






# ø22 HW Series Switches & Pilot Lights

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

- Finger-safe terminal blocks
- Self-cleaning rolling action contacts.
- Degree of protection: IP65 (except dual pushbutton: IP40)
- Dual pushbutton switches available with two pushbuttons and a pilot light integrated into one space-saving unit.
- A wide range of operating voltages for worldwide application.
- UL, CSA rated, and EN compliant.

## Standards and Approvals

| Applicable Standards | Mark                                                                               | File No. or Organization                                                              |
|----------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| UL508                |   | UL Listing<br>File No. E68961                                                         |
| CSA C22.2<br>No.14   |   | CSA<br>File No. LR21451                                                               |
| EN60947-5-1          |   | TÜV Rheinland                                                                         |
|                      |   | EU Low Voltage Directive and<br>RoHS 2 Directive (except for DC-DC<br>converter unit) |
| GB14048.5            |  | Contact IDEC for details.                                                             |

- DC-DC converter types are not approved by standards.
- See website for details on approvals and standards.



### Application for dual pushbuttons:

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

## Specifications and Ratings

### Contact Ratings

|                                                       |                                                         |                       |
|-------------------------------------------------------|---------------------------------------------------------|-----------------------|
| Pushbuttons                                           | Rated insulation voltage                                | 600V                  |
| Illuminated Pushbuttons                               | Rated continuous current                                | 10A                   |
| Dual Pushbuttons                                      | Contact ratings by utilization category<br>IEC60947-5-1 | AC-15 (A600)<br>DC-13 |
| Selector Switches                                     |                                                         |                       |
| Illuminated Selector Switches<br>Selector Pushbuttons |                                                         |                       |

### Contact Ratings by Utilization Category

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

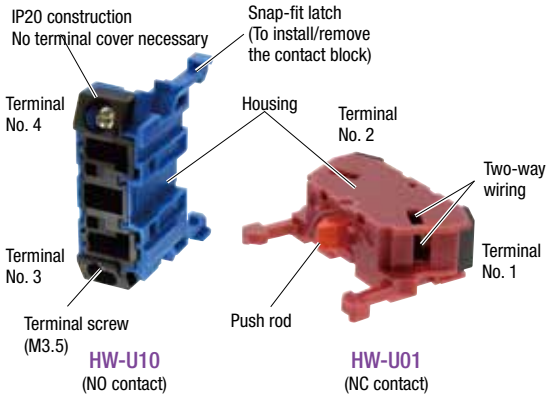
| Operating Voltage |                |                                                        | 24V | 48V | 50V | 110V | 220V | 440V |
|-------------------|----------------|--------------------------------------------------------|-----|-----|-----|------|------|------|
| Operating Current | AC<br>50/60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

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

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

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

**HW-U Contact Block**



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

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

**LED Specifications**

| Unit                                                                                                          | Color                                                                                       | Rated Voltage |          | Operating Voltage |      | LED lamp  |          |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------|----------|-------------------|------|-----------|----------|
|                                                                                                               |                                                                                             |               |          |                   |      | Lamp Base | Part No. |
| Illuminated pushbutton<br>Illuminated selector switch<br>Pilot light<br>Dual pushbutton<br>(with pilot light) | R (red)<br>G (green)<br>Y (yellow)<br>A (amber)<br>W (white)<br>S (blue)<br>PW (pure white) | 6V AC/DC      | 50/60 Hz | 6V AC/DC          | ±10% | BA9S/13   | LSTD-6*  |
|                                                                                                               |                                                                                             | 12V AC/DC     |          | 12V AC/DC         |      |           | LSTD-1*  |
|                                                                                                               |                                                                                             | 24V AC/DC     |          | 24V AC/DC         |      |           | LSTD-2*  |
|                                                                                                               |                                                                                             | 100/110V AC   |          | 100/110V AC       |      |           | LSTD-6*  |
|                                                                                                               |                                                                                             | 115/120V AC   |          | 115/120V AC (*1)  |      |           |          |
|                                                                                                               |                                                                                             | 200/220V AC   |          | 200/220V AC       |      |           |          |
|                                                                                                               |                                                                                             | 230/240V AC   |          | 230/240V AC (*1)  |      |           |          |
|                                                                                                               |                                                                                             | 380V AC       |          | 380V AC           |      |           |          |
|                                                                                                               |                                                                                             | 400/440V AC   |          | 400/440V AC       |      |           |          |
|                                                                                                               |                                                                                             | 480V AC       |          | 480V AC           |      |           |          |
| 110V DC                                                                                                       | 90 to 140V DC                                                                               |               |          |                   |      |           |          |

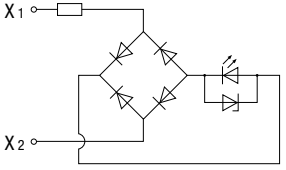





- See page 3. for details on LED lamp ratings.
- For the LED lamp used in jumbo dome pilot lights, see page 3.
- Yellow (Y) cannot be used with dual pushbuttons.
- Color codes for units without LED lamps:  
R (red), G (green), A (amber), Y (yellow), W (white), S (blue)  
When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

**Power Unit Terminal**

| Power Unit     | Illuminated Unit     |                |              |                  | Pilot Light          |                |                  |
|----------------|----------------------|----------------|--------------|------------------|----------------------|----------------|------------------|
|                | Full voltage adapter | Transformer    |              | DC-DC converter  | Full voltage adapter | Transformer    | DC-DC converter  |
| Rated Voltage  | 6, 12, 24V AC/DC     | 100 to 240V AC | 380V AC min. | 110V DC          | 6, 12, 24V AC/DC     | 100 to 480V AC | 110V DC          |
| Polarity       | None                 | None           | None         | X1 (+)<br>X2 (-) | None                 | None           | X1 (+)<br>X2 (-) |
| Shape/Terminal |                      |                |              |                  |                      |                |                  |

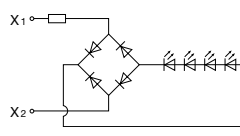




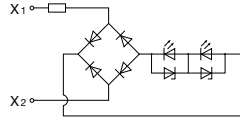
## LED Lamp Ratings

### LSTD (Except Jumbo Dome Pilot Lights)

| Part No.               | LSTD-6*                                                                                                           |         | LSTD-1*                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | LSTD-2*                                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Lamp Base              | BA9S/13                                                                                                           |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                             |
| Rated Voltage          | 6V AC/DC                                                                                                          |         | 12V AC/DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 24V AC/DC                                                                                                   |
| Voltage Range          | 6V AC/DC ±10%                                                                                                     |         | 12V AC/DC ±10%                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 24V AC/DC ±10%                                                                                              |
| Current Draw           | Color                                                                                                             | R, A, W | G, S, PW                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | R, G, A, W, S, PW                                                                                           |
|                        | DC                                                                                                                | 7mA     | 5.5mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 10mA                                                                                                        |
|                        | AC                                                                                                                | 8mA     | 8mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 11mA                                                                                                        |
| Lamp Base Color        | Same as illumination color (PW: gray)                                                                             |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                             |
| Voltage Marking        | Die stamped on the base                                                                                           |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                             |
| Life (reference value) | Approx. 50,000 hours<br>(The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.) |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                             |
| Internal Circuit       |                                  |         | <p>Symbols</p> <ul style="list-style-type: none"> <li> LED chip</li> <li> Rectifier diode</li> <li> Zener diode</li> <li> Resistor</li> </ul> | <p>Example: LSTD-2PW</p>  |
| Weight                 | Approx. 2g                                                                                                        |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                             |

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

### LSTDB (For Jumbo Dome Pilot Lights HW1P-5Q4 Only)

| Part No.               | LSTDB-2*                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lamp Base              | BA9S/13                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Voltage Range          | 24V AC/DC±10%                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Current Draw           | 15mA                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Rated Voltage          | 24V AC/DC                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Life (reference value) | Approx. 20,000 hours<br>(The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Internal Circuit       | <p>R, A, W</p>                 | <p>Symbols</p> <ul style="list-style-type: none"> <li> LED chip</li> <li> Rectifier diode</li> <li> Zener diode</li> <li> Resistor</li> </ul> |
|                        | <p>G, S, PW</p>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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

Specifications

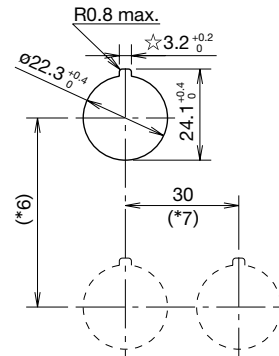
|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature                | Non-illuminated: -25 to +60°C (no freezing)<br>Illuminated: -25 to +50°C (no freezing)<br>Jumbo dome pilot lights: -25 to +55°C (no freezing)                                                                                                                                                                                                                                                                                                   |
| Operating Humidity                   | 45 to 85% RH (no condensation)                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Storage Temperature                  | -40 to +80°C (no freezing)                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Contact Resistance                   | 50 mΩ maximum (initial value)                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Insulation Resistance                | 100 MΩ minimum (500V DC megger)                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Dielectric Strength                  | Between live and dead metal parts: 2,500V AC, 1 minute<br>(Full voltage and illuminated units: 2,000V AC, 1 minute)<br>(*1)                                                                                                                                                                                                                                                                                                                     |
| Vibration Resistance                 | Damage limits: 30 Hz, amplitude 1.5 mm<br>Operating extremes: 5 to 55 Hz, amplitude 0.5 mm                                                                                                                                                                                                                                                                                                                                                      |
| Shock Resistance                     | Damage limits: 1,000m/s <sup>2</sup><br>Operating extremes: 100m/s <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                 |
| Mechanical Life (minimum operations) | Pushbutton, Illuminated pushbutton<br>Momentary ······ 500,000<br>Maintained ······ 500,000<br>Dual pushbutton ······ 500,000<br>Selector switch ······ 500,000<br>Key selector switch (Disc tumbler) ······ 500,000<br>Key selector switch (Pin tumbler) ······ 100,000<br>Illuminated selector switch ······ 500,000<br>Pushbutton selector ······ 250,000<br>Mono-lever switches ······ 250,000                                              |
| Electrical Life (*5)                 | Pushbutton, Illuminated pushbutton<br>Momentary ······ 500,000 (*2)<br>Maintained ······ 500,000 (*4)<br>Dual pushbutton ······ 500,000 (*2)<br>Selector switch ······ 500,000 (*3)<br>Key selector switch (Disc tumbler) ······ 500,000 (*3)<br>Key selector switch (Pin tumbler) ······ 100,000 (*3)<br>Illuminated selector switch ······ 500,000 (*3)<br>Pushbutton selector ······ 250,000 (*3)<br>Mono-lever switches ······ 250,000 (*4) |
| Weight (Apporox.)                    | 66g (HW1B-M122)<br>20g (HW1P-1Q4)<br>84g (HW1L-M122Q4)<br>66g (HW1S-2T22)<br>94g (HW1K-2A22)<br>72g (HW1K-2JPC11)<br>84g (HW1F-222Q4)<br>71g (HW1R-2A22)<br>82g (HW1M-2222-22N9)<br>72g (HW7D-B111111)<br>90g (HW7D-L111111Q4)                                                                                                                                                                                                                  |

\*1) Dielectric strength for dual pushbuttons are as follows:  
Full voltage type: 1,000V AC, 1 minute (between live and dead metal parts)  
Transformer and DC-DC converter types: 2,000V AC, 1 minute (between live and dead metal parts)  
\*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)

Mounting Hole Layout

All dimensions in mm.

Panel Cut (IEC60947-5-1)



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

Minimum Mounting Centers

(Dimensions in mm)

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

- When using the safety lever lock, determine the vertical spacing (\*6) in consideration of convenience for installing and removing the safety lever lock. (Recommended vertical spacing: 100 mm)  
The minimum length of vertical spacing (\*6) is 45 mm when safety lever lock is not used.
- The 3.2 mm recess is for preventing rotation and is not necessary when the nameplate or anti-rotation ring is not used.

Degree of Protection

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

\*8) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 37 are used. (IP40 when other ø22 namplates such as NWA are used)  
\*9) IP65 protection degree when HW9Z-D7D button cover is used.

Ordering Information

Standard models

- Specify Ordering No. when ordering.
- Specify a button or lens color code in place of \*.
- Pilot lights, illuminated pushbuttons, and illuminated selector switches have an LED lamp installed unless otherwise specified.
- Nameplates and accessories for mono-lever switch are ordered separately. See page 37 to 39.
- Color codes for units without LED lamps:  
R (red), G (green), A (amber), Y (yellow), W (white), S (blue)

When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

## Ordering Information

### Pushbuttons (Page 8 to 10)

When specifying gold-plated silver contact and contact configuration:

|         |    |   |      |                       |
|---------|----|---|------|-----------------------|
| HW1B-M1 | 11 | R | -MAU |                       |
|         |    |   |      | Optional contact      |
|         |    |   |      | Contact configuration |
|         |    |   |      | MAU: Gold contact     |
|         |    |   |      | 10: 1NO               |
|         |    |   |      | 01: 1NC               |
|         |    |   |      | 11: 1NO1NC            |
|         |    |   |      | 20: 2NO               |
|         |    |   |      | 02: 2NC               |
|         |    |   |      | 22: 2NO2NC            |
|         |    |   |      | 40: 4NO               |
|         |    |   |      | 04: 4NC               |
|         |    |   |      | 13: 1NO3NC            |
|         |    |   |      | 31: 3NO1NC            |
|         |    |   |      | 30: 3NO               |
|         |    |   |      | 03: 3NC               |
|         |    |   |      | 12: 1NO2NC            |
|         |    |   |      | 21: 2NO1NC            |

### Pilot Lights (Page 11)

When specifying LED operating voltage:

|        |    |   |  |                      |
|--------|----|---|--|----------------------|
| HW1P-1 | H2 | R |  |                      |
|        |    |   |  | Operating voltage    |
|        |    |   |  | Q0: Without LED lamp |
|        |    |   |  | Q2: 6V AC/DC         |
|        |    |   |  | Q3: 12V AC/DC        |
|        |    |   |  | Q4: 24V AC/DC        |
|        |    |   |  | H2: 100/110V AC      |
|        |    |   |  | H22: 115/120V AC     |
|        |    |   |  | M2: 200/220V AC      |
|        |    |   |  | M42: 230/240V AC     |
|        |    |   |  | S2: 380V AC          |
|        |    |   |  | T2: 400/440V AC      |
|        |    |   |  | T82: 480V AC         |
|        |    |   |  | D2: 110V DC          |

Note: Color codes for units without LED lamps: R (red), G (green), A (amber), Y (yellow), W (white), S (blue)

When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

### Illuminated Pushbuttons (Page 13 to 17)

When specifying gold-plated silver contact, contact configuration, and LED operating voltage:

|         |    |    |   |      |                       |
|---------|----|----|---|------|-----------------------|
| HW1L-M1 | 11 | H2 | R | -MAU |                       |
|         |    |    |   |      | Optional contact      |
|         |    |    |   |      | Operating Voltage     |
|         |    |    |   |      | Contact configuration |
|         |    |    |   |      | MAU Gold contact      |
|         |    |    |   |      | Q0: Without LED lamp  |
|         |    |    |   |      | Q2: 6V AC/DC          |
|         |    |    |   |      | Q3: 12V AC/DC         |
|         |    |    |   |      | Q4: 24V AC/DC         |
|         |    |    |   |      | H2: 100/110V AC       |
|         |    |    |   |      | H22: 115/120V AC      |
|         |    |    |   |      | M2: 200/220V AC       |
|         |    |    |   |      | M42: 230/240V AC      |
|         |    |    |   |      | S2: 380V AC           |
|         |    |    |   |      | T2: 400/440V AC       |
|         |    |    |   |      | T82: 480V AC          |
|         |    |    |   |      | D2: 110V DC           |
|         |    |    |   |      | 10: 1NO               |
|         |    |    |   |      | 01: 1NC               |
|         |    |    |   |      | 11: 1NO1NC            |
|         |    |    |   |      | 20: 2NO               |
|         |    |    |   |      | 02: 2NC               |
|         |    |    |   |      | 22: 2NO2NC            |
|         |    |    |   |      | 40: 4NO               |
|         |    |    |   |      | 04: 4NC               |
|         |    |    |   |      | 13: 1NO3NC            |
|         |    |    |   |      | 31: 3NO1NC            |
|         |    |    |   |      | 30: 3NO               |
|         |    |    |   |      | 03: 3NC               |
|         |    |    |   |      | 12: 1NO2NC            |
|         |    |    |   |      | 21: 2NO1NC            |

Note:

• Color codes for units without LED lamps: R (red), G (green), A (amber), Y (yellow), W (white), S (blue)

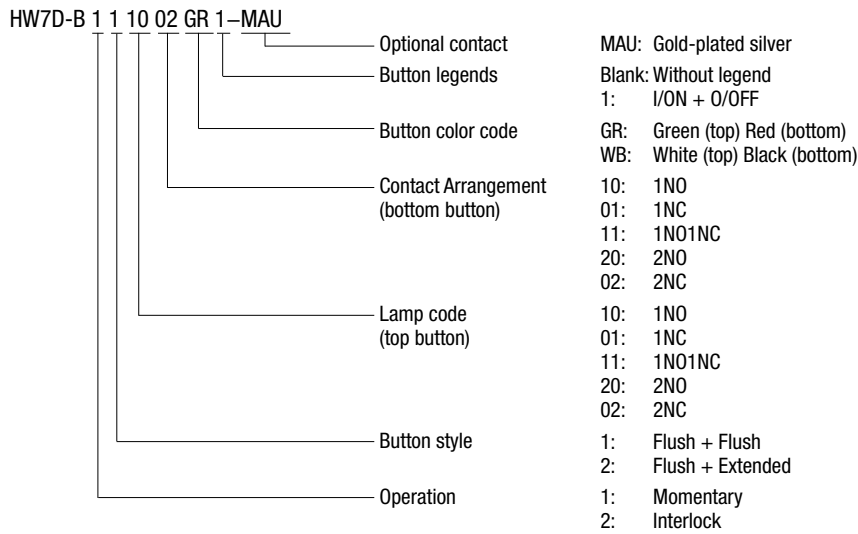
When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

• Odd number of contact blocks, such as 1NO, 1NC, 3NO, 2NO-1NC, 1NO-2NC, and 3NC, is not available for transformer type or DC-DC converter type.

Ordering Information

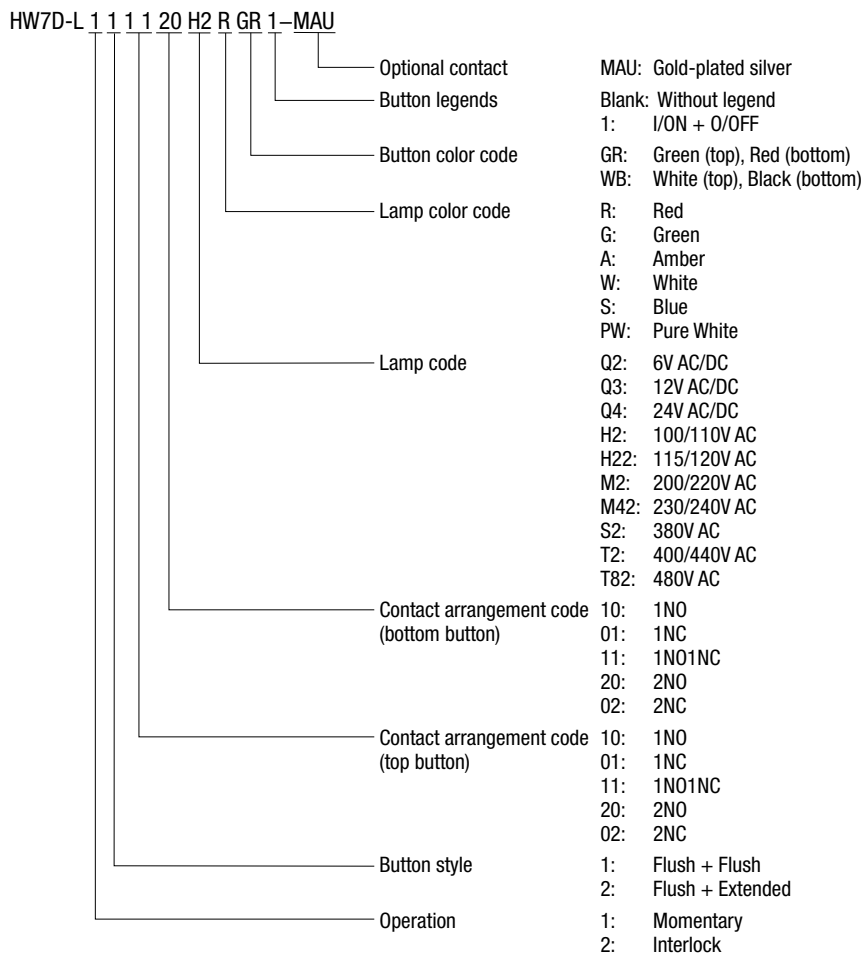
Dual Pushbutton Switches [without pilot light] (Page 20)

When specifying gold-plated silver contact and contact configuration:



Dual Pushbutton Switches [with pilot light] (Page 21)

When specifying gold-plated silver contact, contact configuration, and LED operating voltage:

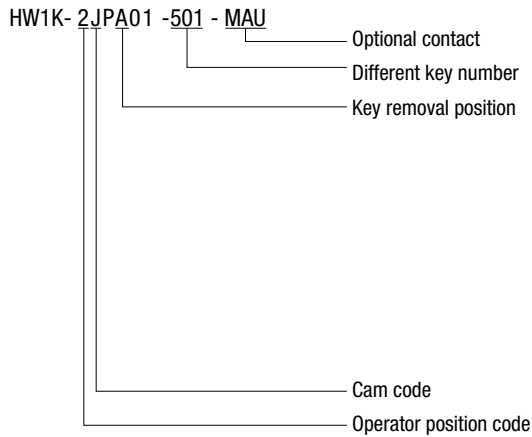


Note: Transformer type cannot have a contact arrangement of 3 contact blocks for the total of top and bottom.

## Ordering Information

### Key Selector Switches (Pin Tumbler Key) (Pages 25 to 26)

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



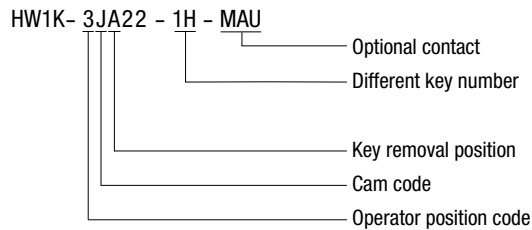
- MAU: Gold-plated silver  
 -501 - 515  
 2-position A: Removable in all positions  
 B: Removable in the left only  
 C: Removable in the right only  
 3-position A: Removable in all positions  
 B: Removable in the left and center  
 C: Removable in the right and center  
 D: Removable in center only  
 E: Removable in right and left  
 G: Removable in left only  
 H: Removable in right only
- Blank, J, or S  
 2: 2-position, maintained  
 21: 2-position, spring return from right  
 3: 3-position, maintained  
 31: 3-position, spring return from right  
 32: 3-position, spring return from left  
 33: 3-position, spring return two way

Note:

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

### Key Selector Switches (Disc Tumbler Key) (Pages 27 to 28)

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



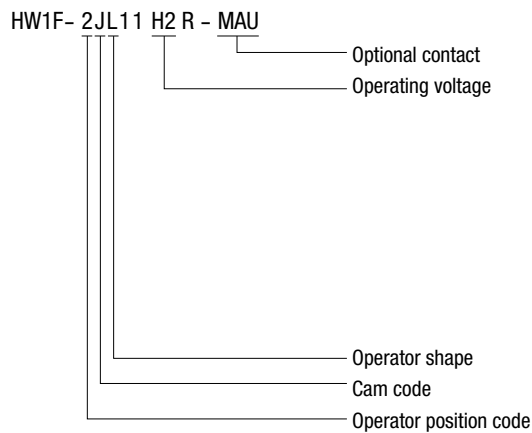
- MAU: Gold-plated silver  
 -1H, -2H, -3H  
 (same as pin tumbler key shown above)  
 (same as pin tumbler key shown above)  
 (same as pin tumbler key shown above)

Note:

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

### Illuminated Selector Switches (Pages 29 to 30)

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




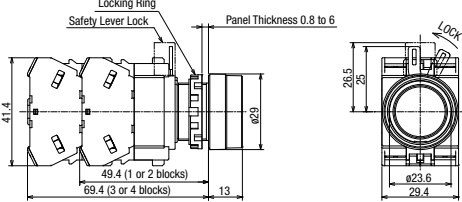

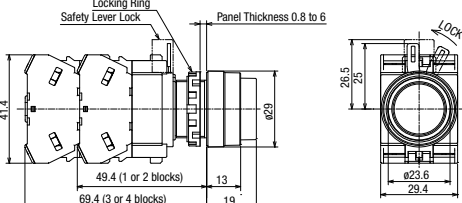

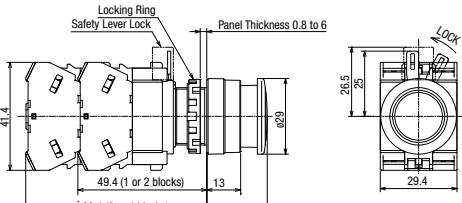

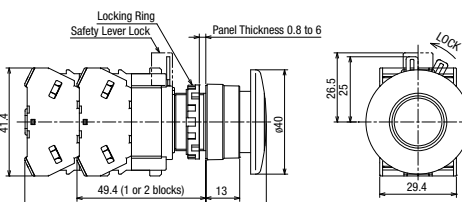

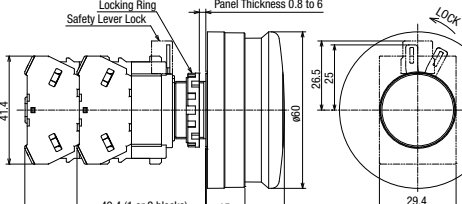
- MAU: Gold-plated silver  
 Q0: Without LED lamp  
 Q2: 6V AC/DC  
 Q3: 12V AC/DC  
 Q4: 24V AC/DC  
 H2: 100/110V AC  
 H22: 115/120V AC  
 M2: 200/220V AC  
 M42: 230/240V AC  
 S2: 380V AC  
 T2: 400/440V AC  
 T82: 480V AC  
 Blank (Knob), L (Lever)  
 Blank, J, or S  
 2: 2-position, maintained  
 21: 2-position, spring return from right  
 3: 3-position, maintained  
 31: 3-position, spring return from right  
 32: 3-position, spring return from left  
 33: 3-position, spring return two way

Note: Color codes for units without LED lamps: R (red), G (green), A (amber), Y (yellow), W (white), S (blue)

When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of HW series cannot be guaranteed when a commercially available lamp is used.

Flush / Extended / Mushroom Pushbuttons

Package Quantity: 1


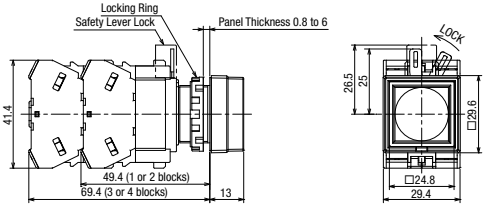

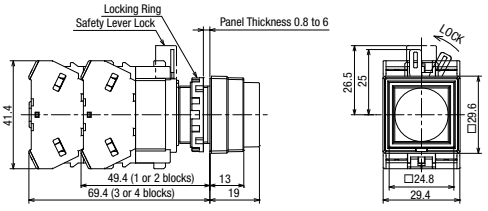
| Shape                                                                                                                       | Operation  | Contact | Part No.   | Color Code                 | Dimensions (mm)                                                                      |
|-----------------------------------------------------------------------------------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

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



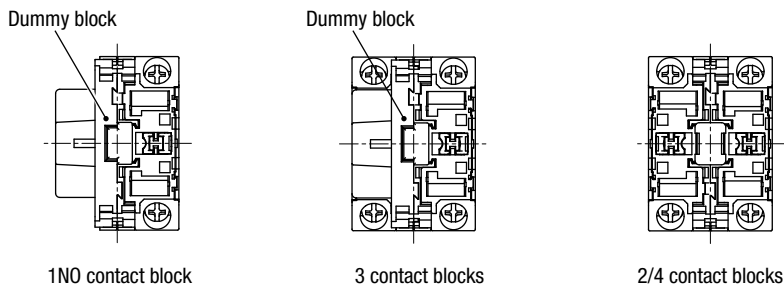
Square Flush / Square Flush Pushbuttons

Package Quantity: 1

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

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


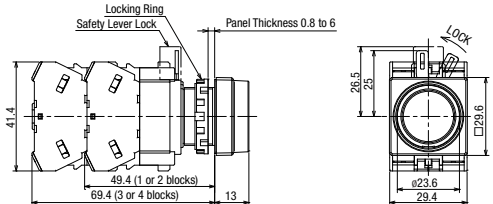

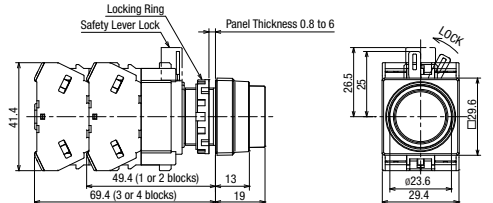

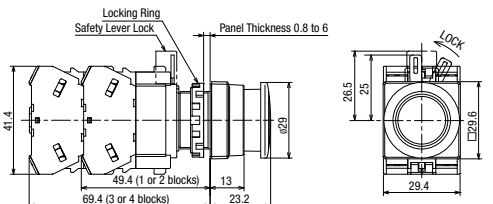
Bottom View



- For 1NC contact, the contact block will mount on the opposite side.
- See page 48 for wiring.
- Integrated terminal cover

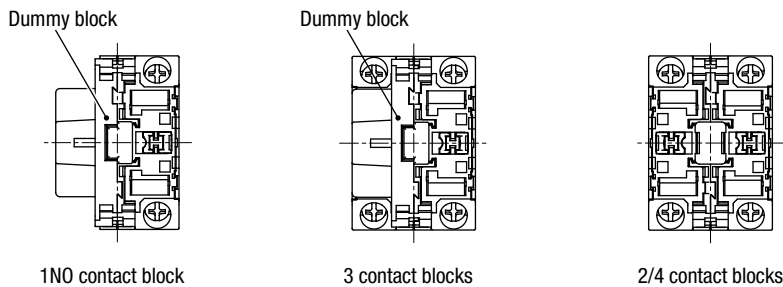
Round Flush / Round Extended /Mushroom with Square Bezel

Package Quantity: 1

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

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

Bottom View



- For 1NC contact, the contact block will mount on the opposite side.
- See page 48 for wiring.
- Integrated terminal cover

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

Package Quantity: 1

| Shape                                                                                                                                                                                                                                                                | Lamp | Operating Voltage | Part No.  | Color Code                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------|-----------|----------------------------------|
| Round Flush (marking type)<br>HW1P-1<br><br>24V AC/DC<br><br>With transformer (100/110V AC)        | LED  | 24V AC/DC         | HW1P-1Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                      |      | 100/110V AC       | HW1P-1H2* |                                  |
|                                                                                                                                                                                                                                                                      |      | 200/220V AC       | HW1P-1M2* |                                  |
| Dome<br>HW1P-2<br><br>(24V AC/DC)<br><br>With transformer (100/110V AC)                           | LED  | 24V AC/DC         | HW1P-2Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                      |      | 100/110V AC       | HW1P-2H2* |                                  |
|                                                                                                                                                                                                                                                                      |      | 200/220V AC       | HW1P-2M2* |                                  |
| Square Flush (marking type)<br>HW2P-1<br><br>(24V AC/DC)<br><br>With transformer (100/110V AC) | LED  | 24V AC/DC         | HW2P-1Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                      |      | 100/110V AC       | HW2P-1H2* |                                  |
|                                                                                                                                                                                                                                                                      |      | 200/220V AC       | HW2P-1M2* |                                  |
| Jumbo Dome Pilot Light (*1)<br>HW1P-5<br>                                                                                                                                         | LED  | 24V AC/DC         | HW1P-5Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |

- Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber) W (white), S (blue), PW (pure white)
  - Pilot lights have an LED lamp installed unless otherwise specified.
  - See page 5 for other operating voltages.
  - See page 12 for bottom view.
  - See page 12 for how to specify units without LED lamps.
  - When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.
- \*1) Jumbo dome pilot lights contain an exclusive LED. See page 3 and 42.

Dimensions

All dimensions in mm.

Pilot Lights

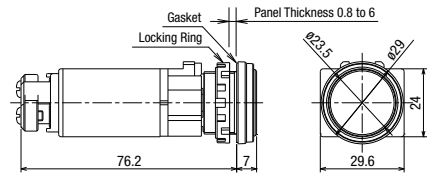
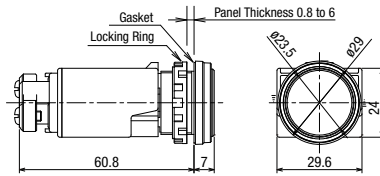
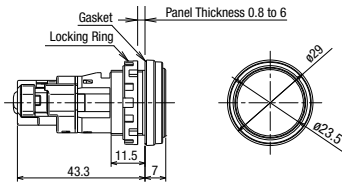
Round Flush

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V AC maximum)

110V DC, 380V AC minimum



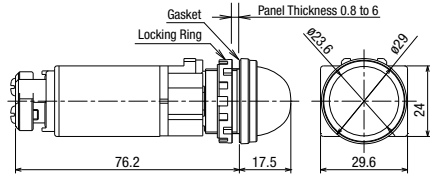
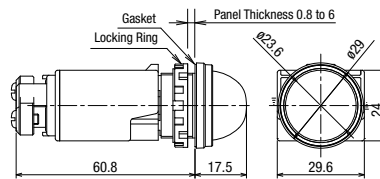
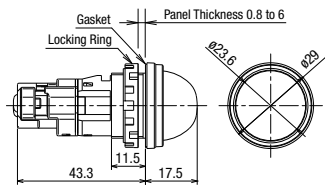
Extended

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V AC maximum)

110V DC, 380V AC minimum



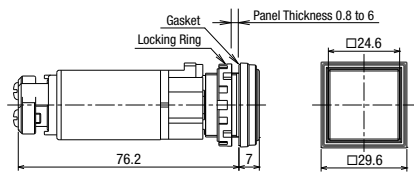
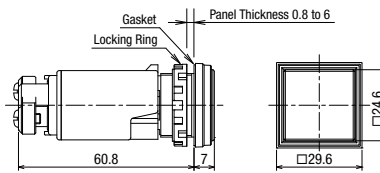
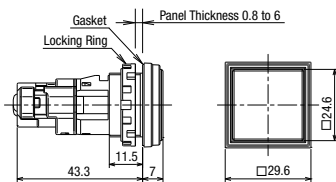
Square Flush

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

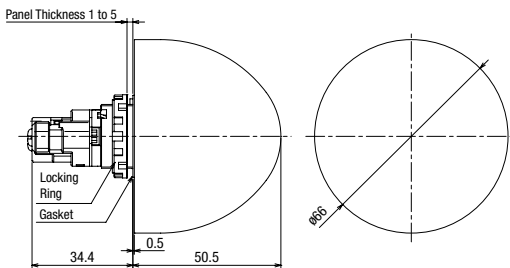
100/110V AC, 200/220V AC (240V AC maximum)

110V DC, 380V AC minimum



Jumbo Dome Pilot Light

Terminal screws: M3.5, integrated terminal cover

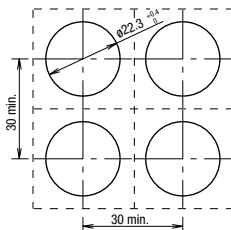


Panel Cut-Out

Mounting Centers

(Except jumbo dome)

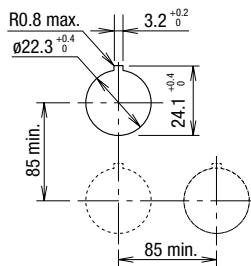
Close mounting on 30 mm centers



When mounting 100/110V AC, 200/220V AC, 110V DC units on 30mm centers vertically and horizontally, keep the ambient temperature below 40°C.

Mounting Centers

(Jumbo dome)



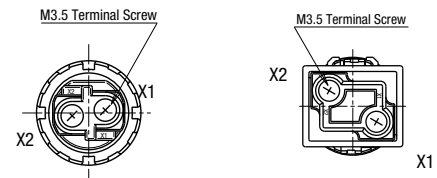
Determine the minimum mounting centers in consideration of convenience for wiring.

Pilot Light Bottom View

6, 12, 24V AC/DC





100/110V AC, 200/220V, 110V DC

Without LED lamp



- For DC-DC Converter types, terminal X1 is ⊕, X2 is ⊖.
- See page 49 for wiring.

**LED** | **Round Flush / Round Extended (Marking Type)** Package Quantity: 1



| Shape                                                                                                                                                                                                                                                                                         | Illumination                                                                                                                                                                                                                                                                                         | Operation    | Rated Voltage | Contact Configuration | Part No.     | Color Code                       |                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|-----------------------|--------------|----------------------------------|----------------------------------|
| <b>Round Flush (Marking type)</b><br>HW1L-M1<br>HW1L-A1<br><br><br>(24V AC/DC)<br><br><br>With transformer<br>(100/110V AC) | LED                                                                                                                                                                                                                                                                                                  | Momentary    | 24V AC/DC     | 1NO                   | HW1L-M110Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 1NC                   | HW1L-M101Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 1NO-1NC               | HW1L-M111Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO                   | HW1L-M120Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NC                   | HW1L-M102Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO-2NC               | HW1L-M122Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 100/110V AC   | 1NO-1NC               | HW1L-M111H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO                   | HW1L-M120H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NC                   | HW1L-M102H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO-2NC               | HW1L-M122H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 200/220V AC           | 1NO-1NC      |                                  | HW1L-M111M2*                     |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               |                       | 2NO          |                                  | HW1L-M120M2*                     |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      | 2NC          | HW1L-M102M2*  |                       |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      | 2NO-2NC      | HW1L-M122M2*  |                       |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      | Maintained   | 24V AC/DC     |                       | 1NO          | HW1L-A110Q4*                     | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               |                       | 1NC          | HW1L-A101Q4*                     |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 1NO-1NC               | HW1L-A111Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO                   | HW1L-A120Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NC                   | HW1L-A102Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO-2NC               | HW1L-A122Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 100/110V AC   | 1NO-1NC               | HW1L-A111H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO                   | HW1L-A120H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NC                   | HW1L-A102H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO-2NC               | HW1L-A122H2* |                                  |                                  |
| 200/220V AC                                                                                                                                                                                                                                                                                   | 1NO-1NC                                                                                                                                                                                                                                                                                              |              |               | HW1L-A111M2*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               | 2NO                                                                                                                                                                                                                                                                                                  |              |               | HW1L-A120M2*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               | 2NC                                                                                                                                                                                                                                                                                                  | HW1L-A102M2* |               |                       |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               | 2NO-2NC                                                                                                                                                                                                                                                                                              | HW1L-A122M2* |               |                       |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               | <b>Round Extended (Marking type)</b><br>HW1L-M2<br>HW1L-A2<br><br><br>(24V AC/DC)<br><br><br>With transformer<br>(100/110V AC) | LED          | Momentary     | 24V AC/DC             | 1NO          | HW1L-M210Q4*                     | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               |                       | 1NC          | HW1L-M201Q4*                     |                                  |
| 1NO-1NC                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                      |              |               |                       | HW1L-M211Q4* |                                  |                                  |
| 2NO                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                      |              |               |                       | HW1L-M220Q4* |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                      |              |               |                       | HW1L-M202Q4* |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                      |              |               |                       | HW1L-M222Q4* |                                  |                                  |
| 100/110V AC                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                      |              |               | 1NO-1NC               | HW1L-M211H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO                   | HW1L-M220H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NC                   | HW1L-M202H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 2NO-2NC               | HW1L-M222H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               | 200/220V AC           | 1NO-1NC      | HW1L-M211M2*                     |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              |               |                       | 2NO          | HW1L-M220M2*                     |                                  |
| 2NC                                                                                                                                                                                                                                                                                           | HW1L-M202M2*                                                                                                                                                                                                                                                                                         |              |               |                       |              |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                       | HW1L-M222M2*                                                                                                                                                                                                                                                                                         |              |               |                       |              |                                  |                                  |
| Maintained                                                                                                                                                                                                                                                                                    | 24V AC/DC                                                                                                                                                                                                                                                                                            |              | 1NO           |                       | HW1L-A210Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 1NC           |                       | HW1L-A201Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 1NO-1NC       | HW1L-A211Q4*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 2NO           | HW1L-A220Q4*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 2NC           | HW1L-A202Q4*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 2NO-2NC       | HW1L-A222Q4*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               | 100/110V AC                                                                                                                                                                                                                                                                                          |              | 1NO-1NC       | HW1L-A211H2*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 2NO           | HW1L-A220H2*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 2NC           | HW1L-A202H2*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 2NO-2NC       | HW1L-A222H2*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      | 200/220VAC   | 1NO-1NC       | HW1L-A211M2*          |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                      |              | 2NO           | HW1L-A220M2*          |              |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                           | HW1L-A202M2*                                                                                                                                                                                                                                                                                         |              |               |                       |              |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                       | HW1L-A222M2*                                                                                                                                                                                                                                                                                         |              |               |                       |              |                                  |                                  |

- Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber) W (white), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See page 5 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.
- See page 5 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbuttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
- See page 19 for bottom view.
- See page 12 for how to specify units without LED lamps.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

LED





Round Extended with Full Shroud (Marking Type)

Package Quantity: 1

| Shape                                                                                                                                                                                                                                                                                                           | Illumination  | Operation     | Rated Voltage | Contact       | Part No.      | Color Code                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|----------------------------------|
| Round Extended with Full Shroud<br>(Marking type)<br>HW1L-MF2<br>HW1L-AF2<br><br><br>(24V AC/DC)<br><br><br>With transformer<br>(100/110V AC) | LED           | Momentary     | 24V AC/DC     | 1NO           | HW1L-MF210Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                                                 |               |               |               | 1NC           | HW1L-MF201Q4* |                                  |
| 1NO-1NC                                                                                                                                                                                                                                                                                                         | HW1L-MF211Q4* |               |               |               |               |                                  |
| 2NO                                                                                                                                                                                                                                                                                                             | HW1L-MF220Q4* |               |               |               |               |                                  |
| 2NC                                                                                                                                                                                                                                                                                                             | HW1L-MF202Q4* |               |               |               |               |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                         | HW1L-MF222Q4* |               |               |               |               |                                  |
| 100/110V AC                                                                                                                                                                                                                                                                                                     | 1NO-1NC       |               | HW1L-MF211H2* |               |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 2NO           |               | HW1L-MF220H2* |               |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 2NC           |               | HW1L-MF202H2* |               |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 2NO-2NC       |               | HW1L-MF222H2* |               |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 200/220V AC   |               | 1NO-1NC       | HW1L-MF211M2* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 |               |               | 2NO           | HW1L-MF220M2* |               |                                  |
| 2NC                                                                                                                                                                                                                                                                                                             |               | HW1L-MF202M2* |               |               |               |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                         |               | HW1L-MF222M2* |               |               |               |                                  |
| 24V AC/DC                                                                                                                                                                                                                                                                                                       |               | Maintained    | 24V AC/DC     | 1NO           | HW1L-AF210Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                                                 |               |               |               | 1NC           | HW1L-AF201Q4* |                                  |
|                                                                                                                                                                                                                                                                                                                 | 1NO-1NC       |               |               | HW1L-AF211Q4* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 2NO           |               |               | HW1L-AF220Q4* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 2NC           |               |               | HW1L-AF202Q4* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 2NO-2NC       |               |               | HW1L-AF222Q4* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 | 100/110V AC   |               | 1NO-1NC       | HW1L-AF211H2* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 |               |               | 2NO           | HW1L-AF220H2* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 |               |               | 2NC           | HW1L-AF202H2* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 |               |               | 2NO-2NC       | HW1L-AF222H2* |               |                                  |
|                                                                                                                                                                                                                                                                                                                 |               |               | 200/220V AC   | 1NO-1NC       | HW1L-AF211M2* |                                  |
|                                                                                                                                                                                                                                                                                                                 |               |               |               | 2NO           | HW1L-AF220M2* |                                  |
| 2NC                                                                                                                                                                                                                                                                                                             | HW1L-AF202M2* |               |               |               |               |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                         | HW1L-AF222M2* |               |               |               |               |                                  |

- Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber) W (white), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See page 5 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.
- See page 5 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbuttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
- See page 19 for bottom view.
- See page 12 for how to specify units without LED lamps.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.





**LED** Square Flush / Round Flush with Square Bezel (Marking Type) Package Quantity: 1

| Shape                                                                                                                                                                                                                                                                                   | Illumination                                                                                                                                                                                                                                                                                                    | Operation    | Illumination | Contact      | Part No.     | Color Code                       |                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|----------------------------------|----------------------------------|
| Square Flush (Marking type)<br>HW2L-M1<br>HW2L-A1<br><br><br>(24V AC/DC)<br><br><br>With transformer<br>(100/110V AC) | LED                                                                                                                                                                                                                                                                                                             | Momentary    | 24V AC/DC    | 1NO          | HW2L-M110Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 1NC          | HW2L-M101Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 1NO-1NC      | HW2L-M111Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO          | HW2L-M120Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NC          | HW2L-M102Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO-2NC      | HW2L-M122Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              | 100/110V AC  | 1NO-1NC      | HW2L-M111H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO          | HW2L-M120H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NC          | HW2L-M102H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO-2NC      | HW2L-M122H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 200/220V AC  | 1NO-1NC      |                                  | HW2L-M111M2*                     |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              |              | 2NO          |                                  | HW2L-M120M2*                     |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 | 2NC          | HW2L-M102M2* |              |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 | 2NO-2NC      | HW2L-M122M2* |              |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 | Maintained   | 24V AC/DC    |              | 1NO          | HW2L-A110Q4*                     | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              |              | 1NC          | HW2L-A101Q4*                     |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 1NO-1NC      | HW2L-A111Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO          | HW2L-A120Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NC          | HW2L-A102Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO-2NC      | HW2L-A122Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              | 100/110V AC  | 1NO-1NC      | HW2L-A111H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO          | HW2L-A120H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NC          | HW2L-A102H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO-2NC      | HW2L-A122H2* |                                  |                                  |
| 200/220V AC                                                                                                                                                                                                                                                                             | 1NO-1NC                                                                                                                                                                                                                                                                                                         |              |              | HW2L-A111M2* |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                         | 2NO                                                                                                                                                                                                                                                                                                             |              |              | HW2L-A120M2* |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                         | 2NC                                                                                                                                                                                                                                                                                                             | HW2L-A102M2* |              |              |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                         | 2NO-2NC                                                                                                                                                                                                                                                                                                         | HW2L-A122M2* |              |              |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                         | Round Flush with Square Bezel<br>(Marking type)<br>HW3L-M1<br>HW3L-A1<br><br><br>(24V AC/DC)<br><br><br>With transformer<br>(100/110V AC) | LED          | Momentary    | 24V AC/DC    | 1NO          | HW3L-M110Q4*                     | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              |              | 1NC          | HW3L-M101Q4*                     |                                  |
| 1NO-1NC                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                 |              |              |              | HW3L-M111Q4* |                                  |                                  |
| 2NO                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                 |              |              |              | HW3L-M120Q4* |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                 |              |              |              | HW3L-M102Q4* |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                 |              |              |              | HW3L-M122Q4* |                                  |                                  |
| 100/110V AC                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                 |              |              | 1NO-1NC      | HW3L-M111H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO          | HW3L-M120H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NC          | HW3L-M102H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO-2NC      | HW3L-M122H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 200/220V AC  | 1NO-1NC      | HW3L-M111M2*                     |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              |              | 2NO          | HW3L-M120M2*                     |                                  |
| 2NC                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                 |              | HW3L-M102M2* |              |              |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                 |              | HW3L-M122M2* |              |              |                                  |                                  |
| Maintained                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                 |              | 24V AC/DC    |              | 1NO          | HW3L-A110Q4*                     | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              |              | 1NC          | HW3L-A101Q4*                     |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 1NO-1NC      | HW3L-A111Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO          | HW3L-A120Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NC          | HW3L-A102Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO-2NC      | HW3L-A122Q4* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              | 100/110V AC  | 1NO-1NC      | HW3L-A111H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO          | HW3L-A120H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NC          | HW3L-A102H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 |              |              | 2NO-2NC      | HW3L-A122H2* |                                  |                                  |
|                                                                                                                                                                                                                                                                                         | 200/220V AC                                                                                                                                                                                                                                                                                                     | 1NO-1NC      |              | HW3L-A111M2* |              |                                  |                                  |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                 | 2NO          |              | HW3L-A120M2* |              |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                 | HW3L-A102M2* |              |              |              |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                 | HW3L-A122M2* |              |              |              |                                  |                                  |

- Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber) W (white), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See page 5 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.
- See page 5 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbuttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
- See page 19 for bottom view.
- See page 12 for how to specify units without LED lamps.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

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

Package Quantity: 1

| Shape                                                                                                                                                                                                                                                                                                        | Illumination | Operation    | Voltage      | Contact      | Part No.                         | Color Code                       |                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|----------------------------------|----------------------------------|----------------------------------|
| ø29mm Mushroom (Marking type)<br>HW1L-M3<br>HW1L-A3<br><br><br>(24V AC/DC)<br><br><br>With transformer (100/110V AC)                       | LED          | Momentary    | 24V AC/DC    | 1NO          | HW1L-M310Q4*                     | R<br>G<br>Y<br>A<br>W<br>S<br>PW |                                  |
|                                                                                                                                                                                                                                                                                                              |              |              |              | 1NC          | HW1L-M301Q4*                     |                                  |                                  |
| 1NO-1NC                                                                                                                                                                                                                                                                                                      | HW1L-M311Q4* |              |              |              |                                  |                                  |                                  |
| 2NO                                                                                                                                                                                                                                                                                                          | HW1L-M320Q4* |              |              |              |                                  |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                                          | HW1L-M302Q4* |              |              |              |                                  |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                      | HW1L-M322Q4* |              |              |              |                                  |                                  |                                  |
| 100/110V AC                                                                                                                                                                                                                                                                                                  | 1NO-1NC      |              | HW1L-M311H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO          |              | HW1L-M320H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NC          |              | HW1L-M302H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO-2NC      |              | HW1L-M322H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 200/220V AC  |              | 1NO-1NC      | HW1L-M311M2* |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              |              | 2NO          | HW1L-M320M2* |                                  |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                                          |              | HW1L-M302M2* |              |              |                                  |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                      |              | HW1L-M322M2* |              |              |                                  |                                  |                                  |
| Maintained                                                                                                                                                                                                                                                                                                   |              | 24V AC/DC    | 1NO          | HW1L-A310Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              |              | 1NC          | HW1L-A301Q4* |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 1NO-1NC      |              | HW1L-A311Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO          |              | HW1L-A320Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NC          |              | HW1L-A302Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO-2NC      |              | HW1L-A322Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 100/110V AC  | 1NO-1NC      | HW1L-A311H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 2NO          | HW1L-A320H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 2NC          | HW1L-A302H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 2NO-2NC      | HW1L-A322H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 200/220V AC  | 1NO-1NC      | HW1L-A311M2* |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              |              | 2NO          | HW1L-A320M2* |                                  |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                                          | HW1L-A302M2* |              |              |              |                                  |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                      | HW1L-A322M2* |              |              |              |                                  |                                  |                                  |
| ø29mm Mushroom with Square Bezel (Marking type)<br>HW3L-M3<br>HW3L-A3<br><br><br>(24V AC/DC)<br><br><br>With transformer (100/110V AC) | LED          |              | Momentary    | 24V AC/DC    | 1NO                              | HW3L-M310Q4*                     | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                                                                                                                                                                                                                                                                              |              |              |              |              | 1NC                              | HW3L-M301Q4*                     |                                  |
| 1NO-1NC                                                                                                                                                                                                                                                                                                      | HW3L-M311Q4* |              |              |              |                                  |                                  |                                  |
| 2NO                                                                                                                                                                                                                                                                                                          | HW3L-M320Q4* |              |              |              |                                  |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                                          | HW3L-M302Q4* |              |              |              |                                  |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                      | HW3L-M322Q4* |              |              |              |                                  |                                  |                                  |
| 100/110V AC                                                                                                                                                                                                                                                                                                  | 1NO-1NC      | HW3L-M311H2* |              |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO          | HW3L-M320H2* |              |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NC          | HW3L-M302H2* |              |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO-2NC      | HW3L-M322H2* |              |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 200/220V AC  | 1NO-1NC      |              | HW3L-M311M2* |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 2NO          |              | HW3L-M320M2* |                                  |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                                          |              | HW3L-M302M2* |              |              |                                  |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                      |              | HW3L-M322M2* |              |              |                                  |                                  |                                  |
| Maintained                                                                                                                                                                                                                                                                                                   |              | 24V AC/DC    | 1NO          | HW3L-A310Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              |              | 1NC          | HW3L-A301Q4* |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 1NO-1NC      |              | HW3L-A311Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO          |              | HW3L-A320Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NC          |              | HW3L-A302Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 2NO-2NC      |              | HW3L-A322Q4* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              | 100/110V AC  | 1NO-1NC      | HW3L-A311H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 2NO          | HW3L-A320H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 2NC          | HW3L-A302H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 2NO-2NC      | HW3L-A322H2* |              |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              | 200/220V AC  | 1NO-1NC      | HW3L-A311M2* |                                  |                                  |                                  |
|                                                                                                                                                                                                                                                                                                              |              |              | 2NO          | HW3L-A320M2* |                                  |                                  |                                  |
| 2NC                                                                                                                                                                                                                                                                                                          | HW3L-A302M2* |              |              |              |                                  |                                  |                                  |
| 2NO-2NC                                                                                                                                                                                                                                                                                                      | HW3L-A322M2* |              |              |              |                                  |                                  |                                  |

- Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (amber) W (white), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See page 5 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.
- See page 5 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbuttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
- See page 19 for bottom view.
- See page 12 for how to specify units without LED lamps.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.



**LED** Mushroom (ø40mm) (Marking Type)

Package Quantity: 1

| Shape                                                    | Illumination | Operation    | Illumination | Contact      | Part No.     | Color Code                       |
|----------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|----------------------------------|
| <p>(24V AC/DC)</p> <p>With transformer (100/110V AC)</p> | LED          | Momentary    | 24V AC/DC    | 1NO          | HW1L-M410Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                          |              |              |              | 1NC          | HW1L-M401Q4* |                                  |
| 1NO-1NC                                                  | HW1L-M411Q4* |              |              |              |              |                                  |
| 2NO                                                      | HW1L-M420Q4* |              |              |              |              |                                  |
| 2NC                                                      | HW1L-M402Q4* |              |              |              |              |                                  |
| 2NO-2NC                                                  | HW1L-M422Q4* |              |              |              |              |                                  |
| 100/110V AC                                              | 1NO-1NC      |              | HW1L-M411H2* |              |              |                                  |
|                                                          | 2NO          |              | HW1L-M420H2* |              |              |                                  |
|                                                          | 2NC          |              | HW1L-M402H2* |              |              |                                  |
|                                                          | 2NO-2NC      |              | HW1L-M422H2* |              |              |                                  |
|                                                          | 200/220V AC  |              | 1NO-1NC      | HW1L-M411M2* |              |                                  |
|                                                          |              |              | 2NO          | HW1L-M420M2* |              |                                  |
| 2NC                                                      |              | HW1L-M402M2* |              |              |              |                                  |
| Maintained                                               | 24V AC/DC    | Maintained   | 24V AC/DC    | 1NO          | HW1L-A410Q4* | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                                          |              |              |              | 1NC          | HW1L-A401Q4* |                                  |
|                                                          |              |              |              | 1NO-1NC      | HW1L-A411Q4* |                                  |
|                                                          |              |              |              | 2NO          | HW1L-A420Q4* |                                  |
|                                                          |              |              |              | 2NC          | HW1L-A402Q4* |                                  |
|                                                          |              |              |              | 2NO-2NC      | HW1L-A422Q4* |                                  |
|                                                          | 100/110V AC  |              | 1NO-1NC      | HW1L-A411H2* |              |                                  |
|                                                          |              |              | 2NO          | HW1L-A420H2* |              |                                  |
|                                                          |              |              | 2NC          | HW1L-A402H2* |              |                                  |
|                                                          |              |              | 2NO-2NC      | HW1L-A422H2* |              |                                  |
|                                                          |              |              | 200/220V AC  | 1NO-1NC      | HW1L-A411M2* |                                  |
|                                                          |              |              |              | 2NO          | HW1L-A420M2* |                                  |
|                                                          | 2NC          |              |              | HW1L-A402M2* |              |                                  |
|                                                          | 2NO-2NC      |              |              | HW1L-A422M2* |              |                                  |

- Specify a color code in place of \* in Part No. R (red), G (green), Y (yellow), A (Amber), W (white), S (blue), PW (pure white)
- Illuminated pushbuttons have an LED lamp installed unless otherwise specified.
- See page 5 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.
- See page 5 for other contact configurations and gold-plated silver contacts.
- Illuminated pushbuttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
- See page 19 for bottom view.
- See page 12 for how to specify units without LED lamps.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

Dimensions

All dimensions in mm.

Illuminated Pushbuttons (Momentary / Maintained)

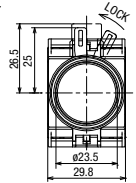
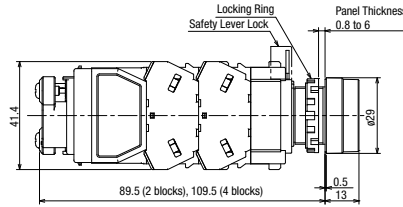
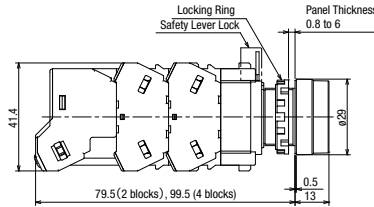
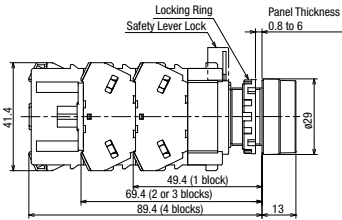
Round Flush

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



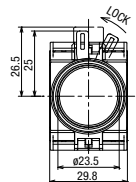
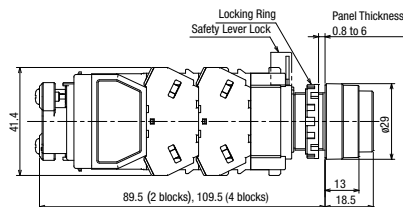
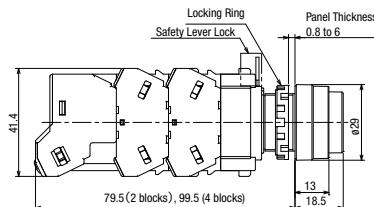
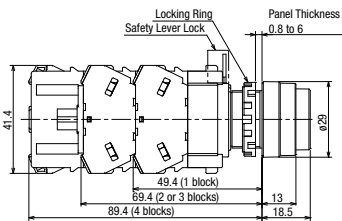
Round Extended

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



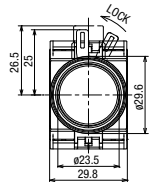
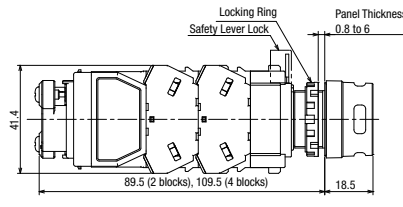
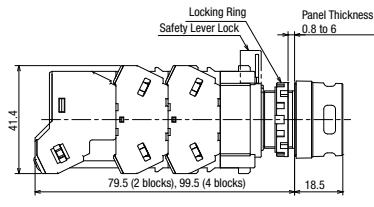
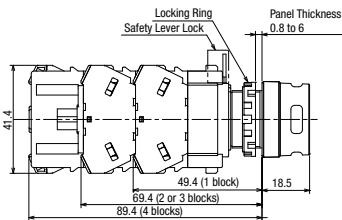
Round Extended with Full Shroud

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



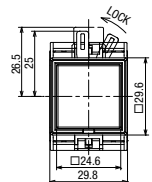
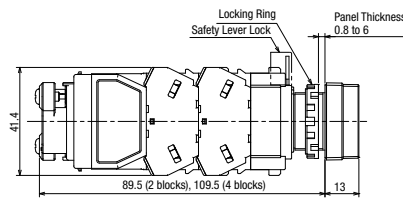
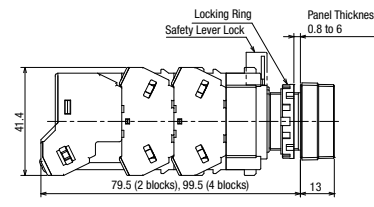
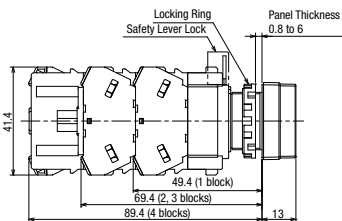
Square Flush

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



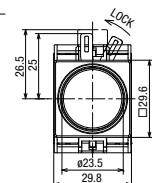
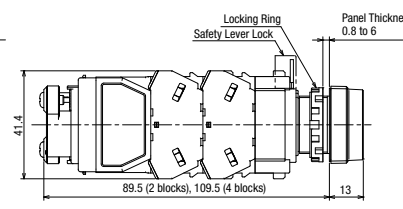
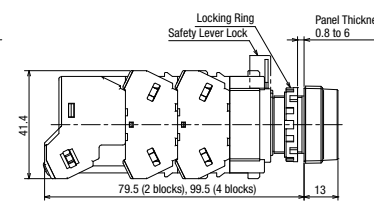
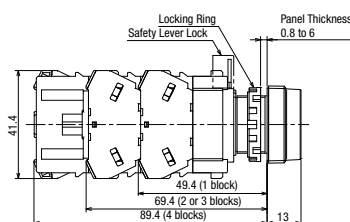
Flush with Square Bezel

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



Dimensions

All dimensions in mm.

Illuminated Pushbuttons (Momentary / Maintained)

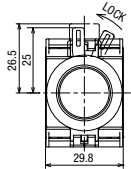
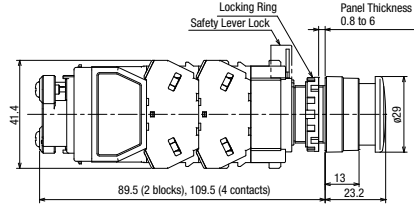
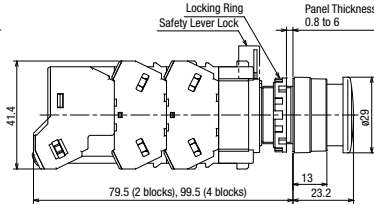
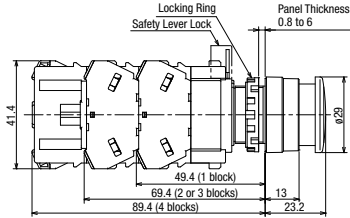
ø29mm Mushroom

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



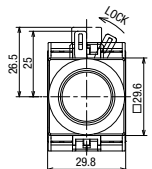
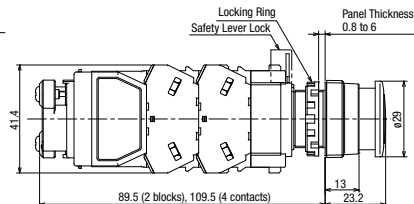
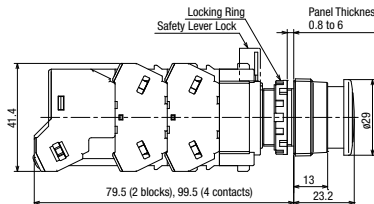
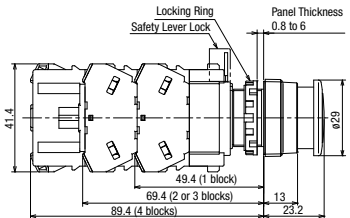
ø29mm Mushroom with Square Bezel

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



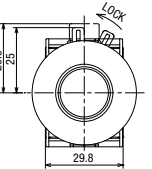
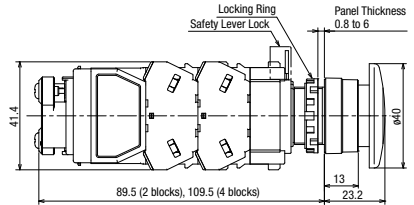
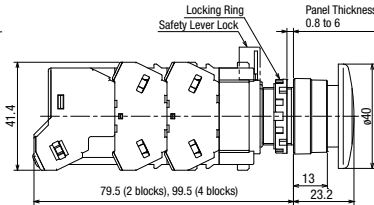
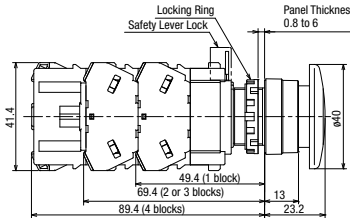
ø40mm Mushroom with Square Bezel

Terminal screws: M3.5, integrated terminal cover

6, 12, 24V AC/DC, Without LED lamp

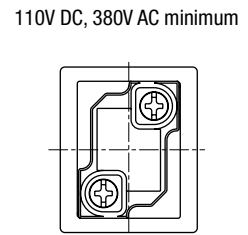
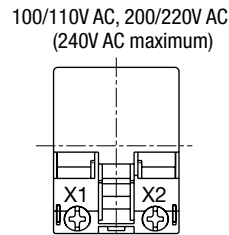
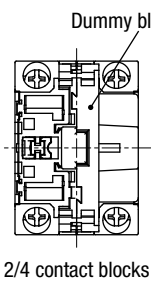
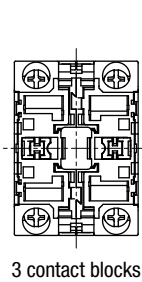
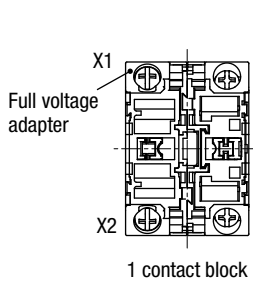
100/110V AC, 200/220V AC (240V maximum)

110V DC, 380V AC minimum



Bottom View

6, 12, 24V AC/DC, Without LED lamp



• See page 49 for wiring.

• For DC-DC Converter types, terminal X1 is ⊕, X2 is ⊖.

Dual Pushbuttons (without Pilot Light)

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

Package Quantity: 1

| Shape          |                                  | HW7D       |               |                     |                                                                          |                                                                  |  |
|----------------|----------------------------------|------------|---------------|---------------------|--------------------------------------------------------------------------|------------------------------------------------------------------|--|
| Operation      | Button Style                     | Contact    |               | Part No.            | [2] Button Color Code                                                    | [3] Legend Code                                                  |  |
|                |                                  | Top Button | Bottom Button |                     |                                                                          |                                                                  |  |
| Momentary      | Flush (top)<br>Flush (bottom)    | 1NO        | 1NC           | HW7D-B111001 [2][3] | GR: Green (top)<br>Red (bottom)<br><br>WB: White (top)<br>Black (bottom) | Black: Without legend<br><br>1: I / ON (top)<br>O / OFF (bottom) |  |
|                |                                  | 1NO        | 1NO           | HW7D-B111010 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 1NO-1NC    | 1NO-1NC       | HW7D-B111111 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NC           | HW7D-B112002 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NO           | HW7D-B112020 [2][3] |                                                                          |                                                                  |  |
|                | Flush (top)<br>Extended (bottom) | 1NO        | 1NC           | HW7D-B121001 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 1NO        | 1NO           | HW7D-B121010 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 1NO-1NC    | 1NO-1NC       | HW7D-B121111 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NC           | HW7D-B122002 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NO           | HW7D-B122020 [2][3] |                                                                          |                                                                  |  |
| Interlock (*1) | Flush (top)<br>Flush (bottom)    | 1NO        | 1NC           | HW7D-B211001 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 1NO        | 1NO           | HW7D-B211010 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 1NO-1NC    | 1NO-1NC       | HW7D-B211111 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NC           | HW7D-B212002 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NO           | HW7D-B212020 [2][3] |                                                                          |                                                                  |  |
|                | Flush (top)<br>Extended (bottom) | 1NO        | 1NC           | HW7D-B221001 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 1NO        | 1NO           | HW7D-B221010 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 1NO-1NC    | 1NO-1NC       | HW7D-B221111 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NC           | HW7D-B222002 [2][3] |                                                                          |                                                                  |  |
|                |                                  | 2NO        | 2NO           | HW7D-B222020 [2][3] |                                                                          |                                                                  |  |

- For other contact arrangements, see Ordering Information on page 8 and Contact Arrangement Chart on page 23.
- Dual pushbuttons with 3 contact blocks have a dummy block.
- See page 23 for top and bottom button contact mounting positions.
- \*1) Interlock: Momentary operation. When one of the buttons is pressed, the other button cannot be operated.  
Do not operate top and bottom buttons at the same time. Operating the buttons at the same time may lead to malfunctions.

**LED Dual Pushbuttons (with Pilot Light)**

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

Package Quantity: 1

| Shape          | HW7D<br>LED: LSTD-2* (24V AC/DC) |              |            |               |                          |                             |                                                                          |                                                                  |
|----------------|----------------------------------|--------------|------------|---------------|--------------------------|-----------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------|
|                |                                  |              |            |               |                          |                             |                                                                          |                                                                  |
| Operation      | Button Style                     | Illumination | Contact    |               | Part No.                 | LED                         | [2] Button Color Code                                                    | [3] Legend Code                                                  |
|                |                                  |              | Top Button | Bottom Button |                          |                             |                                                                          |                                                                  |
| Momentary      | Flush (top)<br>Flush (bottom)    | 24V AC/DC    | 1NO        | 1NC           | HW7D-L111001Q4 [1][2][3] | R<br>G<br>A<br>W<br>S<br>PW | GR: Green (top)<br>Red (bottom)<br><br>WB: White (top)<br>Black (bottom) | Black: Without legend<br><br>1: I / ON (top)<br>O / OFF (bottom) |
|                |                                  |              | 1NO        | 1NO           | HW7D-L111010Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO-1NC    | 1NO-1NC       | HW7D-L111111Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 2NO        | 2NC           | HW7D-L112002Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                | Flush (top)<br>Extended (bottom) | 24V AC/DC    | 2NO        | 2NO           | HW7D-L112020Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO        | 1NC           | HW7D-L121001Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO        | 1NO           | HW7D-L121010Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO-1NC    | 1NO-1NC       | HW7D-L121111Q4 [1][2][3] |                             |                                                                          |                                                                  |
| Interlock (*1) | Flush (top)<br>Flush (bottom)    | 24V AC/DC    | 2NO        | 2NC           | HW7D-L122002Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 2NO        | 2NO           | HW7D-L212020Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO        | 1NC           | HW7D-L211001Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO        | 1NO           | HW7D-L211010Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                | Flush (top)<br>Extended (bottom) | 24V AC/DC    | 1NO-1NC    | 1NO-1NC       | HW7D-L211111Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 2NO        | 2NC           | HW7D-L22002Q4 [1][2][3]  |                             |                                                                          |                                                                  |
|                |                                  |              | 2NO        | 2NO           | HW7D-L22020Q4 [1][2][3]  |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO        | 1NC           | HW7D-L221001Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO        | 1NO           | HW7D-L221010Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 1NO-1NC    | 1NO-1NC       | HW7D-L221111Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 2NO        | 2NC           | HW7D-L222002Q4 [1][2][3] |                             |                                                                          |                                                                  |
|                |                                  |              | 2NO        | 2NO           | HW7D-L222020Q4 [1][2][3] |                             |                                                                          |                                                                  |

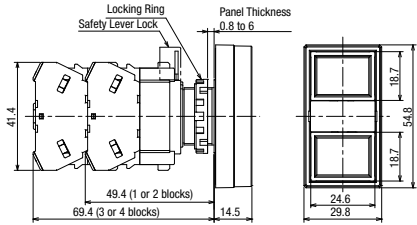
- LED lamp code: R (red), G (green), A (amber), W (white), S (blue), PW (pure white)
  - Only W (white) lens is available.
  - See page 6 for other operating voltage such as 100/110V AC and 200/220V AC.
  - See page 23 for other contact configurations
  - See page 6 for gold-plated silver contacts.
  - Illuminated pushbuttons of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
  - See page 23 for top and bottom button contact mounting positions.
- \*1) Interlock: Momentary operation. When one of the buttons is pressed, the other button cannot be operated.  
Do not operate top and bottom buttons at the same time. Operating the buttons at the same time may lead to malfunctions.

## Dimensions

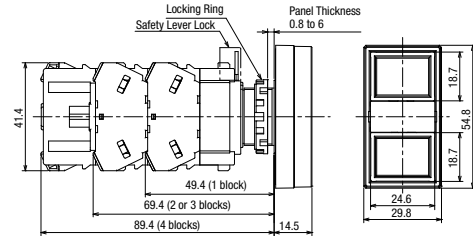
All dimensions in mm.

### Dual Pushbuttons

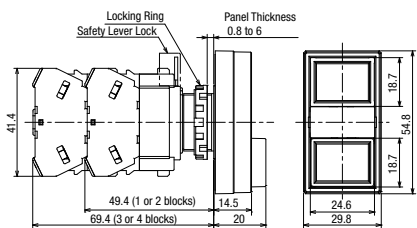
**Without Pilot Light** Terminal screws: M3.5, integrated terminal cover  
 Flush (top), Flush (bottom)



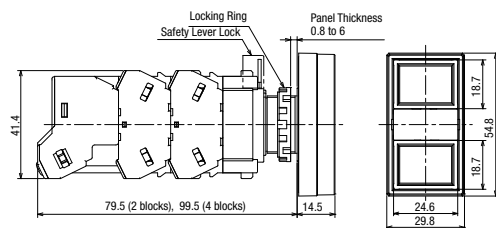
**With Pilot Light** Terminal screws: M3.5, integrated terminal cover  
 Flush (top), Flush (bottom) (24V AC/DC)



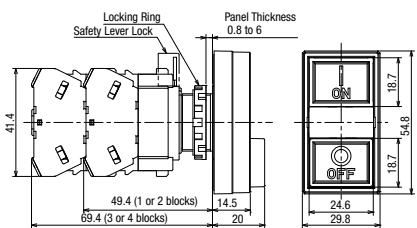
Flush (top), Extended (bottom)



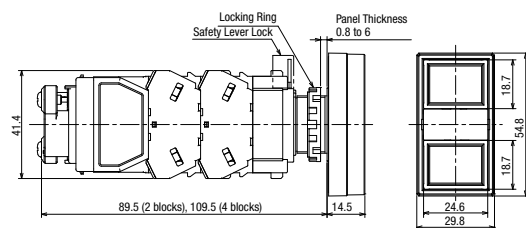
Flush (top), Flush (bottom) (240V AC maximum)



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

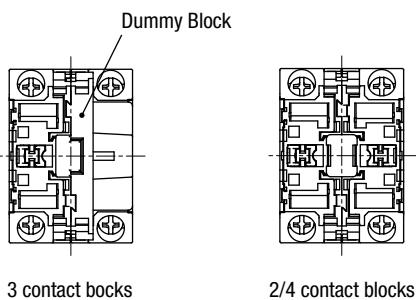


Flush (top), Flush (bottom) (380V AC minimum)



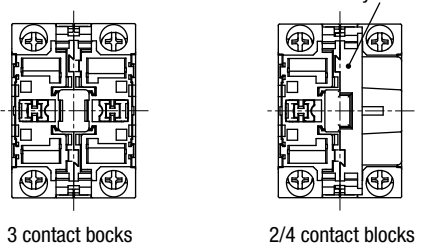
### Bottom View

**Without Pilot Light**

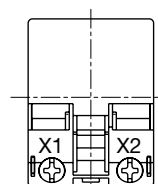


**With Pilot Light**

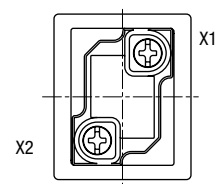
6, 12, 24V AC/DC



100/110V AC, 200/220V AC  
 (240V maximum)



380V AC minimum



- See page 48 to 49 for wiring.
- Mounting position of the dummy block may change according to the contact configuration of the top and bottom buttons.

Contact Arrangement Chart

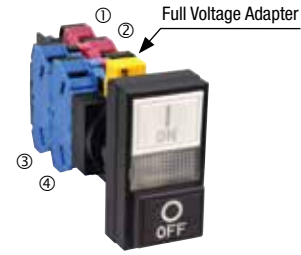
| Contact    |               |              | Contact Block     |         | Top Button  |      | Bottom Button |      |  |
|------------|---------------|--------------|-------------------|---------|-------------|------|---------------|------|--|
| Top Button | Bottom Button | Contact Code | Mounting Position | Contact | Normal      | Push | Normal        | Push |  |
| 1NO        | 1NO           | 1010         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NO      |             |      |               | ●    |  |
| 1NO        | 1NC           | 1001         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NC      |             |      | ●             |      |  |
| 1NC        | 1NO           | 0110         | ①                 | NC      | ●           |      |               |      |  |
|            |               |              | ②                 | NO      |             |      |               | ●    |  |
| 1NO        | 1NO-1NC       | 1011         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NO      |             |      |               | ●    |  |
|            |               |              | ③                 | -       | Dummy Block |      |               |      |  |
|            |               |              | ④                 | NC      |             |      |               | ●    |  |
| 2NO        | 2NO           | 2020         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NO      |             |      |               | ●    |  |
|            |               |              | ③                 | NO      |             | ●    |               |      |  |
|            |               |              | ④                 | NO      |             |      |               | ●    |  |
| 2NO        | 1NO-1NC       | 2011         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NO      |             |      |               | ●    |  |
|            |               |              | ③                 | NO      |             | ●    |               |      |  |
|            |               |              | ④                 | NC      |             |      |               | ●    |  |
| 2NO        | 2NC           | 2002         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NC      |             |      |               | ●    |  |
|            |               |              | ③                 | NO      |             | ●    |               |      |  |
|            |               |              | ④                 | NC      |             |      |               | ●    |  |
| 1NO-1NC    | 1NO-1NC       | 1111         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NO      |             |      |               | ●    |  |
|            |               |              | ③                 | NC      | ●           |      |               |      |  |
|            |               |              | ④                 | NC      |             |      |               | ●    |  |
| 1NO-1NC    | 2NC           | 1102         | ①                 | NO      |             | ●    |               |      |  |
|            |               |              | ②                 | NC      |             |      |               | ●    |  |
|            |               |              | ③                 | NC      | ●           |      |               |      |  |
|            |               |              | ④                 | NC      |             |      |               | ●    |  |

- Transformer types cannot mount 3 contact blocks.
- Contact blocks ① and ③ are actuated by the top button. Contact blocks ② and ④ are actuated by the bottom button.

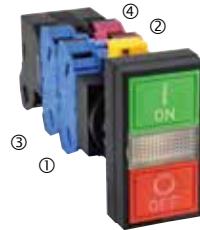
| Contact Block     |         | Top Button |      | Bottom Button |      |
|-------------------|---------|------------|------|---------------|------|
| Mounting Position | Contact | Normal     | Push | Normal        | Push |
| ①                 | NO      |            | ●    |               |      |
| ②                 | NO      |            |      |               | ●    |
| ③                 | NC      | ●          |      |               |      |
| ④                 | NC      |            |      | ●             |      |

← Button Position  
← Pushbutton Operation

Contact Block Mounting Position



With Pilot Light (Full Voltage Type)



With Pilot Light (Transformer Type)

Part No. Example

HW7D-B121111GR  
 └── Contact Code

Selector Switches (Knob Operator)

Package Quantity: 1

| Shape                                   | Knob Operator HW1S    |               |                   |             |   |   |                  |                                |                         |                       |              |
|-----------------------------------------|-----------------------|---------------|-------------------|-------------|---|---|------------------|--------------------------------|-------------------------|-----------------------|--------------|
|                                         | Contact               | Contact Block | Operator Position |             |   |   | Maintained (90°) | Spring Return from Right (60°) | -                       | -                     |              |
| 90°<br>2-position/<br>60°<br>2-position | Mounting Position     | Contact       | 1                 | 2           |   |   |                  |                                |                         |                       |              |
|                                         | 1NO (10)              | ①             | NO                | ●           |   |   |                  | HW1S-2T10                      | HW1S-21T10              | /                     | /            |
|                                         |                       | ②             | -                 | Dummy Block |   |   |                  |                                |                         |                       |              |
|                                         | 1NO-1NC (11)          | ①             | NO                |             | ● |   |                  | HW1S-2T11                      | HW1S-21T11              |                       |              |
|                                         |                       | ②             | NC                | ●           |   |   |                  |                                |                         |                       |              |
|                                         | 2NO (20)              | ①             | NO                |             | ● |   |                  | HW1S-2T20                      | HW1S-21T20              |                       |              |
|                                         |                       | ②             | NO                |             | ● |   |                  |                                |                         |                       |              |
|                                         | 2NO-2NC (22)          | ①             | NO                |             | ● |   |                  | HW1S-2T22                      | HW1S-21T22              |                       |              |
|                                         |                       | ②             | NC                | ●           |   |   |                  |                                |                         |                       |              |
|                                         |                       | ③             | NO                |             | ● |   |                  |                                |                         |                       |              |
|                                         | ④                     | NC            | ●                 |             |   |   |                  |                                |                         |                       |              |
| 45°<br>3-position                       | Mounting Position     | Contact       | 1                 | 0           | 2 |   | Maintained       | Spring Return from Right       | Spring Return from Left | Spring Return Two-way |              |
|                                         |                       |               |                   |             |   |   |                  |                                |                         |                       |              |
|                                         | 2NO (20)              | ①             | NO                | ●           |   |   |                  | HW1S-3T20                      | HW1S-31T20              | HW1S-32T20            | HW1S-33T20   |
|                                         |                       | ②             | NO                |             |   | ● |                  |                                |                         |                       |              |
|                                         | 2NC (02)              | ①             | NC                |             | ■ |   |                  | HW1S-3T02                      | HW1S-31T02              | HW1S-32T02            | HW1S-33T02   |
|                                         |                       | ②             | NC                | ■           |   |   |                  |                                |                         |                       |              |
|                                         | 2NO-2NC (22N1)        | ①             | NO                | ●           |   |   |                  | HW1S-3T22N1                    | HW1S-31T22N1            | HW1S-32T22N1          | HW1S-33T22N1 |
|                                         |                       | ②             | NO                |             |   | ● |                  |                                |                         |                       |              |
|                                         |                       | ③             | NC                | ■           |   |   |                  |                                |                         |                       |              |
|                                         | 4NO (40)              | ①             | NO                | ●           |   |   |                  | HW1S-3T40                      | HW1S-31T40              | HW1S-32T40            | HW1S-33T40   |
|                                         |                       | ②             | NO                |             |   | ● |                  |                                |                         |                       |              |
|                                         |                       | ③             | NO                | ●           |   |   |                  |                                |                         |                       |              |
|                                         |                       | ④             | NO                |             |   | ● |                  |                                |                         |                       |              |
|                                         | 4NC (04)              | ①             | NC                |             | ■ |   |                  | HW1S-3T04                      | HW1S-31T04              | HW1S-32T04            | HW1S-33T04   |
|                                         |                       | ②             | NC                | ■           |   |   |                  |                                |                         |                       |              |
|                                         |                       | ③             | NC                |             | ■ |   |                  |                                |                         |                       |              |
|                                         |                       | ④             | NC                | ■           |   |   |                  |                                |                         |                       |              |
|                                         | 2NO-1NC (21N1)<br>★☆☆ | ①             | NO                | ●           |   |   |                  | HW1S-3JT21N1                   | -                       | -                     | -            |
|                                         |                       | ②             | NO                |             |   | ● |                  |                                |                         |                       |              |
|                                         |                       | ③             | NC                |             | ● |   |                  |                                |                         |                       |              |
| ④                                       |                       | -             | Dummy Block       |             |   |   |                  |                                |                         |                       |              |

- Knob operator: white indicator on black body
- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator position is changed.
- Other contact arrangements are also available. See page 32 to 34.
- Selector switches with one or three contact blocks contain a dummy block.
- See page 6 for gold-plated silver contacts.
- Turn the operator to each position accurately.


Contact Block Mounting Position





Key Selector Switches (Pin Tumbler Key)

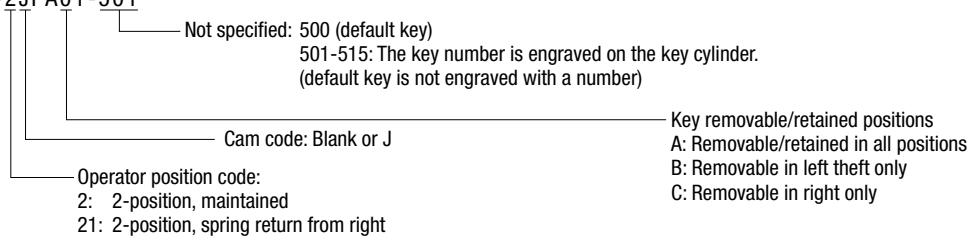
Package Quantity: 1

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

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

Ordering Information

Example: HW1K-2JPA01-501



| Maintained (90° 2-position) |             | Spring Return (60° 2-position) |
|-----------------------------|-------------|--------------------------------|
|                             |             | Spring return from right<br>   |
| Cam code: blank             | Cam code: J | Cam code: blank                |

| Key Retained Position              |                                |                                 |
|------------------------------------|--------------------------------|---------------------------------|
| A (removable in all positions)<br> | B (removable in left only)<br> | C (removable in right only)<br> |
| Cam code: blank                    |                                |                                 |

| Key Retained Position              |                                |                                 |
|------------------------------------|--------------------------------|---------------------------------|
| A (removable in all positions)<br> | B (removable in left only)<br> | C (removable in right only)<br> |
| Cam code: J                        |                                |                                 |

- For more contact arrangement, see page 32 to 34.
- Key selector switches with one or three contact blocks contain a dummy block.
- See page 7 for gold-plated silver contacts.
- Turn the operator to each position accurately.

Contact Block Mounting Position




① ②: Key removal position  
● ●: Key retained position

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

Key Selector Switches (Pin Tumbler Key)

Package Quantity: 1

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

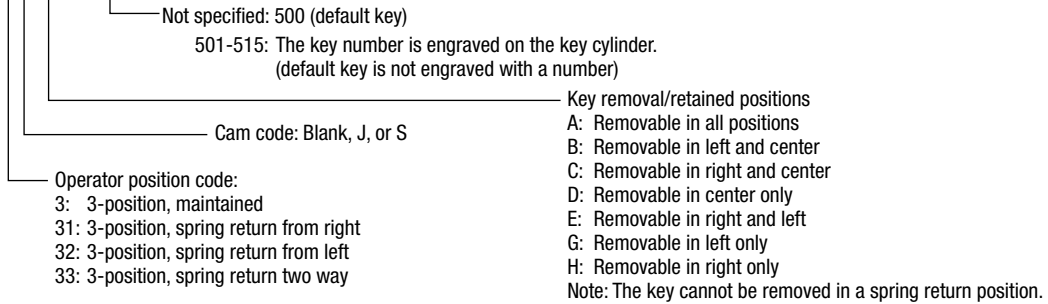
- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator is changed.
- For contact block mounting position, see the figure on the right.
- Each key selector switch is supplied with two keys.
- 15 types of key numbers are available in addition to standard (500) key. See below for details.
- Spring-return type is also available. See below for details.
- Key retained position can be selected. See table below details..

Contact Block Mounting Position



Ordering Information

Example: HW1K-3SPA04-501



| Maintained<br>(45° 3-position) | Spring Return (45° 3-position)    |                                  |                                |
|--------------------------------|-----------------------------------|----------------------------------|--------------------------------|
| Maintained<br>1 0 2            | Spring Return from Right<br>1 0 2 | Spring Return from Left<br>1 0 2 | Spring Return Two-way<br>1 0 2 |
| Cam code:<br>blank, J, or S    | Cam code: blank                   |                                  |                                |

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

- For more contact arrangement, see page 32 to 34.
- Key selector switches with one or three contact blocks contain a dummy block.
- See page 7 for gold-plated silver contacts.
- Turn the operator to each position accurately.

① ②: Key removal position  
● ① ②: Key retained position  
Note: The key cannot be removed in a spring return position.

Key Selector Switches (Disc Tumbler Key)

Package Quantity: 1

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



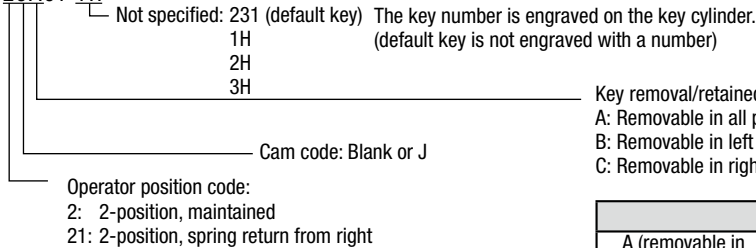
- Each key selector switch is supplied with two keys.
- 3 types of key numbers are available in addition to standard key.
- Key retained position can be selected. See table below for key retained positions.

Contact Block Mounting Position



Ordering Information

Example: HW1K-2JA01-1H



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

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

| Key Retained Position              |                                |                                 |
|------------------------------------|--------------------------------|---------------------------------|
| A (removable in all positions)<br> | B (removable in left only)<br> | C (removable in right only)<br> |
| Cam code: blank                    |                                |                                 |

| Key Removal Position               |                                |                                 |
|------------------------------------|--------------------------------|---------------------------------|
| A (removable in all positions)<br> | B (removable in left only)<br> | C (removable in right only)<br> |
| Cam code: J                        |                                |                                 |

- For more contact arrangement, see page 32 to 34.
- Key selector switches with one or three contact blocks contain a dummy block.
- See page 7 for gold-plated silver contacts.
- Turn the operator to each position accurately.

① ②: Key removal position  
① ● ②: Key retained position  
Note: The key cannot be removed in a spring return position.

Key Selector Switches (Disc Tumbler Key)

Package Quantity: 1

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



- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ★, contacts may overlap when the operator is changed. Each key selector switch is supplied with two keys.
- 3 types of key numbers are available in addition to standard key.
- Key retained position can be selected. See table below for key retained positions.

Contact Block Mounting Position



Ordering Information

Example: HW1K-3SA04-1H

Not specified: 231 (default key)  
1H  
2H  
3H

The key number is engraved on the key cylinder. (default key is not engraved with a number)

Cam code: Blank or J

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

Key removal/retained positions

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

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

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

| Key Retained Position                    |                                      |                                       |                                  |
|------------------------------------------|--------------------------------------|---------------------------------------|----------------------------------|
| A (removable in all positions)<br>       | B (removable in left and center)<br> | C (removable in right and center)<br> | D (removable in center only)<br> |
| E (removable in right and left only)<br> | G (removable in left only)<br>       | H (removable in right only)<br>       |                                  |

- For more contact arrangement, see page 32 to 34.
- Key selector switches with one or three contact blocks contain a dummy block.
- See page 7 for gold-plated silver contacts.
- Turn the operator to each position accurately.

⊙ ① ②: Key removal position

● ① ②: Key retained position

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

**LED** Selector Switches (Knob Operator)

Package Quantity: 1

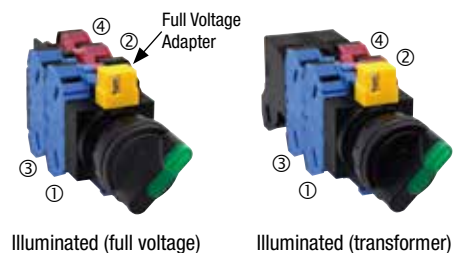
| No. of Positions                        | Knob Operator HW1F    |         |    |                   |   |                   |                  |                                |  |  |                                  |
|-----------------------------------------|-----------------------|---------|----|-------------------|---|-------------------|------------------|--------------------------------|--|--|----------------------------------|
|                                         | Contact Configuration |         |    | Operator Position |   | Operating Voltage | Maintained (90°) | Spring return from right (60°) |  |  | Color Code                       |
| Contact Code                            | Mounting Position     | Contact | 1  | 2                 | 1 |                   | 2                |                                |  |  |                                  |
| 90°<br>2-position/<br>60°<br>2-position | 1NO-1NC (11)          | ①       | NO | ●                 |   | 24V AC/DC         | HW1F-211Q4*      | HW1F-2111Q4*                   |  |  | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                         |                       | ②       | NC | ●                 |   | 100/110V AC       | HW1F-211H2*      | HW1F-2111H2*                   |  |  |                                  |
|                                         |                       |         |    |                   |   | 200/220V AC       | HW1F-211M2*      | HW1F-2111M2*                   |  |  |                                  |
|                                         | 2NO (20)              | ①       | NO |                   | ● | 24V AC/DC         | HW1F-220Q4*      | HW1F-2120Q4*                   |  |  |                                  |
|                                         |                       | ②       | NO |                   | ● | 100/110V AC       | HW1F-220H2*      | HW1F-2120H2*                   |  |  |                                  |
|                                         |                       |         |    |                   |   | 200/220V AC       | HW1F-220M2*      | HW1F-2120M2*                   |  |  |                                  |
|                                         | 2NO-2NC (22)          | ①       | NO |                   | ● | 24V AC/DC         | HW1F-222Q4*      | HW1F-2122Q4*                   |  |  |                                  |
|                                         |                       | ②       | NC | ●                 |   | 100/110V AC       | HW1F-222H2*      | HW1F-2122H2*                   |  |  |                                  |
|                                         |                       | ③       | NO |                   | ● | 200/220V AC       | HW1F-222M2*      | HW1F-2122M2*                   |  |  |                                  |
|                                         |                       | ④       | NC | ●                 |   |                   |                  |                                |  |  |                                  |

| No. of Positions  | Knob Operator HW1F    |         |    |                   |   |             |                   |               |                          |                         |                       |                                  |
|-------------------|-----------------------|---------|----|-------------------|---|-------------|-------------------|---------------|--------------------------|-------------------------|-----------------------|----------------------------------|
|                   | Contact Configuration |         |    | Operator Position |   |             | Operating Voltage | Maintained    | Spring return from right | Spring return from left | Spring Return Two-way | Color Code                       |
| Contact Code      | Mounting Position     | Contact | 1  | 0                 | 2 | 1           |                   | 0             | 2                        | 1                       | 0                     |                                  |
| 45°<br>3-position | 2NO (20)              | ①       | NO | ●                 |   |             | 24V AC/DC         | HW1F-320Q4*   | HW1F-3120Q4*             | HW1F-3220Q4*            | HW1F-3320Q4*          | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                   |                       | ②       | NO |                   |   | ●           | 100/110V AC       | HW1F-320H2*   | HW1F-3120H2*             | HW1F-3220H2*            | HW1F-3320H2*          |                                  |
|                   |                       |         |    |                   |   | 200/220V AC |                   | HW1F-320M2*   | HW1F-3120M2*             | HW1F-3220M2*            | HW1F-3320M2*          |                                  |
|                   | 2NC (02)              | ①       | NC |                   | ● |             | 24V AC/DC         | HW1F-302Q4*   | HW1F-3102Q4*             | HW1F-3202Q4*            | HW1F-3302Q4*          |                                  |
|                   |                       | ②       | NC |                   | ● |             | 100/110V AC       | HW1F-302H2*   | HW1F-3102H2*             | HW1F-3202H2*            | HW1F-3302H2*          |                                  |
|                   |                       |         |    |                   |   | 200/220V AC |                   | HW1F-302M2*   | HW1F-3102M2*             | HW1F-3202M2*            | HW1F-3302M2*          |                                  |
|                   | 2NO-2NC (22N1)        | ①       | NO | ●                 |   |             | 24V AC/DC         | HW1F-322N1Q4* | HW1F-3122N1Q4*           | HW1F-3222N1Q4*          | HW1F-3322N1Q4*        |                                  |
|                   |                       | ②       | NO |                   |   | ●           | 100/110V AC       | HW1F-322N1H2* | HW1F-3122N1H2*           | HW1F-3222N1H2*          | HW1F-3322N1H2*        |                                  |
|                   |                       | ③       | NC |                   |   | ●           | 200/220V AC       | HW1F-322N1M2* | HW1F-3122N1M2*           | HW1F-3222N1M2*          | HW1F-3322N1M2*        |                                  |
|                   |                       | ④       | NC |                   |   | ●           |                   |               |                          |                         |                       |                                  |
|                   | 4NO (40)              | ①       | NO | ●                 |   |             | 24V AC/DC         | HW1F-340Q4*   | HW1F-3140Q4*             | HW1F-3240Q4*            | HW1F-3340Q4*          |                                  |
|                   |                       | ②       | NO |                   |   | ●           | 100/110V AC       | HW1F-340H2*   | HW1F-3140H2*             | HW1F-3240H2*            | HW1F-3340H2*          |                                  |
|                   |                       | ③       | NO |                   |   | ●           | 200/220V AC       | HW1F-340M2*   | HW1F-3140M2*             | HW1F-3240M2*            | HW1F-3340M2*          |                                  |
|                   |                       | ④       | NO |                   |   | ●           |                   |               |                          |                         |                       |                                  |
|                   | 4NC (04)              | ①       | NC |                   |   | ●           | 24V AC/DC         | HW1F-304Q4*   | HW1F-3104Q4*             | HW1F-3204Q4*            | HW1F-3304Q4*          |                                  |
|                   |                       | ②       | NC |                   |   | ●           | 100/110V AC       | HW1F-304H2*   | HW1F-3104H2*             | HW1F-3204H2*            | HW1F-3304H2*          |                                  |
|                   |                       | ③       | NC |                   |   | ●           | 200/220V AC       | HW1F-304M2*   | HW1F-3104M2*             | HW1F-3204M2*            | HW1F-3304M2*          |                                  |
|                   |                       | ④       | NC |                   |   | ●           |                   |               |                          |                         |                       |                                  |

- Specify a color code in place of \* in the Part No. R (red), G (green), Y (yellow), A (amber), W (white), S (blue), PW (pure white)
- See page 7 for other operating voltage such as 6V AC/DC and 12V AC/DC.
- Illuminated selector switches of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
- See page 32 to 34 for other contact arrangements.
- See page 7 for gold-plated silver contacts.
- Turn the operator to each position accurately.
- See page 12 for how to specify units without LED lamps.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

**Contact Block Mounting Position**



**LED** Selector Switches (Lever Operator)

Package Quantity: 1

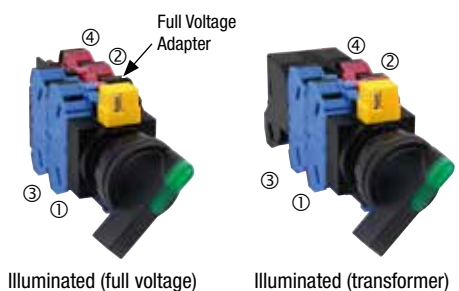
| No. of Positions                        | Lever Operator<br>HW1F□L |               |    |                   |   |                   |                  |                                |   |  |                                  |
|-----------------------------------------|--------------------------|---------------|----|-------------------|---|-------------------|------------------|--------------------------------|---|--|----------------------------------|
|                                         | Contact Code             | Contact Block |    | Operator Position |   | Operating Voltage | Maintained (90°) | Spring Return from Right (60°) | - |  | Color Code                       |
| Mounting Position                       |                          | Contact       | 1  | 2                 | 1 |                   | 2                | 1                              | 2 |  |                                  |
| 90°<br>2-position/<br>60°<br>2-position | 1NO-1NC<br>(11)          | ①             | NO |                   | ● | 24V AC/DC         | HW1F-2L11Q4*     | HW1F-21L11Q4*                  | / |  | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                                         |                          | ②             | NC | ●                 |   | 100/110V AC       | HW1F-2L11H2*     | HW1F-21L11H2*                  |   |  |                                  |
|                                         |                          |               |    |                   |   | 200/220V AC       | HW1F-2L11M2*     | HW1F-21L11M2*                  |   |  |                                  |
|                                         | 2NO<br>(20)              | ①             | NO |                   | ● | 24V AC/DC         | HW1F-2L20Q4*     | HW1F-21L20Q4*                  | / |  |                                  |
|                                         |                          | ②             | NO |                   | ● | 100/110V AC       | HW1F-2L20H2*     | HW1F-21L20H2*                  |   |  |                                  |
|                                         |                          |               |    |                   |   | 200/220V AC       | HW1F-2L20M2*     | HW1F-21L20M2*                  |   |  |                                  |
|                                         | 2NO-2NC<br>(22)          | ①             | NO |                   | ● | 24V AC/DC         | HW1F-2L22Q4*     | HW1F-21L22Q4*                  | / |  |                                  |
|                                         |                          | ②             | NC | ●                 |   | 100/110V AC       | HW1F-2L22H2*     | HW1F-21L22H2*                  |   |  |                                  |
|                                         |                          | ③             | NO |                   | ● | 200/220V AC       | HW1F-2L22M2*     | HW1F-21L22M2*                  |   |  |                                  |
|                                         |                          | ④             | NC | ●                 |   |                   |                  |                                |   |  |                                  |

| 45°<br>3-position | Contact Code      | Contact Block     |         | Operator Position |   |             | Operating Voltage | Maintained     | Spring Return from Right | Spring Return from Left | Spring Return Two-way | Color Code                       |
|-------------------|-------------------|-------------------|---------|-------------------|---|-------------|-------------------|----------------|--------------------------|-------------------------|-----------------------|----------------------------------|
|                   |                   | Mounting Position | Contact | 1                 | 0 | 2           |                   | 1              | 2                        | 1                       | 2                     |                                  |
| 45°<br>3-position | 2NO<br>(20)       | ①                 | NO      | ●                 |   |             | 24V AC/DC         | HW1F-3L20Q4*   | HW1F-31L20Q4*            | HW1F-32L20Q4*           | HW1F-33L20Q4*         | R<br>G<br>Y<br>A<br>W<br>S<br>PW |
|                   |                   | ②                 | NO      |                   |   | ●           | 100/110V AC       | HW1F-3L20H2*   | HW1F-31L20H2*            | HW1F-32L20H2*           | HW1F-33L20H2*         |                                  |
|                   |                   |                   |         |                   |   | 200/220V AC | HW1F-3L20M2*      | HW1F-31L20M2*  | HW1F-32L20M2*            | HW1F-33L20M2*           |                       |                                  |
|                   | 2NC<br>(02)       | ①                 | NC      |                   | ■ |             | 24V AC/DC         | HW1F-3L02Q4*   | HW1F-31L02Q4*            | HW1F-32L02Q4*           | HW1F-33L02Q4*         |                                  |
|                   |                   | ②                 | NC      |                   | ■ |             | 100/110V AC       | HW1F-3L02H2*   | HW1F-31L02H2*            | HW1F-32L02H2*           | HW1F-33L02H2*         |                                  |
|                   |                   |                   |         |                   |   | 200/220V AC | HW1F-3L02M2*      | HW1F-31L02M2*  | HW1F-32L02M2*            | HW1F-33L02M2*           |                       |                                  |
|                   | 2NO-2NC<br>(22N1) | ①                 | NO      | ●                 |   |             | 24V AC/DC         | HW1F-3L22N1Q4* | HW1F-31L22N1Q4*          | HW1F-32L22N1Q4*         | HW1F-33L22N1Q4*       |                                  |
|                   |                   | ②                 | NO      |                   |   | ●           | 100/110V AC       | HW1F-3L22N1H2* | HW1F-31L22N1H2*          | HW1F-32L22N1H2*         | HW1F-33L22N1H2*       |                                  |
|                   |                   | ③                 | NC      |                   | ■ |             | 200/220V AC       | HW1F-3L22N1M2* | HW1F-31L22N1M2*          | HW1F-32L22N1M2*         | HW1F-33L22N1M2*       |                                  |
|                   |                   | ④                 | NC      |                   | ■ |             |                   |                |                          |                         |                       |                                  |
|                   | 4NO<br>(40)       | ①                 | NO      | ●                 |   |             | 24V AC/DC         | HW1F-3L40Q4*   | HW1F-31L40Q4*            | HW1F-32L40Q4*           | HW1F-33L40Q4*         |                                  |
|                   |                   | ②                 | NO      |                   |   | ●           | 100/110V AC       | HW1F-3L40H2*   | HW1F-31L40H2*            | HW1F-32L40H2*           | HW1F-33L40H2*         |                                  |
| ③                 |                   | NO                | ●       |                   |   | 200/220V AC | HW1F-3L40M2*      | HW1F-31L40M2*  | HW1F-32L40M2*            | HW1F-33L40M2*           |                       |                                  |
| ④                 |                   | NO                |         |                   | ● |             |                   |                |                          |                         |                       |                                  |
| 4NC<br>(04)       | ①                 | NC                |         | ■                 |   | 24V AC/DC   | HW1F-3L04Q4*      | HW1F-31L04Q4*  | HW1F-32L04Q4*            | HW1F-33L04Q4*           |                       |                                  |
|                   | ②                 | NC                |         | ■                 |   | 100/110V AC | HW1F-3L04H2*      | HW1F-31L04H2*  | HW1F-32L04H2*            | HW1F-33L04H2*           |                       |                                  |
|                   | ③                 | NC                |         | ■                 |   | 200/220V AC | HW1F-3L04M2*      | HW1F-31L04M2*  | HW1F-32L04M2*            | HW1F-33L04M2*           |                       |                                  |
|                   | ④                 | NC                |         | ■                 |   |             |                   |                |                          |                         |                       |                                  |

- Specify a color code in place of \* in the Part No. R (red), G (green), Y (yellow), A (amber), W (white), S (blue), PW (pure white)
- See page 7 for other operating voltage such as 6V AC/DC, 12V AC/DC, and 110V DC.
- Illuminated selector switches of 24V AC/DC or below with 2 or 4 contact blocks have a dummy block.
- See page 32 to 34 for other contact arrangements.
- See page 7 for gold-plated silver contacts.
- Turn the operator to each position accurately.
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**Contact Block Mounting Position**



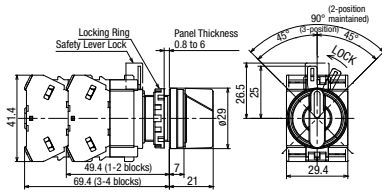
## Dimensions

### Selector Switch (Knob Operator)

Terminal Screws M3.5

Integrated Terminal Cover

All dimensions in mm.



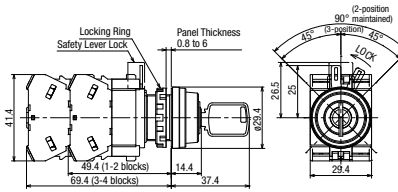
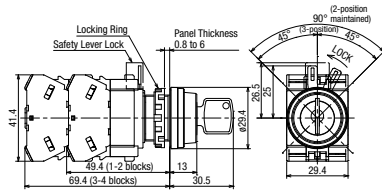
### Key Selector Switch (Knob Operator)

Terminal Screws M3.5

Integrated Terminal Cover

#### Disc Tumbler Type

#### Pin Tumbler Type



### Illuminated Selector Switch (Knob Operator)

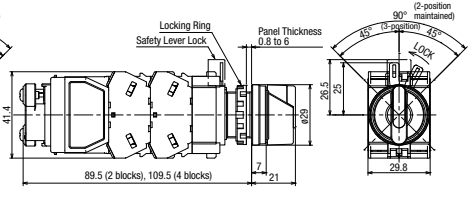
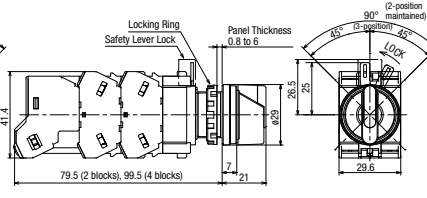
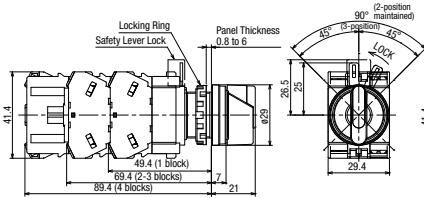
6, 12, 24V AC/DC, Without LED lamp

Terminal Screws M3.5

Integrated Terminal Cover

100/110V AC, 200/220V AC (240V AC maximum)

110V DC, 380V AC minimum



### Illuminated Selector Switch (Lever Operator)

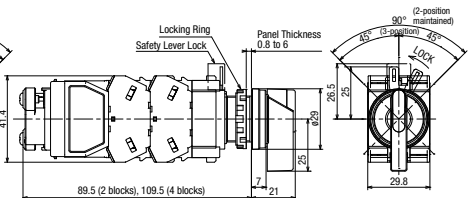
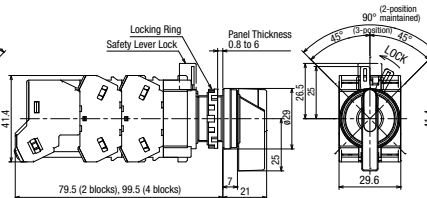
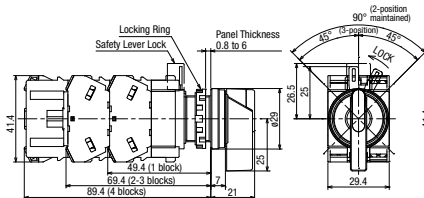
6, 12, 24V AC/DC, Without LED lamp

Terminal Screws M3.5

Integrated Terminal Cover

100/110V AC, 200/220V AC (240V AC maximum)

110V DC, 380V AC minimum

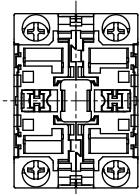
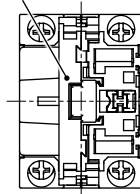
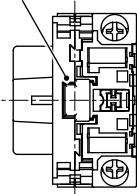


## Bottom View

### Non-illuminated

Dummy Block

Dummy Block



1 contact block

3 contact blocks

2/4 contact blocks

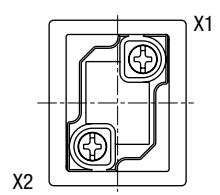
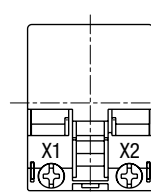
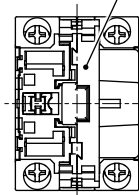
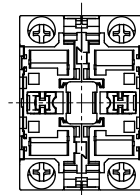
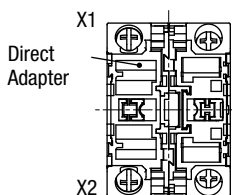
### Illuminated

6, 12, 24V AC/DC, Without LED lamp

100/110V AC, 200/220V AC (240V AC maximum)

110V DC, 380V AC minimum

Dummy Block



1 contact block

3 contact blocks

2/4 contact blocks

• For DC-DC Converter types, terminal X1 is ⊕, X2 is ⊖.

**Selector Switch Contact Arrangement**

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

| Contact Code   | Contact Block     |         | Operator Operation and Circuit Availability |             |                   |                          |                  |              | Cam Code | Operator Availability |             |              |             |   |
|----------------|-------------------|---------|---------------------------------------------|-------------|-------------------|--------------------------|------------------|--------------|----------|-----------------------|-------------|--------------|-------------|---|
|                |                   |         | Maintained                                  |             |                   | Spring Return from Right |                  |              |          | Knob/ Lever           | Pin Tumbler | Disc Tumbler | Illuminated |   |
|                | Knob/ Lever       | Key     | Illuminated                                 | Knob/ Lever | Key               | Illuminated              | 6, 12, 24V AC/DC | 100, 200V AC |          |                       |             |              |             |   |
|                | Mounting Position | Contact | Operator Position                           |             | Operator Position |                          |                  |              |          |                       |             |              |             |   |
| 1              |                   |         | 2                                           | 1           | 2                 |                          |                  |              |          |                       |             |              |             |   |
| 1NO (10)       | ①                 | NO      |                                             | ●           |                   |                          |                  |              |          |                       |             |              |             |   |
|                | ②                 | —       | Dummy Block                                 |             | Dummy Block       |                          |                  | ×            | ×        | ×                     | ×           |              | —           |   |
| 1NC (01)       | ①                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            |             | — |
|                | ②                 | —       | Dummy Block                                 |             | Dummy Block       |                          |                  | ×            | ×        | ×                     | ×           |              | —           |   |
| 1NO-1NC (11)   | ①                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ②                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
| 2NO (20)       | ①                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ②                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
| 2NC (02)       | ①                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ②                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
| 2NO-2NC (22)   | ①                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ②                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ③                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ④                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
| 3NO-1NC (31N1) | ①                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ②                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ③                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ④                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
| 4NO (40)       | ①                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ②                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ③                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ④                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | ×           | × |
| 1NO-1NC ★ (7S) | ①                 | EM      | ■                                           |             | ■                 |                          |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
|                | ②                 | LB      | ■                                           |             | ■                 |                          |                  |              | ×        | ×                     | ×           | ×            | ×           | × |
| 3NC (03)       | ①                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | ×           | — |
|                | ②                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | —           |   |
|                | ③                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | —           |   |
|                | ④                 | —       | Dummy Block                                 |             | Dummy Block       |                          |                  | ×            | ×        | ×                     | ×           | ×            | —           |   |
| 2NO-1NC (21)   | ①                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | —           | — |
|                | ②                 | NC      | ●                                           |             |                   | ●                        |                  |              | ×        | ×                     | ×           | ×            | —           | — |
|                | ③                 | NO      |                                             | ●           |                   |                          | ●                |              | ×        | ×                     | ×           | ×            | —           | — |
|                | ④                 | —       | Dummy Block                                 |             | Dummy Block       |                          |                  | ×            | ×        | ×                     | ×           | ×            | —           | — |

90° 2-position Cam Reversed (Maintained)

| Contact Code | Contact Block        |         | Operator Operation and Circuit Availability |   |                   |                  | Cam Code | Operator Availability |             |              |              |   |   |   |
|--------------|----------------------|---------|---------------------------------------------|---|-------------------|------------------|----------|-----------------------|-------------|--------------|--------------|---|---|---|
|              |                      |         | Maintained                                  |   |                   |                  |          | Knob/ Lever           | Pin Tumbler | Disc Tumbler | Illuminated  |   |   |   |
|              | Knob/Key/Illuminated |         |                                             |   | Operator Position | 6, 12, 24V AC/DC |          |                       |             |              | 100, 200V AC |   |   |   |
|              | Mounting Position    | Contact | 2                                           | 1 |                   |                  |          |                       |             |              |              |   |   |   |
| 2NC (02)     | ①                    | NC      |                                             |   |                   | ●                |          |                       |             |              |              |   |   |   |
|              | ②                    | NC      |                                             |   |                   | ●                |          | ×                     | ×           | ×            | ×            | × | × | × |
| 3NC (03)     | ①                    | NC      |                                             |   |                   | ●                |          |                       |             |              |              |   |   |   |
|              | ②                    | NC      |                                             |   |                   | ●                |          |                       | ×           | ×            | ×            | × | × | — |
|              | ③                    | NC      |                                             |   |                   | ●                |          |                       | ×           | ×            | ×            | × | — |   |
|              | ④                    | —       | Dummy Block                                 |   |                   |                  |          | ×                     | ×           | ×            | ×            | × | — |   |

• On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.



45° 3-position

<Maintained>

| Contact Code          | Contact Block     |         | Operator Position |   |   | Circuit Availability |     |             | Cam Code | Operator Availability |                |                 |                  |              |  |  |  |
|-----------------------|-------------------|---------|-------------------|---|---|----------------------|-----|-------------|----------|-----------------------|----------------|-----------------|------------------|--------------|--|--|--|
|                       | Mounting Position | Contact | 1                 | 0 | 2 | Knob/<br>Lever       | Key | Illuminated |          | Knob/<br>Lever        | Pin<br>Tumbler | Disc<br>Tumbler | Illuminated      |              |  |  |  |
|                       |                   |         |                   |   |   |                      |     |             |          |                       |                |                 | 6, 12, 24V AC/DC | 100, 200V AC |  |  |  |
| 1NO-1NC<br>(11N1) ★ ☆ | ①                 | NC      |                   | ● |   | x                    | x   | x           | J        | x                     | x              | x               | x                | x            |  |  |  |
|                       | ②                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 4NC<br>(04) ★         | ①                 | NC      |                   |   | ● | x                    | x   | x           | S        | x                     | x              | x               | x                | x            |  |  |  |
|                       | ②                 | NC      | ●                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                       | ③                 | NC      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                       | ④                 | NC      | ●                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 2NO-1NC<br>(21N1) ★ ☆ | ①                 | NO      | ●                 |   |   | x                    | x   | x           | J        | x                     | x              | x               | x                | -            |  |  |  |
|                       | ②                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                       | ③                 | NC      |                   | ● |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                       | ④                 | -       | Dummy Block       |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |

45° 3-position

<Maintained/Spring Return from Right/Spring Return from Left/Spring Return Two-way>

| Contact Code      | Contact Block     |         | Operator Position |   |   | Circuit Availability |     |             | Cam Code | Operator Availability |                |                 |                  |              |  |  |  |
|-------------------|-------------------|---------|-------------------|---|---|----------------------|-----|-------------|----------|-----------------------|----------------|-----------------|------------------|--------------|--|--|--|
|                   | Mounting Position | Contact | 1                 | 0 | 2 | Knob/<br>Lever       | Key | Illuminated |          | Knob/<br>Lever        | Pin<br>Tumbler | Disc<br>Tumbler | Illuminated      |              |  |  |  |
|                   |                   |         |                   |   |   |                      |     |             |          |                       |                |                 | 6, 12, 24V AC/DC | 100, 200V AC |  |  |  |
| 1NO-1NC<br>(11)   | ①                 | NO      | ●                 |   |   | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NC      | ■                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 1NO-1NC<br>(11N1) | ①                 | NC      |                   |   | ● | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 2NO<br>(20)       | ①                 | NO      | ●                 |   |   | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 2NC<br>(02)       | ①                 | NC      |                   |   | ● | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NC      | ■                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 2NO-2NC<br>(22N1) | ①                 | NO      | ●                 |   |   | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ③                 | NC      |                   |   | ■ |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ④                 | NC      | ■                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 2NO-2NC<br>(22N2) | ①                 | NC      |                   |   | ■ | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ③                 | NC      |                   |   | ■ |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ④                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 4NO<br>(40)       | ①                 | NO      | ●                 |   |   | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ③                 | NO      | ●                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ④                 | NO      |                   |   | ● |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
| 4NC<br>(04)       | ①                 | NC      |                   |   | ■ | x                    | x   | x           | -        | x                     | x              | x               | x                | x            |  |  |  |
|                   | ②                 | NC      | ■                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ③                 | NC      |                   |   | ■ |                      |     |             |          |                       |                |                 |                  |              |  |  |  |
|                   | ④                 | NC      | ■                 |   |   |                      |     |             |          |                       |                |                 |                  |              |  |  |  |

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

## 45° 3-position

| Contact Code                | Contact Block |    | Operator Position |   |   |   | Maintained    | Cam Code |
|-----------------------------|---------------|----|-------------------|---|---|---|---------------|----------|
|                             |               |    | 1                 | 2 | 3 | 4 | Knob Operator |          |
| ★<br>☆<br>1NO-2NC<br>(12)   | ①             | NO | ●                 |   |   |   | x             | -        |
|                             | ②             | NC |                   | ● |   |   |               |          |
|                             | ③             | NC |                   |   | ● |   |               |          |
|                             | ④             | -  | Dummy Block       |   |   |   |               |          |
| 1NO-3NC<br>(13N6)           | ①             | LB | ██████████        |   |   |   | x             | -        |
|                             | ②             | NC |                   | ● |   |   |               |          |
|                             | ③             | NC |                   |   | ● |   |               |          |
|                             | ④             | NO |                   |   |   | ● |               |          |
| ★<br>☆<br>2NO-2NC<br>(22N3) | ①             | NO | ●                 |   |   |   | x             | -        |
|                             | ②             | NC |                   | ● |   |   |               |          |
|                             | ③             | NC |                   |   | ● |   |               |          |
|                             | ④             | NO |                   |   |   | ● |               |          |

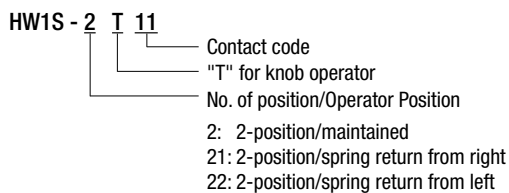
## 30° 5-position

| Contact Code                | Contact Block |    | Operator Position |   |   |   |   | Maintained    | Cam Code |
|-----------------------------|---------------|----|-------------------|---|---|---|---|---------------|----------|
|                             |               |    | 1                 | 2 | 3 | 4 | 5 | Knob Operator |          |
| ★<br>☆<br>2NO-2NC<br>(22N3) | ①             | NO | ●                 |   |   |   |   | x             | -        |
|                             | ②             | NC |                   | ● |   |   |   |               |          |
|                             | ③             | NC |                   |   |   | ● |   |               |          |
|                             | ④             | NO |                   |   |   |   | ● |               |          |

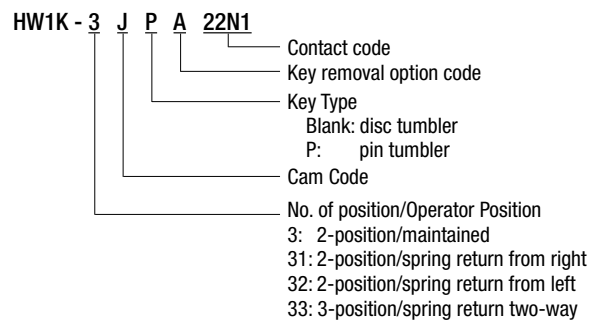
- On the contact arrangement marked with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator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

## Part No. Development

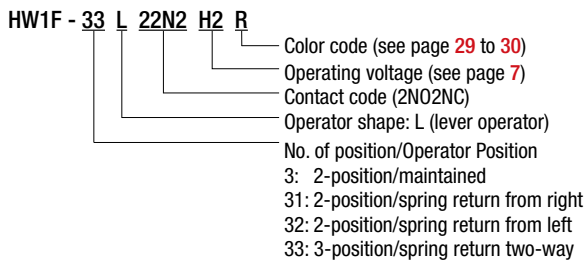
Example 1: Knob Operator 2-position



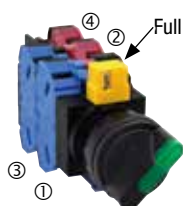
Example 2: Key Selector 3-position



Example 3: Illuminated Selector 3-position



## Contact Block Mounting Position



Illuminated Selector  
(Full Voltage)




Illuminated Selector  
(Transformer)



Non-illuminated Selector

Pushbutton Selectors

Package Quantity: 1

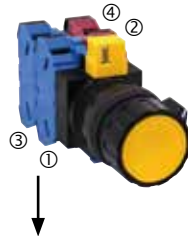
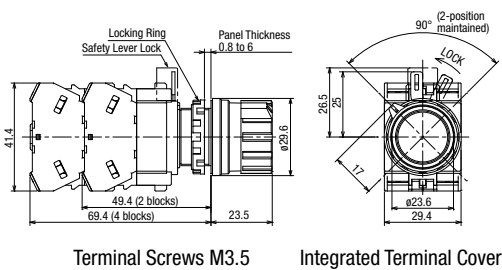
| Shape                                                                             | Circuit Category | Contact Code       | Contact Block     |         | Normal |           | Depressed               |              | Ring Operator | Button Color Code          |
|-----------------------------------------------------------------------------------|----------------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

- Specify a button color code in place of \* in the Part No. B (black), G (green), R (red), Y (yellow), S (blue), W (white)
- When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.
- On the contact arrangement marked page with ★ in the table above, the rated current (load switching current) is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator is changed.

Dimensions

All dimensions in mm.

Contact Block Mounting Position



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


← Ring Position

← Button

• See page 31 for the bottom view.

Mono-Lever Switches

Package Quantity: 1

| Shape                                                                                                                    | Positions  | Part No. (Ordering No.) |
|--------------------------------------------------------------------------------------------------------------------------|------------|-------------------------|
| <b>HW1M</b><br>Standard Lever<br>       | 2-position | HW1M-1010-20            |
|                                                                                                                          |            | HW1M-2020-20            |
|                                                                                                                          |            | HW1M-0101-20            |
|                                                                                                                          | 4-position | HW1M-0202-20            |
|                                                                                                                          |            | HW1M-0101-40            |
|                                                                                                                          |            | HW1M-0202-40            |
| <b>HW1M-L</b><br>Interlocking Lever<br> | 2-position | HW1M-1111-22N9          |
|                                                                                                                          |            | HW1M-2222-22N9          |
|                                                                                                                          |            | HW1M-L1010-20           |
|                                                                                                                          | 4-position | HW1M-L2020-20           |
|                                                                                                                          |            | HW1M-L0101-20           |
|                                                                                                                          |            | HW1M-L0202-20           |
|                                                                                                                          |            | HW1M-L0101-40           |
|                                                                                                                          |            | HW1M-L0202-40           |
|                                                                                                                          |            | HW1M-L1111-22N9         |
|                                                                                                                          |            | HW1M-L2222-22N9         |

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

Contact Arrangement Chart

2-position (Right/Left)

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

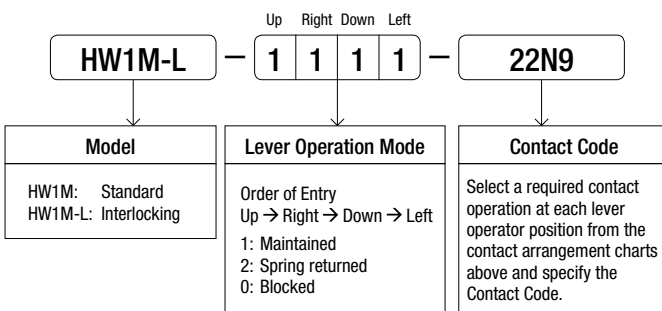
2-position (Up/Down)

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

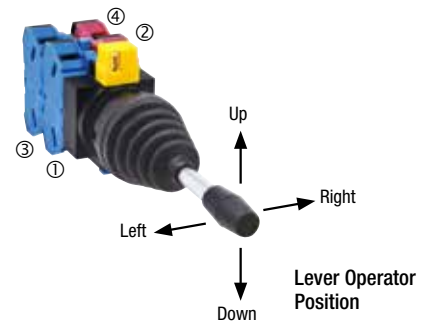
4-position

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

Part No. Development



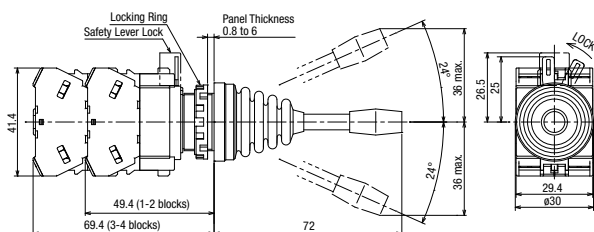
Contact Block Mounting Position and Lever Operation Position



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

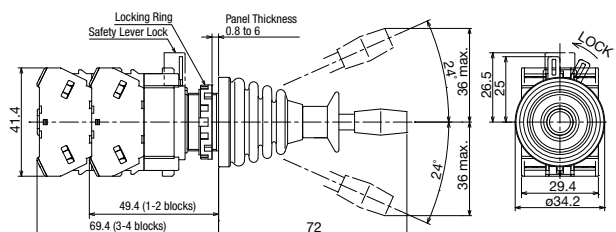
Dimensions

Standard Lever



Interlocking Lever

All dimensions in mm.



Terminal Screws M3.5 Integrated Terminal Cover  
• See page 31 for the bottom view.

Nameplates

Package Quantity: 1

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

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

Marking Plates for HWAM/HWAQ

| Description | Material                              | Part No. | Ordering No. | Package Quantity | Dimensions (mm)                                                 |
|-------------|---------------------------------------|----------|--------------|------------------|-----------------------------------------------------------------|
| HWNP        | Aluminum (black)<br>Thickness = 1.0mm | HWNP-□   | HWNP-□       | 1                | White legend on black background.<br>Engraving area: W25×H7<br> |
|             |                                       |          | HWNP-□PN10   | 10               |                                                                 |


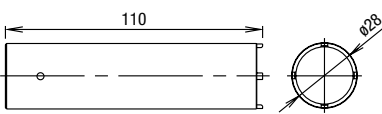

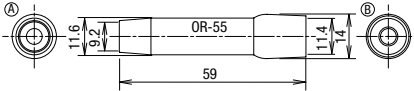

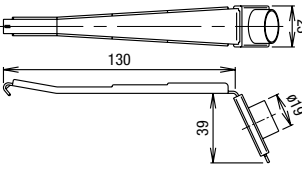

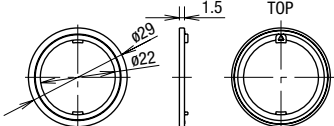

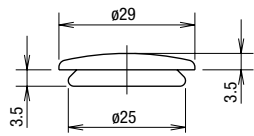

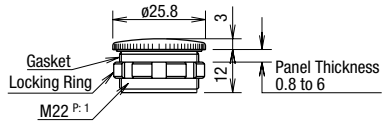

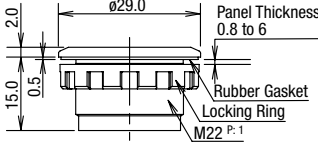

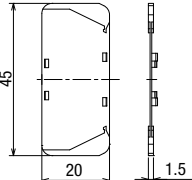
• Specify a legend code in place of □ in the Ordering No.

Legends


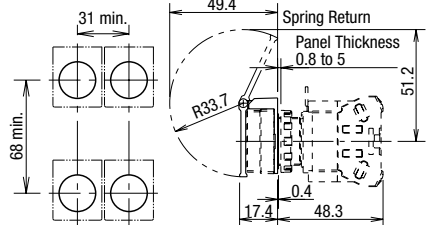

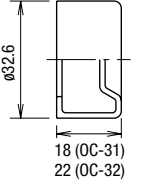

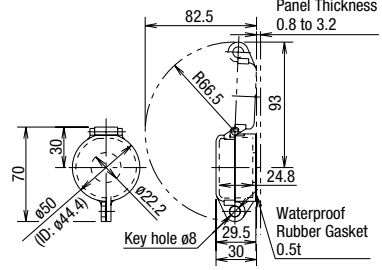

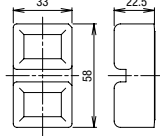



| Code | Legend        |
|------|---------------|
| 0    | (blank)       |
| 1    | ON            |
| 2    | OFF           |
| 3    | START         |
| 4    | STOP          |
| 31   | OFF-ON        |
| 35   | HAND-AUTO     |
| 53   | HAND-OFF-AUTO |

• See page 47 for how to install nameplates/markings plates, and how to remove marking plates.





Accessories

| Shape                                                                                                                  | Material                                                                             | Part No. | Ordering No. | Package Quantity | Dimensions (mm)                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------|--------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Locking Ring Wrench</p>           | Metal (brass)<br>(weight: approx. 150g)                                              | MW9Z-T1  | MW9Z-T1      | 1                | <ul style="list-style-type: none"> <li>Used to tighten the locking ring when installing the HW switch onto a panel.</li> </ul>                                                                                                    |
|  <p>Lamp Holder Tool</p>              | Nitrile rubber (black)                                                               | OR-55    | OR-55        | 1                | <ul style="list-style-type: none"> <li>Used to install and remove the LED lamps. See page 44 to 55 for how to install.</li> <li>Ⓐ : BA9S</li> </ul>                                                                               |
|  <p>Contact Block Removal Tool</p>    | Zinc-plated metal<br>Nitril rubber                                                   | TW-KC1   | TW-KC1       | 1                | <ul style="list-style-type: none"> <li>Used to remove the contact block and transformer, and also to install/remove the pilot light and illuminated pushbutton lens. See page 45.</li> </ul>                                      |
|  <p>Anti-rotation Ring</p>          | Ring: polyamide<br>Gasket: nitril rubber                                             | HW9Z-RL  | HW9Z-RLPN10  | 10               | <ul style="list-style-type: none"> <li>Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and pushbutton selectors.</li> </ul>                                             |
|  <p>Rubber Mounting Hole Plug</p>   | Nitril rubber (black)                                                                | OB-31    | OB-31PN05    | 5                | <ul style="list-style-type: none"> <li>Used to plug the unused ø22.2 mm mounting holes.</li> <li>Degree of protection:<br/>IP65 (round hole) IP40 (with anti-rotation function)</li> </ul>                                      |
|  <p>Rubber Mounting Hole Plug</p>   | Plug: chrome-plated zinc diecast<br>Locking ring: polyamide<br>Gasket: nitril rubber | LW9Z-BM  | LW9Z-BM      | 1                | <ul style="list-style-type: none"> <li>Used to plug the unused ø22.2 mm mounting holes.</li> <li>Degree of protection:<br/>IP66 (round hole) IP40 (with anti-rotation function)</li> <li>Tightening torque: 1.2 N·m</li> </ul>  |
|  <p>Metallic Mounting Hole Plug</p> | Polyamide                                                                            | LW9Z-BP1 | LW9Z-BP1     | 1                | <ul style="list-style-type: none"> <li>Used to plug the unused ø22.2 mm mounting holes.</li> <li>Degree of protection: IP65</li> <li>Tightening torque: 2.0 N·m</li> </ul>                                                      |
|  <p>Barrier</p>                     | Polyamide                                                                            | HW-VU1   | HW-VU1PN10   | 10               | <ul style="list-style-type: none"> <li>Used to prevent contact between adjacent lead wires when units are mounted closely (see page 48 for details). Barriers should always be used in close mounting.</li> </ul>               |


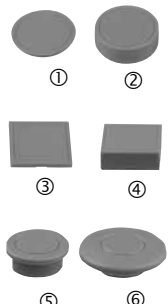
Accessories

| Shape                                                                               |                          | Material                                                         | Part No.  | Ordering No.  | Package Quantity | Dimensions (mm)                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------|-----------|---------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Spring Return            | Guard: polyacetal<br>Cover: polyarylate<br>Gasket: nitril rubber | HW9Z-K1   | HW9Z-K1       | 1                | <ul style="list-style-type: none"> <li>Used to prevent inadvertent operation for flush pushbuttons and illuminated pushbuttons.</li> <li>IP65</li> <li>Maintained type stops at 90° and 180°.</li> </ul>                                                                                           |
|                                                                                     | Maintained               |                                                                  | HW9Z-K11  | HW9Z-K11      | 1                |                                                                                                                                                                                                                                                                                                                                                                                       |
|    | For flush pushbuttons    | Rubber (EPDM)                                                    | OC-31     | OC-31         | 1                | <ul style="list-style-type: none"> <li>Used to cover and protect pushbuttons where units are subject to watersplash. Not suitable for outdoor use or where the units are subject to oil splash.</li> <li>Cannot be used with nameplates HWAM, HWAQ, HWAS, or HWAV.</li> </ul>                      |
|                                                                                     | For extended pushbuttons |                                                                  | OC-32     | OC-32         | 1                |                                                                                                                                                                                                                                                                                                                                                                                       |
|   |                          | Polyarylate (gasket: nitril rubber)                              | HW9Z-KL1  | HW9Z-KL1      | 1                | <ul style="list-style-type: none"> <li>Used to protect pushbuttons, illuminated pushbuttons, selector switches, and key selector switches.</li> </ul>                                                                                                                                             |
|  |                          | Clear Silicon Rubber                                             | HW9Z-D7D  | HW9Z-D7D      | 1                | <ul style="list-style-type: none"> <li>IP65</li> </ul>                                                                                                                                                                                                                                           |
|  |                          | Nitril rubber                                                    | HW9Z-A25  | HW9Z-A25PN05  | 5                | <ul style="list-style-type: none"> <li>Used to install the HW series units into ø25 mm mounting holes.</li> <li>IP65</li> <li>Cannot be used with anti-rotation, nameplate, and rubber boot for dual pushbutton switches.</li> <li>Mounting panel thickness: 1.2 to 6.0 mm</li> <li>See page 46 for details.</li> </ul>                                                               |
|  |                          | Gasket: polyamide<br>Washer: metal (brass)                       | HW9Z-A30  | HW9Z-A30PN02  | 2                | <ul style="list-style-type: none"> <li>Used to install the HW series units (round type) into ø30 mm mounting holes (except for HW1E, HW1B-M5/V5, and HW7D).</li> <li>IP65</li> <li>Cannot be used with anti-rotation ring, nameplate, full-shroud illuminated pushbuttons, pushbutton selectors, and mono-lever switches.</li> <li>Mounting panel thickness: 1.6 to 4.0 mm</li> </ul> |
|  |                          | Gasket: rubber<br>Washer: metal                                  | HW9Z-A30E | HW9Z-A30EPN02 | 2                | <ul style="list-style-type: none"> <li>Used to install jumbo dome pilot light HW1P-5Q units into ø30 mm mounting holes.</li> <li>IP65</li> </ul>                                                                                                                                                                                                                                      |

Maintenance Parts

| Shape                                                                                                                                                   | Material                | Part No.    | Ordering No. | Package Quantity | Remarks                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------|--------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>Contact Block HW-U<br>Weight: 11g (approx.)                        | NO contact              | HW-U10      | HW-U10       | 1                | <ul style="list-style-type: none"> <li>Housing color: blue/Push rod color: green</li> <li>MAU has gold contacts</li> </ul>                                                                                             |
|                                                                                                                                                         |                         | HW-U10-MAU  | HW-U10-MAU   |                  |                                                                                                                                                                                                                        |
|                                                                                                                                                         | NC contact              | HW-U01      | HW-U01       | 1                | <ul style="list-style-type: none"> <li>Housing color: reddish purple/Push rod color: red</li> <li>MAU has gold contacts</li> </ul>                                                                                     |
|                                                                                                                                                         |                         | HW-U01-MAU  | HW-U01-MAU   |                  |                                                                                                                                                                                                                        |
|                                                                                                                                                         | EM (early make) contact | HW-U10R     | HW-U10R      | 1                | <ul style="list-style-type: none"> <li>Housing color: blue/Push rod color: black</li> <li>MAU has gold contacts</li> </ul>                                                                                             |
|                                                                                                                                                         |                         | HW-U10R-MAU | HW-U10R-MAU  |                  |                                                                                                                                                                                                                        |
|                                                                                                                                                         | LB (late break) contact | HW-U01R     | HW-U01R      | 1                | <ul style="list-style-type: none"> <li>Housing color: reddish purple/Push rod color: white</li> <li>MAU has gold contacts</li> </ul>                                                                                   |
|                                                                                                                                                         |                         | HW-U01R-MAU | HW-U01R-MAU  |                  |                                                                                                                                                                                                                        |
| <br>Dummy Block<br>Weight: 3.5g (approx.)                              | Polyamide               | HW-DB       | HW-DBPN10    | 10               | <ul style="list-style-type: none"> <li>For HW-U contact blocks</li> <li>Used when the number of contact blocks and full voltage adapters is odd number.</li> </ul>                                                     |
| <br>Full Voltage Adapter for Illuminated (*1)<br>Weight: 12g (approx.) | Polyamide               | HW-GA1N     | HW-GA1NPN02  | 2                | <ul style="list-style-type: none"> <li>Applicable model: Illuminated pushbuttons, Illuminated selector switches</li> <li>Applicable load (LED lamp) LSTD-6 (6V AC/DC)/LSTD-1 (12V AC/DC) LSTD-2 (24V AC/DC)</li> </ul> |
| <br>Transformer Unit (*1)<br>Weight: 12g (approx.)                     | 100/110V AC             | HW-T16      | HW-T16       | 1                | <ul style="list-style-type: none"> <li>Applicable model: Illuminated pushbuttons, Illuminated selector switches</li> <li>Applicable load (LED lamp) LSTD-6 (6V AC/DC)</li> </ul>                                       |
|                                                                                                                                                         | 200/220V AC             | HW-T26      | HW-T26       | 1                |                                                                                                                                                                                                                        |









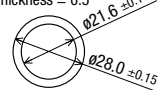
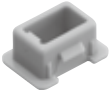
\*1) Maintenance parts are used for maintenance parts only. Do not use these parts for expansion or remodeling purpose.

| Shape                                                                               | Material/Dimensions                         | Part No.                         | Ordering No. | Package Quantity | Color Code *                                                   |                                                                                                   |
|-------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------|--------------|------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
|  | ① Round flush                               | Polyarylate<br>ø23.5 H4.2        | HW9Z-L11*    | HW9Z-L11*PN05    | 5                                                              | R (red), G (green), Y (yellow), A (amber), C (clear), S (blue) (*2)                               |
|                                                                                     | ② Square flush                              | Polyarylate<br>ø24.6 H4          | HW9Z-L21*    | HW9Z-L21*PN05    | 5                                                              |                                                                                                   |
|                                                                                     | ③ Round extended                            | Polyarylate<br>ø23.3 H10         | HW9Z-L12*    | HW9Z-L12*PN05    | 5                                                              |                                                                                                   |
|                                                                                     | ④ ø29 mushroom                              | AS, marking type<br>ø29 H12.7    | ALW31L-*     | ALW31L-*PN02     | 2                                                              | R (red), G (green), S (blue), C (clear) (*2)                                                      |
|                                                                                     |                                             |                                  | ALW31LD-*    | ALW31LD-*PN02    | 2                                                              | Y (yellow), A (amber)                                                                             |
|                                                                                     | ⑤ ø40 mushroom                              | AS, marking type<br>ø40 H12.7    | ALW41L-*     | ALW41L-*         | 1                                                              | R (red), G (green), S (blue), C (clear) (*2)                                                      |
|                                                                                     |                                             |                                  | ALW41LD-*    | ALW41LD-*        | 1                                                              | Y (yellow), A (amber)                                                                             |
| ⑥ Jumbo dome                                                                        | Polycarbonate<br>ø66 H50                    | HW1A-P5*                         | HW1A-P5*     | 1                | R (red), G (green), Y (yellow), A (amber), W (white), S (blue) |                                                                                                   |
| ⑦ Dome for pilot light                                                              | AS<br>ø23.5 H15.1                           | HW1A-P2*                         | HW1A-P2*PN05 | 5                | R (red), G (green), Y (yellow), A (amber), W (white), S (blue) |                                                                                                   |
|  | ① Round flush with round or square bezel    | Polyacetal<br>ø23.6 H3           | HW1A-B1*     | HW1A-B1*PN05     | 5                                                              | Use ① for pushbutton selectors.<br>B (black), G (green), R (red), Y (yellow), S (blue), W (white) |
|                                                                                     | ② Round extended with round or square bezel | Polyacetal<br>ø23.6 H9.2         | HW1A-B2*     | HW1A-B2*PN05     | 5                                                              |                                                                                                   |
|                                                                                     | ③ Square flush                              | Polyacetal<br>□24.8 H3           | HW2A-B1*     | HW2A-B1*PN05     | 5                                                              |                                                                                                   |
|                                                                                     | ④ Square extended                           | Polyacetal<br>□24.5 H9.2         | HW2A-B2*     | HW2A-B2*PN05     | 5                                                              |                                                                                                   |
|                                                                                     | ⑤ ø29 mushroom                              | Polyacetal<br>ø29 H12.7(M18P1.0) | HW1A-B3*     | HW1A-B3*PN02     | 2                                                              |                                                                                                   |
|                                                                                     | ⑥ ø40 mushroom                              | Polyacetal<br>ø40 H12.7(M18P1.0) | HW1A-B4*     | HW1A-B4*PN02     | 2                                                              |                                                                                                   |

\*2) Use C (clear) lens for W (white) or PW (pure white) illumination.

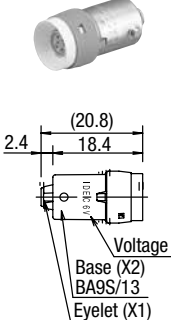


Maintenance Parts

| Shape                                                                                                                            |                                                                                                      | Material/Dimensions                 | Part No.    | Ordering No.    | Package Quantity | Remarks                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------|-------------|-----------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking Plate                                                                                                                    | Round flush         | Acrylic<br>ø21.5 Thickness = 1      | HW9Z-P11    | HW9Z-P11PN05    | 5                | <ul style="list-style-type: none"> <li>• White</li> <li>• See page 46 for dimensions and engraving area.</li> </ul>                                                                                                              |
|                                                                                                                                  | Round extended      | Acrylic<br>ø21.3 Thickness = 6.5    | HW9Z-P12    | HW9Z-P12PN05    | 5                |                                                                                                                                                                                                                                  |
|                                                                                                                                  | Square flush        | Acrylic<br>22.7 Thickness = 1       | HW9Z-P21    | HW9Z-P21PN05    | 5                |                                                                                                                                                                                                                                  |
|                                                                                                                                  | ø29/40 mm mushroom  | Acrylic<br>ø15.7 H3.4               | ALW3B       | ALW3BPN05       | 5                |                                                                                                                                                                                                                                  |
| Operator Knob for Illuminated Selector Switch   | AS resin                                                                                             |                                     | HW9Z-FDY*   | HW9Z-FDY*       | 1                | <ul style="list-style-type: none"> <li>• Specify a color code in place of *.</li> <li>R (red), G (green), Y (yellow), A (amber), W (white), S (blue)</li> <li>• Use W (white) knob/lever for pure white illumination.</li> </ul> |
| Operator Lever for Illuminated Selector Switch  |                                                                                                      |                                     | HW9Z-FDL*   | HW9Z-FDL*       | 1                |                                                                                                                                                                                                                                  |
| Spare Key (Disc Tumber Key)                     |                                                                                                      | Metal<br>(nickel-plated brass)      | HW9Z-SK-231 | HW9Z-SK-231PN02 | 2                |                                                                                                                                                                                                                                  |
| Spare Key (Pin Tumber Key)                    |                                                                                                      | Metal<br>(nickel-plated brass)      | LW9Z-SK-500 | LW9Z-SK-500PN02 | 2                | <ul style="list-style-type: none"> <li>• Standard key number</li> </ul>                                                                                                                                                          |
|                                                                                                                                  |                                                                                                      |                                     | LW9Z-SK-□   | LW9Z-SK-□PN02   |                  | <ul style="list-style-type: none"> <li>• Key number □ : 501 to 503</li> </ul>                                                                                                                                                    |
|                                                                                                                                  |                                                                                                      |                                     | LW9Z-SK-□   | LW9Z-SK-□PN02   |                  | <ul style="list-style-type: none"> <li>• Key number □ : 504 to 515</li> </ul>                                                                                                                                                    |
| Lockig Ring                                   |                                                                                                      | Polyamide (black)<br>ø28.4 H5 M22P1 | HW9Z-LN     | HW9Z-LNPN05     | 5                |                                                                                                                                                                                                                                  |
| Cap for Mono-lever Switch                     | Standard                                                                                             | Nitril rubber<br>ø10 L20            | HW9Z-CPM    | HW9Z-CPM        | 1                |                                                                                                                                                                                                                                  |
| Boot for Mono-lever Switch                    | Standard                                                                                             | Nitril rubber<br>ø29.2 L34.4        | HW9Z-BLM    | HW9Z-BLM        | 1                |                                                                                                                                                                                                                                  |
| Diffusing Lens                                |                                                                                                      | Polycarbonate<br>ø22.2 H21          | HW9Z-PP5C   | HW9Z-PP5C       | 1                | <ul style="list-style-type: none"> <li>• Used for LED type jumbo dome pilot lights only. Do not use for incandescent lamp illumination.</li> </ul>                                                                               |
| Safety Lever Lock                             |                                                                                                      | Polyacetal (yellow)                 | HW9Z-LS     | HW9Z-LSPN10     | 10               | <ul style="list-style-type: none"> <li>• A safety lever lock is supplied with a standard HW series switch/pilot light.</li> </ul>                                                                                                |
| Gasket                                        |                                                                                                      | Nitril rubber (black)               | HW9Z-WM     | HW9Z-WMPN10     | 10               |  <p>Thickness = 0.5<br/>ø21.6 ±0.15<br/>ø28.0 ±0.15</p>                                                                                     |
| Contact Block Plug                            |                                                                                                      | Polyamide                           | HW9Z-CBPL   | HW9Z-CBPLPN10   | 10               | <ul style="list-style-type: none"> <li>• Used to plug the hole in the center of contact block.</li> </ul>                                                                                                                        |


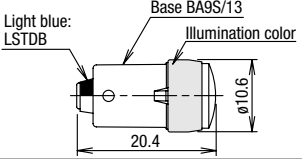
Maintenance Parts

HW Series LED Lamps (except for HW Jumbo Dome Pilot Lights)

| Shape/Dimensions                                                                  | Operating Voltage | Current Draw                      |      | Part No. | Ordering No. | Illumination Color Code | Package Quantity | Base    |
|-----------------------------------------------------------------------------------|-------------------|-----------------------------------|------|----------|--------------|-------------------------|------------------|---------|
|                                                                                   |                   | DC                                | AC   |          |              |                         |                  |         |
|  | 6V AC/DC          | 7mA (R, A, W)<br>5.5mA (G, S, PW) | 8mA  | LSTD-6*  | LSTD-6*      | R, G, A, W, S, PW       | 1                | BA9S/13 |
|                                                                                   |                   |                                   |      |          | LSTD-6*PN10  |                         | 10               |         |
|                                                                                   | 12V AC/DC         | 10mA                              | 11mA | LSTD-1*  | LSTD-1*      |                         | 1                |         |
|                                                                                   |                   |                                   |      |          | LSTD-1*PN10  |                         | 10               |         |
|                                                                                   | 24V AC/DC         | 10mA                              | 11mA | LSTD-2*  | LSTD-2*      |                         | 1                |         |
|                                                                                   |                   |                                   |      |          | LSTD-2*PN10  |                         | 10               |         |

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



HW Series LED Lamps (used for HW Jumbo Dome Pilot Lights)

| Shape/Operating Voltage                                                            | Current Draw |      | Ordering No. | Illumination Color Code | Dimensions        |                                                                                      |
|------------------------------------------------------------------------------------|--------------|------|--------------|-------------------------|-------------------|--------------------------------------------------------------------------------------|
|                                                                                    | DC           | AC   |              |                         |                   |                                                                                      |
|  | 24V AC/DC    | 15mA | 15mA         | LSTDB-2*                | R, G, A, W, S, PW |  |

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

LED Lamps (LED Lamps for replacing incandescent lamps)



- Use the following replacement LED lamps to replace incandescent lamps.
- See HW series LED lamps shown above for ordering.
- LED lamps may have different brightness/color hue compared with incandescent lamps.

| Incandescent Lamp                                                                                                         |          |               |              |         | Replacement LED Lamp |                         |               |         |
|---------------------------------------------------------------------------------------------------------------------------|----------|---------------|--------------|---------|----------------------|-------------------------|---------------|---------|
| Model (dimensions in mm)                                                                                                  | Part No. | Rated Voltage | Lamp Ratings | Base    | Ordering No.         | Illumination Color Code | Rated Voltage | Base    |
|  <p>Glass bulb: ø11<br/>Length: 23</p> | LS-6     | 6V AC/DC      | 1W(6V)       | BA9S/13 | LSTD-6*              | R, G, A, W, S, PW       | 6V AC/DC      | BA9S/13 |
|                                                                                                                           | LS-8     | 12V AC/DC     | 1W(18V)      |         | LSTD-1*              |                         | 12V AC/DC     |         |
|                                                                                                                           | LS-2     | AC/DC18V      | 1W(24V)      |         | LSTD-2*              |                         | 24V AC/DC     |         |
|                                                                                                                           | LS-3     | 24V AC/DC     | 1W(30V)      |         | LSTD-2*              |                         | 24V AC/DC     |         |
|  <p>Glass bulb: ø10<br/>Length: 27</p> | LSB-2    | 24V AC/DC     | 28V/0.17A    | BA9S/13 | LSTDB-2*             | R, G, A, W, S, PW       | 24V AC/DC     | BA9S/13 |

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

Transformer

Package Quantity: 1

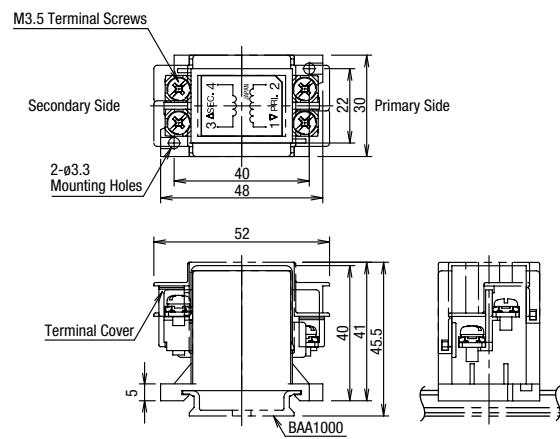
| Shape                                                                             | Operating Voltage | Operating Voltage Range | Ordering No.  | Applicable Load                                                                                                                                                                                |
|-----------------------------------------------------------------------------------|-------------------|-------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 100/110V AC       | 100/110V AC ±10%        | <b>TWR516</b> | LSTD-6* (6V AC/DC, LED lamp)<br>Specify a color code in place of * in Part No.<br>R (red), G (green), A (amber), W (white), S (blue),<br>PW (pure white)                                       |
|                                                                                   | 200/220V AC       | 200/220V AC ±10%        | <b>TWR526</b> |                                                                                                                                                                                                |
|                                                                                   | 400/440V AC       | 400/440V AC ±10%        | <b>TWR546</b> |                                                                                                                                                                                                |
|  | 100/110V AC       | 100/110V AC ±10%        | <b>TWR512</b> | LSTD-2* (24V AC/DC, LED lamp) or<br>LSTDB-2* (24V AC/DC, LED lamp)<br>Specify a color code in place of * in Part No.<br>R (red), G (green), A (amber), W (white), S (blue),<br>PW (pure white) |
|                                                                                   | 200/220V AC       | 200/220V AC ±10%        | <b>TWR522</b> |                                                                                                                                                                                                |
|                                                                                   | 400/440V AC       | 400/440V AC ±10%        | <b>TWR542</b> |                                                                                                                                                                                                |

- 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        | 100/110V AC, 200/220V AC<br>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<br>Operating extremes: 5 to 55Hz, amplitude 0.5 mm |        |
| Shock Resistance         | Damage limits: 1,000 m/s <sup>2</sup><br>Operating extremes: 100 m/s <sup>2</sup>        |        |
| Dielectric Strength      | 2500V AC, 1 minute                                                                       |        |
| Terminal Screw           | M3.5                                                                                     |        |
| Applicable Wire          | 2mm <sup>2</sup> maximum, 2 wires maximum                                                |        |
| Weight (approx.)         | 87g                                                                                      |        |

Dimensions



All dimensions in mm.

Accessories

| Shape                                                                                                           | Material                                                              | Part No.       | Ordering No.       | Package Quantity | Dimensions (mm) |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------|--------------------|------------------|-----------------|
|  <p>Weight: 200g approx.</p> | Aluminum<br>Length: 1000 mm                                           | <b>BAA1000</b> | <b>BAA1000PN10</b> | 10               |                 |
|  <p>Weight: 320g approx.</p> | Steel<br>Length: 1000 mm                                              | <b>BAP1000</b> | <b>BAP1000PN10</b> | 10               |                 |
|  <p>Weight: 15g approx.</p>  | Metal<br>(zinc-plated steel)<br>Applicable rail:<br>AA1000<br>BAP1000 | <b>BNL6</b>    | <b>BNL6PN10</b>    | 10               |                 |

**⚠ Safety Precautions**

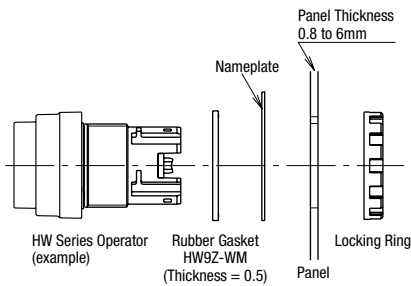
- Turn off the power to the HW series switches & pilot lights before starting installation, removal, wiring, maintenance, and starting installation, removing, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on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

- For wiring, use wires of a proper size to meet the voltage and current requirements. Tighten the terminal screws to the recommended tightening torque (see page 51). Failure to tighten terminal screws may cause overheating and fire.
- When using a commercially available lamp, choose a lamp with rated voltage 5 to 30V AC/DC and 1W maximum, and with the same base and shape. Make sure of correct operation before installation. The operation of illuminated pushbutton switches cannot be guaranteed when a commercially available lamp is used.

**Operating Instructions**

**Panel Mounting**

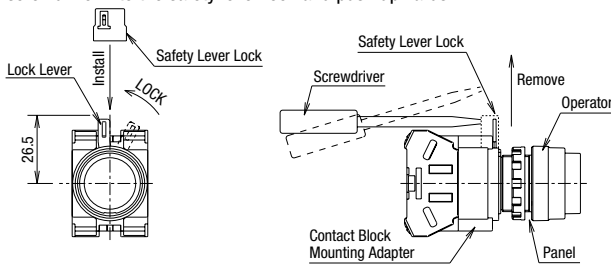
- Remove the contact block from the operator (for transformer type pilot lights, remove the transformer from the illumination unit). Remove the locking ring from the operator (for pilot lights, remove the locking ring from the illuminated unit). Insert the operator into the panel cut-out from the front.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



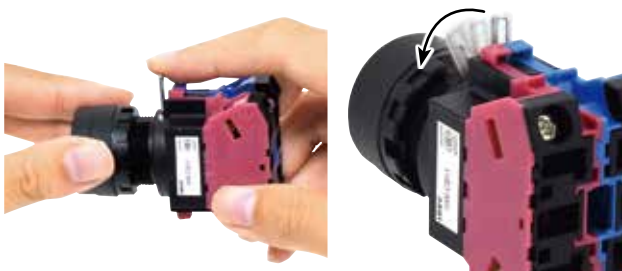
Mounting panel thickness is reduced by 1.5 mm when using a nameplate.

**Removing the Contact Block**

- Remove the safety lever lock (yellow) from the lock lever by inserting a flat screwdriver into the safety lever lock and push upwards.



- Remove the operator from the contact block by turning the locking lever in the direction of the arrow shown below. Then the operator can be pulled out.



- 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.
- Install the safety lever lock (yellow) on the lock lever. The safety lever lock cannot be installed when the lock lever is not upright.

**Safety Lever Lock**

IEC strongly recommends using the safety lever lock (HW9Z-LS, yellow) to ensure that lock lever is locked, or to prevent maintenance personnel from unlocking contacts during wiring.



**How to install**

- Mount the HW series onto the panel, lock the lever, and push in the safety lever lock.

**Spacing in Vertical Direction**

- HW series can be installed with a minimum of 50 mm spacing in vertical direction (mono-lever switch: 70 mm minimum). Be sure to take the space required for installing/removing the safety lever lock into consideration. When the spacing is narrower than the recommended value, install the HW series units in the order of low to high. When removing, do so in the opposite direction.

**Notes for Panel Mounting**

**Locking ring wrench recommended torque**

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

**Locking ring wrench**

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



Locking ring wrench (MW9Z-T1)

**Panel Thickness**

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

**Replacement of LED Lamps**

LED lamps can be replaced by using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator unit. (See page 38 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.

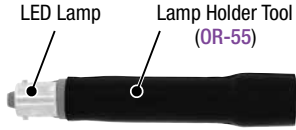


Photo: Extended pilot light

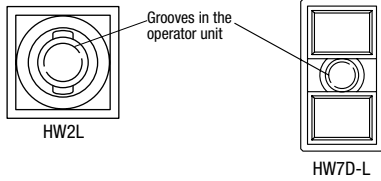
## Operating Instructions

### 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

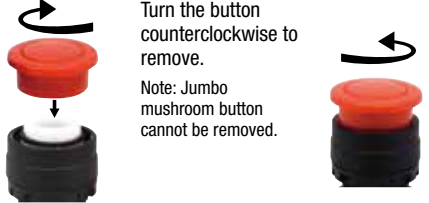
Push in the button to install.



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.

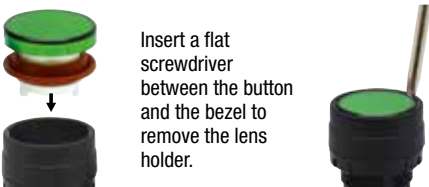


Turn the button counterclockwise to remove.  
Note: Jumbo mushroom button cannot be removed.

#### Illuminated Pushbutton Lens

##### • Flush/Extended

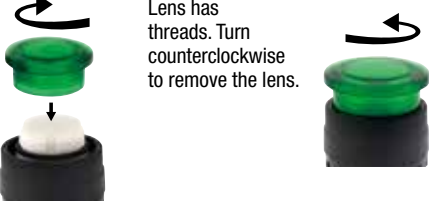
Push in the lens holder into the operator unit.



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/Mushroom

Lens has threads. Turn clockwise to install the lens.



Turn the lens counterclockwise to remove.

#### • Round Flush/Square Flush

Push in the lens holder into the operator unit.

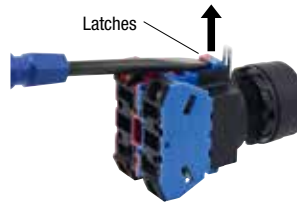


Insert a flat screwdriver between the lens and the bezel to remove.



#### Removing the Contact Blocks/Full Voltage Adapters

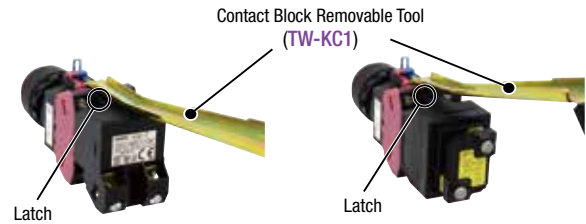
Insert a flat screwdriver (4 to 6 mm) into the snap-fit latches of the contact block or full voltage adapter and lift to remove.



- 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 may be caused.

#### Transformer Units and DC-DC Converters

Insert the end of the contact block removal tool (TW-KC1) into the snap-fit latch of the transformer units or DC-DC converter and pull the tool forward. The contact block removable tool cannot be used to remove the HW-U contact blocks (HW-U), full voltage adapters (HW-GA1N), or dummy blocks (HW-DB).



#### Transformer Units and DC-DC Converters for Pilot Lights

Insert a flat screwdriver into the snap-fit latch on the contact block and lift to remove.



**⚠** When replacing parts (contact block, dummy block, full voltage adapter, transformer) for maintenance, make sure to install the parts to the original position. Otherwise proper operation cannot be guaranteed.

Operating Instructions

Using a Ring Adapter

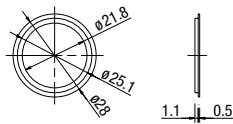
HW9Z-A25

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

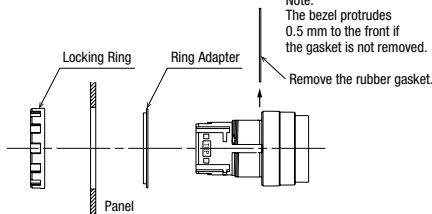


Nitril Rubber

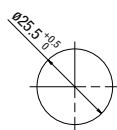
Dimensions



Installation



Panel Cut-out



HW9Z-A30

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

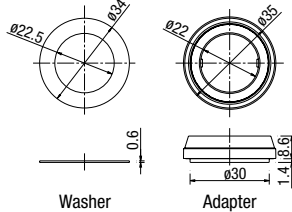


Washer: metal (brass)



Adapter: polyamide

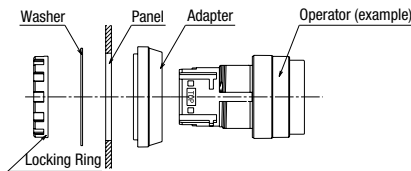
Dimensions



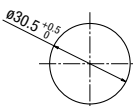
Washer

Adapter

Installation



Panel Cut-out



Replacement of Lens and Marking Plate

Removing the Lens Unit

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



Removing the Lens

Remove the lens by pushing the lens from the rear to disengage the latches between the lens and the lens holder, using a flat screwdriver as shown below. Marking plate can be removed after the lens is removed from the lens holder.



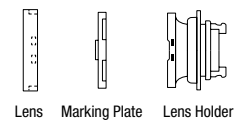
Note: The translucent filter in the lens holder cannot be removed because this filter is sealed to make the unit waterproof and oiltight.

Installing

[For Round Lens]

Lens Marking Plate Lens Holder

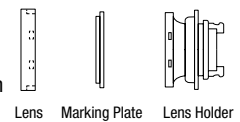
1. Place the marking plate on the lens holder with the anti-rotation projection engaged and press the lens onto the lens holder to engage the latches.
2. Place the marking plate in the correct orientation.



[For Square Lens]

Lens Marking Plate Lens Holder

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



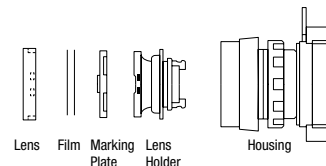
Marking

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  | <p>Engraving Area<br/>ø19.6<br/>Outside diameter ø21.5</p>                                                                                                                                                                                       | <p>Engraving Area<br/>19.9<br/>Outside diameter 22.7</p> |
|                         | <ul style="list-style-type: none"> <li>• Engraving must be made on the engraving area within 0.5 mm deep.</li> <li>• The marking plate is made of white acrylic resin.</li> </ul>                                                                |                                                          |
| Applicable Marking Film | <p>ø21.5<br/>19.4</p>                                                                                                                                                                                                                            | <p>22.7</p>                                              |
|                         | <ul style="list-style-type: none"> <li>• 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).</li> <li>• Recommended marking film: polyester</li> </ul> |                                                          |

Insertion Order of Marking Plate and Film

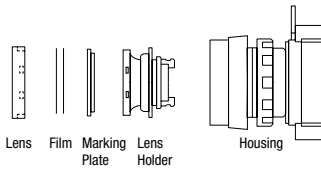
[Round Lens]



Note: Films are not supplied.

## Operating Instructions

### [Square Lens]



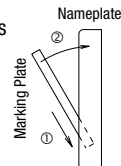
Note: Films are not supplied. When inserting a film, make sure that the marking plate is installed with its uneven side facing the lens holder.

### Nameplate

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

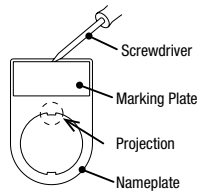
### Installing a Marking Plate

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



### Removing a Marking Plate

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



### Replacing the Lens of Dual Pushbuttons

#### Removing

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



#### Installing

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

### Selector Switches

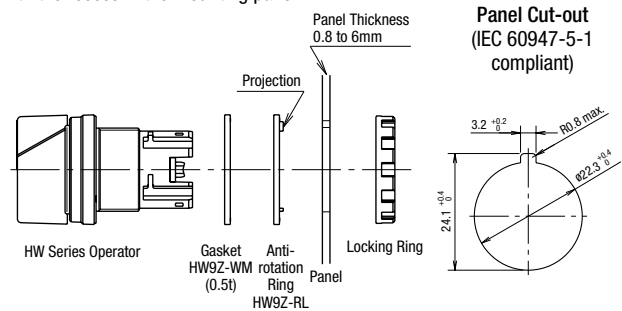
Turn the operator such as knob, lever, and key to each position accurately. Releasing halfway may cause the operator to return to the former position, or to get stuck between. On spring return two-way types, the center of operators may be misaligned slightly.

### Key Selector Switches

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

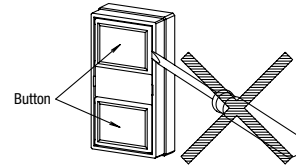
### Anti-rotation Ring and Panel Cut-out

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



### Dual Pushbutton Switches

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



### Installing the Rubber Boot for Dual Pushbuttons

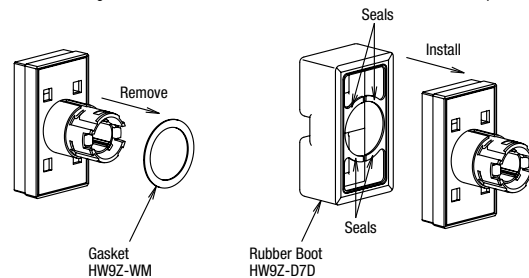
When using the HW7D pushbuttons in places where the pushbuttons are subject to water splash or an excessive amount of dust, make sure to use the HW9Z-D7D rubber boot (IP65) which is ordered separately.

Remove the rubber gasket pre-installed on the operator, and install the rubber boot from the front of buttons.

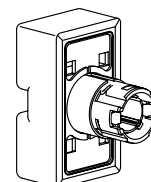
#### Notes for Installing the Rubber Boot

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

- ① Remove the gasket.
- ② Install the rubber boot on the pushbuttons



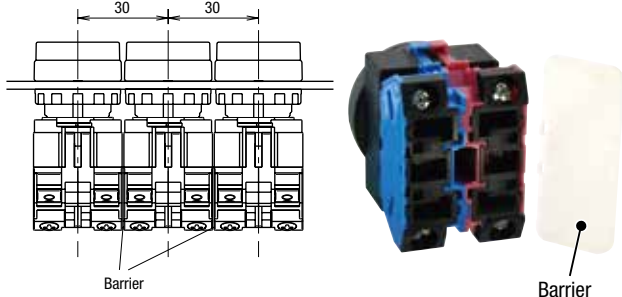
#### Rubber Boot Installed



Operating Instructions

Close Mounting

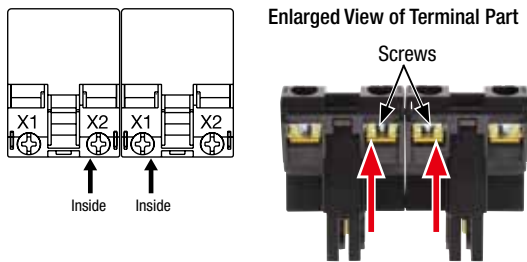
When mounting the units closely in a horizontal row on 30 mm centers, use optional barriers to prevent interconnection between adjoining terminals, and to increase the creepage distance. The barriers can be attached simply by pressing them onto the sides of contact blocks.



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

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

When using transformer type illuminated HW series of 240V AC maximum closely in a horizontal row on 30 mm centers, insert straight the solid wires or stranded wires into inside of the terminal screw on the transformer (see figure below) to prevent short circuit between adjoining terminals.



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

Applicable Wiring

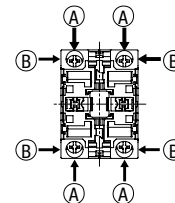
(1) Contact Block 0.3 to 3.5 mm<sup>2</sup> (solid wire ø0.5 to 2.0 mm)

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>

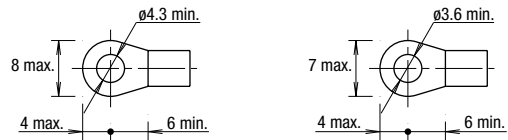
Terminal screws M3.5 (spring-up)



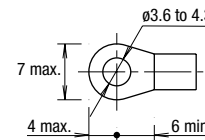
Applicable Crimping Terminal

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

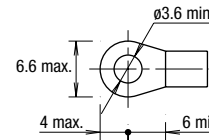
Crimping terminal for Ⓐ



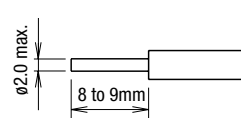
IP20 crimping terminal



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.

(1)-1 IP20 Degree of Protection

The terminal of HW-U contact block 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.



Operating Instructions

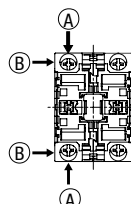
(2) Power Unit 0.3 to 2 mm<sup>2</sup> (solid wire ø0.5 to 1.6 mm)

Illuminated pushbutton/illuminated selector switch

(A) and (B) show the wiring direction to the terminals.

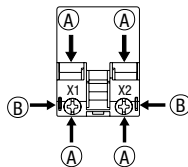
<Full Voltage Adapter>

Terminal screws M3.5 (spring-up)



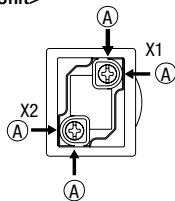
<Transformer Unit>

100/110V AC, 200/220V AC  
Terminal screws M3.5 (spring-up)



<DC-DC Converter Unit/Transformer Unit>

110V DC, 380V AC minimum  
Terminal screws M3.5 (spring-up)

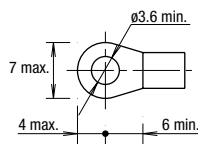
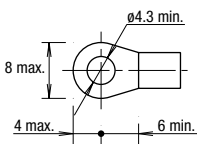


Applicable Crimping Terminal

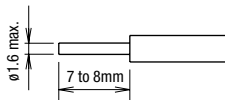
Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

Crimping terminal for (A)

Crimping terminal for (B)



Solid wire



- Strip the wire insulation 7 to 8 mm from the end.
- Insert the wire until the insulation comes into contact with the terminal metal part.

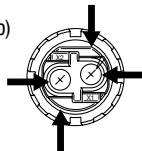
Terminal cover is integrated in the full voltage adapter and transformer unit. Note that the connection terminal is not IP20.

(2) Pilot Light 0.3 to 2 mm<sup>2</sup> (solid wire ø0.5 to 1.6 mm)

(Arrows show the wiring direction)

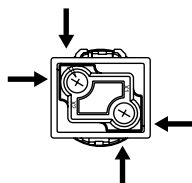
<Full Voltage Adapter>

6, 12, 24V AC/DC  
Terminal screws M3.5 (spring-up)



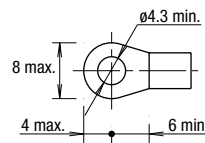
<Transformer, DC-DC Converter>

100/110V AC, 200/220V AC  
110V DC, 380V AC minimum  
Terminal screws M3.5 (spring-up)



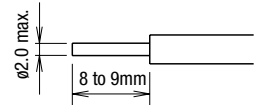
Applicable Crimping Terminal

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.



Cautions for Wiring

About DC-DC Converter Unit

1. Note the polarity for wiring when connecting to the DC-DC converter.

| Terminal No. | Polarity |
|--------------|----------|
| X1           | Positive |
| X2           | Negative |

2. Incandescent lamps cannot be used in DC-DC converter unit.
3. DC-DC converters are equipped with an electric circuit and noise may be heard inside the unit, which does not affect the performance of DC-DC converters.

Recommended Tightening Torque  
Number of Wires

| Unit                               | Wire              | Number of Wires                          | Recommended Tightening Torque | Terminal Screw |                                          |
|------------------------------------|-------------------|------------------------------------------|-------------------------------|----------------|------------------------------------------|
| HW-U Contact Block                 | 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 mm <sup>2</sup> (AWG14 to 22) | 2                             |                | 1.0 to 1.3                               |
| 2.1 to 3.5 mm <sup>2</sup> (AWG12) |                   | 1                                        | 1.2 to 1.3                    |                |                                          |
| Illuminated Unit (*1)              | 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 mm <sup>2</sup> (AWG14 to 22) |
| Pilot Light                        | Crimping Terminal | 2                                        | 1.0 to 1.3 (M3.5)             | M3.5           |                                          |
|                                    | Solid Wire        |                                          |                               |                | ø0.5 to 1.6 mm (AWG14 to 22)             |
|                                    | Stranded Wire     |                                          |                               |                | 0.3 to 2.0 mm <sup>2</sup> (AWG14 to 22) |

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

## ø22 Switches & Pilot Lights

See our website for other ø22 switches & pilot lights.

### ■ ø22 HW Series Pilot Lights (short body)



- 100V, 200V AC/DC: 30.5 mm depth behind panel
- 6, 12, 24V AC/DC: 21.5 mm depth behind panel
- Integrated terminal cover to ensure safety
- IP65 degree of protection to prevent water from entering inside the panel (IEC 60529)
- Marking is possible with square flush model using a marking plate or film

### ■ ø22 CW Series Flush Silhouette Switches



- Flush bezel projects only 2.5 mm from front of panel
- IP20 finger-safe screw terminals
- ø22.3 mm mounting hole compliant with IEC 60947-5-1
- Black plastic and metallic bezels available

### ■ ø22 AP22 Series Ultra-bright LED Pilot Lights



- Outstanding visibility for alerting purposes
- Integrated terminal cover for IP20 safety
- Colored and clear lenses are offered
- IP66, Type 4X (UL) degree of protection (panel front)

### ■ ø22 LBW Series Flush Silhouette Switches



- Flush bezel projects only 2 mm from front of panel.
- Pushbuttons, selector switches, and key selector switches with up to 3PDT contacts
- ø22.3 mm panel cut-out
- Black or metallic flush bezels available

### ■ ø22 HW1Z Illuminated Buzzer



- Alerts workers of danger with sound and light
- IP65 degree of protection (IEC 60529)
- Easy wiring with push-in terminal
- Short, 19.7 mm depth behind panel

### ■ XW ø22 Emergency Stop Switches (Push-to-lock, Pull or Turn-to-reset operator)



- 1 to 4NC main contacts and 1NO or 2NO monitor contact
- IDEC's unique Safe Break Action and Reverse Energy Structure
- Direct opening action mechanism and safety lock mechanism
- Screw terminal type is finger-safe (IP20)
- Mechanical indicator model available

### ■ HW ø22 Emergency Stop Switches (Push-to-lock, Turn-to-reset operator)



- Operator button shape provides higher safety
- Direct opening action mechanism and safety lock mechanism
- Removable contact block model: finger-safe, spring-up terminal reduces wiring time