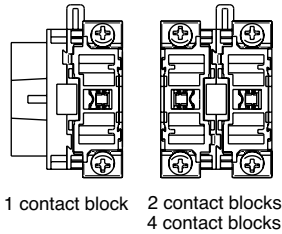
Square Flush / Square Extended Pushbuttons

Package Quantity: 1

Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Square Flush HW2B-M1 HW2B-A1  	Momentary	1NO	HW2B-M110①	Specify a button color code in place of ① in the Part No. B: black G: green R: red S: blue W: white Y: yellow	
		1NC	HW2B-M101①		
		1NO-1NC	HW2B-M111①		
		2NO	HW2B-M120①		
		2NC	HW2B-M102①		
	Maintained	2NO-2NC	HW2B-M122①		
		1NO	HW2B-A110①		
		1NC	HW2B-A101①		
		1NO-1NC	HW2B-A111①		
		2NO	HW2B-A120①		
Square Extended HW2B-M2 HW2B-A2  	Momentary	1NO	HW2B-M210①		
		1NC	HW2B-M201①		
		1NO-1NC	HW2B-M211①		
		2NO	HW2B-M220①		
		2NC	HW2B-M202①		
	Maintained	2NO-2NC	HW2B-M222①		
		1NO	HW2B-A210①		
		1NC	HW2B-A201①		
		1NO-1NC	HW2B-A211①		
		2NO	HW2B-A220①		
		2NC	HW2B-A202①		
		2NO-2NC	HW2B-A222①		

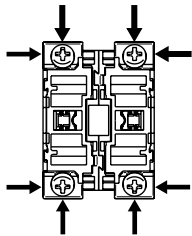
- Pushbuttons with one or three contact blocks contain a dummy block.
- Other contact arrangements and gold-plated silver contacts are also available. See page 7.

Contact Block (Bottom View)



Terminal Wiring

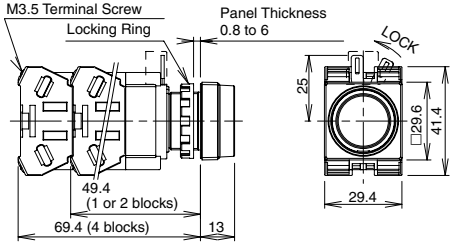
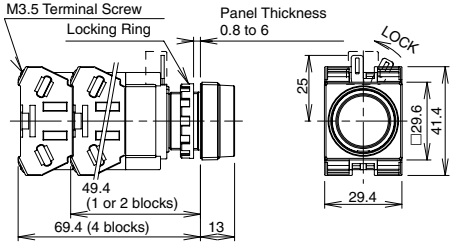
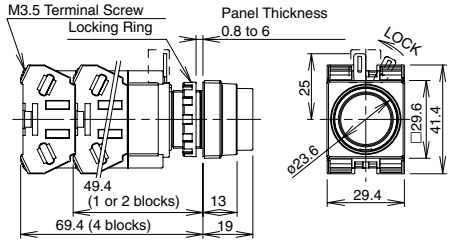
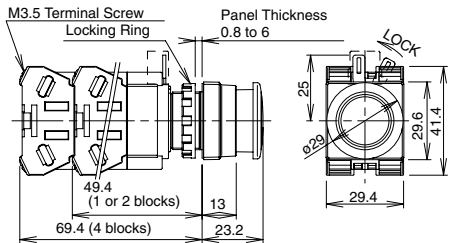
Arrows indicate access directions for wiring.



ø22 HW series Pushbuttons

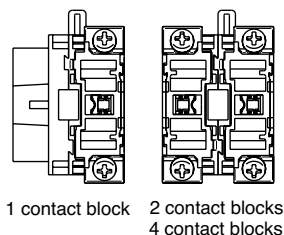
Round Button with Square Bezel Pushbuttons

Package Quantity: 1

Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Round Flush with Square Bezel HW3B-M1 HW3B-A1  	Momentary	1NO	HW3B-M110①	Specify a button color code in place of ① in the Part No. B: black G: green R: red S: blue W: white Y: yellow	
		1NC	HW3B-M101①		
		1NO-1NC	HW3B-M111①		
		2NO	HW3B-M120①		
		2NC	HW3B-M102①		
	Maintained	2NO-2NC	HW3B-M122①		
		1NO	HW3B-A110①		
		1NC	HW3B-A101①		
		1NO-1NC	HW3B-A111①		
		2NO	HW3B-A120①		
		2NC	HW3B-A102①		
		2NO-2NC	HW3B-A122①		
Round Extended with Square Bezel HW3B-M2 HW3B-A2  	Momentary	1NO	HW3B-M210①		
		1NC	HW3B-M201①		
		1NO-1NC	HW3B-M211①		
		2NO	HW3B-M220①		
		2NC	HW3B-M202①		
	Maintained	2NO-2NC	HW3B-M222①		
		1NO	HW3B-A210①		
		1NC	HW3B-A201①		
		1NO-1NC	HW3B-A211①		
		2NO	HW3B-A220①		
		2NC	HW3B-A202①		
		2NO-2NC	HW3B-A222①		
ø29mm Mushroom with Square Bezel HW3B-M3 HW3B-A3  	Momentary	1NO	HW3B-M310①		
		1NC	HW3B-M301①		
		1NO-1NC	HW3B-M311①		
		2NO	HW3B-M320①		
		2NC	HW3B-M302①		
	Maintained	2NO-2NC	HW3B-M322①		
		1NO	HW3B-A310①		
		1NC	HW3B-A301①		
		1NO-1NC	HW3B-A311①		
		2NO	HW3B-A320①		
		2NC	HW3B-A302①		
		2NO-2NC	HW3B-A322①		

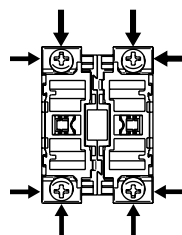
- Pushbuttons with one or three contact blocks contain a dummy block.
- Other contact arrangements and gold-plated silver contacts are also available. See page 7.

Contact Block (Bottom View)



Terminal Wiring

Arrows indicate access directions for wiring.



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

Package Quantity: 1

Shape	Lamp	Part No.	② Lens/Illumination Color Code
Round Flush HW1P-1  (Photo: Full Voltage) 	Without Lamp	HW1P-1Q0 ②	A: amber, G: green, R: red, S: blue, W: white, Y: yellow
	LED	HW1P-1 ③②	A: amber, G: green, PW: pure white, R: red, S: blue, W: white, Y: yellow
	Incandescent	HW1P-1 ③②	A: amber, G: green, R: red, S: blue, W: white
Dome HW1P-2  (Photo: Full Voltage) 	Without Lamp	HW1P-2Q0 ②	A: amber, G: green, R: red, S: blue, W: white, Y: yellow
	LED	HW1P-2 ③②	A: amber, G: green, PW: pure white, R: red, S: blue, W: white, Y: yellow
	Incandescent	HW1P-2 ③②	A: amber, G: green, R: red, S: blue, W: white
Square Flush HW2P-1  (Photo: Transformer) 	Without Lamp	HW2P-1Q0 ②	A: amber, G: green, R: red, S: blue, W: white, Y: yellow
	LED	HW2P-1 ③②	A: amber, G: green, PW: pure white, R: red, S: blue, W: white, Y: yellow
	Incandescent	HW2P-1 ③②	A: amber, G: green, R: red, S: blue, W: white
Jumbo Dome Pilot Light HW1P-5  	LED	HW1P-5Q4 ②	A: amber, G: green, PW: pure white, R: red, S: blue, W: white, Y: yellow
	Incandescent	HW1P-5Q7 ②	A: amber, G: green, R: red, S: blue, W: white, Y: yellow

Designation Code

Specify an designation code in place of ③ in the Part No.

③ Operating Voltage Code		Input Type
LED	Incandescent	
Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
Q3: 12V AC/DC	Q6: 12V AC/DC	
Q4: 24V AC/DC	Q7: 24V AC/DC	
H2: 100/110V AC	H5: 100/110V AC	Transformer
H22: 115/120V AC	H25: 115/120V AC	
M2: 200/220V AC	M5: 200/220V AC	
M42: 230/240V AC	M45: 230/240V AC	
S2: 380V AC	S5: 380V AC	
T2: 400/440V AC	T5: 400/440V AC	
T82: 480V AC	T85: 480V AC	DC-DC Converter*
D2: 110V DC	—	

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Jumbo dome pilot lights contain an exclusive LED and incandescent lamp. See page 49.

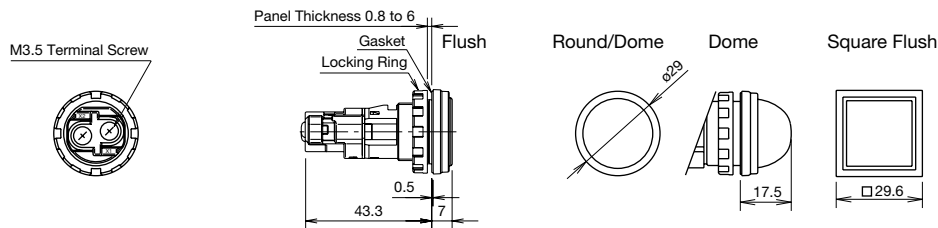
*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

ø22 HW Series Pilot Lights

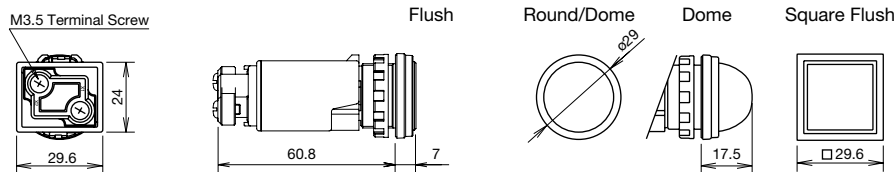
Dimensions

Pilot Light (except jumbo dome pilot light)

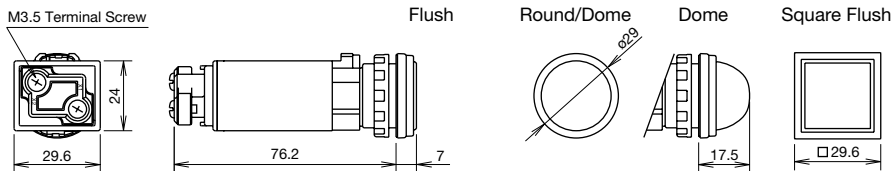
[Full Voltage]



[Transformer 240V AC maximum]

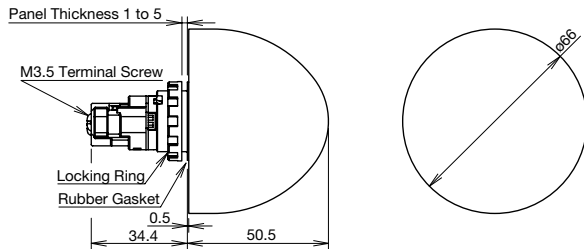


[Transformer 380 AC minimum]
[DC-DC Converter]

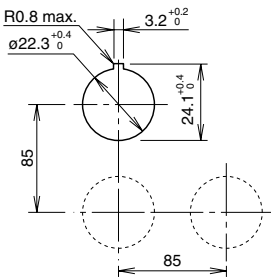


All dimensions in mm.

Jumbo Dome Pilot Light



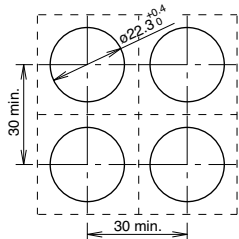
Mounting Hole Layout for Jumbo Dome Pilot Light



Close Mounting

Pilot Light (except jumbo dome pilot light)

Close mounting on 30mm centers
Degree of protection: IP65



When mounting transformer or DC-DC converter type units on 30mm centers vertically and horizontally, keep the ambient temperature below 40°C.

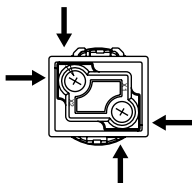
Terminal Wiring

- Arrows indicate access directions for wiring.
- For 110V DC types, terminal X1 is ⊕, X2 is ⊖.
- Lamp terminals do not have any polarity (except 110V DC)

Full Voltage



Transformer
DC-DC Converter



Round Flush Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
Round Flush HW1L-M1 HW1L-A1     	Momentary	Without Lamp	1NO	HW1L-M110Q0②
			1NC	HW1L-M101Q0②
			1NO-1NC	HW1L-M111Q0②
			2NO	HW1L-M120Q0②
			2NC	HW1L-M102Q0②
			2NO-2NC	HW1L-M122Q0②
		LED / Incandescent	1NO	HW1L-M110③② (Note 1)
			1NC	HW1L-M101③② (Note 1)
			1NO-1NC	HW1L-M111③②
			2NO	HW1L-M120③②
			2NC	HW1L-M102③②
			2NO-2NC	HW1L-M122③②
	Maintained	Without Lamp	1NO	HW1L-A110Q0②
			1NC	HW1L-A101Q0②
			1NO-1NC	HW1L-A111Q0②
			2NO	HW1L-A120Q0②
			2NC	HW1L-A102Q0②
			2NO-2NC	HW1L-A122Q0②
		LED / Incandescent	1NO	HW1L-A110③② (Note 1)
			1NC	HW1L-A101③② (Note 1)
			1NO-1NC	HW1L-A111③②
			2NO	HW1L-A120③②
			2NC	HW1L-A102③②
			2NO-2NC	HW1L-A122③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow (Note 2)	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	
			T82: 480V AC	T85: 480V AC	
			D2: 110V DC	—	DC-DC Converter*

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Note 1: Only full voltage types are available.

Note 2: For A (amber), G (green), R (red) and S (blue) LED illumination, add **W** before the color code when white lens unit (clear lens + white marking plate) is required. (Eg: HW1L-M111Q4**WA**)

ø22 HW series Illuminated Pushbuttons

Round Extended Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
Round Extended HW1L-M2 HW1L-A2 	Momentary	Without Lamp	1NO	HW1L-M210Q0②
			1NC	HW1L-M201Q0②
			1NO-1NC	HW1L-M211Q0②
			2NO	HW1L-M220Q0②
			2NC	HW1L-M202Q0②
			2NO-2NC	HW1L-M222Q0②
		LED / Incandescent	1NO	HW1L-M210③② (Note 1)
			1NC	HW1L-M201③② (Note 1)
			1NO-1NC	HW1L-M211③②
			2NO	HW1L-M220③②
	Maintained	Without Lamp	2NC	HW1L-M202③②
			2NO-2NC	HW1L-M222③②
			1NO	HW1L-A210Q0②
			1NC	HW1L-A201Q0②
			1NO-1NC	HW1L-A211Q0②
			2NO	HW1L-A220Q0②
			2NC	HW1L-A202Q0②
			2NO-2NC	HW1L-A222Q0②
		LED / Incandescent	1NO	HW1L-A210③② (Note 1)
			1NC	HW1L-A201③② (Note 1)
			1NO-1NC	HW1L-A211③②
			2NO	HW1L-A220③②
			2NC	HW1L-A202③②
			2NO-2NC	HW1L-A222③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow (Note 2)	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	
			T82: 480V AC	T85: 480V AC	
			D2: 110V DC	—	DC-DC Converter*

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Note 1: Only full voltage types are available.

Note 2: For A (amber), G (green), R (red) and S (blue) LED illumination, add **W** before the color code when white lens unit (clear lens + white marking plate) is required. (Eg: HW1L-M211Q4**WA**)

Round Extended with Full Shroud Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
Round Extended with Full Shroud HW1L-MF2 HW1L-AF2 	Momentary	Without Lamp	1NO	HW1L-MF210Q0②
			1NC	HW1L-MF201Q0②
			1NO-1NC	HW1L-MF211Q0②
			2NO	HW1L-MF220Q0②
			2NC	HW1L-MF202Q0②
			2NO-2NC	HW1L-MF222Q0②
		LED / Incandescent	1NO	HW1L-MF210③② (Note 1)
			1NC	HW1L-MF201③② (Note 1)
			1NO-1NC	HW1L-MF211③②
			2NO	HW1L-MF220③②
	Maintained	Without Lamp	2NC	HW1L-MF202③②
			2NO-2NC	HW1L-MF222③②
			1NO	HW1L-AF210Q0②
			1NC	HW1L-AF201Q0②
			1NO-1NC	HW1L-AF211Q0②
			2NO	HW1L-AF220Q0②
			2NC	HW1L-AF202Q0②
			2NO-2NC	HW1L-AF222Q0②
		LED / Incandescent	1NO	HW1L-AF210③② (Note 1)
			1NC	HW1L-AF201③② (Note 1)
			1NO-1NC	HW1L-AF211③②
			2NO	HW1L-AF220③②
			2NC	HW1L-AF202③②
			2NO-2NC	HW1L-AF222③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow (Note 2)	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	DC-DC Converter*
			T82: 480V AC	T85: 480V AC	
			D2: 110V DC	—	

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Note 1: Only full voltage types are available.

Note 2: For A (amber), G (green), R (red) and S (blue) LED illumination, add **W** before the color code when white lens unit (clear lens + white marking plate) is required. (Eg: HW1L-M211Q4**WA**)

ø22 HW series Illuminated Pushbuttons

Square Flush Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
Square Flush HW2L-M1 HW2L-A1 	Momentary	Without Lamp	1NO	HW2L-M110Q0②
			1NC	HW2L-M101Q0②
			1NO-1NC	HW2L-M111Q0②
			2NO	HW2L-M120Q0②
			2NC	HW2L-M102Q0②
			2NO-2NC	HW2L-M122Q0②
		LED / Incandescent	1NO	HW2L-M110③② (Note 1)
			1NC	HW2L-M101③② (Note 1)
			1NO-1NC	HW2L-M111③②
			2NO	HW2L-M120③②
	Maintained	Without Lamp	2NC	HW2L-M102③②
			2NO-2NC	HW2L-M122③②
			1NO	HW2L-A110Q0②
			1NC	HW2L-A101Q0②
			1NO-1NC	HW2L-A111Q0②
			2NO	HW2L-A120Q0②
			2NC	HW2L-A102Q0②
			2NO-2NC	HW2L-A122Q0②
		LED / Incandescent	1NO	HW2L-A110③② (Note 1)
			1NC	HW2L-A101③② (Note 1)
			1NO-1NC	HW2L-A111③②
			2NO	HW2L-A120③②
			2NC	HW2L-A102③②
			2NO-2NC	HW2L-A122③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	
			T82: 480V AC	T85: 480V AC	DC-DC Converter*
			D2: 110V DC	—	

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Note 1: Only full voltage types are available.

Note 2: For A (amber), G (green), R (red) and S (blue) LED illumination, add **W** before the color code when white lens unit (clear lens + white marking plate) is required. (Eg: HW2L-M111Q4**WA**)

Round Flush with Square Bezel Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
Round Flush with Square Bezel HW3L-M1 HW3L-A1  	Momentary	Without Lamp	1NO	HW3L-M110Q0②
			1NC	HW3L-M101Q0②
			1NO-1NC	HW3L-M111Q0②
			2NO	HW3L-M120Q0②
			2NC	HW3L-M102Q0②
			2NO-2NC	HW3L-M122Q0②
		LED / Incandescent	1NO	HW3L-M110③② (Note 1)
			1NC	HW3L-M101③② (Note 1)
			1NO-1NC	HW3L-M111③②
			2NO	HW3L-M120③②
			2NC	HW3L-M102③②
			2NO-2NC	HW3L-M122③②
	Maintained	Without Lamp	1NO	HW3L-A110Q0②
			1NC	HW3L-A101Q0②
			1NO-1NC	HW3L-A111Q0②
			2NO	HW3L-A120Q0②
			2NC	HW3L-A102Q0②
			2NO-2NC	HW3L-A122Q0②
		LED / Incandescent	1NO	HW3L-A110③② (Note 1)
			1NC	HW3L-A101③② (Note 1)
			1NO-1NC	HW3L-A111③②
			2NO	HW3L-A120③②
			2NC	HW3L-A102③②
			2NO-2NC	HW3L-A122③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow (Note 2)	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	DC-DC Converter*
			T82: 480V AC	T85: 480V AC	
			D2: 110V DC	—	

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Note 1: Only full voltage types are available.

Note 2: For A (amber), G (green), R (red) and S (blue) LED illumination, add **W** before the color code when white lens unit (clear lens + white marking plate) is required. (Eg: HW3L-M111Q4**WA**)

ø22 HW series Illuminated Pushbuttons

Mushroom (ø29mm) Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
ø29mm Mushroom HW1L-M3 HW1L-A3 	Momentary	Without Lamp	1NO	HW1L-M310Q0②
			1NC	HW1L-M301Q0②
			1NO-1NC	HW1L-M311Q0②
			2NO	HW1L-M320Q0②
			2NC	HW1L-M302Q0②
			2NO-2NC	HW1L-M322Q0②
		LED / Incandescent	1NO	HW1L-M310③② (Note)
			1NC	HW1L-M301③② (Note)
			1NO-1NC	HW1L-M311③②
			2NO	HW1L-M320③②
			2NC	HW1L-M302③②
			2NO-2NC	HW1L-M322③②
	Maintained	Without Lamp	1NO	HW1L-A310Q0②
			1NC	HW1L-A301Q0②
			1NO-1NC	HW1L-A311Q0②
			2NO	HW1L-A320Q0②
			2NC	HW1L-A302Q0②
			2NO-2NC	HW1L-A322Q0②
		LED / Incandescent	1NO	HW1L-A310③② (Note)
			1NC	HW1L-A301③② (Note)
			1NO-1NC	HW1L-A311③②
			2NO	HW1L-A320③②
			2NC	HW1L-A302③②
			2NO-2NC	HW1L-A322③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	
			T82: 480V AC	T85: 480V AC	DC-DC Converter*
			D2: 110V DC	—	

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Note: Only full voltage types are available.

Mushroom (ø29mm) with Square Bezel Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
ø29mm Mushroom with Square Bezel HW3L-M3 HW3L-A3 	Momentary	Without Lamp	1NO	HW3L-M310Q0②
			1NC	HW3L-M301Q0②
			1NO-1NC	HW3L-M311Q0②
			2NO	HW3L-M320Q0②
			2NC	HW3L-M302Q0②
			2NO-2NC	HW3L-M322Q0②
		LED / Incandescent	1NO	HW3L-M310③② (Note)
			1NC	HW3L-M301③② (Note)
			1NO-1NC	HW3L-M311③②
			2NO	HW3L-M320③②
	Maintained	Without Lamp	2NC	HW3L-M302③②
			2NO-2NC	HW3L-M322③②
			1NO	HW3L-A310Q0②
			1NC	HW3L-A301Q0②
			1NO-1NC	HW3L-A311Q0②
			2NO	HW3L-A320Q0②
			2NC	HW3L-A302Q0②
			2NO-2NC	HW3L-A322Q0②
		LED / Incandescent	1NO	HW3L-A310③② (Note)
			1NC	HW3L-A301③② (Note)
			1NO-1NC	HW3L-A311③②
			2NO	HW3L-A320③②
			2NC	HW3L-A302③②
			2NO-2NC	HW3L-A322③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	DC-DC Converter*
			T82: 480V AC	T85: 480V AC	
			D2: 110V DC	—	

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Note: Only full voltage types are available.

ø22 HW series Illuminated Pushbuttons

Mushroom (ø40mm) Illuminated Pushbuttons

Package Quantity: 1

Shape	Operation	Lamp	Contact	Part No.
ø40mm Mushroom HW1L-M4 HW1L-A4 	Momentary	Without Lamp	1NO	HW1L-M410Q0②
			1NC	HW1L-M401Q0②
			1NO-1NC	HW1L-M411Q0②
			2NO	HW1L-M420Q0②
			2NC	HW1L-M402Q0②
			2NO-2NC	HW1L-M422Q0②
		LED / Incandescent	1NO	HW1L-M410③② (Note)
			1NC	HW1L-M401③② (Note)
			1NO-1NC	HW1L-M411③②
			2NO	HW1L-M420③②
			2NC	HW1L-M402③②
			2NO-2NC	HW1L-M422③②
	Maintained	Without Lamp	1NO	HW1L-A410Q0②
			1NC	HW1L-A401Q0②
			1NO-1NC	HW1L-A411Q0②
			2NO	HW1L-A420Q0②
			2NC	HW1L-A402Q0②
			2NO-2NC	HW1L-A422Q0②
		LED / Incandescent	1NO	HW1L-A410③② (Note)
			1NC	HW1L-A401③② (Note)
			1NO-1NC	HW1L-A411③②
			2NO	HW1L-A420③②
			2NC	HW1L-A402③②
			2NO-2NC	HW1L-A422③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code			③ Operating Voltage Code		Input Type
Without Lamp	LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber G: green R: red S: blue W: white	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
			Q3: 12V AC/DC	Q6: 12V AC/DC	
			Q4: 24V AC/DC	Q7: 24V AC/DC	
			H2: 100/110V AC	H5: 100/110V AC	Transformer
			H22: 115/120V AC	H25: 115/120V AC	
			M2: 200/220V AC	M5: 200/220V AC	
			M42: 230/240V AC	M45: 230/240V AC	
			S2: 380V AC	S5: 380V AC	
			T2: 400/440V AC	T5: 400/440V AC	
			T82: 480V AC	T85: 480V AC	DC-DC Converter*
			D2: 110V DC	—	

• Use a pure white (PW) LED lamp for yellow (Y) illumination.

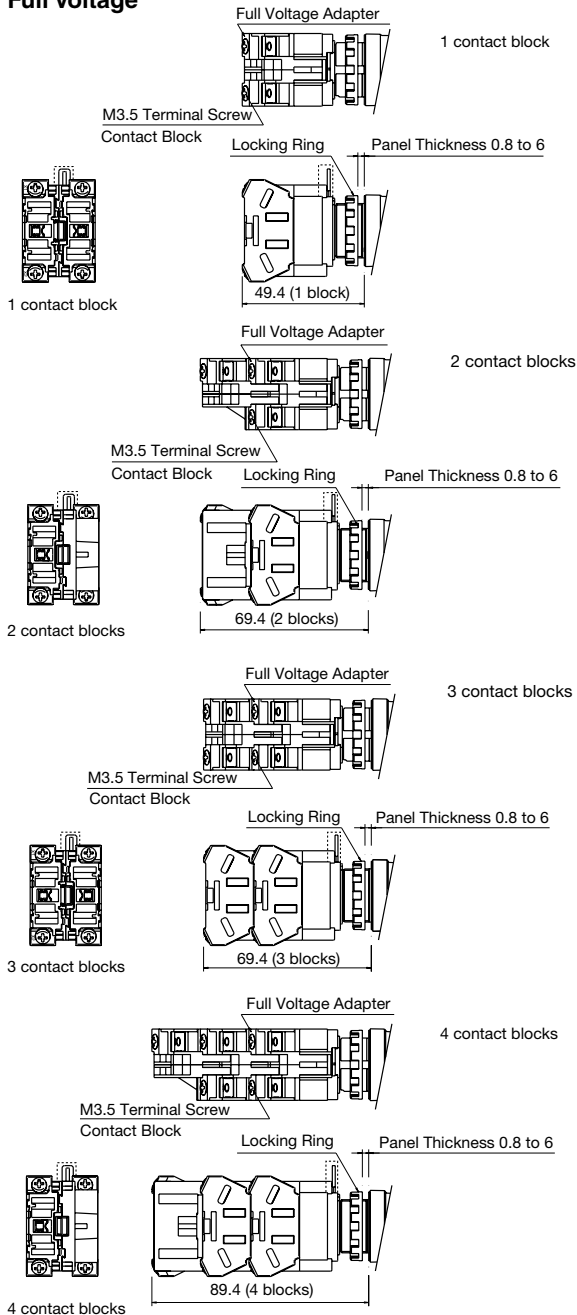
• Other contact arrangements and gold-plated silver contacts available. See page 7.

*DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

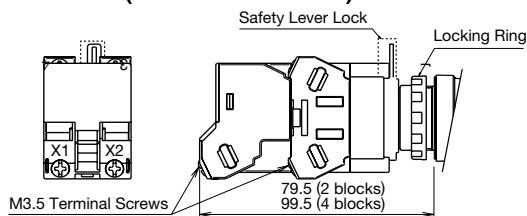
Note: Only full voltage types are available.

Dimensions

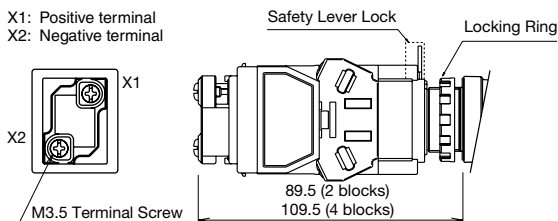
Full Voltage



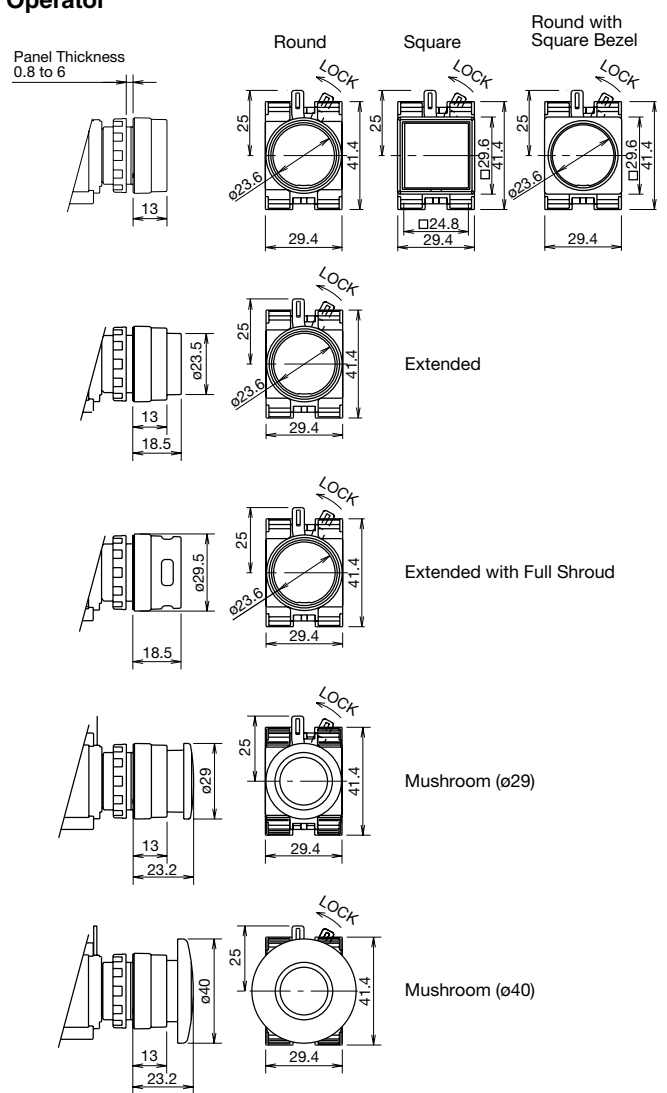
Transformer (240V AC maximum)



Transformer (380V AC minimum) DC-DC Converter



Operator

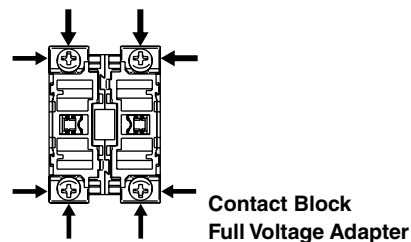


All dimensions in mm.

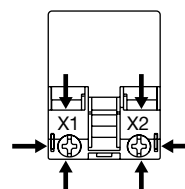
Terminal Wiring

Arrows indicate access directions for wiring.

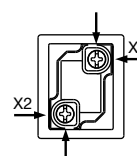
Spring-up screw terminal



Transformer 240V AC maximum



Transformer 380V AC minimum DC-DC Converter



ø22 HW series Dual Pushbuttons

Dual Pushbuttons

Without Pilot Light

Package Quantity: 1

Operation	Button Style	Contact Arrangement		Part No.	④ Button Color Code	⑤ Legend Code
		Top Button	Bottom Button			
Momentary	Flush (top) Flush (bottom)  	1NO	1NC	HW7D-B111001 ④⑤	GR: Green (top) Red (bottom) WB: White (top) Black (bottom)	Blank: Without legend 1: I/ON (top) O/OFF (bottom)
		1NO	1NO	HW7D-B111010 ④⑤		
		1NO-1NC	1NO-1NC	HW7D-B111111 ④⑤		
		2NO	2NC	HW7D-B112002 ④⑤		
		2NO	2NO	HW7D-B112020 ④⑤		
	Flush (top) Extended (bottom)  	1NO	1NC	HW7D-B121001 ④⑤		
		1NO	1NO	HW7D-B121010 ④⑤		
		1NO-1NC	1NO-1NC	HW7D-B121111 ④⑤		
		2NO	2NC	HW7D-B122002 ④⑤		
		2NO	2NO	HW7D-B122020 ④⑤		
Interlock	Flush (top) Flush (bottom)  	1NO	1NC	HW7D-B211001 ④⑤	WB: White (top) Black (bottom)	Blank: Without legend 1: I/ON (top) O/OFF (bottom)
		1NO	1NO	HW7D-B211010 ④⑤		
		1NO-1NC	1NO-1NC	HW7D-B211111 ④⑤		
		2NO	2NC	HW7D-B212002 ④⑤		
		2NO	2NO	HW7D-B212020 ④⑤		
	Flush (top) Extended (bottom)  	1NO	1NC	HW7D-B221001 ④⑤		
		1NO	1NO	HW7D-B221010 ④⑤		
		1NO-1NC	1NO-1NC	HW7D-B221111 ④⑤		
		2NO	2NC	HW7D-B222002 ④⑤		
		2NO	2NO	HW7D-B222020 ④⑤		

Momentary: Two independent momentary switches are contained in one unit.

The contact operates when the button is pressed. When the button is released, the contact goes back to the original position.

Interlock: Momentary operation. When one of the buttons are 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.

Other contact arrangements and gold-plated silver contacts are also available. See page 8.

Dual Pushbuttons

With Pilot Light

Package Quantity: 1

Operation	Lamp	Contact Arrangement		Part No.	④ Button Color Code	⑤ Legend Code
		Top Button	Bottom Button			
Momentary	Without Lamp	1NO	1NC	HW7D-L1①1001Q0W④⑤	GR: Green (top) Red (bottom) WB: White (top) Black (bottom)	Blank: Without legend 1: I/ON (top) O/OFF (bottom)
		1NO	1NO	HW7D-L1①1010Q0W④⑤		
		1NO-1NC	1NO-1NC	HW7D-L1①1111Q0W④⑤		
		2NO	2NC	HW7D-L1①2002Q0W④⑤		
		2NO	2NO	HW7D-L1①2020Q0W④⑤		
	LED	1NO	1NC	HW7D-L1①1001③②④⑤		
		1NO	1NO	HW7D-L1①1010③②④⑤		
		1NO-1NC	1NO-1NC	HW7D-L1①1111③②④⑤		
		2NO	2NC	HW7D-L1①2002③②④⑤		
		2NO	2NO	HW7D-L1①2020③②④⑤		
	Incandescent	1NO	1NC	HW7D-L1①1001③W④⑤		
		1NO	1NO	HW7D-L1①1010③W④⑤		
		1NO-1NC	1NO-1NC	HW7D-L1①1111③W④⑤		
		2NO	2NC	HW7D-L1①2002③W④⑤		
		2NO	2NO	HW7D-L1①2020③W④⑤		
Interlock	Without Lamp	1NO	1NC	HW7D-L2①1001Q0W④⑤		
		1NO	1NO	HW7D-L2①1010Q0W④⑤		
		1NO-1NC	1NO-1NC	HW7D-L2①1111Q0W④⑤		
		2NO	2NC	HW7D-L2①2002Q0W④⑤		
		2NO	2NO	HW7D-L2①2020Q0W④⑤		
	LED	1NO	1NC	HW7D-L2①1001③②④⑤		
		1NO	1NO	HW7D-L2①1010③②④⑤		
		1NO-1NC	1NO-1NC	HW7D-L2①1111③②④⑤		
		2NO	2NC	HW7D-L2①2002③②④⑤		
		2NO	2NO	HW7D-L2①2020③②④⑤		
	Incandescent	1NO	1NC	HW7D-L2①1001③W④⑤		
		1NO	1NO	HW7D-L2①1010③W④⑤		
		1NO-1NC	1NO-1NC	HW7D-L2①1111③W④⑤		
		2NO	2NC	HW7D-L2①2002③W④⑤		
		2NO	2NO	HW7D-L2①2020③W④⑤		

Designation Codes

Specify designation codes ① and ③ in the Part No.

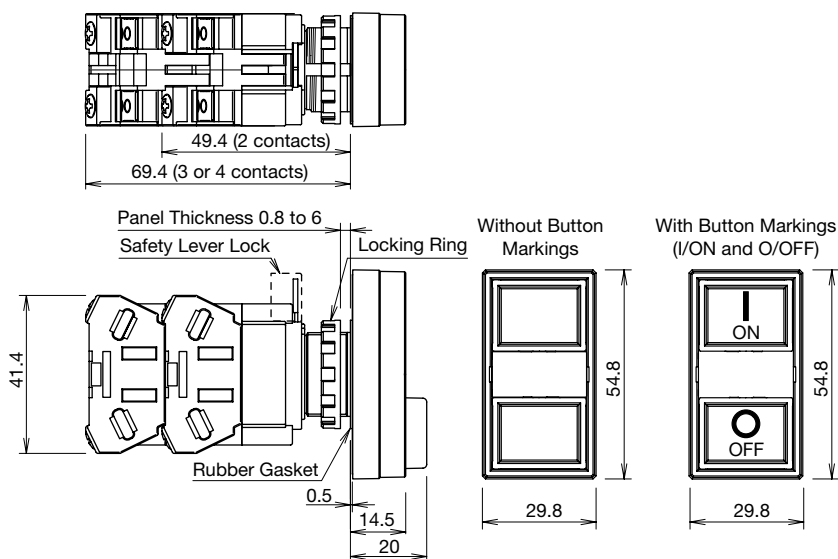
① Button Style Code	② Lens/Illumination Color Code	③ Operating Voltage Code		Input Type
		LED	Incandescent	
1: Flush (top) Flush (bottom) 2: Flush (top) Extended (bottom) UL LISTED SF CE CCC	A: Amber (LED only) G: Green (LED only) PW: Pure white (LED only) R: Red (LED only) S: Blue (LED only) W: White (LED/incandescent)	Q2: 6V AC/DC	Q5: 6V AC/DC	Full Voltage
		Q3: 12V AC/DC	Q6: 12V AC/DC	
		Q4: 24V AC/DC	Q7: 24V AC/DC	
		H2: 100/110V AC	H5: 100/110V AC	Transformer
		H22: 115/120V AC	H25: 115/120V AC	
		M2: 200/220V AC	M5: 200/220V AC	
		M42: 230/240V AC	M45: 230/240V AC	
		S2: 380V AC	S5: 380V AC	
		T2: 400/440V AC	T5: 400/440V AC	
		T82: 480V AC	T85: 480V AC	

- White lamp and white lens only for incandescent illumination.
- Other contact arrangements and gold-plated silver contacts available. See page 8.

ø22 HW series Dual Pushbuttons

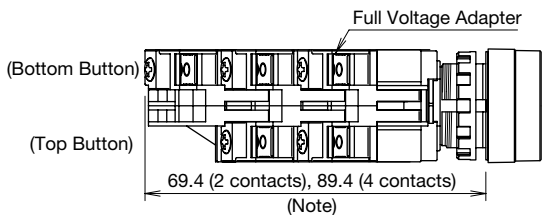
Dimensions

Without Pilot Light



With Pilot Light

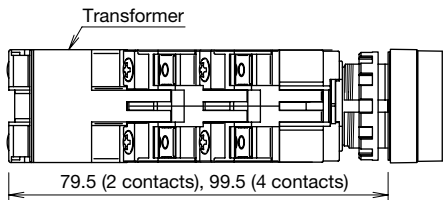
Full Voltage



Note: The depth of 3-contact type depends on the combination of contact blocks at top and bottom pushbuttons

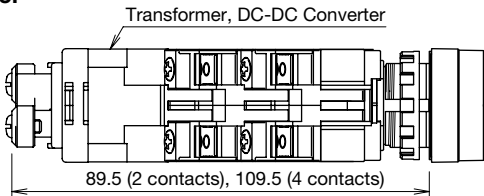
Top Button	1 contact block	2 contact blocks
Bottom Button	2 contact blocks	1 contact block
Depth	89.4 mm	69.4 mm

Transformer (240V AC maximum)



Transformer (380V AC minimum)

DC-DC Converter



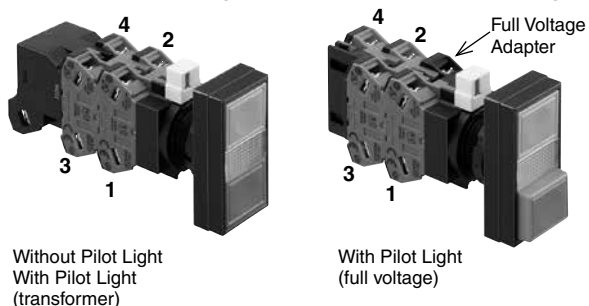
All dimensions in mm.

Contact Arrangement Chart

Contact Arrangement			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			●	
1NC	1NO	0110	1	NC	●			
			2	NO				●
1NC	1NC	0101	1	NC	●			
			2	NC			●	
1NO	2NO	1020	1	NO		●		●
			2	NO				●
			3	Dummy				
			4	NO				●
1NO	1NO-1NC	1011	1	NO		●		●
			2	NO				●
			3	Dummy				
			4	NC			●	
1NO	2NC	1002	1	NO		●		
			2	NC			●	
			3	Dummy				
			4	NC			●	
1NC	2NO	0120	1	NC	●			
			2	NO				●
			3	Dummy				
			4	NO				●
1NC	1NO-1NC	0111	1	NC	●			
			2	NO				●
			3	Dummy				
			4	NC			●	
1NC	2NC	0102	1	NC	●			
			2	NC			●	
			3	Dummy				
			4	NC			●	
2NO	1NO	2010	1	NO		●		●
			2	NO				●
			3	NO		●		
			4	Dummy				
2NO	1NC	2001	1	NO		●		
			2	NC			●	
			3	NO		●		
			4	Dummy				
1NO-1NC	1NO	1110	1	NO		●		
			2	NO				●
			3	NC	●			
			4	Dummy				
1NO-1NC	1NC	1101	1	NO		●		
			2	NC			●	
			3	NC	●			
			4	Dummy				

- Transformer and DC-DC converter types can have two or four contact blocks only.
- Contact blocks 1 and 3 are actuated by the top button. Contact blocks 2 and 4 are actuated by the bottom button.

Contact Block Mounting Position and Contact Arrangement Chart



Part No. Development

HW7D - B 12 11 11 GR

- Contact code (1NO-1NC) of bottom button
- Contact code (1NO-1NC) of top button

Contact Block		Top Button		Bottom Button	
		Normal	Push	Normal	Push
1	NO		●		
2	NO				●
3	NC	●			
4	NC			●	

ø22 HW series Dual Pushbuttons

Contact Arrangement Chart

Contact Arrangement			Contact Block		Top Button		Bottom Button	
Top Button	Bottom Button	Contact Code	Mounting Position	Contact	Normal	Push	Normal	Push
2NC	1NO	0210	1	NC	●			
			2	NO				●
			3	NC	●			
			4	Dummy				
2NC	1NC	0201	1	NC	●			
			2	NC			●	
			3	NC	●			
			4	Dummy				
2NO	2NO	2020	1	NO		●		
			2	NO				●
			3	NO		●		
			4	NO				●
2NO	1NO-1NC	2011	1	NO		●		
			2	NO				●
			3	NO		●		
			4	NC			●	
2NO	2NC	2002	1	NO		●		
			2	NC			●	
			3	NO		●		
			4	NC			●	
1NO-1NC	2NO	1120	1	NO		●		
			2	NO				●
			3	NC	●			
			4	NO				●
1NO-1NC	1NO-1NC	1111	1	NO		●		
			2	NO				●
			3	NC	●			
			4	NC			●	
1NO-1NC	2NC	1102	1	NO		●		
			2	NC			●	
			3	NC	●			
			4	NC			●	
2NC	2NO	0220	1	NC	●			
			2	NO				●
			3	NC	●			
			4	NO				●
2NC	1NO-1NC	0211	1	NC	●			
			2	NO				●
			3	NC	●			
			4	NC			●	
2NC	2NC	0202	1	NC	●			
			2	NC			●	
			3	NC	●			
			4	NC			●	

Selector Switches

Package Quantity: 1

No. of Positions	HW1S											Dimensions on page 36.			
	   														
90° 2-position / 60° 2-position	Contact Code	Contact Block		Operator Position			Maintained (90°)	Spring Return from Right (60°)	—	—					
		Mounting Position	Contact	1	2										
	10 (1NO)	1	NO		●		HW1S-2T10	HW1S-21T10	—	—					
		2	Dummy												
	11 (1NO-1NC)	1	NO		●		HW1S-2T11	HW1S-21T11							
		2	NC	●											
	20 (2NO)	1	NO		●		HW1S-2T20	HW1S-21T20							
		2	NO		●										
22 (2NO-2NC)	1	NO		●		HW1S-2T22	HW1S-21T22								
	2	NC	●												
	3	NO		●											
	4	NC	●												
45° 3-position	Contact Code	Contact Block		Operator Position			Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way					
		Mounting Position	Contact	1	0	2									
	20 (2NO)	1	NO	●			HW1S-3T20	HW1S-31T20	HW1S-32T20	HW1S-33T20					
		2	NO			●									
	02 (2NC)	1	NC			●	HW1S-3T02	HW1S-31T02	HW1S-32T02	HW1S-33T02					
		2	NC	●											
	22N1 (2NO-2NC)	1	NO	●			HW1S-3T22N1	HW1S-31T22N1	HW1S-32T22N1	HW1S-33T22N1					
		2	NO			●									
		3	NC			●									
		4	NC	●											
	22N9 (1NO-2NC) (1EM) ★☆	1	NC			●	HW1S-3ST22N9	—	—	—					
		2	NC	●											
		3	EM			●									
		4	NO			●									
	40 (4NO)	1	NO	●			HW1S-3T40	HW1S-31T40	HW1S-32T40	HW1S-33T40					
		2	NO			●									
		3	NO	●											
		4	NO			●									
	40N2 (3NO) (1EM) ★☆	1	NO	●			HW1S-3ST40N2	—	—	—					
		2	EM			●									
		3	NO	●											
		4	NO			●									
	04 (4NC)	1	NC			●	HW1S-3T04	HW1S-31T04	HW1S-32T04	HW1S-33T04					
		2	NC	●											
		3	NC			●									
		4	NC	●											
	21N1 (2NO-1NC) ★☆	1	NO	●			HW1S-3JT21N1	—	—	—					
		2	NO			●									
	3	NC			●										
	4	Dummy													
30° 5-position / 45° 4-position	Contact Code	Contact Block		Operator Position					Maintained	Maintained	Contact Block Mounting Position				
		Mounting Position	Contact	1	2	3	4	5							
	13N6 (1NO-2NC) (1LB) ★☆	1	LB		●	●	●		HW1S-4T13N6	—					
		2	NC			●									
		3	NC				●								
		4	NO					●							
	22N3 (2NO-2NC) ★☆	1	NO	●					HW1S-4T22N3	—					
		2	NC		●										
		3	NC			●									
		4	NO				●								
	12 (1NO-2NC) ★☆	1	NO	●					HW1S-4T12	—					
		2	NC		●										
		3	NC			●									
		4	Dummy												
	22N3 (2NO-2NC) ★☆	1	NO	●					—	HW1S-5T22N3					
		2	NC		●										
	3	NC				●									
	4	NO					●								

Contact Block Mounting Position



- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ★, contacts may overlap when the operator position is changed.
- Selector switches with one or three contact blocks contain a dummy block. Knob operator: White indicator on black body
- Other contact arrangements are also available. See pages 37 to 41.

ø22 HW series Key Selector Switches

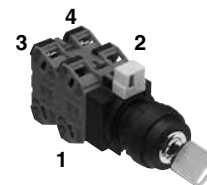
Key Selector Switches (Pin Tumbler Key)

Package Quantity: 1

Shape	No. of Positions	Contact Code	Contact Block		Operator Position		Cam Code	Maintained 1 2	Operator Position		Cam Code	Maintained 2 1
			Mounting Position	Contact	1	2			2	1		
 	90° 2-position	01 (1NC)	1	NC	●		—	HW1K-2PA01		●	J	HW1K-2JPA01
			2	—		Dummy			Dummy			
		11 (1NO-1NC)	1	NO		●	—	HW1K-2PA11	●		J	HW1K-2JPA11
			2	NC	●					●		
		02 (2NC)	1	NC	●		—	HW1K-2PA02		●	J	HW1K-2JPA02
			2	NC	●					●		
		21 (2NO-1NC)	1	NO		●	—	HW1K-2PA21	●		J	HW1K-2JPA21
			2	NO		●			●			
			3	NC	●					●		
		12 (1NO-2NC)	4	—		Dummy	—	HW1K-2PA12	Dummy		J	HW1K-2JPA12
			1	NO		●			●			
			2	NC	●					●		
		03 (3NC)	3	NC	●		—	HW1K-2PA03		●	J	HW1K-2JPA03
			4	—		Dummy			Dummy			
			1	NO		●			●			
		22 (2NO-2NC)	2	NC	●		—	HW1K-2PA22		●	J	HW1K-2JPA22
			3	NO		●			●			
			4	NC	●					●		
		04 (4NC)	1	NC	●		—	HW1K-2PA04		●	J	HW1K-2JPA04
			2	NC	●					●		
			3	NC	●					●		
			4	NC	●					●		

- 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.
- Spring-return type is also available.
- Key retained position can be selected. See table below for key retained positions.
- See page 36 for dimensions.

Contact Block Mounting Position



Ordering Information

Example: HW1K-2JPA01-501

Not specified: 500 (default key)
501-515: The key number is engraved on the key cylinder. (default key is not engraved with a number)

Cam code: Blank or J

Operator position code:
2: 2-position, maintained
21: 2-position, spring return from right

Key removal/retained positions
A: Removable in all positions
B: Removable in the left only
C: Removable in the right only

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

- For more contact arrangement, see pages 37 to 41.

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

① ②: Key removal position

① ②: Key retained position

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

Key Selector Switches (Pin Tumbler Key)

Package Quantity: 1

Shape	No. of Positions	Contact Code	Contact Block		Operator Position			Cam Code	Maintained 1 0 2
			No.	Contact	1	0	2		
	45° 3-position	02 (2NC)	1	NC			—	HW1K-3PA02	
			2	NC					
		22N1 (2NO-2NC)	1	NO				—	HW1K-3PA22N1
			2	NO					
			3	NC					
			4	NC					
		04 (4NC)	1	NC				—	HW1K-3PA04
			2	NC					
			3	NC					
			4	NC					
		21N1 (2NO-1NC) ★ ☆	1	NO				J	HW1K-3JPA21N1
			2	NO					
			3	NC					
			4	—	Dummy				
		22N9 (1NO-2NC) (1EM) ★ ☆	1	NC				S	HW1K-3SPA22N9
			2	NC					
			3	EM					
			4	NO					
		04 (4NC) ★	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 rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator position is changed.
- For 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.
- Spring-return type is also available.
- Key retained position can be selected. See table below for key retained positions.
- See page 36 for dimensions.

Contact Block Mounting Position



Ordering Information

Example: **HW1K-3SPA04-501**

- Not specified: 500 (default key)
- 501-515: The key number is engraved on the key cylinder. (default key is not engraved with a number)
- Cam code: Blank, J, or 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
- Key removal/retained positions:
 - 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
- Note: The key cannot be removed in a spring return position.

Maintained (45° 3-position)	Spring Return (45° 3-position)		
Maintained 	Spring Return from Right 	Spring Return from Left 	Spring Return Two-way 
Cam code: blank, J, or S	Cam code: blank		

Key Retained Position (45° 3-position)			
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 only) 	G (removable in left only) 	H (removable in right only) 	

- For more contact arrangement, see pages 37 to 41.

①①②: Key removal position
●①●: Key retained position
Note: The key cannot be removed in a spring return position.

ø22 HW series Key Selector Switches

Key Selector Switches (Disc Tumbler Key)

Package Quantity: 1

No. of Positions	Disc Tumbler Key HW1K											
	    											
90° 2-position / 60° 2-position	Contact Code	Contact Block		Mounting Position		Cam Code	Maintained (90°) 	Spring Return from Right (60°) 	Mounting Position		Cam Code	Maintained (90°) 
		Mounting Position	Contact	1	2				2	1		
	10 (1NO)	1	NO		●	—	HW1K-2A10	HW1K-21B10	●		J	HW1K-2JA10
		2	—	Dummy					Dummy			
	01 (1NC)	1	NC	●		—	HW1K-2A01	HW1K-21B01		●	J	HW1K-2JA01
		2	—	Dummy					Dummy			
	11 (1NO-1NC)	1	NO		●	—	HW1K-2A11	HW1K-21B11	●		J	HW1K-2JA11
		2	NC	●						●		
	20 (2NO)	1	NO		●	—	HW1K-2A20	HW1K-21B20	●		J	HW1K-2JA20
		2	NO		●				●			
	02 (2NC)	1	NC	●		—	HW1K-2A02	HW1K-21B02		●	J	HW1K-2JA02
		2	NC	●						●		
	21 (2NO-1NC)	1	NO		●	—	HW1K-2A21	HW1K-21B21	●		J	HW1K-2JA21
		2	NO		●				●			
		3	NC	●						●		
		4	—	Dummy					Dummy			
	12 (1NO-2NC)	1	NO		●	—	HW1K-2A12	HW1K-21B12	●		J	HW1K-2JA12
		2	NC	●						●		
		3	NC	●						●		
		4	—	Dummy					Dummy			
	03 (3NC)	1	NC	●		—	HW1K-2A03	HW1K-21B03		●	J	HW1K-2JA03
		2	NC	●						●		
		3	NC	●						●		
		4	—	Dummy					Dummy			
	22 (2NO-2NC)	1	NO		●	—	HW1K-2A22	HW1K-21B22	●		J	HW1K-2JA22
		2	NC	●						●		
		3	NO		●				●			
		4	NC	●						●		
	04 (4NC)	1	NC	●		—	HW1K-2A04	HW1K-21B04		●	J	HW1K-2JA04
		2	NC	●						●		
3		NC	●						●			
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

Not specified 231: The key number is engraved on the key cylinder. (default key is not engraved with a number)

1H
2H
3H

Key removal/retained positions

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

Cam code: Blank or J

Operator position code:

2: 2-position, maintained

21: 2-position, spring return from right

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

• For more contact arrangement, see pages 37 to 41.

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

①②: Key removal position

●●: Key retained position

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

Key Selector Switches (Disc Tumbler Key)

Package Quantity: 1

No. of Positions		Disc Tumbler Key HW1K									
		UL LISTED SF CE CCC →  Dimensions on page 36.									
		Contact Code	Contact Block		Mounting Position			Cam Code	Maintained	Spring return from right	Spring Return from Left
Mounting Position	Contact		1	0	2	1 0 2	1 0 2		1 0 2	1 0 2	
45° 3-position	20 (2NO)	1	NO	●			—	HW1K-3A20	HW1K-31B20	HW1K-32C20	HW1K-33D20
		2	NO			●	—	HW1K-3A20	HW1K-31B20	HW1K-32C20	HW1K-33D20
	02 (2NC)	1	NC			●	—	HW1K-3A02	HW1K-31B02	HW1K-32C02	HW1K-33D02
		2	NC	●			—	HW1K-3A02	HW1K-31B02	HW1K-32C02	HW1K-33D02
	22N1 (2NO-2NC)	1	NO	●			—	HW1K-3A22N1	HW1K-31B22N1	HW1K-32C22N1	HW1K-33D22N1
		2	NO			●	—	HW1K-3A22N1	HW1K-31B22N1	HW1K-32C22N1	HW1K-33D22N1
		3	NC			●	—	HW1K-3A22N1	HW1K-31B22N1	HW1K-32C22N1	HW1K-33D22N1
	22N9 (1NO-2NC) (1EM) ★ ☆	4	NC	●			S	HW1K-3SA22N9	—	—	—
		1	NC	●			S	HW1K-3SA22N9	—	—	—
		2	NC			●	S	HW1K-3SA22N9	—	—	—
		3	EM	●			S	HW1K-3SA22N9	—	—	—
	40 (4NO)	4	NO			●	—	HW1K-3A40	HW1K-31B40	HW1K-32C40	HW1K-33D40
		1	NO	●			—	HW1K-3A40	HW1K-31B40	HW1K-32C40	HW1K-33D40
		2	NO			●	—	HW1K-3A40	HW1K-31B40	HW1K-32C40	HW1K-33D40
		3	NO	●			—	HW1K-3A40	HW1K-31B40	HW1K-32C40	HW1K-33D40
	40N2 (3NO) (1EM) ★ ☆	4	NO			●	S	HW1K-3SA40N2	—	—	—
		1	NO	●			S	HW1K-3SA40N2	—	—	—
		2	EM			●	S	HW1K-3SA40N2	—	—	—
		3	NO	●			S	HW1K-3SA40N2	—	—	—
	04 (4NO)	4	NO			●	—	HW1K-3A04	HW1K-31B04	HW1K-32C04	HW1K-33D04
		1	NC	●			—	HW1K-3A04	HW1K-31B04	HW1K-32C04	HW1K-33D04
		2	NC			●	—	HW1K-3A04	HW1K-31B04	HW1K-32C04	HW1K-33D04
		3	NC	●			—	HW1K-3A04	HW1K-31B04	HW1K-32C04	HW1K-33D04
	04 (4NC) ★	4	NC	●			S	HW1K-3SA04	—	—	—
		1	NC			●	S	HW1K-3SA04	—	—	—
		2	NC	●			S	HW1K-3SA04	—	—	—
		3	NC			●	S	HW1K-3SA04	—	—	—
	21N1 (2NO-2NC) ★ ☆	4	NC	●			J	HW1K-3JA21N1	—	—	—
		1	NO			●	J	HW1K-3JA21N1	—	—	—
		2	NO			●	J	HW1K-3JA21N1	—	—	—
		3	NC		●		J	HW1K-3JA21N1	—	—	—
		—			Dummy						

- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
 - For models with ☆, contacts may overlap when the operator position is changed.
 - 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**

Not specified	231: The key number is engraved on the key cylinder. (default key is not engraved with a number)
1H	
2H	

Cam code: Blank or J

- 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

- Key removal/retained positions

- 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

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

Maintained (45° 3-position)	Spring Return (45° 3-position)		
Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
			
Cam code: blank, J, or S	Cam code: blank		

Key Retained Position (45° 3-position)			
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 only) 	G (removable in left only) 	H (removable in right only) 	

①②: Key removal position

①②③: Key retained position

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

ø22 HW series Illuminated Selector Switches

Illuminated Selector Switches (90° 2-position / 60° 2-position)

Package Quantity: 1

HW1F

Knob Operator

Lever Operator



Dimensions on page 36.



Contact Code	Contact Block		Operator Position		Lamp	Maintained (90°)	Spring Return from Right (60°)
	Mounting Position	Contact	1	2		1 2	1 2
11 (1NO-1NC)	1	NO		●	Without Lamp	HW1F-211Q0②	HW1F-2111Q0②
	2	NC	●		LED / Incandescent	HW1F-211③②	HW1F-2111③②
20 (2NO)	1	NO		●	Without Lamp	HW1F-220Q0②	HW1F-2120Q0②
	2	NO		●	LED / Incandescent	HW1F-220③②	HW1F-2120③②
22 (2NO-2NC)	1	NO		●	Without Lamp	HW1F-222Q0②	HW1F-2122Q0②
	2	NC	●				
	3	NO		●	LED / Incandescent	HW1F-222③②	HW1F-2122③②
	4	NO	●				

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code		③ Operating Voltage Code		Input Type
Without Lamp / LED	Incandescent	LED	Incandescent	
A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber G: green R: red S: blue W: white	Q2 : 6V AC/DC	Q5 : 6V AC/DC	Full Voltage
		Q3 : 12V AC/DC	Q6 : 12V AC/DC	
		Q4 : 24V AC/DC	Q7 : 24V AC/DC	
		H2 : 100/110V AC	H5 : 100/110V AC	Transformer
		H22 : 115/120V AC	H25 : 115/120V AC	
		M2 : 200/220V AC	M5 : 200/220V AC	
		M42 : 230/240V AC	M45 : 230/240V AC	
		S2 : 380V AC	S5 : 380V AC	
		T2 : 400/440V AC	T5 : 400/440V AC	
		T82 : 480V AC	T85 : 480V AC	
		D2 : 110V DC	—	DC-DC Converter*

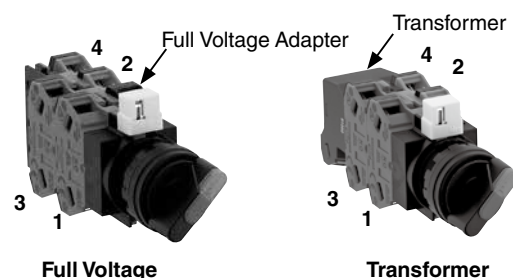
- Use a pure white (PW) LED lamp for yellow (Y) illumination.
- Other contact arrangements and gold-plated silver contacts available. See page 9.
- * DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Lever Operator

Lever operators available.
To order lever operators, specify "L" in the Part No. as shown below.

Example: HW1F-211Q4② → HW1F-2L11Q4②
(knob operator) (lever operator)

Contact Block Mounting Position



Illuminated Selector Switches (45° 3-position)

Package Quantity: 1

Contact Code	Contact Block		Operator Position			Lamp	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
	Mounting Position	Contact	1	0	2					
20 (2NO)	1	NO	●			Without Lamp	HW1F-320Q0②	HW1F-3120Q0②	HW1F-3220Q0②	HW1F-3320Q0②
	2	NO			●	LED / Incandescent	HW1F-320③②	HW1F-3120③②	HW1F-3220③②	HW1F-3320③②
02 (2NC)	1	NC		■		Without Lamp	HW1F-302Q0②	HW1F-3102Q0②	HW1F-3202Q0②	HW1F-3302Q0②
	2	NC		■		LED / Incandescent	HW1F-302③②	HW1F-3102③②	HW1F-3202③②	HW1F-3302③②
22N1 (2NO-2NC)	1	NO	●			Without Lamp	HW1F-322N1Q0②	HW1F-3122N1Q0②	HW1F-3222N1Q0②	HW1F-3322N1Q0②
	2	NO			●	Without Lamp	HW1F-322N1Q0②	HW1F-3122N1Q0②	HW1F-3222N1Q0②	HW1F-3322N1Q0②
	3	NC		■		LED / Incandescent	HW1F-322N1③②	HW1F-3122N1③②	HW1F-3222N1③②	HW1F-3322N1③②
	4	NC		■		LED / Incandescent	HW1F-322N1③②	HW1F-3122N1③②	HW1F-3222N1③②	HW1F-3322N1③②
40 (4NO)	1	NO	●			Without Lamp	HW1F-340Q0②	HW1F-3140Q0②	HW1F-3240Q0②	HW1F-3340Q0②
	2	NO			●	Without Lamp	HW1F-340Q0②	HW1F-3140Q0②	HW1F-3240Q0②	HW1F-3340Q0②
	3	NO	●			LED / Incandescent	HW1F-340③②	HW1F-3140③②	HW1F-3240③②	HW1F-3340③②
	4	NO			●	LED / Incandescent	HW1F-340③②	HW1F-3140③②	HW1F-3240③②	HW1F-3340③②
04 (4NC)	1	NC		■		Without Lamp	HW1F-304Q0②	HW1F-3104Q0②	HW1F-3204Q0②	HW1F-3304Q0②
	2	NC		■		Without Lamp	HW1F-304Q0②	HW1F-3104Q0②	HW1F-3204Q0②	HW1F-3304Q0②
	3	NC		■		LED / Incandescent	HW1F-304③②	HW1F-3104③②	HW1F-3204③②	HW1F-3304③②
	4	NC		■		LED / Incandescent	HW1F-304③②	HW1F-3104③②	HW1F-3204③②	HW1F-3304③②

Designation Code

Specify a designation code in place of ② or ③ in the Part No.

② Lens/Illumination Color Code		③ Operating Voltage Code		Input Type
Without Lamp / LED	Incandescent	LED	Incandescent	
A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber G: green R: red S: blue W: white	Q2 : 6V AC/DC	Q5 : 6V AC/DC	Full Voltage
		Q3 : 12V AC/DC	Q6 : 12V AC/DC	
		Q4 : 24V AC/DC	Q7 : 24V AC/DC	
		H2 : 100/110V AC	H5 : 100/110V AC	
		H22 : 115/120V AC	H25 : 115/120V AC	Transformer
		M2 : 200/220V AC	M5 : 200/220V AC	
		M42 : 230/240V AC	M45 : 230/240V AC	
		S2 : 380V AC	S5 : 380V AC	
		T2 : 400/440V AC	T5 : 400/440V AC	
		T82 : 480V AC	T85 : 480V AC	
		D2 : 110V DC	—	DC-DC Converter*

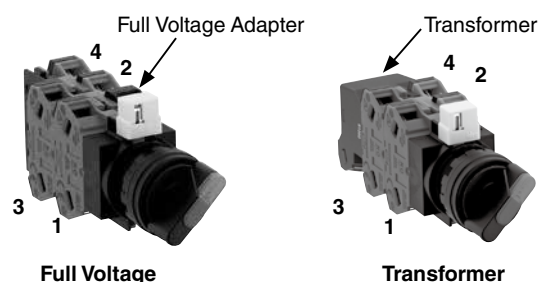
- Use a pure white (PW) LED lamp for yellow (Y) illumination.
- Other contact arrangements and gold-plated silver contacts available. See page 9.
- * DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC)

Lever Operator

Lever operators available.
To order lever operators, specify "L" in the Part No. as shown below.

Example: HW1F-320Q4② → HW1F-3L20Q4②
(knob operator) (lever operator)

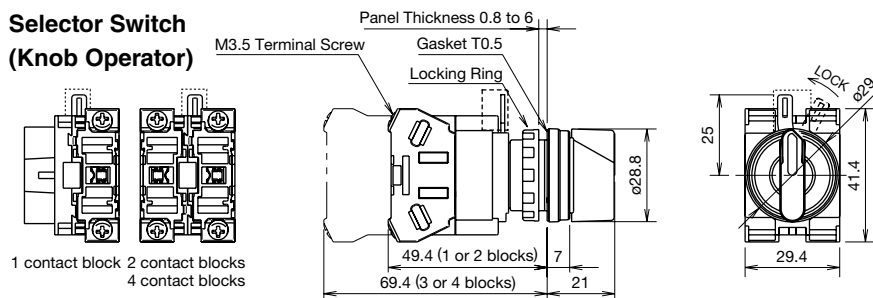
Contact Block Mounting Position



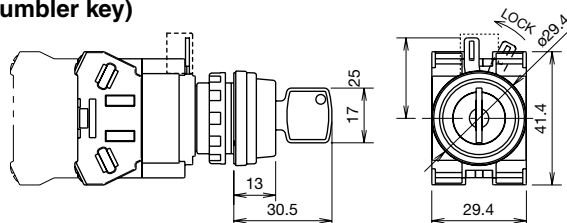
ø22 HW Series Selector Switches

Dimensions

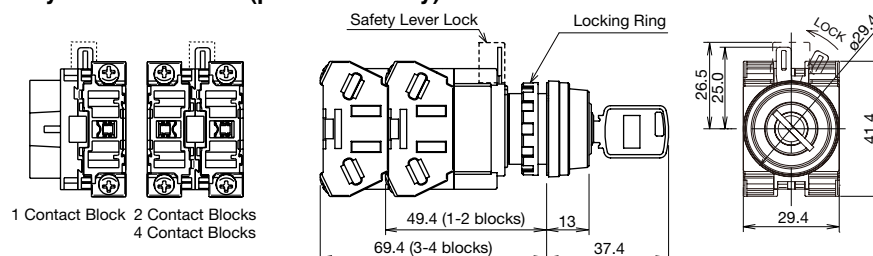
Selector Switch (Knob Operator)



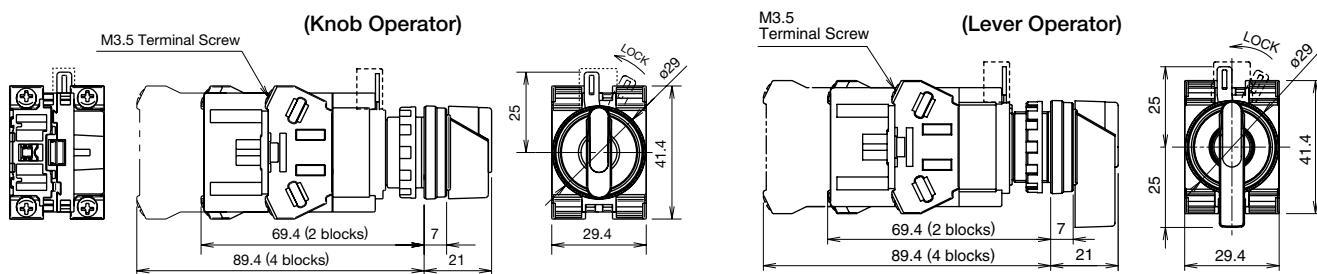
Key Selector Switch (disc tumbler key)



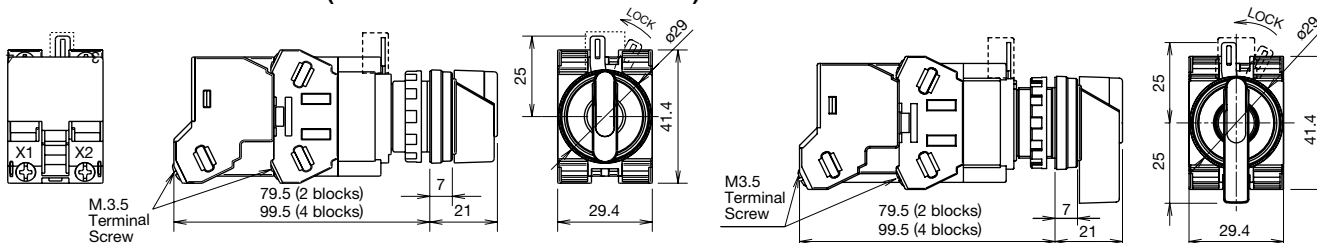
Key Selector Switch (pin tumbler key)



Illuminated Selector Switch (Full Voltage)



Illuminated Selector Switch (Transformer 240V AC maximum)

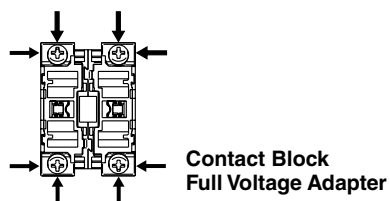


All dimensions in mm.

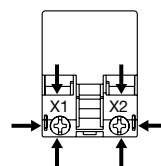
Terminal Wiring

Arrows indicate access directions for wiring.

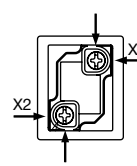
Spring-up screw terminal



Transformer
240V AC maximum



Transformer
380V AC minimum
DC-DC Converter



HW Series Selector Switch Contact Arrangement Charts ø22

90° 2-position (Maintained) / 60° 2-position (Spring Return)

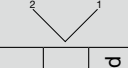
Contact Code	Contact Block		Operator Position		Operator Availability						Cam Code	Remarks
												
	Mounting Position	Contact	1	2	Knob	Key	Illuminated	Knob	Key	Illuminated		
10 (1NO)	1	NO		●	x	x	x	x	x	x	—	Standard
	2	Dummy										
01 (1NC)	1	NC	●		x	x	x	x	x	x	—	
	2	Dummy										
11 (1NO-1NC)	1	NO		●	x	x	x	x	x	x	—	Standard
	2	NC	●									
11N1 (2NO-2NC)	1	NC	●		x	x	x	x	x	x	—	
	2	NO		●								
20 (2NO)	1	NO		●	x	x	x	x	x	x	—	Standard
	2	NO		●								
02 (2NC)	1	NC	●		x	x	x	x	x	x	—	
	2	NC	●									
22 (2NO-2NC)	1	NO		●	x	x	x	x	x	x	—	Standard
	2	NC	●									
	3	NO		●								
	4	NC	●									
22N2 (2NO-2NC)	1	NC	●		x	x	x	x	x	x	—	
	2	NO		●								
	3	NC	●									
	4	NO		●								
22N1 (2NO-2NC)	1	NO		●	x	x	x	x	x	x	—	
	2	NO		●								
	3	NC	●									
	4	NC	●									
22N4 (2NO-2NC)	1	NC	●		x	x	x	x	x	x	—	
	2	NO		●								
	3	NO		●								
	4	NC	●									
31N1 (3NO-1NC)	1	NC	●		x	x	x	x	x	x	—	
	2	NO		●								
	3	NO		●								
	4	NO		●								
40 (4NO)	1	NO		●	x	x	x	x	x	x	—	
	2	NO		●								
	3	NO		●								
	4	NO		●								
7S ★ (1EM-1LB)	1	EM		■	x	x	x	x	x	x	—	
	2	LB	■									
8S ★ (2EM-2LB)	1	EM		■	x	x	x	x	x	x	—	
	2	LB	■									
	3	EM		■								
	4	LB	■									
22N7 ★ (2EM-2LB)	1	LB	■		x	x	x	x	x	x	—	
	2	EM		■								
	3	LB	■									
	4	EM		■								
03 (3NO)	1	NC	●		x	x	x	x	x	x	—	
	2	NC	●									
	3	NC	●									
	4	Dummy										
21 (2NO-2NC)	1	NO		●	x	x	x	x	x	x	—	
	2	NC	●									
	3	NO		●								
	4	Dummy										
12 (1NO-2NC)	1	NO		●	x	x	x	x	x	x	—	
	2	NC	●									
	3	NC	●									
	4	Dummy										

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

Remarks: When ordering the contact arrangement indicated with "Standard" in the table above, specify the Part No. shown in the standard Part No. on preceding pages. For other contact arrangements, see Part No. Development on page 41.

ø22 HW series Selector Switch Contact Arrangement Charts

90° 2-position (Cam Reversed)

Contact Code	Contact Block		Operator Position		Operator Availability			Cam Code	Remarks
									
	Mounting Position	Contact	2	1	Knob	Key	Illuminated		
10 (1NO)	1	NO	●					J	Standard
	2	Dummy			x	x	x		
01 (1NO)	1	NC		●				J	
	2	Dummy			x	x	x		
11 (1NO-1NC)	1	NO	●		x	x	x	J	Standard
	2	NC		●					
11N1 (1NO-1NC)	1	NC		●	x	x	x	J	0
	2	NO	●						
20 (2NO)	1	NO	●		x	x	x	J	Standard
	2	NO	●						
02 (2NC)	1	NC		●	x	x	x	J	0
	2	NC		●					
22 (2NO-2NC)	1	NO	●		x	x	x	J	Standard
	2	NC		●					
	3	NO	●						
	4	NC		●					
22N2 (2NO-2NC)	1	NC		●	x	x	x	J	
	2	NO	●						
	3	NC		●					
	4	NO	●						
22N1 (2NO-2NC)	1	NO	●		x	x	x	J	
	2	NO	●						
	3	NC		●					
	4	NC		●					
22N4 (2NO-2NC)	1	NC		●	x	x	x	J	
	2	NO	●						
	3	NO	●						
	4	NC		●					
31N1 (3NO-1NC)	1	NC		●	x	x	x	J	
	2	NO	●						
	3	NO	●						
	4	NO	●						
40 (4NO)	1	NO	●		x	x	x	J	
	2	NO	●						
	3	NO	●						
	4	NO	●						
7S ★ (1EM-1LB)	1	EM			x	x	x	J	
	2	LB							
8S ★ (2EM-2LB)	1	EM			x	x	x	J	
	2	LB							
	3	EM							
	4	LB							
22N7 ★ (2EM-2LB)	1	LB			x	x	x	J	
	2	EM							
	3	LB							
	4	EM							
03 (3NC)	1	NC		●	x	x	x	J	
	2	NC		●					
	3	NC		●					
	4	Dummy							
21 (2NO-1NC)	1	NO	●		x	x	x	J	
	2	NC		●					
	3	NO	●						
	4	Dummy							
12 (1NO-2NC)	1	NO	●		x	x	x	J	
	2	NC		●					
	3	NC		●					
	4	Dummy							

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

Remarks: When ordering the contact arrangement indicated with "Standard" in the table above, specify the Part No. shown in the standard Part No. on preceding pages. For other contact arrangements, see Part No. Development on page 41.

HW Series Selector Switch Contact Arrangement Charts ø22

45° 3-position

Contact Code	Contact Block		Operator Position			Operator Availability												Cam Code	Remarks	
																				
	1	0				2	Knob	Key	Illuminated	Knob	Key	Illuminated	Knob	Key	Illuminated	Knob	Key			Illuminated
11 (1NO-1NC)	1	NO	●			x	x	x	x	x	x	x	x	x	x	x	x	—		
	2	NC	■															—		
11N1 (1NO-1NC)	1	NC		■		x	x	x	x	x	x	x	x	x	x	x	x	—		
	2	NO			●													—		
7S ★☆ (1EM-1LB)	1	EM	●		●	x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	LB	■															—		
11N1 ★☆ (1NO-1NC)	1	NC		●		x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	NO			●													—		
20 (2NO)	1	NO	●			x	x	x	x	x	x	x	x	x	x	x	x	—	Standard	
	2	NO			●													—		
1S ★ (2LB)	1	LB	●		●	x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	LB			●													—		
2S ★ (2NO)	1	NO		●		x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	NC	■															—		
02 (2NC)	3	NC		■		x	x	x	x	x	x	x	x	x	x	x	x	—	Standard	
	4	NC	■															—		
22N1 (2NO-2NC)	1	NO	●			x	x	x	x	x	x	x	x	x	x	x	x	—	Standard	
	2	NO			●													—		
	3	NC		■														—		
	4	NC	■															—		
22N2 (2NO-2NC)	1	NC		■		x	x	x	x	x	x	x	x	x	x	x	x	—		
	2	NO			●													—		
	3	NC		■														—		
	4	NO			●													—		
8S ★☆ (2EM-2LB)	1	EM	●		●	x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	LB	■															—		
	3	EM	●		●													—		
	4	LB	■															—		
22N8 ★☆ (1NO-1NC) (1EM-1LB)	1	EM	●		●	x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	LB	■															—		
	3	NC		●														—		
	4	NO			●													—		
22N2 ★☆ (2NO-2NC)	1	NC		●		x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	NO			●													—		
	3	NC		●														—		
	4	NO			●													—		
31 (3NO-1NC)	1	NO	●			x	x	x	x	x	x	x	x	x	x	x	x	—		
	2	NC	■															—		
	3	NO	●															—		
	4	NO			●													—		
31N1 (3NO-1NC)	1	NC		■		x	x	x	x	x	x	x	x	x	x	x	x	—		
	2	NO			●													—		
	3	NO	●															—		
	4	NO			●													—		
13 (1NO-3NC)	1	NO	●			x	x	x	x	x	x	x	x	x	x	x	x	—		
	2	NC	■															—		
	3	NC		■														—		
	4	NC	■															—		
13N3 ★☆ (1NO-2NC) (1LB)	1	NC		●		x	x	x	—	—	—	—	—	—	—	—	—	J		
	2	NO			●													—		
	3	NC		●														—		
	4	LB	■															—		

- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
 - For models with ☆, contacts may overlap when the operator position is changed.
- Remarks: When ordering the contact arrangement indicated with "Standard" in the table above, specify the Part No. shown in the standard Part No. on preceding pages. For other contact arrangements, see Part No. Development on page 41.

ø22 HW series Selector Switch Contact Arrangement Charts

45° 3-position

Contact Code	Contact Block		Operator Position			Operator Availability												Cam Code	Remarks
	Mounting Position	Contact	1	0	2	Knob	Key	Illuminated	Knob	Key	Illuminated	Knob	Key	Illuminated	Knob	Key	Illuminated		
40 (4NO)	1	NO	●															—	Standard
	2	NO			●	×	×	×	×	×	×	×	×	×	×	×	×		
	3	NO	●																
	4	NO			●														
40N1 ★ (2NO) (2EM)	1	EM	●		●	×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	NO			●														
	3	EM	●		●														
	4	NO			●														
04 (4NC)	1	NC		■	■	×	×	×	×	×	×	×	×	×	×	×	×	—	Standard
	2	NC	■	■															
	3	NC		■	■														
	4	NC	■	■															
4NC (04)	1	NC			●	×	×	×	—	—	—	—	—	—	—	—	—	S	
	2	NC	●																
	3	NC			●														
	4	NC	●																
04N2 ★ (2NC) (2LB)	1	NC		●		×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	LB	■	■															
	3	NC		●															
	4	LB	■	■															
22 ★☆ (2NO-2NC)	1	NO	●			×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	NC		●															
	3	NO	●																
	4	NC		●															
21N1 ★☆ (2NO-1NC)	1	NO	●			×	×	×	—	—	—	—	—	—	—	—	—	S	Standard
	2	NO			●														
	3	NC		●															
	4	Dummy																	
40N2 ★☆ (3NO) (1EM)	1	NO	●			×	×	×	—	—	—	—	—	—	—	—	—	S	Standard
	2	EM		■	■														
	3	NO	●																
	4	NO			●														
22N9 ★☆ (1NO-2NC) (1EM)	1	NC			●	×	×	×	—	—	—	—	—	—	—	—	—	J	Standard
	2	NC	●																
	3	EM	■	■															
	4	NO			●														
31N4 ★☆ (2NO) (1EM-1LB)	1	NO	●			×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	LB	■	■															
	3	EM	●		●														
	4	NO			●														
13N1 ★☆ (1NO-1NC) (2LB)	1	NO	●			×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	LB	■	■															
	3	NC		●															
	4	LB	■	■															
22N5 ★☆ (2NO-1NC) (1LB)	1	LB		■	■	×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	NO			●														
	3	NC		●															
	4	NO			●														
31N2 ★☆ (3NO-1NC)	1	NO	●			×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	NO			●														
	3	NC		●															
	4	NO			●														
13N2 ★☆ (1NO-1NC) (2LB)	1	LB		■	■	×	×	×	—	—	—	—	—	—	—	—	—	J	
	2	LB	■	■															
	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 rated 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.

Remarks: When ordering the contact arrangement indicated with "Standard" in the table above, specify the Part No. shown in the standard Part No. on preceding pages. For other contact arrangements, see Part No. Development on page 41.

HW Series Selector Switch Contact Arrangement Charts ø22

45° 4-position

Contact Code	Contact Block		Operator Position				Operator Availability	Cam Code	Remarks
	Mounting Position	Contact	1	2	3	4	Knob		
12 ★☆ (1NO-2NC)	1	NO	●				×	—	Standard
	2	NC		●					
	3	NC			●				
	4	Dummy							
04N3 ★☆ (2NC) (2LB)	1	LB					×	—	
	2	NC		●					
	3	NC			●				
	4	LB							
13N6 ★☆ (1NO-2NC) (1LB)	1	LB					×	—	Standard
	2	NC		●					
	3	NC			●				
	4	NO				●			
13N5 ★☆ (1NO-2NC) (1LB)	1	NO	●				×	—	
	2	NC		●					
	3	NC			●				
	4	LB							
22N3 ★☆ (2NO-2NC)	1	NO	●				×	—	Standard
	2	NC		●					
	3	NC			●				
	4	NO				●			

30° 5-position

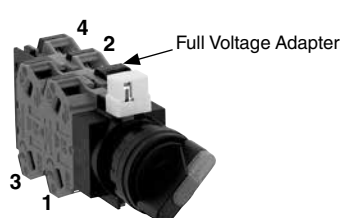
Contact Code	Contact Block		Operator Position					Operator Availability	Cam Code	Remarks
	Mounting Position	Contact	1	2	3	4	5	Knob		
22N3 ★☆ (2NO-2NC)	1	NO	●					×	—	Standard
	2	NC		●						
	3	NC				●				
	4	NO					●			

- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the rated 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.

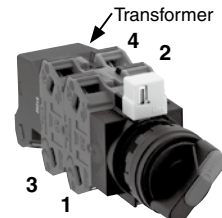
Contact Block Mounting Position and Contact Arrangement Chart



Non-illuminated Selector



Illuminated Selector
(Full Voltage)



Illuminated Selector
(Transformer)

Part No. Development

When cam code is not required

HW1S - 2 T 11

- Contact code (1NO-1NC)
- "T" for knob operator
- 2-position

When cam code is required

HW1K - 3 J A 22N2

- Contact code (2NO-2NC)
- Key removal option code
- Cam code (J, S, or none)
- 3-position

ø22 HW series Pushbutton Selectors

Pushbutton Selectors

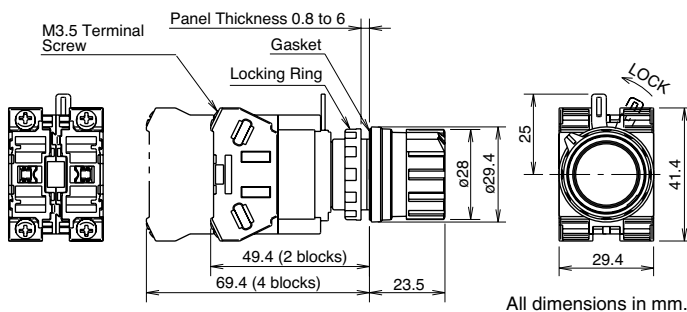
Package Quantity: 1

Shape	Circuit Category	Contact Code	Contact Block						Part No.	① Button Color Code
			Mounting Position	Contact	Normal	Depressed	Normal	Depressed		
	A	11 (1NO-1NC)	1	NO		●		●	HW1R-2A11①	Specify a button color code in place of ① in the Part No. B: black G: green R: red S: blue W: white Y: yellow
			2	NC	●					
		20 (2NO)	1	NO		●		●	HW1R-2A20①	
			2	NO		●	■	■		
		22 (2NO-2NC)	1	NO		●		●	HW1R-2A22①	
			2	NC	●					
	3		NO		●		●			
	4		NC	●						
	D	20 (2NO)	1	NO		●		●	HW1R-2D20①	
			2	NO				●		
		22N1 (2NO-2NC)	1	NO		●		●	HW1R-2D22N1①	
			2	NO				●		
			3	NC	●		■	■		
			4	NC	■		●			
	E	22N1 ★ (2NO-2NC)	1	NO		●		●	HW1R-2E22N1①	
			2	NO				●		
			3	NC			■	■		
			4	NC	■					
	F	22N1 ★☆ (2NO-2NC)	1	NO				●	HW1R-2F22N1①	
			2	NO		●				
			3	NC			●			
			4	NC	●					
N	22N2 ★☆ (2NO-2NC)	1	NC			●	●	HW1R-2N22N2①		
		2	NO		●		●			
		3	NC			●				
		4	NO		●		●			
T	22N1 ★ (2NO-2NC)	1	NO		●	●	Blocked HW1R-2T22N1①			
		2	NO		●	●				
		3	NC	●						
		4	NC	●						

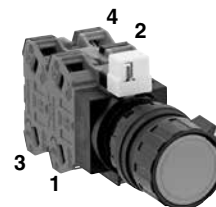


- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.
- Other contact arrangements are also available upon request.
- For models with ☆, contacts may overlap when the operator position is changed.

Dimensions



Contact Block Mounting Position and Contact Arrangement Chart



Contact Block	Left		Right		Ring Position ← Button
	Normal	Depressed	Normal	Depressed	
1	NO			●	
2	NO	●			
3	NC		●		
4	NC	●			

Mono-Lever Switches

Package 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
	4-position	HW1M-0202-40
HW1M-L Interlocking Lever 	2-position	HW1M-1111-22N9
		HW1M-2222-22N9
		HW1M-L1010-20
		HW1M-L2020-20
		HW1M-L0101-20
		HW1M-L0202-20
	4-position	HW1M-L0101-40
		HW1M-L0202-40
		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	Down	Center	Up
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				●	

Ordering Information

HW1M-L

Up R Dn L
1 1 1 1

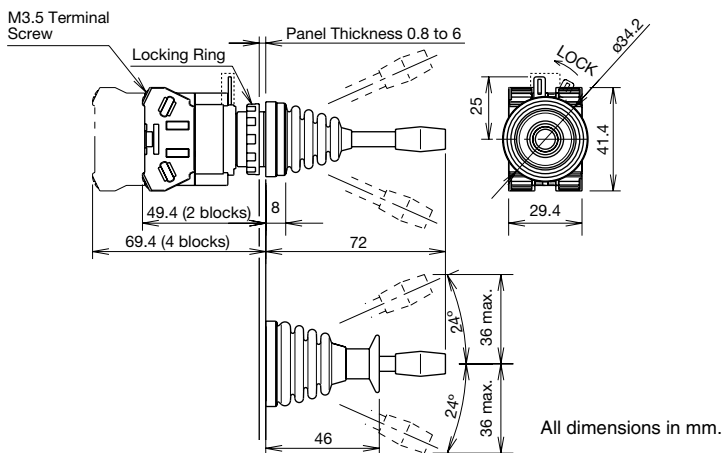
22N9

Model
HW1M: Standard
HW1M-L: Interlocking

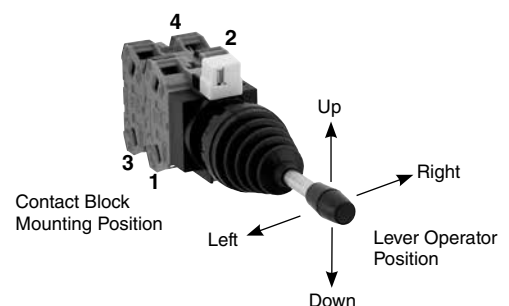
Lever Operation Mode
Order of Entry Up → Right → Down → Left 1: Maintained 2: Spring returned 0: Blocked

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

Dimensions



Contact Block Mounting Position and Lever Operator Position



ø22 HW series Accessories and Replacement Parts

Accessories

Nameplates

HWAM, HWAQ, HWAS, and HWNP

Description	Legend	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
HWAM	Order marking plate separately.	Plastic (black) 1.5 mm thick	HWAM	HWAM	1	
				HWAMPN10	10	
HWAQ	Order marking plate separately.	Plastic (black) 1.5 mm thick	HWAQ	HWAQ	1	
				HWAQPN10	10	
HWAS	Blank	Plastic (black) 1.5 mm thick	HWAS-0	HWAS-0	1	
				HWAS-0PN10	10	

Making Plate

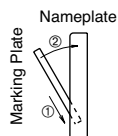
Description	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
HWNP	Aluminum (black) 1.0 mm thick	HWNP-□	HWNP-□	1	
			HWNP-□PN10	10	

- Specify a legend code in place of □ in the Ordering No.

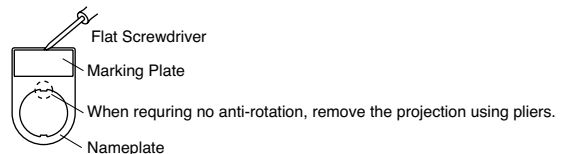
Legends

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

- Installing the marking plate on a nameplate

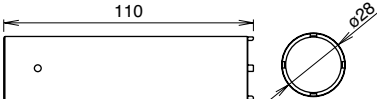
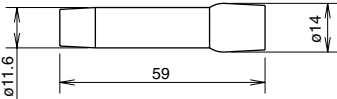
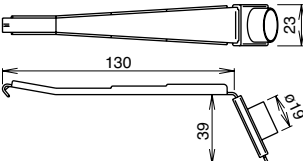
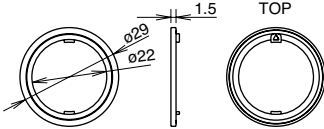
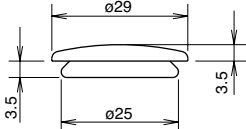
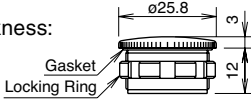
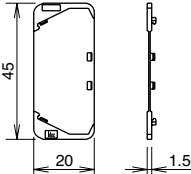


- To remove the marking plate, insert the flat screwdriver between the marking plate and nameplate.



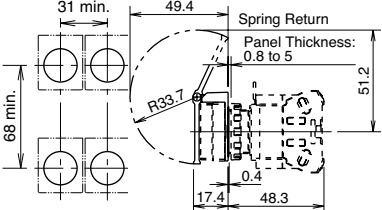
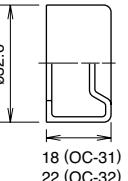
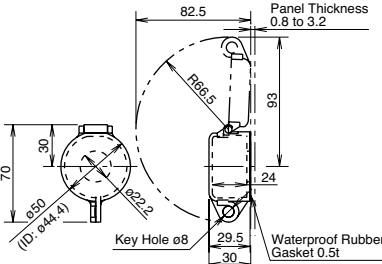
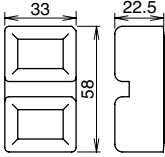
Note: When using an nameplate, the mounting panel thickness is decreased by 1.5 mm.

Accessories

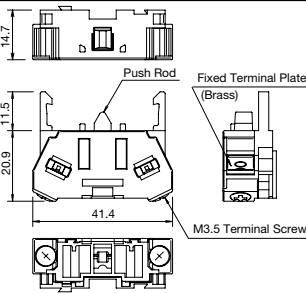
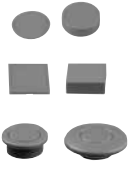
Shape	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
	Metal (brass) (weight: approx. 150g)	MW9Z-T1	MW9Z-T1	1	Used to tighten the locking ring when installing the HW switch onto a panel. 
	Nitrile Rubber	OR-55	OR-55	1	Used to install and remove the LED/ incandescent lamps. 
	Zinc-plated metal Nitril rubber	TW-KC1	TW-KC1	1	Used to remove the contact block and transformer, and also to install/remove the pilot light and illuminated pushbutton lens. 
	Ring: polyamide Gasket: nitril rubber	HW9Z-RL	HW9Z-RLPN10	10	Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and pushbutton selectors. 
	Nitril Rubber (black)	OB-31	OB-31PN05	5	Used to plug the unused ø22.2mm mounting holes. 
	Plug: diecast metal Locking ring: polyamide Gasket: nitril rubber	LW9Z-BM	LW9Z-BM	1	- Used to plug the unused ø22.2mm mounting holes. - Tighten the locking ring to a torque of 1.2 N·m. IP66 - Mounting panel thickness: 0.8 to 6 mm 
	Polyamide	LW9Z-BP1	LW9Z-BP1	1	- Used to plug the unused ø22.2mm mounting holes. - Tighten the locking ring to a torque of 2.0 N·m. IP65 - Mounting panel thickness: 0.8 to 6 mm
	Polyamide	HW-VG1	HW-VG1PN10	10	Used to prevent contact between adjacent lead wires when units are mounted closely. Barriers should always be used in close mounting. 

ø22 HW series Accessories and Replacement Parts

Accessories

Shape		Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
	Spring Return	Guard: polyacetal Cover: polyarylate Gasket: nitril rubber	HW9Z-K1	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	HW9Z-K11	1	
	For flush pushbuttons	Rubber (EPDM)	OC-31	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	OC-32	1	
		Polyarylate (gasket: nitril rubber)	HW9Z-KL1	HW9Z-KL1	1	Used to protect pushbuttons, illuminated pushbuttons, selector switches, and key selector switches. 
		Clear Silicon Rubber	HW9Z-D7D	HW9Z-D7D	1	Degree of protection: IP65 
		Nitril Rubber	HW9Z-A25	HW9Z-A25PN05	5	- Used to install the HW/TW units into ø25 mm mounting holes. - IP65 - Cannot be used with anti-rotation ring and nameplate. - Mounting panel thickness: 1.2 to 6.0 mm
		Gasket: polyamide Washer: metal (brass)	HW9Z-A30	HW9Z-A30PN02	2	- Used to install the HW units into ø30 mm mounting holes (except for HW1E, HW1B-M5/V5, and HW7D). - 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
		Gasket: rubber Washer: metal	HW9Z-A30E	HW9Z-A30EPN02	2	Used to install HW1B-M5/HW1P-5Q units into ø30 mm mounting holes.

Maintenance Parts

Shape	Specification		Part No.	Ordering No.	Package Quantity	Remarks
	NO contact		HW-G10	HW-G10	1	
	NC contact		HW-G01	HW-G01	1	
	EM (early make) contact		HW-G10R	HW-G10R	1	
	LB (late break) contact		HW-G01R	HW-G01R	1	
	Polyamide		TW-DB	TW-DBPN10	10	
	Spring-up screw		HW-GA1	HW-GA1PN02	2	
	100/110V AC	Spring-up screw	HW-T16	HW-T16	1	• For illuminated pushbuttons and illuminated selector switches. • For LSTD-6/LS-6
	115/120V AC	Spring-up screw	HW-T126	HW-T126	1	
	200/220V AC	Spring-up screw	HW-T26	HW-T26	1	
	230/240V AC	Spring-up screw	HW-T246	HW-T246	1	
	400/440V AC	Spring-up screw	HW-L46	HW-L46	1	
	480V AC	Spring-up screw	HW-L486	HW-L486	1	
	Round flush with round or square bezel	Polyacetal	HW1A-B1①	HW1A-B1①PN05	5	• Specify a button color code in place of ①. - B (black) - G (green) - R (red) - S (blue) - W (white) - Y (yellow)
	Round extended with round or square bezel		HW1A-B2①	HW1A-B2①PN05	5	
	Square flush		HW2A-B1①	HW2A-B1①PN05	5	
	Square extended		HW2A-B2①	HW2A-B2①PN05	5	
	ø29mm mushroom		HW1A-B3①	HW1A-B3①PN02	2	
	ø40mm mushroom		HW1A-B4①	HW1A-B4①PN02	2	

ø22 HW series Accessories and Replacement Parts

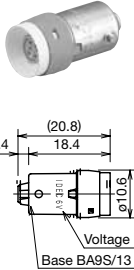
Maintenance Parts

Shape		Specification	Part No.	Ordering No.	Package Quantity	Color Code
Lens (for pilot lights and illuminated pushbuttons) 	Round flush	Polyarylate	HW9Z-L11②	HW9Z-L11②PN05	5	A (amber), C (clear), G (green), R (red), S (blue), Y (yellow) Use a clear lens for pure white (PW) and white (W) illumination.
	Square flush		HW9Z-L21②	HW9Z-L21②PN05	5	
	Round extended		HW9Z-L12②	HW9Z-L12②PN05	5	
Lens (for illuminated pushbuttons) 	ø29mm mushroom	AS, Marking type	ALW31L-②	ALW31L-②PN02	2	C (clear), G (green), R (red), S (blue)
			ALW31LD-②	ALW31LD-②PN02	2	A (amber), Y (yellow)
	ø40mm mushroom		ALW41L-②	ALW41L-②	1	C (clear), G (green), R (red), S (blue)
			ALW41LD-②	ALW41LD-②	1	A (amber), Y (yellow)
Dome Lens for Pilot Light 		AS resin	HW1A-P2②	HW1A-P2②PN05	5	A (amber), G (green), R (red), S (blue), W (white), and Y (yellow)
Jumbo Dome Lens 		Polycarbonate	HW1A-P5②	HW1A-P5②	1	A: amber, G: green, R: red, S: blue, W: white, Y: yellow
Marking Plate 	Round flush	Acrylic	HW9Z-P11	HW9Z-P11PN05	5	White
	Round extended		HW9Z-P12	HW9Z-P12PN05	5	
	Square flush		HW9Z-P21	HW9Z-P21PN05	5	
	ø29/40mm mushroom		ALW3B	ALW3BPN05	5	
Operator Knob for Illuminated Selector Switch 		AS Resin	HW9Z-FDY②	HW9Z-FDY②	1	A (amber), G (green), R (red), S (blue), W (white), Y (yellow)
Operator Lever for Illuminated Selector Switch 			HW9Z-FDL②	HW9Z-FDL②	1	Use a white (W) knob/lever for pure white illumination.
Spare Key (Disc Tumbler Key) 		Metal (nickel-plated brass)	HW9Z-SK-231	HW9Z-SK-231PN02	2	
Spare Key (Pin Tumbler Key) 		Metal (nickel-plated brass)	LW9Z-SK-500	LW9Z-SK-500PN02	2	Standard key number
			LW9Z-SK-□	LW9Z-SK-□PN02		Key number 501 to 515
Locking Ring 		Polyamide	HW9Z-LN	HW9Z-LNPN05	5	Black
Cap for Mono-Lever Switch 	Standard	Nitril Rubber	HW9Z-CPM	HW9Z-CPM	1	
Boot for Mono-Lever Switch 			HW9Z-BLM	HW9Z-BLM	1	
Diffusing Lens 		Polycarbonate	HW9Z-PP5C	HW9Z-PP5C	1	Diffusing lens is used for LED type jumbo dome pilot lights only.
Safety Lever Lock 		Polyacetal	HW9Z-LS	HW9Z-LSPN10	10	Yellow
Gasket 		Nitrile Rubber	HW9Z-WM	HW9Z-WMP10	10	

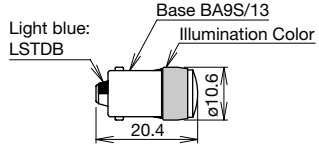
Note: Specify a button color code or lens color code in place of ① or ② in the Ordering No.

Maintenance Parts

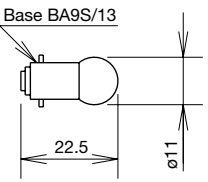
LED Lamps (LSTD) [except for HW Jumbo Dome pilot lights]

Dimensions	Operating Voltage	Current Draw		Part No.	Ordering No.	Illumination Color Code	Package Quantity	Base
		AC	DC					
	6V AC/DC $\pm 5\%$	8 mA	7 mA (A, R, W, 5.5 mA (G, PW, S)	LSTD-6②	LSTD-6②	Specify a color code in place of ② in the Ordering No. A: amber G: green PW: pure white R: red S: blue W: white Use a pure white (PW) LED lamp with yellow (Y) lens.	1	BA9S/13
					LSTD-6②PN10		10	
	12V AC/DC $\pm 10\%$	11 mA	10 mA	LSTD-1②	LSTD-1②		1	
					LSTD-1②PN10		10	
	24V AC/DC $\pm 10\%$	11 mA	10 mA	LSTD-2②	LSTD-2②		1	
					LSTD-2②PN10		10	

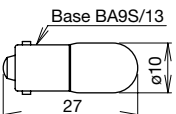
LED Lamps (LSTDB) [used for HW Jumbo Dome pilot lights only]

Operating Voltage	Current Draw		Part No.	Illumination Color Code	Package Quantity	Dimensions
	AC	DC				
24V AC/DC $\pm 10\%$	15 mA	15 mA	LSTDB-2②	Specify a color code in place of ② in the Ordering No. A: amber G: green PW: pure white R: red S: blue W: white Use a pure white (PW) LED lamp with yellow (Y) lens.	1	

Incandescent Lamps (LS) [except for HW Jumbo Dome pilot lights]

Rated Operating Voltage	Lamp Ratings	Part No. (Ordering No.)	Package Quantity	Dimensions
6V AC/DC 	1W (6.3V)	LS-6	1	
12V AC/DC 	1W (18V)	LS-8		
18V AC/DC 	1W (24V)	LS-2		
24V AC/DC 	1W (30V)	LS-3		

Incandescent Lamps (LSB) [used for HW Jumbo Dome pilot lights only]

Rated Operating Voltage	Lamp Ratings	Part No.	Ordering No.	Package Quantity	Dimensions
24V AC/DC 	28V, 0.17A	LSB-2	LSB-2PN02	2	

ø22 HW series Accessories and Replacement Parts

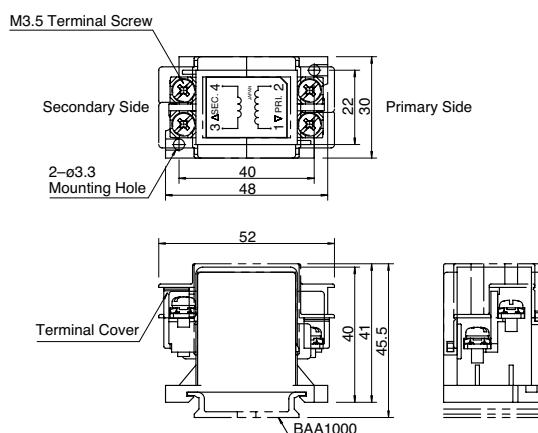
Transformer

Shape	Primary Voltage	Secondary Voltage	Part No.	Applicable Load
	100/110V AC	5.5V AC, 1W	TWR516	LSTD-6 LED lamp (6V AC/DC) or LS-6 incandescent lamp (6V AC/DC, 1W)
	115/120V AC		TWR5126	
	200/220V AC		TWR526	
	230/240V AC		TWR5246	
	380V AC		TWR5386	
	400/440V AC		TWR546	
	480V AC		TWR5486	

Specifications

Operating Voltage	100/110V AC, 115/120V AC, 200/220V AC, 230/240V AC, 380V AC, 400/440V AC, 480V AC (50/60Hz)
Current Draw	2.4 VA
Rated Insulation Voltage	600V
Insulation Resistance	100 MΩ minimum (500V DC megger)
Operating Temperature	−30 to +60°C (no freezing)
Storage Temperature	−40 to +80°C (no freezing)
Operating Humidity	35 to 85% RH (no condensation)
Vibration Resistance	Damage Limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s ² Operating Extremes: 100 m/s ²
Dielectric Strength	2,500V AC, 1 minute
Terminal Screw	M3.5
Applicable Wire	2 mm ² maximum, 2 wires maximum
Weight (approx.)	87g

Dimensions

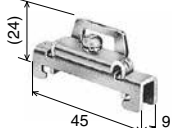


Accessories

DIN Rail

Part No.	Ordering No.	Length	Weight (approx.)	Material	Package Quantity
BAA1000	BAA1000PN10	1000 mm	200g	Aluminum	10
BAP1000	BAP1000PN10	1000 mm	320g	Steel	10

End Clip

Part No.	Ordering No.	Applicable DIN Rail	Weight (approx.)	Material	Package Quantity	Dimensions
BNL6	BNL6PN10	BAA1000 BAP1000	15g	Steel (Zinc-plated)	10	

Safety Precautions

- Turn off the power to the HW series before installation, removal, wiring, maintenance, and inspection of the HW series. 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 M3.5 terminal screws to a tightening torque of 1.0 to 1.3 N.m. Failure to tighten terminal screws may cause overheating and fire.

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. Insert the operator into the panel cut-out from the front, tighten the locking ring from the back, then install the contact block to the operator.

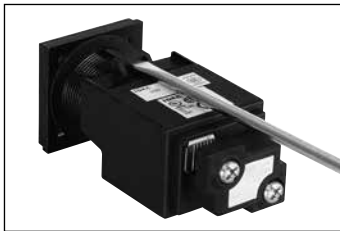
Removing and Installing the Contact Block

1. To remove the operator from the contact block, turn the locking lever in the direction of the arrow shown below. Then the operator can be pulled out.
2. To reinstall, place the TOP markings on the operator and the contact block mounting adapter in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever in the opposite direction.



Removing and Installing the Transformer Unit on Pilot Lights

1. Insert a flat screwdriver (5mm wide at the maximum) into the latch hole on the transformer unit as shown in the photo below, and disengage the latch.
2. To reinstall, place the TOP marking on the illumination unit and the latch in the same direction, and push the illumination unit into the transformer unit.



Notes for Panel Mounting

1. When mounting the operator onto a panel, use the optional locking ring wrench (MW9Z-T1) to tighten the locking ring. Tightening torque must not exceed 2.0 N.m. Do not use pliers. Excessive tightening will damage the locking ring.
2. For the contact blocks and transformers housing LED and incandescent lamps, make sure not to press the lamps too hard, otherwise the lamp socket may be impaired.

Notes for Illuminated Pushbuttons

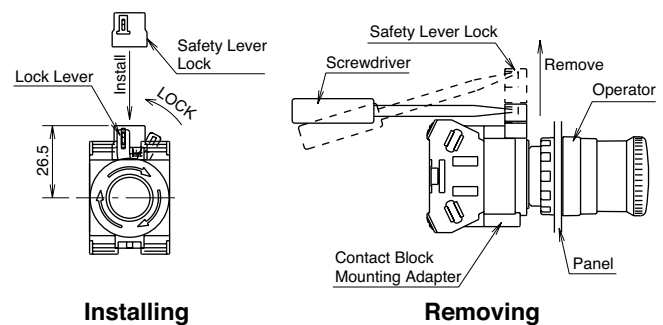
The full shroud cannot be removed from the extended full shroud type.

Safety Lever Lock

IDEC strongly recommends using the safety lever lock (HW9Z-LS, yellow) to prevent heavy vibration or maintenance personnel from unlocking contacts.

1. HW series can be mounted vertically with a minimum spacing of 50 mm (70 mm for mono-lever switches) but spacing should be determined to ensure easy operation.
2. Mount the HW series onto the panel, lock the lever, and strongly push in the safety lever lock to install.

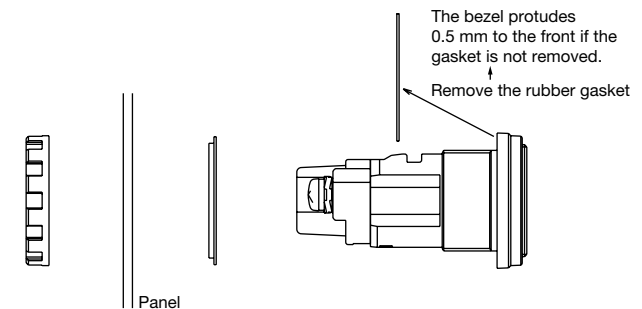
3. When the spacing is narrower than the recommended value, with the lever unlocked, mount the safety lever lock and insert the contact unit to the operator. Then, lock the lever and strongly push in the safety lever lock to install.
4. To remove the safety lever lock, insert a flat screwdriver into the safety lever lock and push upwards.



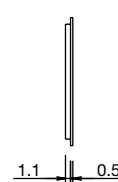
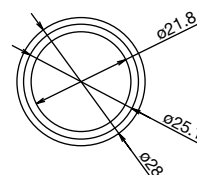
When removing safety lever, make sure that the screwdriver does not touch the contact block.

Ring Adapter

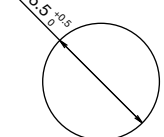
HW9Z-A25



Dimensions

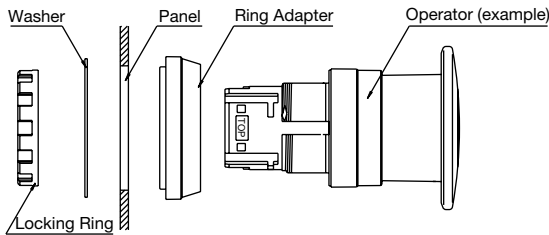


Panel cut-out

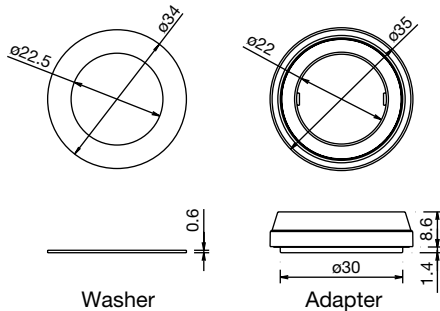


Instructions

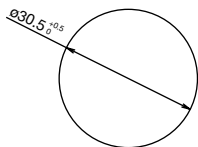
HW9Z-A30



Dimensions



Panel-Cut

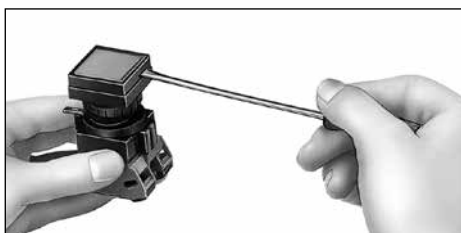


Replacement of Lens and Marking Plate

Removing

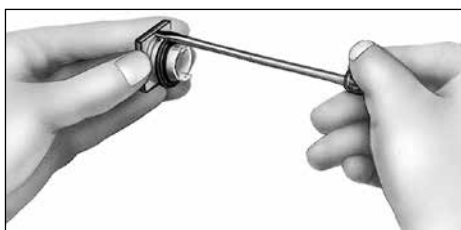
1. Remove the lens unit (color lens, marking plate, and lens holder) by inserting a screwdriver into the recess of the lens through the bezel.

[Removing the Lens Unit]



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

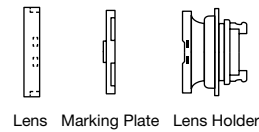
[Removing the Lens]



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

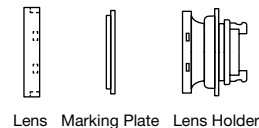
Installing

[For Round Lens]



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

[For Square Lens]



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.

Marking

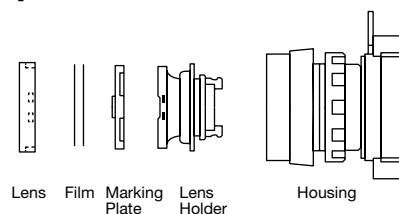
For HW series illuminated pushbuttons and pilot lights, legends and symbols can be engraved on the built-in marking plates, or printed film can be inserted under the lens for labeling purposes. Films are not supplied with illuminated pushbuttons, and may be provided by the user.

Marking Plates and Marking Film Size

Lens Style	Round Lens	Square Lens
Built-in Marking Plate	• Engraving must be made on the engraving area within 0.5mm deep. • The marking plate is made of white acrylic resin.	
Applicable Marking Film	• Mylar for printing labels is not supplied and must be provided and printed by the user. • Two 0.1mm-thick films or one 0.2mm-thick film can be installed in the lens. • Recommended marking film: Mylar	

Insertion Order of Marking Plate and Film

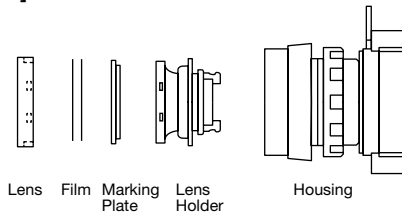
[Round Lens]



Note: Films are not supplied.

Instructions

[Square Lens]

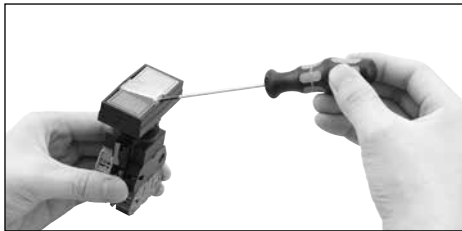


Note: Films are not supplied.

Replacement of Lens for Dual Pushbuttons

Removing

Remove the lens by inserting a 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.

Replacement of Lamps

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.

Removing the Lamps from the Front of the Panel

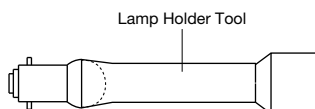
[How to Remove]

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

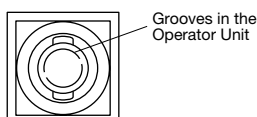


[How to Install]

1. To install, insert the lamp head into the lamp holder tool, and hold the lamp as shown in the figure below.

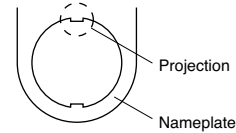


2. Place the pins on the lamp base to the grooves in the lamp socket. Insert the lamp and turn it clockwise.



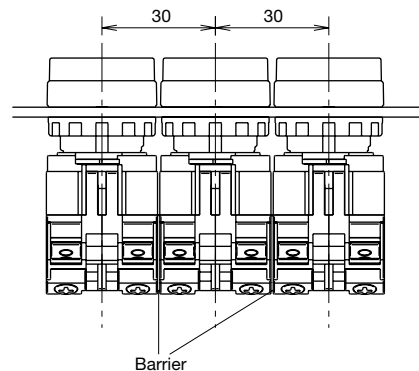
Nameplate

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

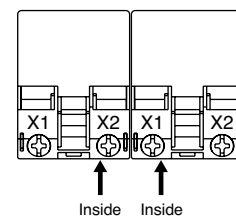


Close Mounting

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



When mounting transformer type illuminated units closely in a horizontal row on 30 mm centers, insert solid wires or stranded wires into inside of the terminal screw on the transformer (see figure below) to prevent short circuit between adjoining terminals.



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

Tightening Torque for Terminal Screws

Tighten the M3.5 terminal screws to a torque of 1.0 to 1.3 N·m.

Installation of LED Illuminated Units

1. When using full voltage type LED illuminated units, provide protection against electrical noise, if necessary.
2. Notes for Pure white (PW) LED Lamps

Instructions

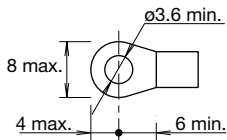
- Do not use the pure white (PW) LED outdoors, otherwise it will lead to the degradation of brightness and color. Do not remove or apply shock to the cap on the pure white (PW) LED lamp, otherwise it may break or damage the cap.
- Use a white lens. The illumination color will be dull if a different color lens is used.

Applicable Wiring

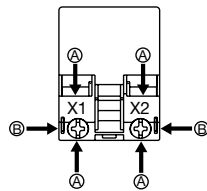
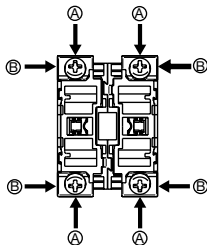
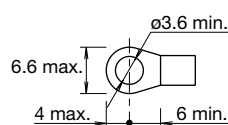
The applicable wire size is 2mm² maximum. (Solid wire ø1.6 mm max.) One or two wires can be connected.

Applicable Crimping Terminal

Crimping terminal for ①

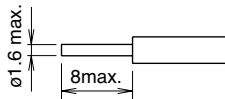


Crimping terminal for ②



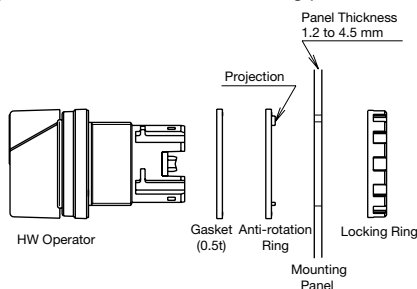
Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

Solid Wire



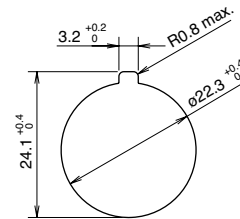
Anti-rotation Ring and Panel Cut-out

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



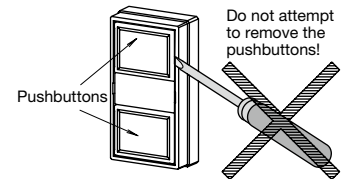
Panel Cut-out

(Complies with IEC60947-5-1)



Selector Switch

Be sure to turn the knob or key securely to each operator position.



Key Selector Switch

Notes for using a different key

When a different number key is inserted into the key hole, it will not normally operate. However, if the key is forced to turn or is not inserted properly, it may be turned.

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.

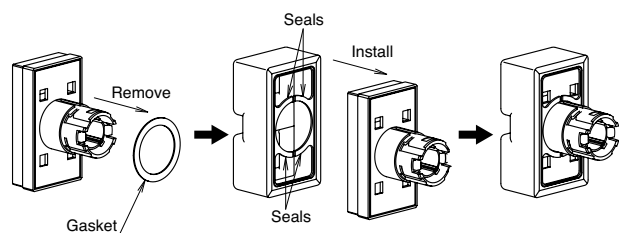
Installing the Rubber Boot for Dual Push-buttons

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.

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.

- Remove the gasket.
- Install the rubber boot on the pushbuttons.
- Rubber boot is installed.



Specifications and other descriptions in this brochure are subject to change without notice.
Product availability and specifications may vary according to country and region. For details, please contact your local sales representative.



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