ø22 SWITCHES & PILOT LIGHTS

HW SERIES

Switches & Pilot Lights

Finger safe (IP20) screw terminals type

IDEC CORPORATION

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ø22 HW Series screw terminals Switches & Pilot Lights

- Up to four contacts (in two tiers) can be mounted on each unit.
- Gold-plated contacts are available upon request. (Contact material: silver with gold plating)
- Locking lever removable contact blocks
- Finger-safe IP20 contacts
- Tamperproof construction
- All E-stops meet EN60947-5-5, and are compliant with SEMI S2 standards
- Worldwide approvals
- Easy to assemble
- Choice of black plastic or metallic front bezels
- LED illumination
- Slow make double break contacts

LISTED (some models only)

- See website for details on approvals and standards.

Specifications and Ratings

Contact Ratings

Pushbuttons, Illuminated Pushbuttons, Dual Pushbuttons, Selector Switches, Key Selector Switches, Illuminated Selector Switches, Selector Pushbuttons, Monolever Switches, Emergency Stop Switches	Contact Block	Type HW-U
	Rated insulation voltage	600V
	Rated continuous current	10A
	Contact ratings by utilization category IEC 60947-5-1	AC-15 (A600), DC-13

- See website for approved contact ratings.

Rated Operating Voltage and Current by Utilization Category

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

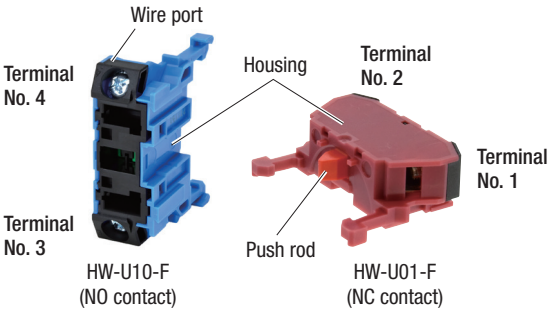
Operating Voltage			24V	48V	50V	110V	220V	440V
Operating Current	AC 50/60 Hz	AC-12 Control of resistive loads and solid state loads	10A	-	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72 VA)	10A	-	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads and solid state loads	10A	5A	-	2.2A	1.1A	-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

HW-U10R-F (early make / NO contact), HW-U01R-F (late break / NC contact)

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

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

Contact Block (HW-U)



	NO	NC	NO-EM (early make)	NC-LB (late break)
Part No.	**HW-U10-F**	**HW-U01-F**	**HW-U10R-F**	**HW-U01R-F**
Shape				
Housing	Blue	Purple red	Blue	Purple red
Push Rod	Green	Red	Black	White
Weight	11g			

- Up to four contacts (in two tiers) can be mounted on each unit.
- Gold-plated contacts are available upon request. (Contact material: silver with gold plating)

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LED Illuminated Part Specifications

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

Rated Voltage	Operating Voltage		LED Lamp	
			Ramp Base	Part No.
6V AC/DC	6V AC/DC	±10%	BA9S/13	**LSRD-6**
12V AC/DC	12V AC/DC			**LSRD-1**
24V AC/DC	24V AC/DC			**LSRD-2**
100/120V AC/DC	100/120V AC/DC			**LSRD-H2**
200/220V AC	200/220V AC			**LSRD-M2**
230/240V AC	230/240V AC	207 to 250V		**LSRD-M4**

Pilot Light

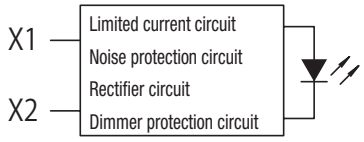
Rated Voltage	Operating Voltage		LED Lamp	
			Ramp Base	Part No.
6V AC/DC	6V AC/DC	±10%	BA9S/13	**LSRD-6**
12V AC/DC	12V AC/DC			**LSRD-1**
24V AC/DC	24V AC/DC			**LSRD-2**
100/120V AC/DC	100/120V AC/DC			**LSRD-H2**
200/220V AC	200/220V AC			**LSRD-M2**
230/240V AC	230/240V AC	207 to 250V		**LSRD-M4**
380V AC	380V AC	±10%		**LSRD-6**
400/440V AC	400/440V AC			
480V AC	480V AC			

Types and Shapes of Illuminated Units

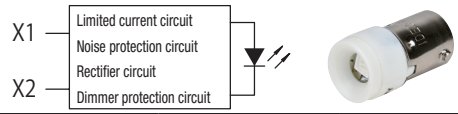
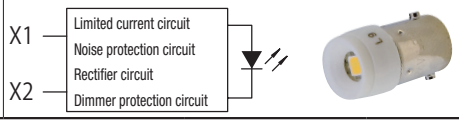
Typical Applications	Illuminated Switch Unit	Pilot Light	
Type	Full Voltage Adapter	Pilot Lights (Assembled)	Transformer Units
Rated Voltage	6V AC/DC,12V AC/DC, 24V AC/DC, 100 to 120V AC/DC, 200 to 240V AC	6V AC/DC,12V AC/DC, 24V AC/DC, 100 to 120V AC/DC, 200 to 240V AC	380 to 480V AC
Shape			

LED Lamp Ratings

LSRD lamp

Part No.		LSRD-6	LSRD-1	LSRD-2	LSRD-H2	LSRD-M2	LSRD-M4
Ramp Base		BA9S/13					
Rated Voltage		6V AC/DC	12V AC/DC	24V AC/DC	100/120V AC/DC	200/220V AC	230/240V AC
Voltage Range		6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%	100/120V AC/DC ±10%	200/220V AC ±10%	207~250V
Current Draw	DC	10mA	7mA	7mA	2mA	–	–
	AC	14mA	8mA	8mA	2mA	2mA	2mA
Life (reference value)		Approx. 100,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.)					
Internal Circuit							

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

Part No.		HW1P-5Q4R	HW1P-5Q4A	HW1P-5Q4G	HW1P-5Q4Y	HW1P-5Q4S	HW1P-5Q4PW
Illumination color		R (Red)	A (Amber)	G (Green)	Y (Yellow)	S (Blue)	PW (Pure white)
Built-in LED bulb part No.		LSTDB-2AN		LSTDB-2GN	LSRD-2		
Lamp Base		BA9S/13					
Rated Voltage		24V AC/DC					
Voltage Range		24V AC/DC±10%					
Current Draw	DC	14mA		8mA	7mA		
	AC						
Life (reference value)		Approx. 20,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.)			Approx. 100,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.)		
Internal Circuit							

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

Degree of Protection

IEC60529

Unit	IEC 60529
All models except dual pushbuttons	IP65 (*1)
Dual pushbuttons	IP40 (*2)

*1) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 34 are used. (IP40 when other ø22 namplates such as NWA are used)
*2) IP65 when used with button covers (HW9Z-D7D).

UL50

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

*3) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 34 are used.
*4) For dual pushbuttons, Type 4X is acheived when used with button covers (HW9Z-D7D).

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Specifications

Switches (except for emergency stop switch)

Operating Temperature	–25 to +60°C (no freezing) Illuminated unit: –25 to +50°C
Operating Humidity	30 to 85% RH (no condensation)
Storage Temperature	–40 to +80°C (no freezing)
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Overvoltage Category	II
Impulse Withstand Voltage	4.0kV Illuminated unit: 2.5kV
Pollution Degree	3 (IEC60947-5-1)
Dielectric Strength	Between live and dead parts: 2500V AC, 1 minute (*1)
Vibration Resistance	Damage limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s^2
	Operating extremes: 100 m/s^2
Degree of Protection	Terminal: Finger-safe (IP20) structure Panel front: IP65 (IEC 60529), UL Type 4X
Recommended Tightening Torque for Locking Ring	2.0N·m
Terminal Style	Screw terminal
Mechanical Life (minimum operations)	Pushbuttons, Illuminated Pushbuttons Momentary ····· 5,000,000 Maintained ····· 500,000 Dual pushbuttons ····· 500,000 Selector switches ····· 500,000 Key selector switches (Disc tumbler) ····· 500,000 Key selector switches (Pin tumbler) ····· 100,000 Illuminated selector switches ····· 500,000 Selector pushbuttons ····· 250,000 Monolever switches ····· 250,000
Electrical Life (*5)	Pushbuttons, Illuminated Pushbuttons Momentary ····· 500,000 (*2) Maintained ····· 500,000 (*4) Dual pushbuttons ····· 500,000 (*2) Selector switches ····· 500,000 (*3) Key selector switches (Disc tumbler) ···· 500,000 (*3) Key selector switches (Pin tumbler) 100,000 (*3) Illuminated selector switches ····· 500,000 (*3) Selector pushbuttons ····· 250,000 (*3) Monolever switches ····· 250,000 (*4)
Weight (approx.)	66g **(HW1B-M122)**, 84g **(HW1L-M122Q4)** 66g **(HW1S-2T22)**, 94g **(HW1K-2A22)** 72g **(HW1K-2JPC11)**, 84g **(HW1F-222Q4)** 71g **(HW1R-2A22)**, 82g **(HW1M-2222-22N9)** 72g **(HW7D-B111111)**, 90g **(HW7D-L111111Q4)**

*1) Full-voltage illuminated unit for 2-position pushbutton switch: AC 1000V, 1 minute (between live parts and grounded metal parts)
*2) Switching frequency 1,800 operations/h, duty ratio 40%
*3) Switching frequency 1,200 operations/h, duty ratio 40%
*4) Switching frequency 900 operations/h, duty ratio 40%
*5) Load condition 220V AC, 3A (AC-15)

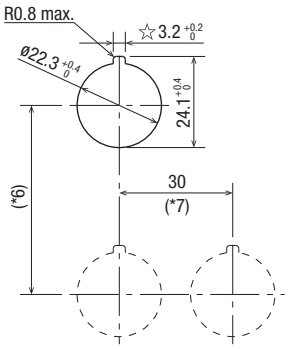
Pilot lights

Operating Temperature	–25 to +50°C (no freezing)
Operating Humidity	30 to 85% RH (no condensation)
Storage Temperature	–40 to +80°C (no freezing)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Overvoltage Category	II
Impulse Withstand Voltage	2.5kV
Pollution Degree	3
Dielectric Strength	Between live and dead parts: 2000V AC, 1 minute
Vibration Resistance	Damage limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s^2
	Operating extremes: 100 m/s^2
Degree of Protection	Terminal: Finger-safe (IP20) structure Panel front: IP65 (IEC 60529), UL Type 4X
Recommended Tightening Torque for Locking Ring	2.0N·m
Terminal Style	Screw terminal
Weight (approx.)	20g **(HW1P-1Q4)**

Mounting Hole Layout

Dimensions in mm.

Panel Cut (IEC60947-5-1)



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

Minimum Mounting Centers

Dimensions in mm.

Unit	Vertical (*6)	Horizontal (*7)
ø40mm mushroom buttons	50	40
Selector pushbuttons	50	50
Monolever switches	72	72
Pilot lights	50	30
Dual pushbuttons	55	30
Illuminated selector switches	50	50

- For emergency stop switch mounting centers, see page 23.
- Determine the mounting cetners in consideration of the operation, wiring, and testing terminals.

Ordering Information

Emergency stop switch specifications: see page 23

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ø22 HW Series

Assembled Products

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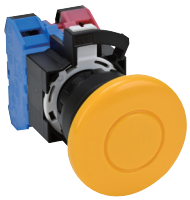
ø22 HW Series Assembled Products

Pushbuttons

Name / Shape	Operation	Contact Configuration	Part No.
Flush	Momentary	1NO	HW①B-M1F10-④
		1NC	HW①B-M1F01-④
		1NO-1NC	HW①B-M1F11-④
		2NO	HW①B-M1F20-④
		2NC	HW①B-M1F02-④
		2NO-2NC	HW①B-M1F22-④
	Maintained	1NO	HW①B-A1F10-④
		1NC	HW①B-A1F01-④
		1NO-1NC	HW①B-A1F11-④
		2NO	HW①B-A1F20-④
		2NC	HW①B-A1F02-④
		2NO-2NC	HW①B-A1F22-④
Extended	Momentary	1NO	HW①B-M2F10-④
		1NC	HW①B-M2F01-④
		1NO-1NC	HW①B-M2F11-④
		2NO	HW①B-M2F20-④
		2NC	HW①B-M2F02-④
		2NO-2NC	HW①B-M2F22-④
	Maintained	1NO	HW①B-A2F10-④
		1NC	HW①B-A2F01-④
		1NO-1NC	HW①B-A2F11-④
		2NO	HW①B-A2F20-④
		2NC	HW①B-A2F02-④
		2NO-2NC	HW①B-A2F22-④
ø29mm Mushroom	Momentary	1NO	HW①B-M3F10-④
		1NC	HW①B-M3F01-④
		1NO-1NC	HW①B-M3F11-④
		2NO	HW①B-M3F20-④
		2NC	HW①B-M3F02-④
		2NO-2NC	HW①B-M3F22-④
	Maintained	1NO	HW①B-A3F10-④
		1NC	HW①B-A3F01-④
		1NO-1NC	HW①B-A3F11-④
		2NO	HW①B-A3F20-④
		2NC	HW①B-A3F02-④
		2NO-2NC	HW①B-A3F22-④
ø40mm Mushroom 	Momentary	1NO	HW①B-M4F10-④
		1NC	HW①B-M4F01-④
		1NO-1NC	HW①B-M4F11-④
		2NO	HW①B-M4F20-④
		2NC	HW①B-M4F02-④
		2NO-2NC	HW①B-M4F22-④
	Maintained	1NO	HW①B-A4F10-④
		1NC	HW①B-A4F01-④
		1NO-1NC	HW①B-A4F11-④
		2NO	HW①B-A4F20-④
		2NC	HW①B-A4F02-④
		2NO-2NC	HW①B-A4F22-④

- Specify a bezel shape in place of ① in the Part No.
- Specify a color code in place of ④ in the Part No.
  *1) Only B (black), G (green), R (red), Y (yellow) available for ø60mm mushroom.
- Up to 4 contacts can be used.
- For dimensions, see page 7.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Quantity: 1

Name / Shape	Operation	Contact Configuration	Part No.
ø60mm Mushroom	Momentary	1NO	HW1B-M5F10-④
		1NC	HW1B-M5F01-④
		1NO-1NC	HW1B-M5F11-④
		2NO	HW1B-M5F20-④
		2NC	HW1B-M5F02-④
		2NO-2NC	HW1B-M5F22-④
Square flush	Momentary	1NO	HW2B-M1F10-④
		1NC	HW2B-M1F01-④
		1NO-1NC	HW2B-M1F11-④
		2NO	HW2B-M1F20-④
		2NC	HW2B-M1F02-④
		2NO-2NC	HW2B-M1F22-④
	Maintained	1NO	HW2B-A1F10-④
		1NC	HW2B-A1F01-④
		1NO-1NC	HW2B-A1F11-④
		2NO	HW2B-A1F20-④
		2NC	HW2B-A1F02-④
		2NO-2NC	HW2B-A1F22-④
Square extended	Momentary	1NO	HW2B-M2F10-④
		1NC	HW2B-M2F01-④
		1NO-1NC	HW2B-M2F11-④
		2NO	HW2B-M2F20-④
		2NC	HW2B-M2F02-④
		2NO-2NC	HW2B-M2F22-④
	Maintained	1NO	HW2B-A2F10-④
		1NC	HW2B-A2F01-④
		1NO-1NC	HW2B-A2F11-④
		2NO	HW2B-A2F20-④
		2NC	HW2B-A2F02-④
		2NO-2NC	HW2B-A2F22-④

Part number structure

H W 1 B - M 1 F10-B

①

Bezel shape
- 1: Round Plastic
- 2: Square Plastic
- 4: Round Metal

Operation
- M: Momentary
- A: Maintained

Button type
- 1: Flush
- 2: Extended
- 3: ø29mm Mushroom
- 4: ø40mm Mushroom
- 5: ø60mm Mushroom

④

Button color
- B (black)
- G (green)
- R (red)
- Y (yellow)
- S (blue)
- W (white)

*1) Only B (black), G (green), R (red) available for ø60mm mushroom.

Contact configuration
- 10: 1NO
- 01: 1NC
- 11: 1NO-1NC
- 20: 2NO
- 02: 2NC
- 22: 2NO-2NC

Note: The ø60mm mushroom can only be used with "1:Plastic Round(Bezel)".
Note: The square bezel can only be used with two button types:
1) Flush and 2) Extended.

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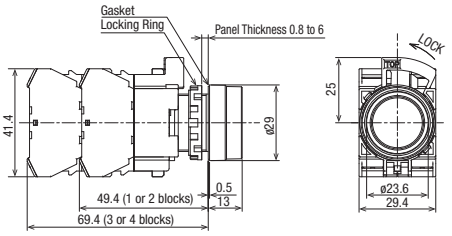
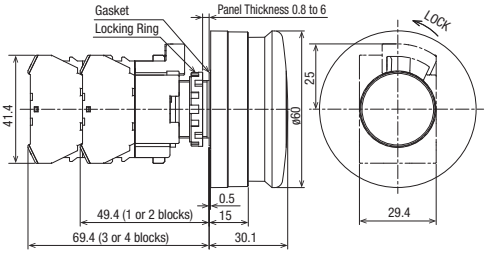
Pushbutton Dimensions

All dimensions in mm.

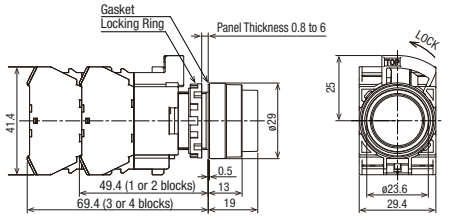
Flush
HW1B-□1F, HW4B-□1F



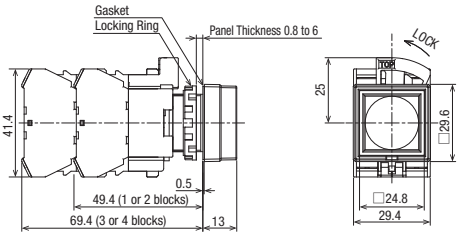
ø60mm Mushroom
HW1B-M5F



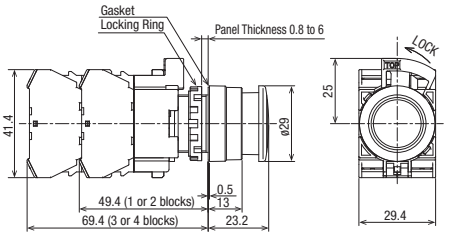
Extended
HW1B-□2F, HW4B-□2F



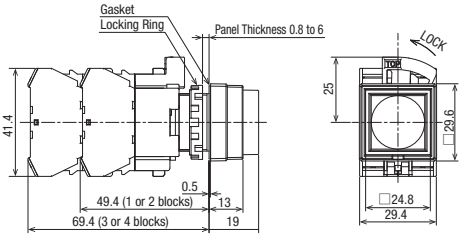
Square Flush
HW2B-□1F



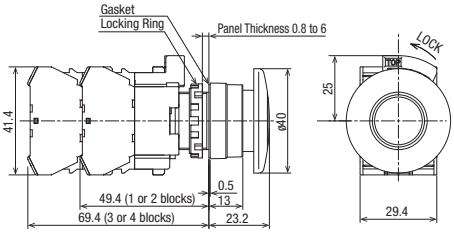
ø29mm Mushroom
HW1B-□3F, HW4B-□3F



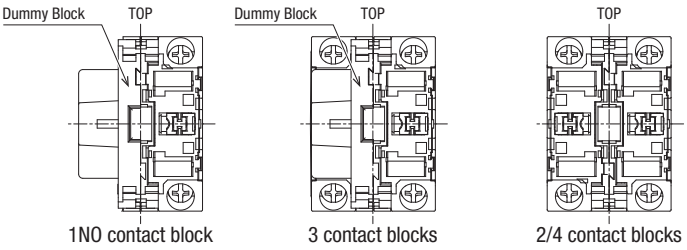
Square Extended
HW2B-□2F



ø40mm Mushroom
HW1B-□4F, HW4B-□4F



Bottom View
(for common to non-illuminated switches)



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

- For 1-contact (NC) configurations, the position of the contact block is reversed left to right.
- See P46 for wiring.

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Illuminated Pushbuttons

Quantity: 1

Name / Shape	Operation	Contact Configuration	Part No.
Round Flush (marking)	Momentary	1NO	HW①L-M1F10QD-④-⑥
		1NC	HW①L-M1F01QD-④-⑥
		1NO-1NC	HW①L-M1F11QD-④-⑥
		2NO	HW①L-M1F20QD-④-⑥
		2NC	HW①L-M1F02QD-④-⑥
		2NO-2NC	HW①L-M1F22QD-④-⑥
	Maintained	1NO	HW①L-A1F10QD-④-⑥
		1NC	HW①L-A1F01QD-④-⑥
		1NO-1NC	HW①L-A1F11QD-④-⑥
		2NO	HW①L-A1F20QD-④-⑥
		2NC	HW①L-A1F02QD-④-⑥
		2NO-2NC	HW①L-A1F22QD-④-⑥
Round Extended (marking)	Momentary	1NO	HW①L-M2F10QD-④-⑥
		1NC	HW①L-M2F01QD-④-⑥
		1NO-1NC	HW①L-M2F11QD-④-⑥
		2NO	HW①L-M2F20QD-④-⑥
		2NC	HW①L-M2F02QD-④-⑥
		2NO-2NC	HW①L-M2F22QD-④-⑥
	Maintained	1NO	HW①L-A2F10QD-④-⑥
		1NC	HW①L-A2F01QD-④-⑥
		1NO-1NC	HW①L-A2F11QD-④-⑥
		2NO	HW①L-A2F20QD-④-⑥
		2NC	HW①L-A2F02QD-④-⑥
		2NO-2NC	HW①L-A2F22QD-④-⑥
Round Extended with Full Shroud (marking)	Momentary	1NO	HW①L-MF2F10QD-④-⑥
		1NC	HW①L-MF2F01QD-④-⑥
		1NO-1NC	HW①L-MF2F11QD-④-⑥
		2NO	HW①L-MF2F20QD-④-⑥
		2NC	HW①L-MF2F02QD-④-⑥
		2NO-2NC	HW①L-MF2F22QD-④-⑥
	Maintained	1NO	HW①L-AF2F10QD-④-⑥
		1NC	HW①L-AF2F01QD-④-⑥
		1NO-1NC	HW①L-AF2F11QD-④-⑥
		2NO	HW①L-AF2F20QD-④-⑥
		2NC	HW①L-AF2F02QD-④-⑥
		2NO-2NC	HW①L-AF2F22QD-④-⑥

Name / Shape	Operation	Contact Configuration	Part No.
Square Flush (marking)	Momentary	1NO	HW2L-M1F10QD-④-⑥
		1NC	HW2L-M1F01QD-④-⑥
		1NO-1NC	HW2L-M1F11QD-④-⑥
		2NO	HW2L-M1F20QD-④-⑥
		2NC	HW2L-M1F02QD-④-⑥
		2NO-2NC	HW2L-M1F22QD-④-⑥
	Maintained	1NO	HW2L-A1F10QD-④-⑥
		1NC	HW2L-A1F01QD-④-⑥
		1NO-1NC	HW2L-A1F11QD-④-⑥
		2NO	HW2L-A1F20QD-④-⑥
		2NC	HW2L-A1F02QD-④-⑥
		2NO-2NC	HW2L-A1F22QD-④-⑥
ø29 Mushroom (marking)	Momentary	1NO	HW1L-M3F10QD-④-⑥
		1NC	HW1L-M3F01QD-④-⑥
		1NO-1NC	HW1L-M3F11QD-④-⑥
		2NO	HW1L-M3F20QD-④-⑥
		2NC	HW1L-M3F02QD-④-⑥
		2NO-2NC	HW1L-M3F22QD-④-⑥
	Maintained	1NO	HW1L-A3F10QD-④-⑥
		1NC	HW1L-A3F01QD-④-⑥
		1NO-1NC	HW1L-A3F11QD-④-⑥
		2NO	HW1L-A3F20QD-④-⑥
		2NC	HW1L-A3F02QD-④-⑥
		2NO-2NC	HW1L-A3F22QD-④-⑥
ø40 Jumbo Mushroom (marking)	Momentary	1NO	HW1L-M4F10QD-④-⑥
		1NC	HW1L-M4F01QD-④-⑥
		1NO-1NC	HW1L-M4F11QD-④-⑥
		2NO	HW1L-M4F20QD-④-⑥
		2NC	HW1L-M4F02QD-④-⑥
		2NO-2NC	HW1L-M4F22QD-④-⑥
	Maintained	1NO	HW1L-A4F10QD-④-⑥
		1NC	HW1L-A4F01QD-④-⑥
		1NO-1NC	HW1L-A4F11QD-④-⑥
		2NO	HW1L-A4F20QD-④-⑥
		2NC	HW1L-A4F02QD-④-⑥
		2NO-2NC	HW1L-A4F22QD-④-⑥

- Specify a bezel shape in place of ① in the Part No.
- Specify a color code in place of ④ in the Part No.
- Specify a rated voltage code in place of ⑥ in the Part No.
- Up to 4 contacts can be used.
- For dimensions, see page 9.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Part number structure

① ④ ⑥

H W 1 L - M 1 F 11 QD-G-12V

Bezel shape
- **1**: Round Plastic
- **2**: Square Plastic
- **4**: Round Metal

Operation
- **M**: Momentary
- **A**: Maintained

Button style
- **1**: Flush
- **2**: Extended
- **F2**: Round Extended with full Shroud
- **3**: ø29mm Mushroom
- **4**: ø40mm Mushroom

Contact configuration
- **10**: 1NO
- **01**: 1NC
- **11**: 1NO1NC
- **20**: 2NO
- **02**: 2NC
- **22**: 2NO-2NC

Lens color
- **R**: red
- **G**: green
- **Y**: yellow
- **A**: amber
- **S**: blue
- **PW**: pure white

Rated voltage
- **6V**: 6V AC/DC
- **12V**: 12V AC/DC
- **24V**: 24V AC/DC
- **120V**: 120V AC/DC
- **240V**: 240V AC

Note: The Plastic Square can only be used with "1: Flush(Button)".
Note: The square bezel can only be used with two button types:
1) Flush and 2) Extended.

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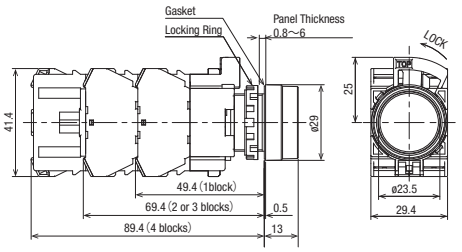
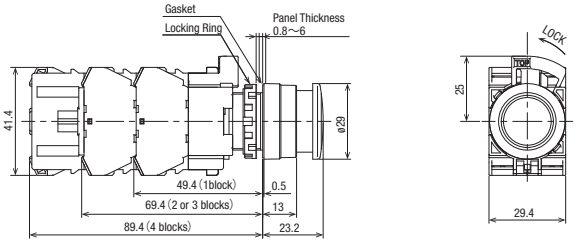
Illuminated Pushbuttons Dimensions

All dimensions in mm.

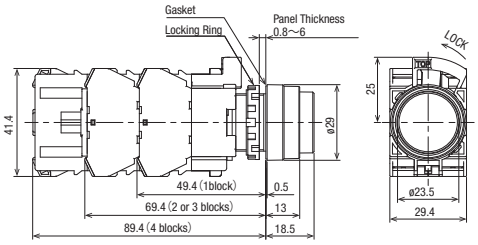
Round Flush
HW1L-□1F, HW4L-□1F



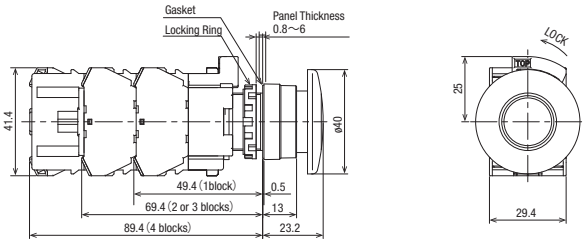
ø29 Mushroom
HW1L-□3F, HW4L-□3F



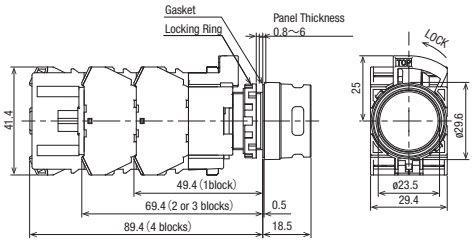
Round Extended
HW1L-□2F, HW4L-□2F



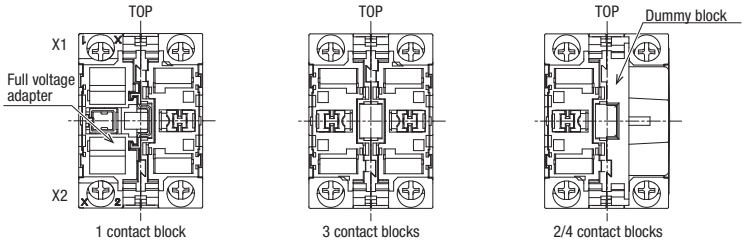
ø40 Jumbo Mushroom
HW1L-□4F, HW4L-□4F



Round Extended with Full Shroud
HW1L-□F2F, HW4L-□F2F

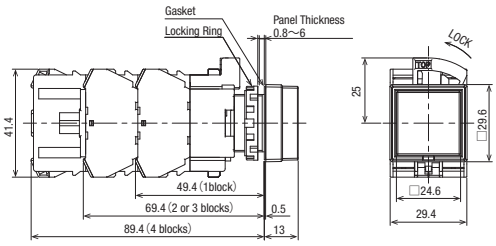


Bottom View (Common to Illuminated Switches)



• See P46 for wiring.

Square Flush
HW2L-□1F



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Dual Pushbuttons

Without Pilot Light

Quantity: 1

Shape / Button type	Operation	Contact Configuration: Top Button	Contact Configuration: Bottom Button	Part No
Flush–Flush	Momentary	1NO	1NC	HW7D-B11F1001-④⑦
		1NO	1NO	HW7D-B11F1010-④⑦
		1NO-1NC	1NO-1NC	HW7D-B11F1111-④⑦
		2NO	2NC	HW7D-B11F2002-④⑦
Flush–Extended		1NO	1NC	HW7D-B12F1001-④⑦
		1NO	1NO	HW7D-B12F1010-④⑦
		1NO-1NC	1NO-1NC	HW7D-B12F1111-④⑦
		2NO	2NC	HW7D-B12F2002-④⑦
Flush–Flush	Interlocking (*1)	1NO	1NC	HW7D-B21F1001-④⑦
		1NO	1NO	HW7D-B21F1010-④⑦
		1NO-1NC	1NO-1NC	HW7D-B21F1111-④⑦
		2NO	2NC	HW7D-B21F2002-④⑦
Flush–Extended		1NO	1NC	HW7D-B22F1001-④⑦
		1NO	1NO	HW7D-B22F1010-④⑦
		1NO-1NC	1NO-1NC	HW7D-B22F1111-④⑦
		2NO	2NC	HW7D-B22F2002-④⑦

Part number structure (without pilot light)

H W 7 D - B 1 1 F 10 10 - GR 1 (④ ⑦)

- Operation: 1: Momentary; 2: Interlocking
- Button type code: 1: Flush–Flush; 2: Flush–Extended
- Contact configuration (top button)
- Contact configuration (bottom button)
- Button color: GR: Top button: Green, Bottom button: Red; WB: Top button: White, Bottom button: Black
- Button legend: Blank: Blank; 1: I & ON / O & OFF

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

With Pilot Light

Quantity: 1

Shape / Button type	Operation	Contact Configuration: Top Button	Contact Configuration: Bottom Button	Part No
Flush–Flush	Momentary	1NO	1NC	HW7D-L11F1001②③-④⑦
		1NO	1NO	HW7D-L11F1010②③-④⑦
		1NO-1NC	1NO-1NC	HW7D-L11F1111②③-④⑦
		2NO	2NC	HW7D-L11F2002②③-④⑦
Flush–Extended		1NO	1NC	HW7D-L12F1001②③-④⑦
		1NO	1NO	HW7D-L12F1010②③-④⑦
		1NO-1NC	1NO-1NC	HW7D-L12F1111②③-④⑦
		2NO	2NC	HW7D-L12F2002②③-④⑦
Flush–Flush	Interlocking (*1)	1NO	1NC	HW7D-L21F1001②③-④⑦
		1NO	1NO	HW7D-L21F1010②③-④⑦
		1NO-1NC	1NO-1NC	HW7D-L21F1111②③-④⑦
		2NO	2NC	HW7D-L21F2002②③-④⑦
Flush–Extended		1NO	1NC	HW7D-L22F1001②③-④⑦
		1NO	1NO	HW7D-L22F1010②③-④⑦
		1NO-1NC	1NO-1NC	HW7D-L22F1111②③-④⑦
		2NO	2NC	HW7D-L22F2002②③-④⑦

Part number structure (with pilot light)

H W 7 D - L 1 1 F 11 20 Q2 W - GR 1 (② ③ ④ ⑦)

- Operation: 1: Momentary; 2: Interlocking
- Button type: 1: Flush–Flush; 2: Flush–Extended
- Contact configuration (top button)
- Contact configuration (bottom button)
- a pilot lamp color code: R: red; G: green; W: white; A: amber; S: blue
- Rated voltage code: Q2: 6V AC/DC, LED; Q3: 12V AC/DC, LED; Q4: 24V AC/DC,LED; Q8: 100/120V AC/DC, LED; QM4: 230/240V AC,LED
- Button color code: GR: Top Button Green, Bottom Button Red; WB: Top Button White, Bottom Button Black
- Button legend code: Blank: Blank; 1: I & ON / O & OFF

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

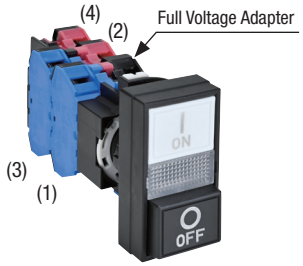
- Specify a rated voltage code in place of ② in the Part No.
- Specify a pilot lamp color code in place of ③ in the Part No.
- Specify a button color code in place of ④ in the Part No.
- Specify a legend code in place of ⑦ in the Part No.
- Up to 4 contacts can be used.
- For dimensions, see page 11.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Contact Configuration

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

← Button position
← Pushbutton operation

Contact Block Mounting Position



With Pilot Light

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

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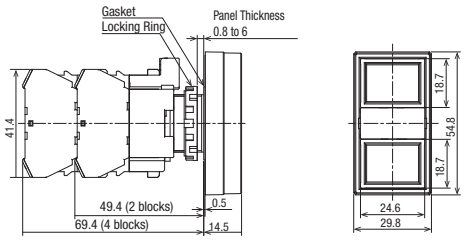
Dual Pushbutton Dimensions

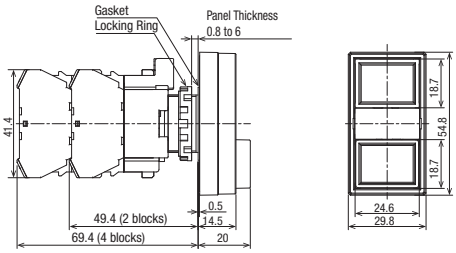
All dimensions in mm.

Without Pilot Light
Flush–Flush

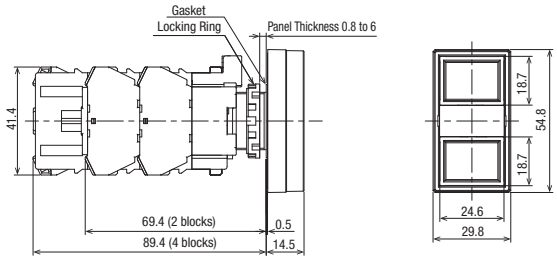


- See P7 for bottom view.
- See P46 for wiring.

Flush–Extended

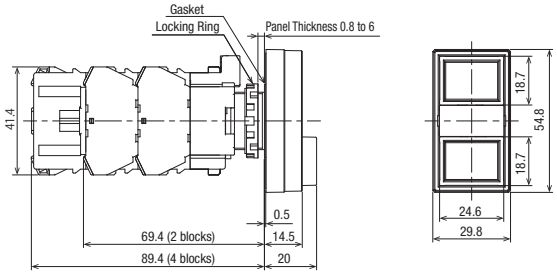


With Pilot Light
Flush–Flush



- See P9 for bottom view.
- See P46 for wiring.

Flush–Extended



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Selector Switches (Knob / Lever Operator) 2-Position

2-position

Quantity: 1

Name / Shape	No. of Positions	Contact configuration (Code)	Contact block: Mounting position	Contact block: Contact	Operator position 1	Operator position 2	Cam Code	Maintained (90° 2-position) Part No.	Spring Return (60° 2-position) Part No.
Knob Operator Lever Operator	2-position	1NO (10)	(1)	NO		●	—	HW①S-2⑧F10	HW①S-21⑧F10
			(2)	—	Dummy				
		1NO-1NC (11)	(1)	NO		●		HW①S-2⑧F11	HW①S-21⑧F11
			(2)	NC	●				
		2NO (20)	(1)	NO		●		HW①S-2⑧F20	HW①S-21⑧F20
			(2)	NO		●			
		2NO-2NC (22)	(1)	NC	●			HW①S-2⑧F22	HW①S-21⑧F22
			(2)	NO		●			
			(3)	NC	●				
			(4)	NO		●			

2-position Reversed Cam

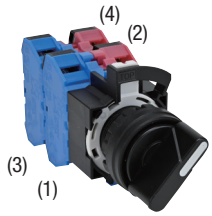
Quantity: 1

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 2	Operator Position 1	Cam Code	Maintained (90° 2-position) Part No.
Knob Operator Lever Operator	2-position	2NC (02)	(1)	NC		●	J	HW1S-2J⑧F02
			(2)	NC		●		
		3NC (03)	(1)	NC		●		HW1S-2J⑧F03
			(2)	NC		●		
			(3)	NC		●		
			(4)	—	Dummy			

- Specify a bezel shape in place of ① in the Part No.
- Specify the operator type code in ⑧ in the Part No.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Note: Turn the operator to each position accurately.

Contact Block Mounting Position



Part number structure

H W 1 S - 2 J ⑧ F 10

- **1**: Plastic Bezel
- **4**: Metal Bezel
- Operator position
  - **2**: 2-position, maintained
  - **21**: 2-position, spring return from right
- Cam code:
  - **J**: Specified (Operator position: **2** only)
  - **Blank**: Not specified
- Operator type
  - **T**: Knob operator
  - **L**: Lever operator
- Contact configuration (See table above)

Operator position

Maintained (90° 2-position)		Spring Return (60° 2-position)
1 2	2 1	Spring Return from Right 1 2
Cam code: blank	Cam code: J	Cam code: blank

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Selector Switches (Knob / Lever Operator) 3-Position

3-position

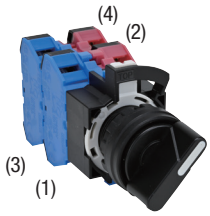
Quantity: 1

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 1	Operator Position 0	Operator Position 2	Cam Code	Maintained (1 0 2)	Spring return from right (1 0 2)	Spring return from left (1 0 2)	Spring return two-way (1 0 2)
									Part No.			
Knob Operator Lever Operator	3-position	1NO-1NC (11)	(1)	NC		▬		—	HW①S-3⑧F11	HW①S-31⑧F11	HW①S-32⑧F11	HW①S-33⑧F11
			(2)	NO			●					
		2NO (20)	(1)	NO	●			—	HW①S-3⑧F20	HW①S-31⑧F20	HW①S-32⑧F20	HW①S-33⑧F20
			(2)	NO			●					
		2NC (02)	(1)	NC		▬		—	HW①S-3⑧F02	HW①S-31⑧F02	HW①S-32⑧F02	HW①S-33⑧F02
			(2)	NC	▬							
		2NO-1NC (21N1) ★☆	(1)	NO	●			J	HW①S-3J⑧F21N1	—	—	—
			(2)	NO			●					
			(3)	NC		●						
			(4)	—	Dummy							
		2NO-2NC (22)	(1)	NC		▬		—	HW①S-3⑧F22	HW①S-31⑧F22	HW①S-32⑧F22	HW①S-33⑧F22
			(2)	NO			●					
			(3)	NC		▬						
			(4)	NO			●					
		2NO-2NC (22N9)	(1)	NC			●	S	HW①S-3S⑧F22N9	—	—	—
			(2)	NC	●							
			(3)	NO	▬							
			(4)	NO			●					
		4NO (40)	(1)	NO	●			—	HW①S-3⑧F40	HW①S-31⑧F40	HW①S-32⑧F40	HW①S-33⑧F40
			(2)	NO			●					
			(3)	NO	●							
			(4)	NO			●					
		4NC (04)	(1)	NC		▬		—	HW①S-3⑧F04	HW①S-31⑧F04	HW①S-32⑧F04	HW①S-33⑧F04
			(2)	NC	▬							
			(3)	NC		▬						
			(4)	NC	▬							

- On the contact configuration marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- On the contact configuration marked with ☆ in the table above, contacts may overlap when the operator position is changed.
- Specify a bezel shape in place of ① in the Part No.
- Specify the operator type code in ⑧ in the Part No.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Note: Turn the operator to each position accurately.

Contact Block Mounting Position



Part number structure

H W ① S - 3 J ⑧ F 10

- ①: 1: Plastic Bezel; 4: Metal Bezel
- 3: Operator position
  - 3: 3-position, maintained
  - 31: 3-position, spring return from right
  - 32: 3-position, spring return from left
  - 33: 3-position, spring return two way
- J: Cam code
  - J: Specified (Operator position: 3 only)
  - Blank: Not specified
- ⑧: Operator type
  - T: Knob operator
  - L: Lever operator
- 10: Contact configuration (See table above)

Operator position

Maintained (45° 3-position)	Spring Return (45° 3-position)		
	Spring return from right (1 0 2)	Spring return from left (1 0 2)	Spring return two-way (1 0 2)
Cam code: Blank, J	Cam code: blank		

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Selector Switches (Knob / Lever Operator) 4-Position, 5-Position

4-position

Quantity: 1

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 1	Operator Position 2	Operator Position 3	Operator Position 4	Cam Code	Maintained (1, 2, 3, 4) Part No.
Knob Operator Lever Operator	4-position	1NO-2NC (12) ★☆	(1)	NO	●				—	HW①S-4⑧F12
			(2)	NC		●				
			(3)	NC			●			
			(4)	—	Dummy					
		1NO-3NC (13N6) ★☆	(1)	NC		▬	▬	▬	—	HW①S-4⑧F13N6
			(2)	NC		●				
			(3)	NC			●			
			(4)	NO				●		
		2NO-2NC (22N3) ★☆	(1)	NO	●				—	HW①S-4⑧F22N3
			(2)	NC		●				
			(3)	NC			●			
			(4)	NO				●		

5-position

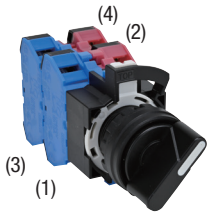
Quantity: 1

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 1	Operator Position 2	Operator Position 3	Operator Position 4	Operator Position 5	Cam Code	Maintained (1, 2, 3, 4, 5) Part No.
Knob Operator	5-position	2NO-2NC (22N3) ★☆	(1)	NO	●					—	HW①S-5⑧F22N3
			(2)	NC		●					
			(3)	NC				●			
			(4)	NO					●		

- On the contact configuration marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- On the contact configuration marked with ☆ in the table above, contacts may overlap when the operator position is changed.
- Specify a bezel shape in place of ① in the Part No.
- Specify the operator type code in ⑧ in the Part No.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Note: Turn the operator to each position accurately.

Contact Block Mounting Position

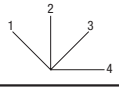


Part number structure

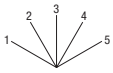
H W ① S - 4 ⑧ F 12

- ①: 1: Plastic Bezel; 4: Metal Bezel
- 4: Operator position — 4: 4-position, maintained; 5: 5-position, maintained
- ⑧: Operator type — T: Knob operator; L: Lever operator
- 12: Contact configuration (See table above)

Operator position for 4-position

Maintained	Spring Return			
	1	2	3	4

Operator position for 5-position

Maintained	Spring Return				
	1	2	3	4	5

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Key Selector Switches (Disc Tumbler Key) 2-Position

2-position

Quantity: 1

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 1	Operator Position 2	Cam Code	Maintained (90° 2-position) Part No.	Spring Return (60° 2-position) Part No.
Disc tumbler	2-position	1NO (10)	(1)	NO		●	—	HW①K-2AF10	HW①K-21BF10
			(2)	—	Dummy				
		1NC (01)	(1)	NC	●			HW①K-2AF01	HW①K-21BF01
			(2)	—	Dummy				
		1NO-1NC (11)	(1)	NO		●		HW①K-2AF11	HW①K-21BF11
			(2)	NC	●				
		2NO (20)	(1)	NO		●		HW①K-2AF20	HW①K-21BF20
			(2)	NO		●			
		2NC (02)	(1)	NC	●			HW①K-2AF02	HW①K-21BF02
			(2)	NC	●				
		2NO-2NC (22)	(1)	NO		●		HW①K-2AF22	HW①K-21BF22
			(2)	NC	●				
			(3)	NO		●			
			(4)	NC	●				

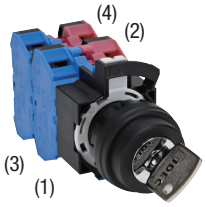
2-position Reversed Cam

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 1	Operator Position 2	Cam Code	Maintained Part No.
Disc tumbler	2-position	2NC (02)	(1)	NC		●	J	HW①K-2JAF02
			(2)	NC		●		
		3NC (03)	(1)	NC		●		HW①K-2JAF03
			(2)	NC		●		
			(3)	NC		●		
			(4)	—	Dummy			

- Each selector key switch is supplied with two keys. Different key numbers are available. See part number structure.
- Specify a bezel shape in place of ① in the Part No.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Note: Turn the operator to each position accurately.

Contact Block Mounting Position



Part number structure

H W ① K - 2 J A F 01 - 501

- ①: **1**: Plastic Bezel; **4**: Metal Bezel
- 2: Operator position — **2**: 2-position, maintained; **21**: 2-position, spring return from right
- J: Cam — **J**: Specified (Operator position: **2** only); **Blank**: Not specified
- A: Key removal position — **A**: Removable in all positions; **B**: Removable in the left only; **C**: Removable in the right only
- F: Contact configuration (See table above)
- 01: Key number — Disc tumbler key: **Blank**: Standard (231); -1H to -3H(non-standard)
- 501: Key number — *For key numbers other than the standard key number, contact IDEC. Note: The key number is engraved on the key cylinder for non-standard keys.

Operator position

Maintained (90° 2-position)		Spring Return (60° 2-position)
1 2	2 1	Spring Return from Right 1 2
Cam code: blank	Cam code: J	Cam code: blank

Key removal position

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

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

①② : Key removal position ❶❷ : Key retained position

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

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Key Selector Switches (Disc Tumbler Key) 3-Position

3-position

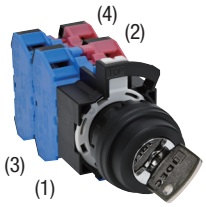
Quantity: 1

Name / Shape	No. of Positions	Contact Configuration (Code)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 1	Operator Position 0	Operator Position 2	Cam Code	Maintained (1 0 2)	Spring return from right (1 0 2)	Spring return from left (1 0 2)	Spring return two-way (1 0 2)
									Part No.			
Disc tumbler	3-position	1NO-1NC (11)	(1)	NC		▬	▬	—	HW①K-3AF11	HW①K-31BF11	HW①K-32CF11	HW①K-33DF11
			(2)	NO			●					
		2NO (20)	(1)	NO	●			—	HW①K-3AF20	HW①K-31BF20	HW①K-32CF20	HW①K-33DF20
			(2)	NO			●					
		2NC (02)	(1)	NC		▬	▬	—	HW①K-3AF02	HW①K-31BF02	HW①K-32CF02	HW①K-33DF02
			(2)	NC	▬	▬						
		2NO-1NC (21N1) ★☆	(1)	NO	●			J	HW①K-3JAF21N1	—	—	—
			(2)	NO			●					
			(3)	NC		●						
			(4)	—	Dummy							
		2NO-2NC (22)	(1)	NC		▬	▬	—	HW①K-3AF22	HW①K-31BF22	HW①K-32CF22	HW①K-33DF22
			(2)	NO			●					
			(3)	NC		▬	▬					
			(4)	NO			●					
		2NO-2NC (22N9)	(1)	NC			●	S	HW①K-3SAF22N9	—	—	—
			(2)	NC	●							
			(3)	NO	▬	▬						
			(4)	NO			●					
		4NO (40)	(1)	NO	●			—	HW①K-3AF40	HW①K-31BF40	HW①K-32CF40	HW①K-33DF40
			(2)	NO			●					
			(3)	NO	●							
			(4)	NO			●					
		4NC (04)	(1)	NC			●	—	HW①K-3AF04	HW①K-31BF04	HW①K-32CF04	HW①K-33DF04
			(2)	NC	●							
			(3)	NC			●					
			(4)	NC	●							

- On the contact configuration marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- On the contact configuration marked with ☆ in the table above, contacts may overlap when the operator position is changed.
- Each selector key switch is supplied with two keys. Different key numbers are available. See part number structure.
- Specify a bezel shape in place of ① in the Part No.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Note: Turn the operator to each position accurately.

Contact Block Mounting Position



Part number structure

H W ① K - 3 J A F 11 -1H

- **1**: Plastic Bezel
- **4**: Metal Bezel

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

Cam
- **J**: Specified (Operator position: **3** only)
- **Blank**: Not specified
- S:Specified (Operator position: 3 only)

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

Contact configuration
(See table above)

Key number
Disc tumbler key
- **Blank**: Standard (231)
- -1H to -3H(non-standard)

*For key numbers other than the standard key number, contact IDEC.
Note: The key number is engraved on the key cylinder for non-standard keys.

Operator position

Maintained (45° 3-position)	Spring Return (45° 3-position)		
	Spring return from right (1 0 2)	Spring return from left (1 0 2)	Spring return two-way (1 0 2)
Cam code: Blank, J	Cam code: blank		

Key removal position

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

⓪①② : Key removal position ❶❷ : Key retained position
Note: The key cannot be removed in a spring return position.

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

2-position

Quantity: 1

Name / Shape	No. of Positions	Contact Configuration	Contact Block		Operator Position		Cam Code	Maintained (90° 2-position)	Spring Return (60° 2-position)
			Mounting Position	Contact	1	2		Part No.	
Knob operator Lever operator	2-position	1NO (10)	(1)	NO		●	—	HW①F-2⑧F10QD-④-⑥	HW①F-21⑧F10QD-④-⑥
			(2)	—	Dummy				
		1NO-1NC (11)	(1)	NO		●	—	HW①F-2⑧F11QD-④-⑥	HW①F-21⑧F11QD-④-⑥
			(2)	NC	●				
		2NO (20)	(1)	NO		●	—	HW①F-2⑧F20QD-④-⑥	HW①F-21⑧F20QD-④-⑥
			(2)	NO		●			
		2NO-2NC (22)	(1)	NO		●	—	HW①F-2⑧F22QD-④-⑥	HW①F-21⑧F22QD-④-⑥
			(2)	NC	●				
			(3)	NO		●			
			(4)	NC	●				

- Specify a bezel shape in place of ① in the Part No.
- Specify a color code in place of ④ in the Part No.
- Specify a rated voltage code in place of ⑥ in the Part No.
- Specify the operator type code in ⑧ in the Part No.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Note: Turn the operator to each position accurately.

Part number structure

H W ① F - 2 J ⑧ F 10QD - ④ - ⑥

- **1**: Plastic Bezel
- **4**: Metal Bezel

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

Cam
- **J**: Specified (Operator position: **2** only)
- **Blank**: Not specified

Operator type
- **Blank**: Knob Operator
- **L**: Lever Operator

Rated voltage
- **6V**: 6V AC/DC
- **12V**: 12V AC/DC
- **24V**: 24V AC/DC
- **120V**: 100/120V AC/DC
- **240V**: 230/240V AC

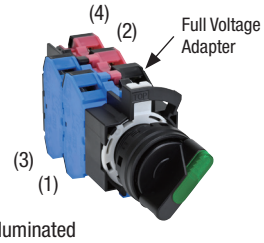
Illuminated color
- **R**: red
- **G**: green
- **Y**: yellow
- **A**: amber
- **S**: blue
- **PW**: pure white

Contact configuration
(See table above)

Operator position

Maintained (90° 2-position)		Spring Return (60° 2-position)
1 2	2 1	Spring Return from Right 1 2
Cam code: blank	Cam code: J	Cam code: blank

Contact Block Mounting Position



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

3-position

Quantity: 1

Name / Shape	No. of Positions	Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position 1	Operator Position 0	Operator Position 2	Maintained (1 0 2)	Spring return from right (1 0 2)	Spring return from left (1 0 2)	Spring return two-way (1 0 2)
								Part No.			
Knob operator Lever operator	3-position	1NO-1NC (11)	(1)	NC		▬		HW①F-3⑧F11QD-④-⑥	HW①F-31⑧F11QD-④-⑥	HW①F-32⑧F11QD-④-⑥	HW①F-33⑧F11QD-④-⑥
			(2)	NO			●				
		2NO (20)	(1)	NO	●			HW①F-3⑧F20QD-④-⑥	HW①F-31⑧F20QD-④-⑥	HW①F-32⑧F20QD-④-⑥	HW①F-33⑧F20QD-④-⑥
			(2)	NO			●				
		2NC (02)	(1)	NC		▬		HW①F-3⑧F02QD-④-⑥	HW①F-31⑧F02QD-④-⑥	HW①F-32⑧F02QD-④-⑥	HW①F-33⑧F02QD-④-⑥
			(2)	NC	▬						
		2NO-2NC (22)	(1)	NC		▬		HW①F-3⑧F22QD-④-⑥	HW①F-31⑧F22QD-④-⑥	HW①F-32⑧F22QD-④-⑥	HW①F-33⑧F22QD-④-⑥
			(2)	NO			●				
			(3)	NC		▬					
			(4)	NO			●				
		4NO (40)	(1)	NO	●			HW①F-3⑧F40QD-④-⑥	HW①F-31⑧F40QD-④-⑥	HW①F-32⑧40QD-④-⑥	HW①F-33⑧F40QD-④-⑥
			(2)	NO			●				
			(3)	NO	●						
			(4)	NO			●				
		4NC (04)	(1)	NC			●	HW①F-3⑧F04QD-④-⑥	HW①F-31⑧F04QD-④-⑥	HW①F-32⑧F04QD-④-⑥	HW①F-33⑧F04QD-④-⑥
			(2)	NC	●						
			(3)	NC			●				
			(4)	NC	●						

- Specify a bezel shape in place of ① in the Part No.
- Specify a color code in place of ④ in the Part No.
- Specify a rated voltage code in place of ⑥ in the Part No.
- Specify the operator type code in ⑧ in the Part No.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Note: Turn the operator to each position accurately.

Part number structure

H W ① F - 3 J ⑧ F 11QD - ④ - ⑥

1: Plastic Bezel
4: Metal Bezel

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

Cam
J: Specified (Operator position: 3 only)
Blank: Not specified

Operator
Blank: Knob operator
L: Lever operator

Contact configuration
(See table above)

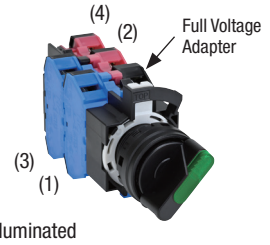
Illumination color
R: red **A**: amber
G: green **S**: blue
Y: yellow **PW**: pure white

Rated voltage
6V: 6V AC/DC **120V**: 100/120V AC/DC
12V: 12V AC/DC **240V**: 230/240V AC
24V: 24V AC/DC

Operator position

Maintained (45° 3-position) (1 0 2)	Spring Return (45° 3-position): Spring return from right (1 0 2)	Spring return from left (1 0 2)	Spring return two-way (1 0 2)
Cam code: Blank, J	Cam code: blank		

Contact Block Mounting Position



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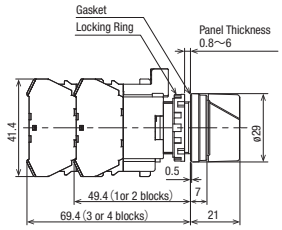
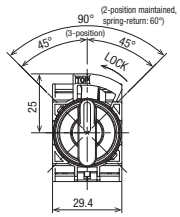
Selector Switches Dimensions

Dimensions

All dimensions in mm.

Knob Operator





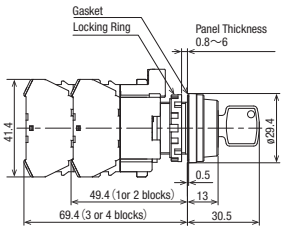
- See P7 for bottom view.
- See P46 for wiring.

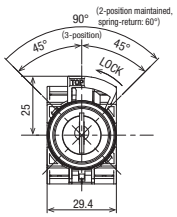
Key Selector Switch Dimensions

Dimensions

All dimensions in mm.

Disc tumbler key





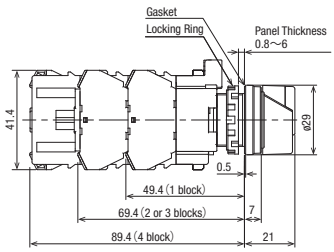
- See P7 for bottom view.
- See P46 for wiring.

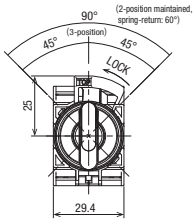
Illuminated Selector Switches (Knob / Lever Operator) (LED)

Dimensions

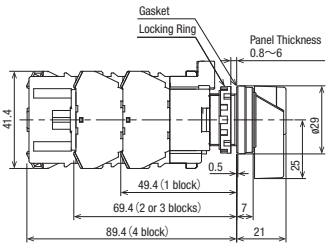
All dimensions in mm.

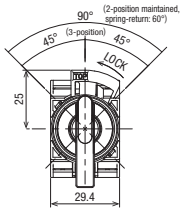
Knob operator





Lever operator





- See P9 for bottom view.
- See P46 for wiring.

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Selector Pushbuttons

Quantity: 1

Name / Shape	Circuit Code	Contact Configuration (Code)	Contact Block		Left		Right		Part No.
			Mounting Position	Contact	Normal	Push	Normal	Push	
	A	1NO-1NC (11)	(1)	NO		●		●	HW1R-2AF11-④
			(2)	NC	●				
		2NO (20)	(1)	NO		●		●	HW1R-2AF20-④
			(2)	NO		●	▬	▬	
		2NO-2NC (22)	(1)	NO		●		●	HW1R-2AF22-④
			(2)	NC	●				
			(3)	NO		●		●	
			(4)	NC	●				
	D	2NO (20)	(1)	NO		●			HW1R-2DF20-④
			(2)	NO				●	
		2NO-2NC (22N1)	(1)	NO		●			HW1R-2DF22N1-④
			(2)	NO				●	
			(3)	NC	●		▬	▬	
			(4)	NC	▬	▬	●		
	E	2NO-2NC (22N1) ★	(1)	NO		●			HW1R-2EF22N1-④
			(2)	NO				●	
			(3)	NC			▬	▬	
			(4)	NC	▬	▬			
	F	2NO-2NC (22N1) ★☆	(1)	NO				●	HW1R-2FF22N1-④
			(2)	NO		●			
			(3)	NC			●		
			(4)	NC	●				
	N	2NO-2NC (22N2) ★☆	(1)	NC			●		HW1R-2NF22N2-④
			(2)	NO		●		●	
			(3)	NC			●		
			(4)	NO		●		●	
	T	2NO-2NC (22N1)	(1)	NO		●	●	Operation Blocked	HW1R-2TF22N1-④
			(2)	NO		●	●		
			(3)	NC	●				
			(4)	NC	●				

- Specify a color code in place of ④ in the Part No.
- On the contact arrangement marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator position is changed.
- When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.
- Up to 4 contacts can be used.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Part number structure

HW1R - 2 D F 20 - ④

Circuit (See table above)

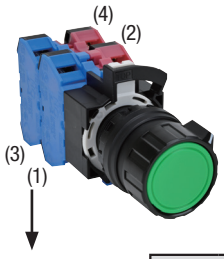
Contact configuration

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

Button color

R: red
G: green
Y: yellow
S: blue
W: White
B: Black

Contact Block Mounting Position

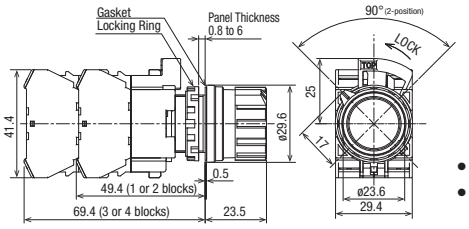


Mounting Position	Contact	Left Normal	Left Push	Right Normal	Right Push
(1)	NO		●		●
(2)	NO	●			
(3)	NC		●		●
(4)	NC	●			

← Ring Position
← Button

Dimensions

All dimensions in mm.



- See P7 for bottom view.
- See P46 for wiring.

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Monolever Switches

Quantity: 1

Name / Shape	Positions	Part No.
HW1M Standard 	2-position	HW1M-F1010-20
		HW1M-F2020-20
		HW1M-F0101-20
		HW1M-F0202-20
		HW1M-F0101-40
		HW1M-F0202-40
	4-position	HW1M-F1111-22N9
		HW1M-F2222-22N9

Name / Shape	Positions	Part No.
HW1M-L Interlocking 	2-position	HW1M-LF1010-20
		HW1M-LF2020-20
		HW1M-LF0101-20
		HW1M-LF0202-20
		HW1M-LF0101-40
		HW1M-LF0202-40
	4-position	HW1M-LF1111-22N9
		HW1M-LF2222-22N9

- 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.
- Up to 4 contacts can be used.
- Other configurations available. See below for part number structure.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Part number structure

H W 1 M-L F 1 0 1 0 - 20

Up Right Down Left

Type
HW1M: Standard
HW1M-L: Interlocking

Lever operation
Order of Entry
Up - Right - Down - Left
1: Maintained
2: Spring returned
0: Blocked

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

Lever operation

Note
- The lever operator of the HW1M-L interlocking type can be locked only in the center position. Pull the interlocking lever, and then operate the lever up/down/right/left.

Contact Configuration

2-position (Right/Left)

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

2-position (Up/Down)

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

4-position

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

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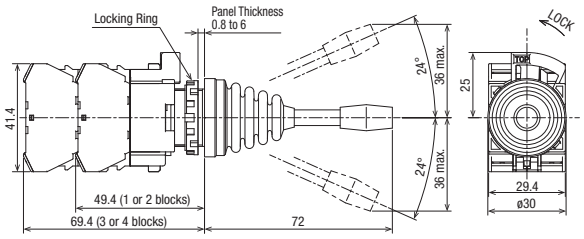
Monolever Switches

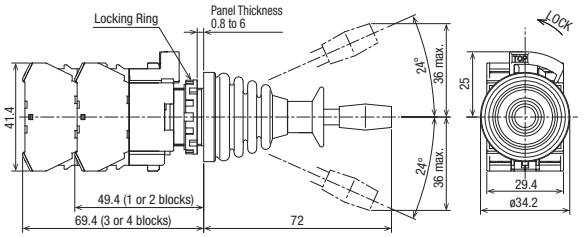
Dimensions

All dimensions in mm.

Standard



Interlocking



- See P7 for bottom view.
- See P46 for wiring.

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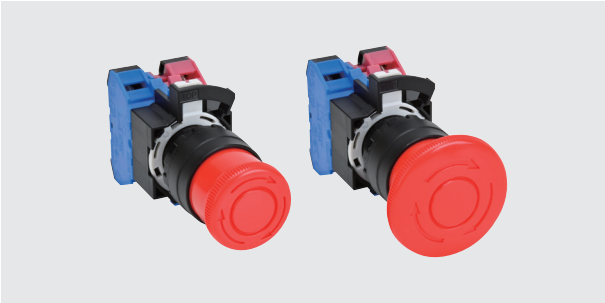
Emergency Stop Switches

Emergency Stop Switches

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

LISTED

- See website for details on approvals and standards.

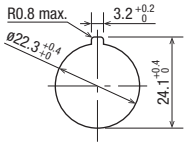


Specifications

Operating Temperature		–25 to +60°C (no freezing)
Operating Humidity		45 to 85% RH (no condensation)
Storage Temperature		–40 to +80°C (no freezing)
Minimum Force Required for Direct Opening Action		80N (Pushlock switches) 50N (Push-pull switches)
Minimum Operator Stroke Required for Direct Opening Action		6.0mm
Maximum Operator Stroke		10.0mm
Contact Resistance		50 mΩ maximum (initial value)
Insulation Resistance		100 MΩ minimum (500V DC megger)
Dielectric Strength		Between live and dead parts: 2500V AC, 1 minute Between terminals of different poles: 2500V AC, 1 minute Bet ween terminals of the same poles: 2500V AC, 1 minute
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/s²
	Operating extremes	100 m/s²
Operation Frequency		900 operations/hour
Life	Mechanical	Pushlock turn reset / key reset: 500,000 operations minimum Push–Pull: 250,000 operations minimum
	Electrical	Pushlock turn reset / key reset: 500,000 operations minimum Push–Pull: 250,000 operations minimum (at 900 operations/h, duty ratio 40%)
Degree of Protection		IP65 (IEC 60529), UL Type 4X
Short-circuit Protection		250V/10A fuse (Type aM IEC 60269-1/IEC 60269-2)
Weight (approx.)		76g (HW1B-V322) 99g (HW1B-X422R) 54g (HW1B-Y202) 79g (HW1B-V422R-EMO)

Mounting Hole Layout

All dimensions in mm.



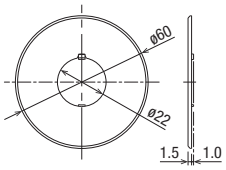
Minimum Mounting Centers for HW1B (emergency stop switch)

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

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

Nameplate (for ø22 mm Emergency Stop Switches)

Quantity: 1

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

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

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

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Emergency Stop Switches

Pushlock Turn Reset

Name / Shape	Contact Configuration	Part No.
ø29mm Mushroom HW1B-V3, HW4B-V3 	1NO	HW①B-V3F10-④
	1NC	HW①B-V3F01-④
	1NO-1NC	HW①B-V3F11-④
	2NO	HW①B-V3F20-④
	2NC	HW①B-V3F02-④
ø40mm Mushroom HW1B-V4, HW4B-V4 	1NO	HW①B-V4F10-④⑨
	1NC	HW①B-V4F01-④⑨
	1NO-1NC	HW①B-V4F11-④⑨
	2NO	HW①B-V4F20-④⑨
	2NC	HW①B-V4F02-④⑨
ø60mm Mushroom HW1B-V5 *Available in red only.	1NO	HW1B-V5F10-R
	1NC	HW1B-V5F01-R
	1NO-1NC	HW1B-V5F11-R
	2NO	HW1B-V5F20-R
	2NC	HW1B-V5F02-R

Quantity: 1

Pushlock Turn Reset

Name / Shape	Contact Configuration	Part No.
ø40mm Key Reset* HW1B-X4, HW4B-X4 *Available in red only.	1NO	HW①B-X4F10-R
	1NC	HW①B-X4F01-R
	1NO-1NC	HW①B-X4F11-R
	2NO	HW①B-X4F20-R
	2NC	HW①B-X4F02-R

Push Pull

Name / Shape	Contact Configuration	Part No.
ø40mm Mushroom HW1B-Y2, HW4B-Y2 	1NO	HW①B-Y2F10-④
	1NC	HW①B-Y2F01-④
	1NO-1NC	HW①B-Y2F11-④
	2NO	HW①B-Y2F20-④
	2NC	HW①B-Y2F02-④

- Specify a bezel shape in place of ① in the Part No.
- Specify a color code in place of ④ in the Part No.
- Specify an engraved button in place of ⑨ in the Part No.
- Pushlock turn reset – Button is maintained when pressed and is reset when turned clockwise.
- Push-Pull – 2-position switches with button maintained in both depressed and reset positions.
- Up to 4 contacts can be used.
- For emergency stop purposes, these switches must contain at least one NC contact block.
- For sub-assembled units (operator unit / contact unit), see page 26 to 32.

Part number structure

① ④ ⑨
H W 1 B-V 4 F 11-R-EMO-2

1: Plastic Bezel
4: Metal Bezel

Operation
V: Pushlock Turn Reset
X: Pushlock Key Reset

Button type
3: ø29mm Mushroom (pushlock turn reset)
4: ø40mm Mushroom (pushlock turn reset)
5: ø60mm Mushroom (pushlock turn reset)

Engraved Button*
EMO-2: EMO switch
*Option available for red EMO E-Stop only

Button color
R: red
Y: yellow
* Note: some switches only available in red.

Contact configuration
01: 1NC
11: 1NO-1NC
02: 2NC
12N2: 1NO-2NC
03N2: 3NO
22: 2NO-2NC
04: 4NC

Part number structure

① ④
H W 1 B-Y2F 11-R

1: Plastic Bezel
4: Metal Bezel

Button color
R: red
Y: yellow

Contact configuration
01: 1NC
11: 1NO-1NC
02: 2NC
12N2: 1NO-2NC
03N2: 3NO
22: 2NO-2NC
04: 4NC

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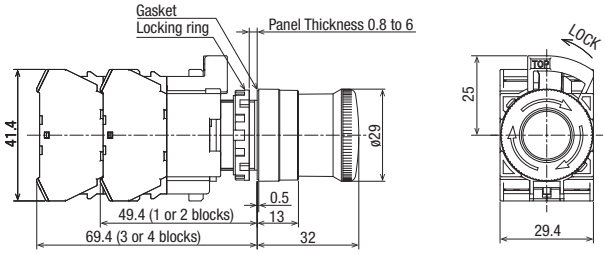
Emergency Stop Switch Dimensions

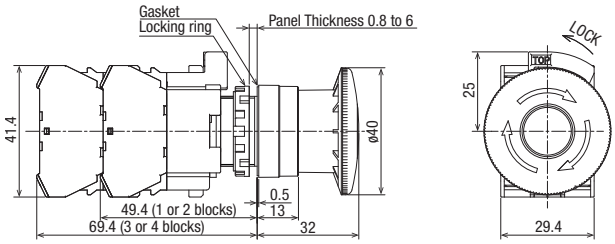
Dimensions

All dimensions in mm.

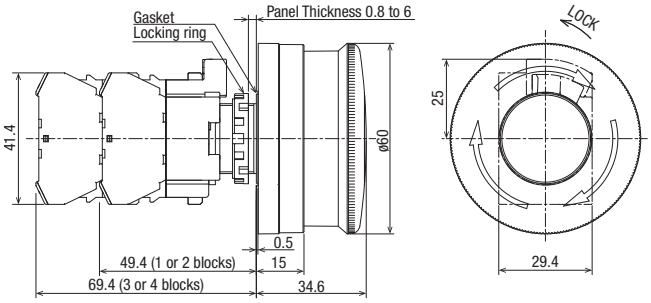
ø29mm Mushroom Pushlock Turn Reset
HW1B-V3, HW4B-V3



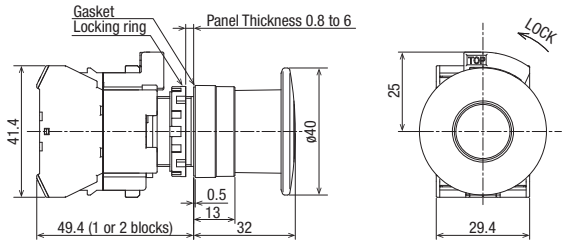
ø40 mm Mushroom Pushlock Turn Reset
HW1B-V4, HW4B-V4



ø60mm Mushroom Pushlock Turn Reset
HW1B-V5



ø40mm Mushroom Push Pull (2-position)
HW1B-Y2, HW4B-Y2



• See P7 for bottom view.
• See P46 for wiring.

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ø22 HW Series

Sub-Assembled Products

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ø22 HW Series Sub-Assembled Products

Operator Unit

Pushbutton operator

Quantity: 1

Name / Shape	Plastic Bezel	Metal Bezel
	Part No.	
Round Flush	HW1B-M1④-PS-U	HW4B-M1④-PS-U
	HW1B-A1④-PS-U	HW4B-A1④-PS-U
Round Extended	HW1B-M2④-PS-U	HW4B-M2④-PS-U
	HW1B-A2④-PS-U	HW4B-A2④-PS-U
ø29mm Mushroom	HW1B-M3④-PS-U	HW4B-M3④-PS-U
	HW1B-A3④-PS-U	HW4B-A3④-PS-U
ø40mm Mushroom	HW1B-M4④-PS-U	HW4B-M4④-PS-U
	HW1B-A4④-PS-U	HW4B-A4④-PS-U

• Specify the button color code in place of ④ in the Part No.

Name / Shape	Part No.
ø60mm Mushroom	HW1B-M5④-PS-U
Square Flush	HW2B-M1④-PS-U
	HW2B-A1④-PS-U
Square Extended	HW2B-M2④-PS-U
	HW2B-A2④-PS-U

Part number structure

H W 1 B - M 1 B - PS -U (④)

Bezel shape
- 1: Plastic Round
- 2: Plastic Square
- 4: Metal Round

Operation
- M: Momentary
- A: Maintained

Button type
- 1: Flush
- 2: Extended
- 3: ø29mm Mushroom
- 4: ø40mm Mushroom
- 5: ø60mm Mushroom

Button color
- B: black
- G: green
- R: red
- Y: yellow
- S: blue
- W: white

Note: Only B (black), G (green), and R (red) available for ø60mm mushroom.

Note: The ø60mm mushroom can only be used with "1:Plastic Round(Bezel)".
Note: The square bezel can only be used with two button types: 1) Flush and 2) Extended.

Illuminated Pushbutton operator

Name / Shape	Plastic Bezel	Metal Bezel
	Part No.	
Round Flush (marking)	HW1L-M1④-PS-U	HW4L-M1④-PS-U
	HW1L-A1④-PS-U	HW4L-A1④-PS-U
Round Extended (marking)	HW1L-M2④-PS-U	HW4L-M2④-PS-U
	HW1L-A2④-PS-U	HW4L-A2④-PS-U
Round Extended with Full Shroud (marking)	HW1L-MF2④-PS-U	HW4L-MF2④-PS-U
	HW1L-AF2④-PS-U	HW4L-AF2④-PS-U
ø29 Mushroom (marking)	HW1L-M3④-PS-U	HW4L-M3④-PS-U
	HW1L-A3④-PS-U	HW4L-A3④-PS-U
ø40 Jumbo Mushroom (marking)	HW1L-M4④-PS-U	HW4L-M4④-PS-U
	HW1L-A4④-PS-U	HW4L-A4④-PS-U
Square Flush (marking)	HW2L-M1④-PS-U	—
	HW2L-A1④-PS-U	—

• Specify the button color code in place of ④ in the Part No.

Part number structure

H W 1 L - M 1 G - PS -U (④)

Bezel shape
- 1: Plastic Round
- 2: Plastic Square
- 4: Metal Round

Operation
- M: Momentary
- A: Maintained

Illumination button color
- G: green
- R: red
- Y: yellow
- A: Amber
- S: blue
- PW: Pure white

Button type
- 1: Flush
- 2: Extended
- F2: Round Extended with full Shroud
- 3: ø29mm Mushroom
- 4: ø40mm Mushroom

Note: The Plastic Square can only be used with "1: Flush(Button)".
Note: The square bezel can only be used with two button types: 1) Flush and 2) Extended.

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Operator Unit

Quantity: 1

Dual pushbutton operator (without pilot light)

Shape	Part No.
	HW7D-B11⑥⑦-PS-U
	HW7D-B12⑥⑦-PS-U
	HW7D-B21⑥⑦-PS-U
	HW7D-B22⑥⑦-PS-U

• Specify a code in place of ⑥ and ⑦ in the Part No.

Part number structure

H W 7 D - B 1 1 GR 1 -PS-U (⑥ ⑦)

Operation
- 1: Momentary
- 2: Interlocking

Button type
- 1: Flush–Flush
- 2: Flush–Extended

Button color
- GR: Top Button Green, Bottom Button Red
- WB: Top Button White, Bottom Button Black

Button legend
- Blank: Blank
- 1: I & ON / O & OFF

Dual pushbutton operator (with pilot light)

Shape	Part No.
	HW7D-L11PW⑥⑦-PS-U
	HW7D-L12PW⑥⑦-PS-U
	HW7D-L21PW⑥⑦-PS-U
	HW7D-L22PW⑥⑦-PS-U

• Specify a code in place of ⑥ and ⑦ in the Part No.

Part number structure

H W 7 D - L 1 1 PW GR 1 -PS-U (⑥ ⑦)

Operation
- 1: Momentary
- 2: Interlocking

Button type
- 1: Flush–Flush
- 2: Flush–Extended

Button color
- GR: Top Button Green, Bottom Button Red
- WB: Top Button White, Bottom Button Black

Button legend
- Blank: Blank
- 1: I & ON / O & OFF

Selector switch operator

Name / Shape	Plastic Bezel	Metal Bezel
	Part No.	
Knob	HW1S-⑨⑩T-PS-U	HW4S-⑨⑩T-PS-U
Lever	HW1S-⑨⑩L-PS-U	HW4S-⑨⑩L-PS-U

• Specify a code in place of ⑨ and ⑩ in the Part No.

Part number structure

H W 1 S - 2 J L - PS-U (⑨⑩)

Bezel shape
- 1. Plastic Bezel
- 4. Metal Bezel

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

Operator
- T: Knob operator
- L: Lever operator

Cam
- J: Specified (Operator position: 2, 3 only)
- Blank: Not specified

Operator position

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

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

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Operator Unit

Quantity: 1

Key selector switch operator

Name / Shape	Plastic Bezel	Metal Bezel
	Part No.	
Disc tumbler	HW1K-⑨⑩⑪-⑥-PS-U	HW4K-⑨⑩⑪-⑥-PS-U

• Specify a code in place of ⑨, ⑩, ⑪, and ⑥ the Part No.

Part number structure

⑨⑩⑪
H W 1 K - 2 J A -⑥- PS -U

Bezel shape
1. Plastic Bezel
4. Metal Bezel

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

Cam
J: Specified (Operator position: **2**, **3** only)
Blank: Not specified

Key number
Disc tumbler key
Blank: Standard (231)

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

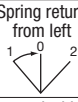
Key removal position

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

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

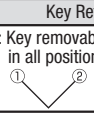
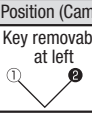
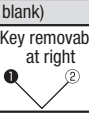
Operator position code

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

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

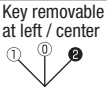
Key removal position

90° 2-position / 60° 2-position

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

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

45° 3-position

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

⓪①② : Key removal position ❶❶❷ : Key retained position
Note: The key cannot be removed in a spring return position.

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Operator Unit

Quantity: 1

Illuminated selector switch operator

Name / Shape	Plastic Bezel	Metal Bezel
	Part No.	
Knob	HW1F-⑨④-PS-U	HW4F-⑨④-PS-U
Lever	HW1F-⑨L④-PS-U	HW4F-⑨L④-PS-U

• Specify a code in place of ⑨ and ④ in the Part No.

Part number structure

H W 1 F - 2 L R - PS -U (⑨ ④)

Bezel shape
1. Plastic Bezel
4. Metal Bezel

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

Illuminated color
R: red
G: green
Y: yellow
A: amber
S: blue
PW: pure white

Operator
Blank: Knob Operator
L: Lever Operator

Selector pushbutton switch operator

Shape	Part No.
	HW1R-2A③-PS-U
	HW1R-2D③-PS-U
	HW1R-2E③-PS-U
	HW1R-2F③-PS-U
	HW1R-2N③-PS-U
	HW1R-2T③-PS-U

• Specify a code in place of ③ in the Part No.

Part number structure

HW1R - 2 A B - PS -U (③)

Circuit
(See page 20)

Button color
R: red
G: green
B: black
Y: yellow
S: blue
W: white

Monolever switch operator

Name / Shape	Part No.
HW1M Standard	HW1M-1010-PS-U
	HW1M-2020-PS-U
	HW1M-0101-PS-U
	HW1M-0202-PS-U
	HW1M-1111-PS-U
	HW1M-2222-PS-U
HW1M-L Interlocking	HW1M-L1010-PS-U
	HW1M-L2020-PS-U
	HW1M-L0101-PS-U
	HW1M-L0202-PS-U
	HW1M-L1111-PS-U
	HW1M-L2222-PS-U

Part number structure

HW1M - L 1 0 1 0 - PS -U
(Up Right Down Left)

Monolever type
HW1M: Standard
HW1M-L: Interlocking

Lever operation mode
Order of Entry
Up - Right - Down - Left
1: Maintained
2: Spring returned
0: Blocked

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Operator Unit

Quantity: 1

Non-Illuminated E-Stop Pushbutton switch operator

Pushlock Turn Reset

Name / Shape	Part No.	
	Plastic	Metal
ø29mm Head Pushlock Turn Reset	HW1B-V3④-PS-U	HW4B-V3④-PS-U
ø40mm Head Pushlock Turn Reset	HW1B-V4④-PS-U	HW4B-V4④-PS-U
ø60mm Head Pushlock Turn Reset*	HW1B-V5R-PS-U	–

Part number structure

HW1B - V 3 ④R - PS -U

Bezel shape
- 1: Plastic Round
- 4: Metal Round

Button color
- R: red
- Y: yellow

Operation
- V: Pushlock Turn Reset
- Y: Push Pull

Button type
- 3: ø29mm Mushroom (pushlock turn reset)
- 4: ø40mm Mushroom (pushlock turn reset)
- 5: ø60mm Mushroom (pushlock turn reset)
- 2: ø40mm Mushroom (push pull)

Note: The ø60mm mushroom can only be used with "1:Plastic Round(Bezel)".

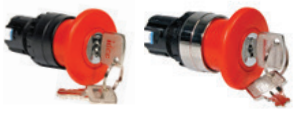
Push Pull

Name / Shape	Part No.	
	Plastic	Metal
ø40mm Head Push-Pull	HW1B-Y2④-PS-U	HW4B-Y2④-PS-U

Head EMO Pushlock Turn Reset

Name / Shape	Part No.	
	Plastic	Metal
ø40mm Head EMO Pushlock Turn Reset*	HW1B-V4R-EMO-2-PS-U	HW4B-V4R-EMO-2-PS-U

Pushlock Key Reset

Name / Shape	Part No.	
	Plastic	Metal
ø40mm Head Pushlock Key Reset* 	HW1B-X4R-PS-U	HW4B-X4R-PS-U

- Specify the button color code in place of ④ in the Part No.
- *Available in red only.
- All E-Stop buttons are not removable.

Note: Determine mounting centers to ensure proper spacing.

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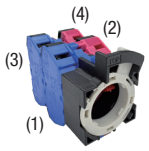
Contact Unit / Contact Unit with Full Voltage Adapter

Contact Unit (illuminated) Part No. / Contact Configuration

Quantity: 1

Shape / Contact Block Mounting Position

Non-Illminated

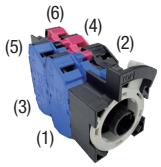


Contact Configuration (Code)	Part No.	Mounting Position	Contact
1NO (10)	HW-CNF10	(1)	NO
		(2)	Dummy
1NC (01)	HW-CNF01	(1)	NC
		(2)	Dummy
1NO-1NC (11)	HW-CNF11	(1)	NO
		(2)	NC
2NO (20)	HW-CNF20	(1)	NO
		(2)	NO
2NC (02)	HW-CNF02	(1)	NC
		(2)	NC
2NO-2NC (22)	HW-CNF22	(1)	NO
		(2)	NO
		(3)	NC
		(4)	NC
4NO (40)	HW-CNF40	(1)	NO
		(2)	NO
		(3)	NO
		(4)	NO
4NC (04)	HW-CNF04	(1)	NC
		(2)	NC
		(3)	NC
		(4)	NC

Note) Gold contact option is available. Add suffix "MAU" to end of part number. For example, HW-CNF20 becomes HW-CNF20-MAU.

Shape / Contact Block Mounting Position

Illminated



Note) The full voltage adapter can only be assembled at position (2).

Contact Configuration (Code)	Part No.	Mounting Position	Contact
1NO (10)	HW-CNF10Q0	(1)	NO
		(2)	Full voltage adapter
1NC (01)	HW-CNF01Q0	(1)	NC
		(2)	Full voltage adapter
1NO-1NC (11)	HW-CNF11Q0	(1)	NO
		(2)	Full voltage adapter
		(3)	Dummy
		(4)	NC
2NO (20)	HW-CNF20Q0	(1)	NO
		(2)	Full voltage adapter
		(3)	Dummy
		(4)	NO
2NC (02)	HW-CNF02Q0	(1)	NC
		(2)	Full voltage adapter
		(3)	Dummy
		(4)	NC
2NO-2NC (22)	HW-CNF22Q0	(1)	NO
		(2)	Full voltage adapter
		(3)	NO
		(4)	NC
		(5)	Dummy
		(6)	NC
4NO (40)	HW-CNF40Q0	(1)	NO
		(2)	Full voltage adapter
		(3)	NO
		(4)	NO
		(5)	Dummy
		(6)	NO
4NC (04)	HW-CNF04Q0	(1)	NC
		(2)	Full voltage adapter
		(3)	NC
		(4)	NC
		(5)	Dummy
		(6)	NC

Note) LED lamp is not installed. When ordering a contact unit (illuminated), select a LED lamp from the options listed on page 39.

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ø22 HW Series

Accessories and Maintenance Parts

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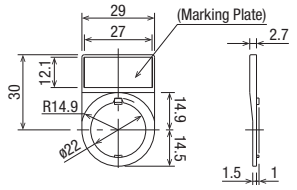
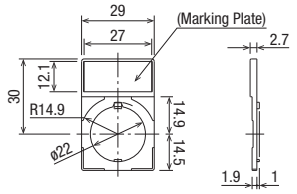
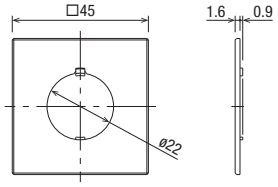
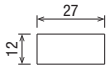
Nameplates

All dimensions in mm

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

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

Marking Plates for HWAM/HWAQ

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

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

Legends

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

• See page 45 on how to install nameplates/marking plates, and on how to remove marking plates.

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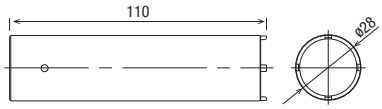
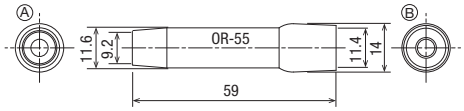
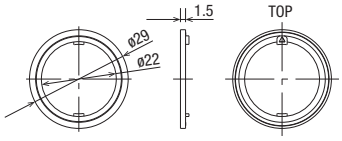
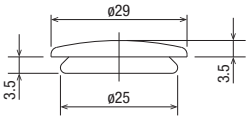
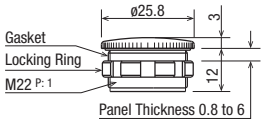
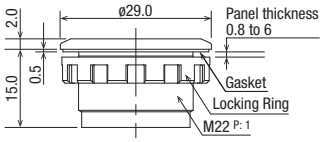
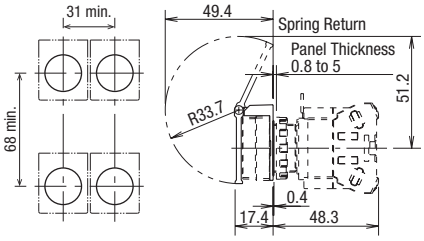
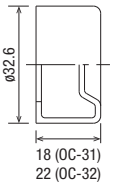
Accessories

All dimensions in mm

	Name / Shape	Material	Part No.	Quantity	Remarks
Tool	Locking Ring Wrench	Metal (brass) Weight: approx. 150g	MW9Z-T1	1	• Used to tighten the locking ring when installing the HW switch onto a panel. 
Tool	Lamp Holder Tool	Nitrile rubber (black)	OR-55	1	• Used to install and remove the LED lamps. See page 42 for how to install. Ⓐ : BA9S 
Anti-rotation Ring		Ring: polyamide Gasket: nitril rubber	HW9Z-RL	10	• Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and pushbutton selectors. 
Rubber Mounting Hole Plug		Nitril rubber (black)	OB-31	5	• Degree of protection: IP65 (round hole), IP40 (with anti-rotation function) 
Mounting Hole Plug		Plug: Metal (Zinc diecast) Locking nut: Polyamide Gasket: Nitrile rubber	LW9Z-BM	1	• Degree of protection: IP66 (round hole), IP40 (with anti-rotation function) • Tightening torque: 1.2 N·m 
Mounting Hole Plug		Polyamide	LW9Z-BP1	1	• Degree of protection: IP65 • Tightening torque: 2.0 N·m 
Switch Guard	Spring Return	Guard: Polyacetal Cover: polyarylate Gasket: Nitrile rubber	HW9Z-K1	1	• Used to prevent inadvertent operation for flush pushbuttons. Degree of protection: IP65 • Maintained type stops at 90° and 180°. 
	Maintained		HW9Z-K11	1	
Button Clear Boot	For flush pushbuttons	Rubber (EPDM)	OC-31	1	• Used to cover and protect pushbuttons where units are subject to water splash. Not suitable for outdoor use or where the units are subject to oil splash. • Cannot be used with nameplates HWAM, HWAQ, HWAS, or HWAV. 
	For extended pushbuttons		OC-32	1	

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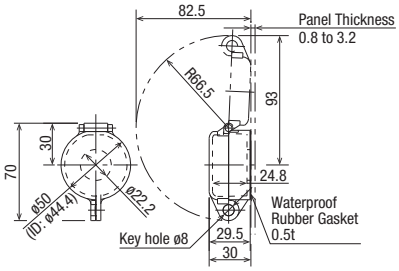
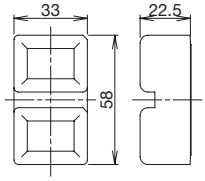
Accessories

All dimensions in mm

Name / Shape	Material	Part No.	Quantity	Remarks
Padlock Cover	Polyarylate Gasket: Nitrile rubber	HW9Z-KL1	1	• Used to protect pushbuttons, selector switches, and key selector switches. 
Rubber Boot for Dual Pushbutton Switches	Clear Silicon Rubber	HW9Z-D7D	1	• IP65 
Ring Adapter	Nitryl rubber	HW9Z-A25	5	• Used to install the HW series units into ø25 mm mounting holes. Degree of protection: IP65 • Cannot be used with anti-rotation and nameplate. • Mounting panel thickness: 1.2 to 6.0 mm • See page 44 for details.
Ring Adapter	Gasket: polyamide Washer: metal (brass)	HW9Z-A30	2	• Used to install the HW series units (round type) into ø30 mm mounting holes (except HW1P-5, HW1B-M5/V5, HW7D). Degree of protection: IP65 • Cannot be used with anti-rotation ring and nameplate. Cannot be used on full shroud illuminated pushbuttons, selector pushbuttons, and mono-lever switches. • Mounting panel thickness: 1.6 to 4.0 mm

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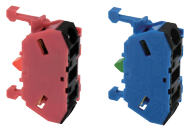
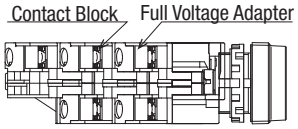
Maintenance Parts

Name / Shape	Material	Part No.	Quantity	Remarks
Contact blocks (without side entry)	NO contact Housing color: blue Holder color: green	HW-U10-F	1	These contacts are applicable for wires terminated by ring, fork, or ferule terminals, and also bare wire connections.
		HW-U10-F-MAU	1	
	NC contact Housing color: reddish purple Holder color: red	HW-U01-F	1	
		HW-U01-F-MAU	1	
	NO contact (early make) Housing color: blue Holder color: black	HW-U10R-F	1	
		HW-U10R-F-MAU	1	
	NC contact (late break) Housing color: reddish purple Holder color: white	HW-U01R-F	1	
		HW-U01R-F-MAU	1	
Contact blocks (with side entry) 	NO contact Housing color: blue Holder color: green	HW-U10	1	These contacts are applicable for wires terminated by ring, fork, terminals, not recommended for bare wire connections.
		HW-U10-MAU	1	
	NC contact Housing color: reddish purple Holder color: red	HW-U01	1	
		HW-U01-MAU	1	
	NO contact (early make) Housing color: blue Holder color: black	HW-U10R	1	
		HW-U10R-MAU	1	
	NC contact (late break) Housing color: reddish purple Holder color: white	HW-U01R	1	
		HW-U01R-MAU	1	
Dummy Block	Polyamide (black)	HW-DB	10	Non-Illmination switches with 1 or 3contact blocks contain 1 dummy block. Illmination switches with 2 or 4contact blocks contain 1 dummy block.
Full voltage adapter (without side entry) HW-UA1-FH		HW-UA1-FH	1	Applicable model: Illuminated pushbuttons Illuminated selector switches Dual pushbutton (with pilot light) Applicable load (LED lamp) LSRD-6 (6V AC/DC) LSRD-1 (12V AC/DC) LSRD-2 (24V AC/DC) LSRD-H2 (100/120V AC/DC) LSRD-M2 (200/220V AC) LSRD-M4 (230/240V AC)
Connecting unit	Weight: approx. 9g	HW-CN	1	Connecting unit for Screw type terminal

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Maintenance Parts

All dimensions in mm

Name / Shape		Material/Dimensions	Part No.	Quantity	Color Code ∗
Lens	①Round flush	Polyarylate ø23.5 H4.2	HW9Z-L11∗-K	5	R (red), G (green), Y (yellow), A (amber), C (clear), S (blue)
	②Square flush	Polyarylate ø24.6 H4	HW9Z-L21∗-K	5	
	③Round extended	Polyarylate ø23.3 H10	HW9Z-L12∗-K	5	
	④ø29 mushroom	AS, marking type ø29 H12.7	ALW31LD-∗-K	2	
	⑤ø40 mushroom	AS, marking type ø40 H12.7	ALW41LD-∗-K	1	
	⑥Dome for pilot light	AS ø23.5 H15.1	HW1A-P2∗-K	5	R (red), G (green), Y (yellow), A (amber), W (white), S (blue)
Replacement Jumbo Dome Lens		Polycarbonate Replacement Lens (If using yellow lens, use white LED.	HW1A-P5① ① = (A, G, R, S, W, Y))		
Replacement Jumbo LED Diffusing Lens			HW9Z-PP5C		
Button	①Round flush with round or square bezel	Polyacetal ø23.6 H3	HW1A-B1∗	5	• Use ① for Selector pushbuttons B (black), G (green), R (red), Y (yellow), S (blue), W (white)
	②Round extended with round or square bezel	Polyacetal ø23.6 H9.2	HW1A-B2∗	5	
	③Square flush	Polyacetal □24.8 H3	HW2A-B1∗	5	
	④Square extended	Polyacetal □24.5 H9.2	HW2A-B2∗	5	
	⑤ø29 mushroom	Polyacetal ø29 H12.7 (M18P1.0)	HW1A-B3∗	2	
	⑥ø40 mushroom	Polyacetal ø40 H12.7 (M18P1.0)	HW1A-B4∗	2	
Marking Plate: Round flush		Acrylic ø21.5 Thickness = 1	HW9Z-P11	5	• White • See page 45 for dimensions and engraving area.
Marking Plate: Round extended		Acrylic ø21.3 Thickness = 6.5	HW9Z-P12	5	
Marking Plate: Square flush		Acrylic 22.7 Thickness = 1	HW9Z-P21	5	
Marking Plate: ø29/40 mm mushroom		Acrylic ø15.7 H3.4	ALW3B	5	
Operator Knob for Illuminated Selector Switch		AS resin	HW9Z-FDY∗-K	1	R (red), G (green), Y (yellow), A (amber), W (white), S (blue)
Operator Lever for Illuminated Selector Switch			HW9Z-FDL-K	1	
Spare Key (Disc Tumber Key)		Metal (nickel-plated brass)	HW9Z-SK-231	2	

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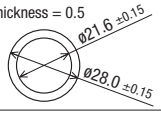
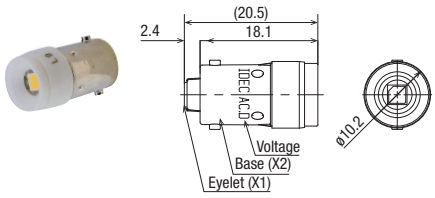
Maintenance Parts

All dimensions in mm

Name / Shape		Material/Dimensions	Part No.	Quantity	Remarks
Locking Ring		Polyamide (black) ø28.4 H5 M22P1	HW9Z-LN	5	
Cap for Mono-lever Switch	Standard	Nitryl rubber ø10 L20	HW9Z-CPM	1	
Boot for Mono-lever Switch	Standard	Nitryl rubber ø29.2 L34.4	HW9Z-BLM	1	
Gasket		Nitryl rubber (black)	HW9Z-WM	10	Thickness = 0.5 
Barrier for Dual Pushbuttons		Plastic barrier. Used when mounting the HW7 units on 30mm horizontal centers, to prevent possible interconnections between adjoining terminals.	HW-VU1		

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

HW Series LED Lamps

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

Accessory for green dual pushbutton (with pilot light)

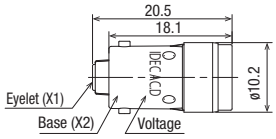
Quantity: 5

Shape	Part No.	Dimensions
Attachment lens	LSRD-L∗	• For PW (pure white) illumination, use only a LSRD lamp and not an attachment lens. • The attachment lens is available with 5 pieces connected as shown on the right. • Color Code ∗: R (red), G (green), A (amber), S (blue)

• See page 46 for the installation method.

For HW Jumbo Dome Pilot Lights

Quantity: 1

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

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

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Accessories

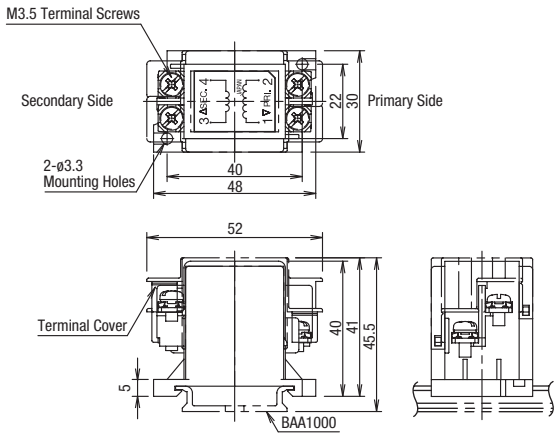
Shape	Operating Voltage	Operating Voltage Range	Part No.	Applicable Load
6V	400/440V AC	400/440V AC ±10%	TWR546	LSRD-6 (6V AC/DC, LED lamp)
24V	400/440V AC	400/440V AC ±10%	TWR542	LSRD-2 (24V AC/DC, LED lamp)

- Terminal cover (TWR-VL3) is installed on transformers as standard.
- Transformer is installed to one HW series unit.

Specifications

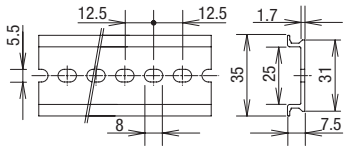
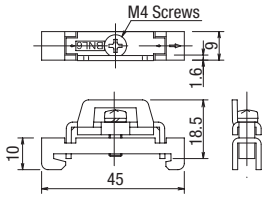
Part No.	TWR5□6	TWR5□2
Operating Voltage	400/440V AC (50/60Hz)	
Current Draw	2.4VA	
Rated Insulation Voltage	600V	
Insulation Resistance	100MΩ minimum (500V DC megger)	
Operating Temperature	–30 to +60°C (no freezing)	
Operating Humidity	35 to 85% RH (no condensation)	
Storage Temperature	–40 to +80°C (no freezing)	
Vibration Resistance	Damage limits: 30Hz, amplitude 1.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm	
Shock Resistance	Damage limits: 1,000 m/s^2 Operating extremes: 100 m/s^2	
Dielectric Strength	2500V AC, 1 minute	
Terminal Screw	M3.5	
Applicable Wire	2mm^2 maximum, 2 wires maximum	
Weight (approx.)	87g	

Dimensions



All dimensions in mm.

Accessories

Shape	Material	Part No.	Quantity	Dimensions (mm)
DIN 35 mm Rail Weight: 200g approx.	Aluminum Length: 1000 mm	BAA1000	10	
End Clip Weight: 15g approx.	Metal (zinc-plated steel) Applicable rail: BAA1000 BAP1000	BNL6	10	

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ø22 HW Series Instructions

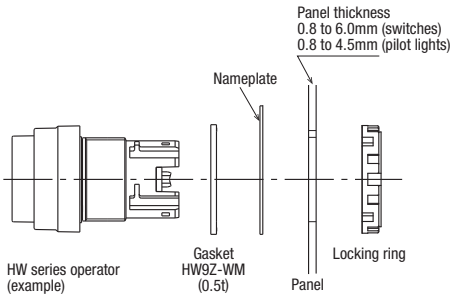
Safety Precautions

- Turn off the power to the HW series switches & pilot lights before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.
- For wiring, use wires of a proper size to meet the voltage, current requirements, and the number of connectable wires (page 47). Failure to tighten the terminal screws may cause overheating and fire.
- Avoid using in places mentioned below to maintain performance of the product.
  -Exposed to direct sunlight
  -Subject to corrosive or flammable gases

Instructions

Panel Mounting

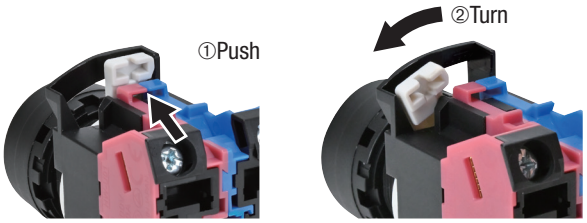
1. Remove the contact block from the operator.
2. Remove the locking ring from the operator
3. Insert the operator into the panel cut-out from the front.
   When mounting the nameplate, insert between the operator and panel.
4. Tighten the locking ring from the back.



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

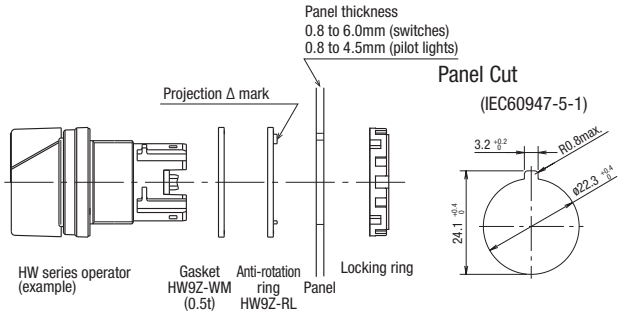
Removing the Contact Block

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



Anti-rotation Ring and Mounting Panel

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



Notes for Panel Mounting

Locking ring wrench recommended torque
Tighten the bezel to a tightening torque of 2.0 N·m.

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

Locking ring wrench
(MW9Z-T1)

Panel Thickness

HW series can be mounted on a panel with thickness of 0.8 to 6.0 mm (switches) and 0.8 to 4.5 mm (pilot lights). Take the thickness of nameplate and/or switch guard into consideration.

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Instructions

Replacement of LED Lamps

LED lamps can be replaced by using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator unit. (See page 35 for lamp holder tool.)

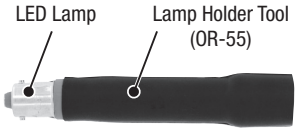
How to Remove

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

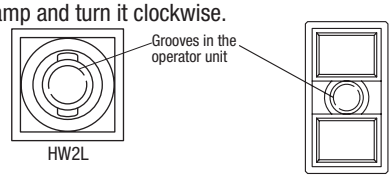
Photo: Extended pilot light

How to Install

Insert the lamp head into the lamp holder tool.



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



Installing/Removing the Buttons and Lenses

<To install> <To remove>

Pushbutton Button

• Flush/Extended

Push in the button to install.

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

• Mushroom/Jumbo Mushroom

Button has threads. Turn clockwise to install the button.

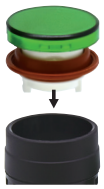
Turn the button counterclockwise to remove.

Note: Jumbo mushroom button cannot be removed.

Illuminated Pushbutton Lens

• Flush/Extended

Push in the lens holder into the operator unit.



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

• Mushroom/Jumbo Mushroom

Lens has threads. Turn clockwise to install the lens.

Lens has threads. Turn counterclockwise to remove the lens.

Pilot Light Lens

• Extended

Lens has threads. Turn clockwise to install the lens.

Turn the lens counterclockwise to remove.

• Round Flush/Square Flush

Push in the lens holder into the operator unit.

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

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Instructions

Installing/Removing the Lenses and Marking Plates

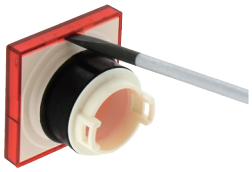
Removing

Removing the lens unit

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

Removing the lens

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

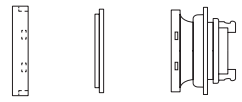


Note: The translucent filter in the lens holder cannot be removed because this filter is sealed to make the unit waterproof and oiltight.

Installing

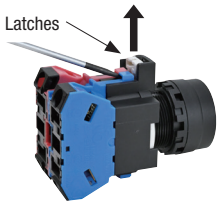
1. Place the marking plate on the lens holder with the anti-rotation projection engaged and press the lens onto the lens holder to engage the latches.
2. Place the marking plate in the correct orientation.

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



Removing the Contact Blocks

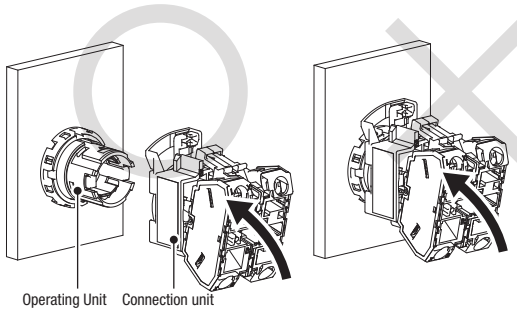
Insert a flat screwdriver (4 to 6 mm) into the snap-fit latch at the rear of the unit and gently lift to remove the contact block.



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

Full Voltage Adapter

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



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

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Instructions

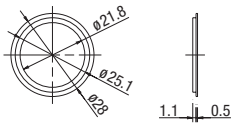
Using a Ring Adapter

HW9Z-A25

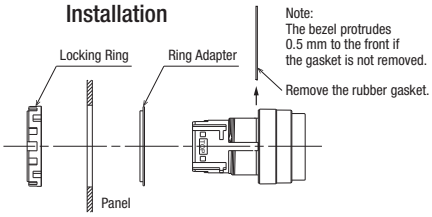
Install the ring adapter between the HW series unit and panel. Make sure that the side with ridges face the panel.

Nitryl Rubber

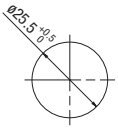
Dimensions



Installation



Panel Cut-out



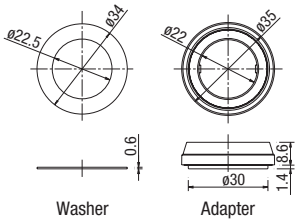
HW9Z-A30

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

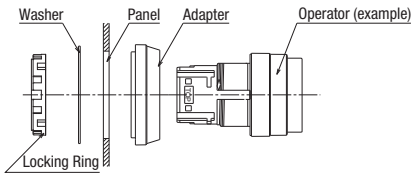
Washer:
metal (brass)

Adapter:
polyamide

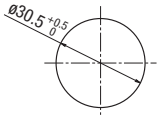
Dimensions



Installation

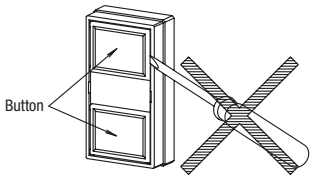


Panel Cut-out



Dual Pushbutton Switches

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

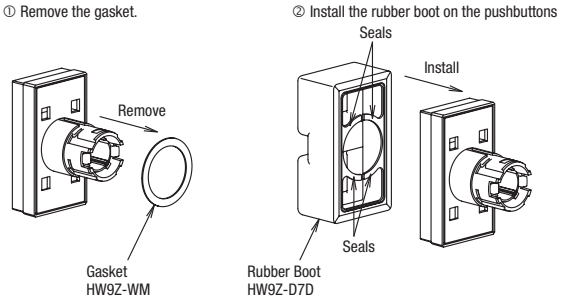


Installing the Rubber Boot for Dual Pushbuttons

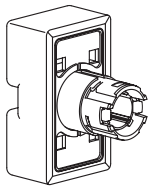
When using the HW7D pushbuttons in places where the pushbuttons are subject to water splash or an excessive amount of dust, make sure to use the HW9Z-D7D rubber boot (IP65) which is ordered separately. Remove the rubber gasket pre-installed on the operator, and install the rubber boot from the front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

Notes for Installing the Rubber Boot

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



Rubber Boot Installed



Selector Switches

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

Key Selector Switches

Observe the following instructions to prevent malfunction or damage.

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

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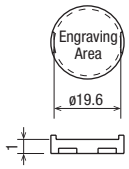
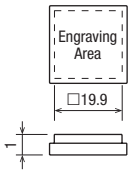
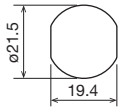
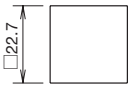
Instructions

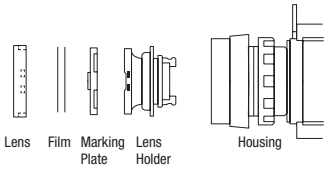
Marking

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

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

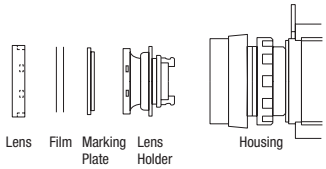
Insertion Order of Marking Plate and Film

[Round Lens]



Note: Films are not supplied.

[Square Lens]



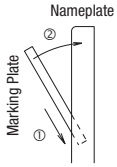
Note: Films are not supplied. When inserting a film, make sure that the marking plate is installed with its uneven side facing the lens holder.

Nameplate

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

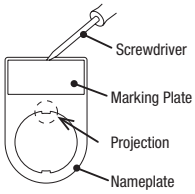
Installing a Marking Plate

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



Removing a Marking Plate

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



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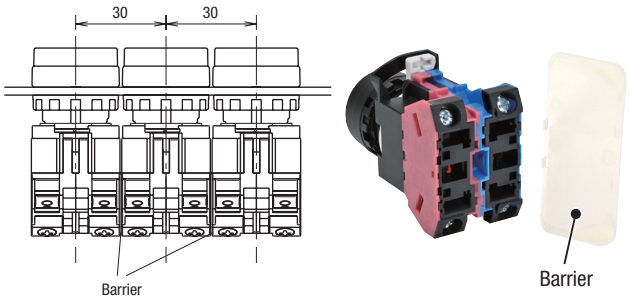
Instructions

Close Mounting

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



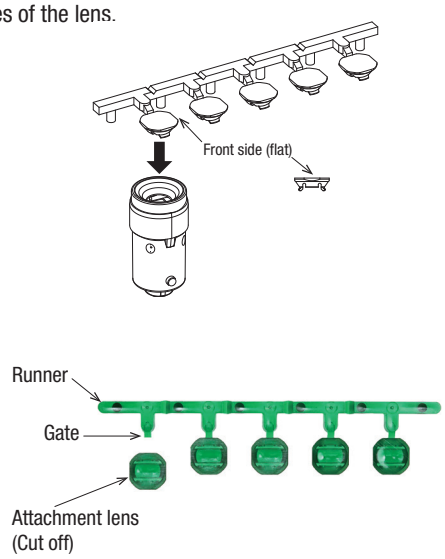
Use a barrier (HW-VU1) between the contact blocks.

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

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

Installing the attachment lens

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



Applicable Wiring

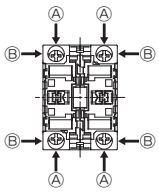
(1) Contact Block 0.3 to 3.5 mm² (solid wire ø0.5 to 2.0 mm)

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

Ⓐ and Ⓑ show the wiring direction to the terminals.

<Contact Block>

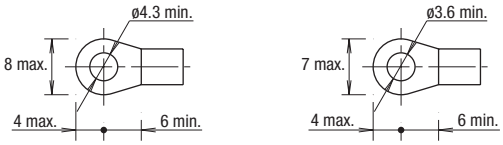
Terminal screws M3.5 (spring-up)



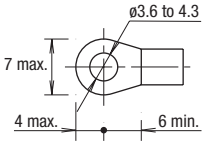
Applicable Crimping Terminal

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

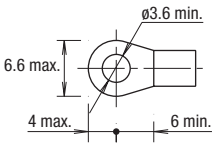
Crimping terminal for Ⓐ



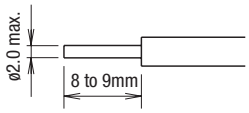
IP20 crimping terminal



Crimping terminal for Ⓑ (IP20)



Solid wire



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

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Instructions

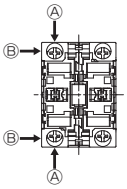
(2) Full Voltage Adapter 0.3 to 3.5 mm² (solid wire ø0.5 to 2.0 mm)

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

Ⓐ and Ⓑ show the wiring direction to the terminals.

<Full Voltage Adapter>

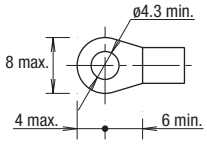
Terminal screws M3.5 (spring-up)

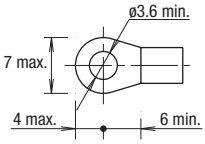


Applicable Crimping Terminal

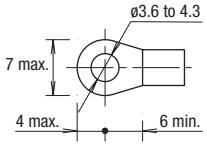
Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

Crimping terminal for Ⓐ

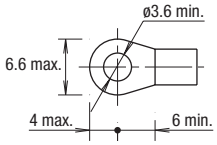




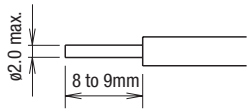
IP20 crimping terminal



Crimping terminal for Ⓑ (IP20)



Solid wire



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

(2)-1 IP20 Degree of Protection

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

When using a crimping terminal

Use IP20 crimping terminals.

When using a solid wire

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

When using a stranded wire

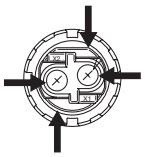
Strip the wire insulation 8 to 9 mm from the end and insert the wire to the terminal fully. Make sure that the wires are not loosened.

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

(Arrows show the wiring direction)

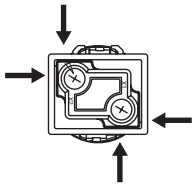
<Full Voltage Adapter>

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



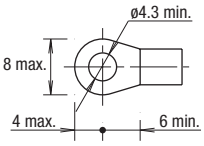
<Transformer>

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



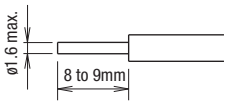
Applicable Crimping Terminal

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



Solid Wire

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



Recommended Tightening Torque Number of Wires

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

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

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Ordering Terms and Conditions

Thank you for using IDEC Products.

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

1. Notes on contents of Catalogs

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

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

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

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

2. Note on applications

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

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

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

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

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

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

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

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

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

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

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

3. Inspections

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

4. Warranty

(1) Warranty period

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

(2) Warranty scope

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

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

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

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

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

v. The product was used outside of its original purpose

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

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

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

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

5. Limitation of liability

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

6. Service scope

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

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

(2) Maintenance inspections, adjustments, and repairs

(3) Technical instructions and technical training

(4) Product tests or inspections specified by you

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

IDEC CORPORATION

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

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P1740a-0-HW-Screw

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