# HW Series — 22mm IEC Style Global Pushbuttons

## Key features:

- Locking lever removable contact blocks
- Finger-safe IP20 contacts
- Tamperproof construction
- All E-stops meet EN60947-5-5, and are compliant with SEMI S2 standards
- Worldwide approvals
- Easy to assemble
- Choice of black plastic or metallic front bezels
- LED illumination
- Transformer or full voltage
- Slow make double break contacts
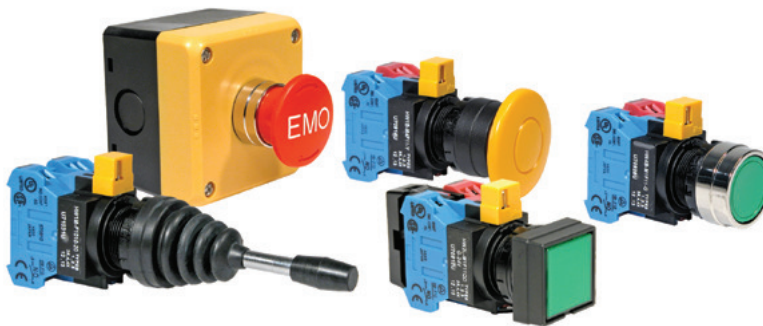
## HW: The Best Engineered Switch in the World

SOCOJE's HW switches are "The best engineered switch in the world" for a reason. Carrying the CE mark, UL, CSA, CCC (Chinese), and TUV approvals, these switches are designed for use in almost any part of the world.

Complete with finger-safe contact blocks offering IP20 protection, these 7/8" (22mm) switches

include illuminated and non-illuminated pushbuttons, pilot lights, selector switches, and emergency stop switches.

All switches also incorporate mechanically keyed safety locking levers, ensuring correct installation and maintaining safety in high-vibration applications.

UL File No. E68961   CSA File No. LR21451   CE

TÜV Rheinland Certificate No. R50086203_HW_e-stop R50391189_HW

CCC Certificate No. 2017010305987846

## Specifications

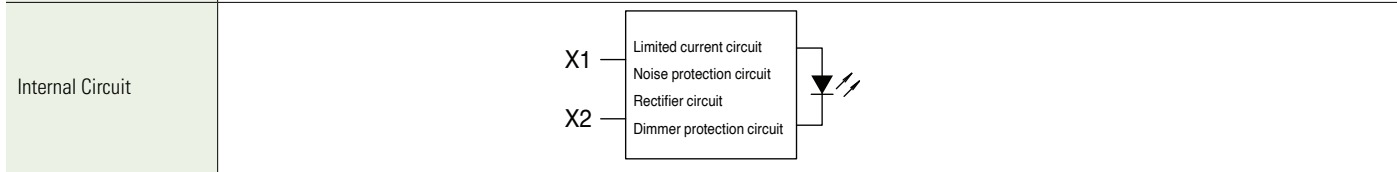| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Electrical** | Rated Operational Characteristics | AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB)<br>DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC)<br>DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB) | | | | | | |
| | Rated Insulation Voltage | 600V | | | | | | |
| | Rated Switching Over-Voltage | Less than 4kV, conforming to IEC60947-1 | | | | | | |
| | Rated Impulse Withstanding Voltage | 4kV for contact circuit, 2.5kV for lamp circuit | | | | | | |
| | Rated Thermal Current | 10 Amp | | | | | | |
| | Minimum Switching Capacity | 5 mA at 3V AC/DC | | | | | | |
| | Electrical Reliability | MTBF < 1 fault for 10 million operation cycles (3V DC, 5mA) | | | | | | |
| | Lamp Ratings | LEDs: 6V/17mA max, 12V & 24V/11mA max, 120 & 240V/10mA max | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Mechanical** | Contact Operation | Slow break NC or NO | | | | | | |
| | Positive Action Operation<br>(Emergency Stops with NC contacts) | 5.5mm to 10mm travel to latch, 45N minimum force to latch<br>10mm maximum travel, 1,800 operations per hour maximum for a Pushlock Turn Reset<br>900 operations per hour maximum for a Push-Pull | | | | | | |
| | Operating Force | Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 7.0±2N (maintained)<br>Additional contacts—1NO or 1NC: +3.2N (momentary), + 3.3N (maintained) | | | | | | |

| Recommended Terminal Torque | Unit | | Wire | | Number of Wires | Recommended Tightening Torque (Nm) | 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 mm² (AWG14 to 22) | | 2 | 1.0 to 1.3 | |
| | | | 2.1 to 3.5 mm² (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 (AWG14 to 22) | | | | |

| Applicable Wire Size | Pilot Light | | Crimping Terminal | | 2 | 0.6 to 1.0 (M3.0) | |
|---|---|---|---|---|---|---|---|
| | | Solid Wire | ø0.5 to 1.6 mm (AWG14 to 22) | | | | |
| | | Stranded Wire | ø0.3 to 2.0 mm (AWG14 to 22) | | | 1.0 to 1.3 (M3.5) | |

> ⓘ 1. * refers to the lamp terminals of the illuminated push buttons and selector switches.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Applicable Wire Size | Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG | | | | | | |
| | Contact Resistance | Initial contact resistance of 50mΩ or less | | | | | | |
| | Contact Gap | 4mm (NO and NC), 2mm (NO-EM and NC-LB) | | | | | | |
| | Horsepower Rating | Reference Value: 1/4 HP @ 120V (1ø non-reversing), 1HP @ 240V (3ø non-reversing) | | | | | | |
| | Contact Material | Silver (gold plated contacts available - contact SOCOJE) | | | | | | |
| | Operating Temperature | Operation: -25 to +60°C (illuminated -25 to +50°C dome -25 to +55°C) | | | | | | |
| | Vibration Resistance | 10 to 55Hz, 98m/sec² (10G) conforming to IEC6068-2-6 | | | | | | |
| | Shock Resistance | 980m/sec² (100G) conforming to IEC6068-2-7 | | | | | | |
| | Mechanical Life | Momentary pushbuttons: 5,000,000 (900 operations per hour), All other switches: 500,000 | | | | | | |

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Signaling Lights

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## Standards & Approvals

| Conforming to Standards | EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14 |
|---|---|

File No. E68961

File No. LR92374

Approvals

Registration No. R9551089 (E-stops)
Registration No. R50054316 (Dual Pushbuttons)
Registration No. J9650511 (Pilot Lights)
Registration No. J9551458 (all other switches)

TÜV Rheinland
Certificate No.
2005010305145656

CSA: pushbuttons and selector switches: A600
pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)
UL: pushbuttons and selector switches: A600
pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)
TÜV: pushbuttons and selector switches: A600=P600 (NO, NC)/Q600 (NO-EM, NC-LB)
pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)

| Electric Shock Protection | Class 2 conforming to IEC60664-7 |
|---|---|
| Degree of Protection (conforming to IEC60529 and UL50) | UL Type 1, 4X, 12, 13 [1] <br> IP65 (from front of the panel) IP20 (Type HW-U contact block) |
| Pollution Degree (conforming to IEC60947-1) | 3 |
| External Short-Circuit Protection | 10A 250V fuse conforming to IEC60269-1 |

## Contact Ratings

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

## Characteristics

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

For dimensions, see page 682.
Note 1. Except HW2B

## LED Lamp Ratings (LSRD Type)

| Rated Voltage | | 6V AC/DC | 12V AC/DC | 24V AC/DC | 100/120V AC/DC | 200/240V AC (50/60Hz sine wave) |
|---|---|---|---|---|---|---|
| Voltage Range | | 6V AC/DC ±10% | 12V AC/DC ±10% | 24V AC/DC ±10% | 100/120V AC/DC ±10% | 200/240V AC ±10% |
| Current Draw | DC | 10mA | 7mA | 7mA | 2mA | 2mA |
| | AC | 14mA | 8mA | 8mA | 2mA | 2mA |
| Part No. | | LSRD-6 | LSRD-1 | LSRD-2 | LSRD-H2 | LSRD-M4 |
| Life (reference value) | | Approx. 50,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.) | | | | |
| Internal Circuit | | X1 — Limited current circuit, Noise protection circuit, Rectifier circuit; X2 — Dimmer protection circuit | | | | |

## Non-Illuminated Round Pushbuttons (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

| Function | Contacts | Round Flush | | Round Extended | |
|---|---|---|---|---|---|
| | | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| Momentary | *Operator Only* | *HW1B-M1-①* | *HW4B-M1-①* | *HW1B-M2-①* | *HW4B-M2-①* |
| | 1NO | HW1B-M1F10-① | HW4B-M1F10-① | HW1B-M2F10-① | HW4B-M2F10-① |
| | 1NC | HW1B-M1F01-① | HW4B-M1F01-① | HW1B-M2F01-① | HW4B-M2F01-① |
| | 1NO-1NC | HW1B-M1F11-① | HW4B-M1F11-① | HW1B-M2F11-① | HW4B-M2F11-① |
| | 2NO | HW1B-M1F20-① | HW4B-M1F20-① | HW1B-M2F20-① | HW4B-M2F20-① |
| | 2NC | HW1B-M1F02-① | HW4B-M1F02-① | HW1B-M2F02-① | HW4B-M2F02-① |
| | 2NO-2NC | HW1B-M1F22-① | HW4B-M1F22-① | HW1B-M2F22-① | HW4B-M2F22-① |
| Maintained | *Operator Only* | *HW1B-A1-①* | *HW4B-A1-①* | *HW1B-A2-①* | *HW4B-A2-①* |
| | 1NO | HW1B-A1F10-① | HW4B-A1F10-① | HW1B-A2F10-① | HW4B-A2F10-① |
| | 1NC | HW1B-A1F01-① | HW4B-A1F01-① | HW1B-A2F01-① | HW4B-A2F01-① |
| | 1NO-1NC | HW1B-A1F11-① | HW4B-A1F11-① | HW1B-A2F11-① | HW4B-A2F11-① |
| | 2NO | HW1B-A1F20-① | HW4B-A1F20-① | HW1B-A2F20-① | HW4B-A2F20-① |
| | 2NC | HW1B-A1F02-① | HW4B-A1F02-① | HW1B-A2F02-① | HW4B-A2F02-① |
| | 2NO-2NC | HW1B-A1F22-① | HW4B-A1F22-① | HW1B-A2F22-① | HW4B-A2F22-① |

### ① Button Color Code

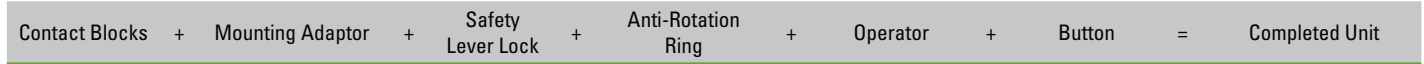| Color | Code |
|---|---|
| Black | B |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

1. In place of ①, specify the Button Color Code from table below.
2. For nameplates and accessories, see page 677 and 680.
3. For dimensions, see page 682.
4. For contact assembly part numbers, see page 682.
5. All assembled part numbers in catalog include standard, Finger-Safe (HW-U...) contacts.
6. Operator only models include operator plus button.
7. Additional contact configurations available (up to 6 total contacts).

## Part Number Structure

**H W 1 B - M 1 F 10 – R**

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

**Function**
M: Momentary Action
A: Maintained Action

**Operator**
1: Flush
2: Extended

**Terminals**
F: Finger-Safe Spring-Up Contacts

**Contact Arrangement**
| | |
|---|---|
| 10: 1NO | 20: 2NO |
| 01: 1NC | 02: 2NC |
| 11: 1NO-NC | 22: 2NO-2NC |

**Button Colors**
B: Black
G: Green
R: Red
S: Blue
W: White
Y: Yellow

ℹ Note: Use only for interpreting part numbers. Do not use for developing part numbers.

## Non-Illuminated Round Pushbuttons (Replacement Parts)

| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | + | Button | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

ℹ 1. Used to mount contact blocks to operator.
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

ℹ Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | | Plastic Bezel | Metal Bezel |
|---|---|---|---|
| Round Flush/ Extended | Momentary | HW1B-M0 | HW4B-M0 |
| | Maintained | HW1B-A0 | HW4B-A0 |

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Buttons

| Style | Part Number |
|---|---|
| Round Flush | HW1A-B1-① |
| Round Extended | HW1A-B2-① |

ℹ 1. In place of ①, specify the Button Color Code from table.

### ① Button Color Code

| Color | Code |
|---|---|
| Black | B |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

## Non-Illuminated Mushroom Head Pushbuttons (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

| Function | Contacts | ø29mm Mushroom Head | | ø40mm Mushroom Head | |
| --- | --- | --- | --- | --- | --- |
| | | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| Momentary | *Operator Only* | *HW1B-M3-①* | *HW4B-M3-①* | *HW1B-M4-①* | *HW4B-M4-①* |
| | 1NO | HW1B-M3F10-① | HW4B-M3F10-① | HW1B-M4F10-① | HW4B-M4F10-① |
| | 1NC | HW1B-M3F01-① | HW4B-M3F01-① | HW1B-M4F01-① | HW4B-M4F01-① |
| | 1NO-1NC | HW1B-M3F11-① | HW4B-M3F11-① | HW1B-M4F11-① | HW4B-M4F11-① |
| | 2NO | HW1B-M3F20-① | HW4B-M3F20-① | HW1B-M4F20-① | HW4B-M4F20-① |
| | 2NC | HW1B-M3F02-① | HW4B-M3F02-① | HW1B-M4F02-① | HW4B-M4F02-① |
| | 2NO-2NC | HW1B-M3F22-① | HW4B-M3F22-① | HW1B-M4F22-① | HW4B-M4F22-① |
| Maintained | *Operator Only* | *HW1B-A3-①* | *HW4B-A3-①* | *HW1B-A4-①* | *HW4B-A4-①* |
| | 1NO | HW1B-A3F10-① | HW4B-A3F10-① | HW1B-A4F10-① | HW4B-A4F10-① |
| | 1NC | HW1B-A3F01-① | HW4B-A3F01-① | HW1B-A4F01-① | HW4B-A4F01-① |
| | 1NO-1NC | HW1B-A3F11-① | HW4B-A3F11-① | HW1B-A4F11-① | HW4B-A4F11-① |
| | 2NO | HW1B-A3F20-① | HW4B-A3F20-① | HW1B-A4F20-① | HW4B-A4F20-① |
| | 2NC | HW1B-A3F02-① | HW4B-A3F02-① | HW1B-A4F02-① | HW4B-A4F02-① |
| | 2NO-2NC | HW1B-A3F22-① | HW4B-A3F22-① | HW1B-A4F22-① | HW4B-A4F22-① |

| Function | Contacts | ø60mm Mushroom Head |
| --- | --- | --- |
| | | Plastic Bezel |
| Momentary | *Operator Only* | *HW1B-M5-① \** |
| | 1NO | HW1B-M5F10-①* |
| | 1NC | HW1B-M5F01-①* |
| | 1NO-1NC | HW1B-M5F11-①* |
| | 2NO | HW1B-M5F20-①* |
| | 2NC | HW1B-M5F02-①* |
| | 2NO-2NC | HW1B-M5F22-①* |

**① Button Color Code**

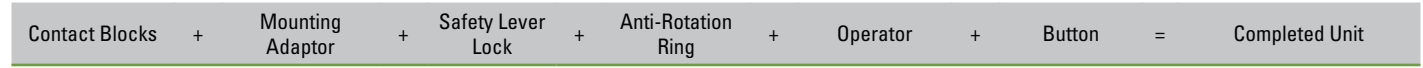| Color | Code |
| --- | --- |
| Black | B |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

1. In place of ①, specify the Button Color Code from table.
2. *60mm mushroom available only in red, green, black, and yellow.
3. For nameplates and accessories, see page 677 and 680.
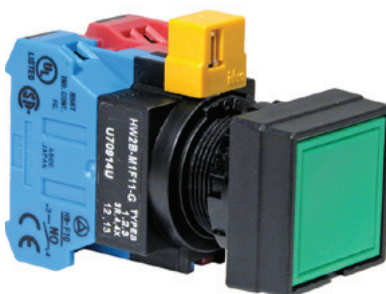4. For dimensions, see page 682.
5. For contact assembly part numbers, see page 682.
6. All assembled part numbers in catalog include standard spring-up Finger-Safe (HW-U...) contacts.
7. Operator only models include operator plus button.
8. Additional contact configurations available (up to 6 total contacts).

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

<div align="center">

**H W 1 B - M 3 F 10 – R**

</div>

**Bezel**
1: Plastic Bezel
4: Metal Bezel
(Not available for 60mm mushroom)

**Function**
M: Momentary Action
A: Maintained Action
(Not available for 60mm jumbo mushroom pushbutton.)

**Operator**
3: ø29mm Mushroom
4: ø40mm Mushroom
5: ø60mm Mushroom

**Terminals**
F: Finger-Safe Spring-Up Contacts

**Contact Arrangement**
| | |
|---|---|
| 10: 1NO | 20: 2NO |
| 01: 1NC | 02: 2NC |
| 11: 1NO-NC | 22: 2NO-2NC |

**Button Colors**
B: Black
G: Green
R: Red
S: Blue
W: White
Y: Yellow

ℹ Note: Use only for interpreting part numbers. Do not use for developing part numbers.

## Non-Illuminated Mushroom Head Pushbuttons (Replacement Parts)

| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | + | Button | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|



### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

ℹ 1. Used to mount contact blocks to operator.
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Appearance | Part Number |
|---|---|
| | HW9Z-RL |

### Operators

| Style | | Plastic Bezel | Metal Bezel |
|---|---|---|---|
| ø29mm Mushroom ø40mm Mushroom | Momentary | HW1B-M0L | HW4B-M0L |
| | Maintained | HW1B-A0L | HW4B-A0L |
| Ø60mm Jumbo Mushroom | Momentary | HW1B-M5-①* | – |

ℹ 1. *60mm mushroom operator includes non-removable button (available in red, black, green and yellow only).
2. For nameplates and accessories, see page 677 and 680.
3. For dimensions, see page 682.

### Buttons

| Style | Part Number |
|---|---|
| ø29mm Mushroom Cap | HW1A-B3-① |
| ø40mm Mushroom Cap | HW1A-B4-① |

ℹ 1. In place of ①, specify the Button Color Code from table.

### ① Button Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Black | B | Blue | S |
| Green | G | White | W |
| Red | R | Yellow | Y |

ℹ HW1B-M5 available only in black, red, green and yellow.

## Non-Illuminated Square Pushbuttons (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

| Function | Contacts | Square Flush | Square Extended |
|---|---|---|---|
| | | Plastic Bezel | Plastic Bezel |
| Momentary | *Operator Only* | *HW2B-M1-①* | *HW2B-M2-①* |
| | 1NO | HW2B-M1F10-① | HW2B-M2F10-① |
| | 1NC | HW2B-M1F01-① | HW2B-M2F01-① |
| | 1NO-1NC | HW2B-M1F11-① | HW2B-M2F11-① |
| | 2NO | HW2B-M1F20-① | HW2B-M2F20-① |
| | 2NC | HW2B-M1F02-① | HW2B-M2F02-① |
| | 2NO-2NC | HW2B-M1F22-① | HW2B-M2F22-① |
| Maintained | *Operator Only* | *HW2B-A1-①* | *HW2B-A2-①* |
| | 1NO | HW2B-A1F10-① | HW2B-A2F10-① |
| | 1NC | HW2B-A1F01-① | HW2B-A2F01-① |
| | 1NO-1NC | HW2B-A1F11-① | HW2B-A2F11-① |
| | 2NO | HW2B-A1F20-① | HW2B-A2F20-① |
| | 2NC | HW2B-A1F02-① | HW2B-A2F02-① |
| | 2NO-2NC | HW2B-A1F22-① | HW2B-A2F22-① |

### ① Button Color Code

| Color | Code |
|---|---|
| Black | B |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

1. In place of ①, specify the Button Color Code from table.
2. For nameplates and accessories, see page 677 and 680.
3. For dimensions, see page 682.
4. For contact assembly part numbers, see page 682.
5. Square pushbuttons available in plastic bezel only.
6. All assembled part numbers in catalog include finger-safe spring-up (HW-U...) contacts.
7. Operator only model includes operator and button.
8. Additional contact configurations available (up to 6 total contacts).

# Switches & Pilot Devices

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

H  W  2  B  -  M  1  F  10  –  R

**Function**
M: Momentary Action
A:  Maintained Action

**Operator**
1:  Flush
2:  Extended

**Terminals**
F:  Finger-Safe Spring-Up Contacts

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

**Button Colors**
B: Black
G: Green
R: Red
S: Blue
W: White
Y: Yellow

ℹ️ Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Non-Illuminated Square Pushbuttons (Replacement Parts)

| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | + | Button | = | Completed Unit |



### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

ℹ️ 1. Used to mount contact blocks to operator.
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Appearance | Part Number |
|---|---|
| | HW9Z-RL |

ℹ️ Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | | Plastic Bezel |
|---|---|---|
| Square Flush Extended | Momentary | HW2B-M0 |
| | Maintained | HW2B-A0 |

ℹ️ 2. For nameplates and accessories, see pages 677 and 680.
3. For dimensions, see page 682.

### Buttons

| Style | Part Number |
|---|---|
| Square Flush | HW2A-B1-① |
| Square Extended | HW2A-B2-① |

ℹ️ 1. In place of ①, specify the Button Color Code from table.

### ① Button Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Black | B | Blue | S |
| Green | G | White | W |
| Red | R | Yellow | Y |

# Switches & Pilot Devices

**ø22mm - HW Series**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Non-Illuminated E-Stop Pushbuttons (Assembled)

| Contacts | Ø29mm Head Pushlock Turn Reset | | Ø40mm Head Pushlock Turn Reset | |
|---|---|---|---|---|
| | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| *Operator Only* | *HW1B-V3①†* | *HW4B-V3①†* | *HW1B-V4①†* | *HW4B-V4①†* |
| 1NO | HW1B-V3F10-①† | HW4B-V3F10-①† | HW1B-V4F10-①† | HW4B-V4F10-①† |
| 1NC | HW1B-V3F01-①† | HW4B-V3F01-①† | HW1B-V4F01-①† | HW4B-V4F01-①† |
| 1NO-1NC | HW1B-V3F11-①† | HW4B-V3F11-①† | HW1B-V4F11-①† | HW4B-V4F11-①† |
| 2NO | HW1B-V3F20-①† | HW4B-V3F20-①† | HW1B-V4F20-①† | HW4B-V4F20-①† |
| 2NC | HW1B-V3F02-①† | HW4B-V3F02-①† | HW1B-V4F02-①† | HW4B-V4F02-①† |

| Contacts | Ø40mm Head EMO Pushlock Turn Reset | | Ø40mm Head Pushlock Key Reset | |
|---|---|---|---|---|
| | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| *Operator Only* | *HW1B-V4R-EMO-2** | *HW4B-V4R-EMO-2** | *HW1B-X4R** | *HW4B-X4R** |
| 1NO | HW1B-V4F10-R-EMO-2* | HW4B-V4F10-R-EMO-2* | HW1B-X4F10-R* | HW4B-X4F10-R* |
| 1NC | HW1B-V4F01-R-EMO-2* | HW4B-V4F01-R-EMO-2* | HW1B-X4F01-R* | HW4B-X4F01-R* |
| 1NO-1NC | HW1B-V4F11-R-EMO-2* | HW4B-V4F11-R-EMO-2* | HW1B-X4F11-R* | HW4B-X4F11-R* |
| 2NO | HW1B-V4F20-R-EMO-2* | HW4B-V4F20-R-EMO-2* | HW1B-X4F20-R* | HW4B-X4F20-R* |
| 2NC | HW1B-V4F02-R-EMO-2* | HW4B-V4F02-R-EMO-2* | HW1B-X4F02-R* | HW4B-X4F02-R* |

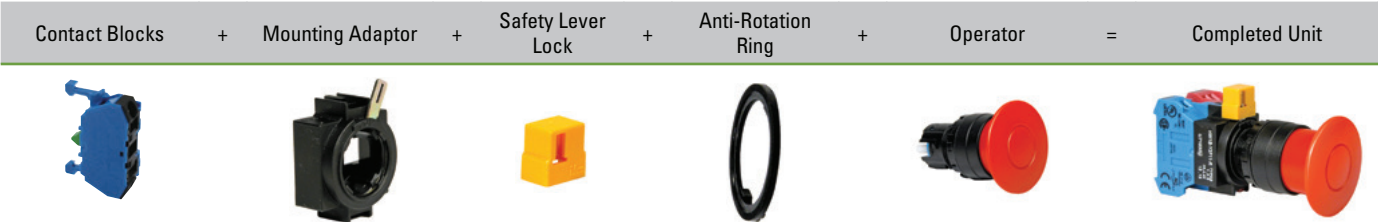| Contacts | ø60mm Head Pushlock Turn Reset |
|---|---|
| | Plastic Bezel |
| *Operator Only* | *HW1B-V5R** |
| 1NO | HW1B-V5F10-R* |
| 1NC | HW1B-V5F01-R* |
| 1NO-1NC | HW1B-V5F11-R* |
| 2NO | HW1B-V5F20-R* |
| 2NC | HW1B-V5F02-R* |

1. * Available in Red only.
2. † Available in red or yellow. Insert color code in place of ① (R: Red, Y: Yellow).
2. For accessories, see page 680.
3. For dimensions, see page 682.
5. For nameplates and shrouds, see page 682.
4. For contact assembly part numbers, see page 682.
7. All HW series E-stops comply with EN60947-5-5, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.
8. All assembled part numbers in catalog include standard finger-safe spring-up (HW-U...) contacts.
9. Operator only models include operator and button.
10. Additional contact configurations available (up to 6 total contacts).

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

**H W 1 B – V 3 F 10 – R – EMO-2**

**Bezel**
1: Plastic Bezel
4: Metal Bezel
(not available for 60mm jumbo mushroom)

**Function**
V: Pushlock Turn Reset
X: Pushlock Key Reset

**Operator**
3: ø29mm Head
4: ø40mm Head
5: ø60mm Head

**Terminals**
F: Finger-Safe Spring-Up

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

**Button Colors**
R: Red
Y: Yellow
Note: some switches only available in red.

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

Note: Use only for interpreting part numbers. Do not use for developing part numbers.

## Non-Illuminated E-Stop Pushbuttons (Replacement Parts)

| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator.
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Appearance | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | | Plastic | Metal |
|---|---|---|---|
| ø29mm Head Pushlock Turn Reset | red | HW1B-V3R | HW4B-V3R |
| | yellow | HW1B-V3Y | HW4B-V3Y |
| ø40mm Head Pushlock Turn Reset | red | HW1B-V4R | HW4B-V4R |
| | yellow | HW1B-V4Y | HW4B-V4Y |
| ø40mm Head EMO Pushlock Turn Reset* | | HW1B-V4R-EMO-2 | HW4B-V4R-EMO-2 |
| ø40mm Head Pushlock Key Reset* | | HW1B-X4R | HW4B-X4R |
| ø60mm Head Pushlock Turn Reset* | | HW1B-V5R | – |

1. *Available in red only.
2. All E-Stop buttons are not removable from the operator.

Note: Determine mounting centers to ensure proper spacing.

## Push Pull & Unibody E-Stop Pushbuttons (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
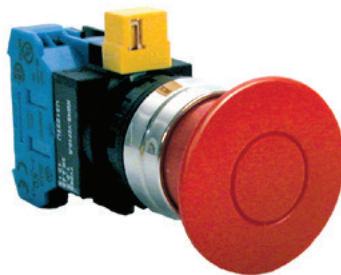
| Contacts | ø40mm Head Push–Pull | |
|---|---|---|
| | Plastic Bezel | Metal Bezel |
| *Operator Only (Red)* | *HW1B-Y2R* | *HW4B-Y2R* |
| *Operator Only (Yellow)* | *HW1B-Y2Y* | *HW4B-Y2Y* |
| 1NO | HW1B-Y2F10-①† | HW4B-Y2F10-①† |
| 1NC | HW1B-Y2F01-①† | HW4B-Y2F01-①† |
| 1NO-1NC | HW1B-Y2F11-①† | HW4B-Y2F11-①† |
| 2NC | HW1B-Y2F02-①† | HW4B-Y2F02-①† |
| 2NO | HW1B-Y2F20-①† | HW4B-Y2F20-①† |

| Contacts | ø40mm Unibody Pushlock Turn Reset* |
|---|---|
| | Plastic Bezel |
| 1NO-1NC | HW1E-BV4F11-R |
| 2NC | HW1E-BV4F02-R |
| 1NO-2NC* | HW1E-BV412R-TK2093-1 |

ℹ️ * NO contact is used as a monitoring contact

| Contacts | Unibody Illuminated E-Stops* |
|---|---|
| | LED |
| 1NO-1NC | HW1E-LV4F11QD-R-③ |
| 2NC | HW1E-LV4F02QD-R-③ |
| 2NC (with push-on illumination) | HW1E-TV4F02QD-R-③ |
| 1NO-1NC (with push-on illumination ) | HW1E-TV4F11QD-R-③ |

### ③ Full Voltage LED Code

| Voltage | Code |
|---|---|
| 6VAC/DC | 6V |
| 12VAC/DC | 12V |
| 24VAC/DC | 24V |
| 120V AC | 120V |
| 240V AC | 240V |

### Terminal Numbering
(Unibody only)

| Models | Terminal Number |
|---|---|
| 1NO-1NC | NO = 13/14, NC = 11/12 |
| 2NC | NC = 11/12, NC = 21/22 |
| HW1E-L HW1E-T | LED + = X2, LED - = X1 |

ℹ️
1. * Available in Red only.
2. † Available in red or yellow. Insert color code in place of ① (R: Red, Y: Yellow).
3. In place of ③, specify Full Voltage LED Code.
4. With single unit construction, the positive action contacts are integrated in the body of the switch. This provides an extra degree of safety and reliability for critical emergency stop functions.
5. In the illuminated version, the light is independent of the switch action (except push-on LED model).
6. For accessories, see page 680.
7. For dimensions, see page 682.
8. For nameplates and shrouds, see page 680.
9. For contact assembly part numbers, see page 680.
10. All HW Series E-Stop operators include non-removable color caps.
11. All HW series E-Stops comply with EN60947-5-5, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.
12. All HW series E-Stop switches comply with SEMI S2 standards.
13. All assembled part numbers in catalog include standard finger-safe spring-up (HW-U...) contacts.
14. Additional contact configurations available (up to 6 total contacts).

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

**H W 1 E – L V 4 F 11 – Q D – R – 24V**

**Bezel**
1: Plastic Bezel
4: Metal Bezel*
(*not available for HW1E unibody)

**Function**
B: Push Pull
E: Unibody Pushlock Turn Reset

**Illumination**
BV4: Non-illuminated (unibody style)
LV4: Illuminated (unibody style)
TV4: Illuminated Push On (unibody style)
Y2: Non-illuminated Push Pull E-Stop

**Contacts**
11: 1NO-1NC
02: 2NC
10: 1NO
20: 2NO

**Illumination Circuit**
blank: 40mm Push Pull & Non-illuminated Unibody E-Stop
Q: Illuminated Unibody E-Stop

**Lamp Code**
D: LED

**Button Colors**
R: Red
Y: Yellow*
(*only available in 40mm Push Pull E-Stop)

**Full Voltage Code**
(Illuminated E-Stop)
6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC
240V: 240V AC

ℹ️ Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Illuminated & Non-Illuminated E-Stop Pushbuttons (Replacement Parts)

| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|
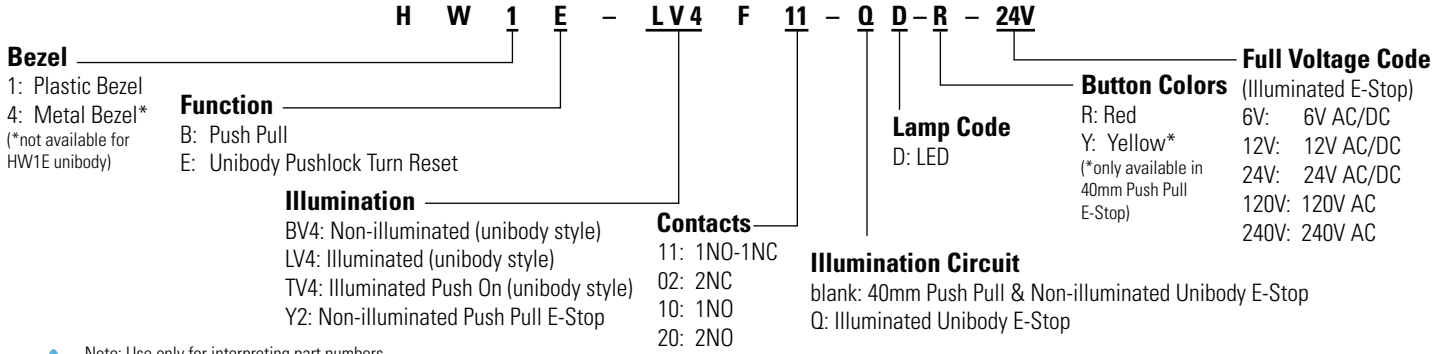


### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
|  | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
|  | Dummy Block | HW-DB | |

ℹ️ 1. There are no replacement parts for the HW1E unibody E-Stop.
2. For illuminated unibody E-Stop, see page 682 for replacement lens.

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
|  | HW-CB2C |

ℹ️ 1. Used to mount contact blocks to operator.
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
|  | HW9Z-LS |

### Anti-Rotation Ring

| Appearance | Part Number |
|---|---|
|  | HW9Z-RL |

ℹ️ Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | | Part Number |
|---|---|---|
| ø40mm Head Push-Pull | Plastic (red) | HW1B-Y2R |
| | Metal (red) | HW4B-Y2R |
| | Plastic (yellow) | HW1B-Y2Y |
| | Metal (yellow) | HW4B-Y2Y |

ℹ️ All E-Stop Buttons are not removable from the operator.

## E-Stop Stations

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

| | 29mm Pushlock Turn Reset | | 40mm Pushlock Turn Reset | |
|---|---|---|---|---|
| Contacts | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| 1NO-1NC | FB1W-HW1B-V311R | FB1W-HW4B-V311R | FB1W-HW1B-V411R | FB1W-HW4B-V411R |
| 2NC | FB1W-HW1B-V302R | FB1W-HW4B-V302R | FB1W-HW1B-V402R | FB1W-HW4B-V402R |

| | 40mm Push-Pull Reset | | 40mm Pushlock Key Reset | |
|---|---|---|---|---|
| Contacts | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| 1NO-1NC | FB1W-HW1B-Y211R | FB1W-HW4B-Y211R | FB1W-HW1B-X411R | FB1W-HW4B-X411R |
| 2NC | FB1W-HW1B-Y202R | FB1W-HW4B-Y202R | FB1W-HW1B-X402R | FB1W-HW4B-X402R |

| | 40mm EMO Pushlock Turn Reset | |
|---|---|---|
| Contacts | Plastic Bezel | Metal Bezel |
| 1NO-1NC | FB1W-HW1B-V411R-EMO-2 | FB1W-HW4B-V411R-EMO-2 |
| 2NC | FB1W-HW1B-V402R-EMO-2 | FB1W-HW4B-V402R-EMO-2 |

1. Maximum of two contact blocks.
2. Box is supplied with yellow top and black bottom only.

# Switches & Pilot Devices

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Jumbo Dome Pilot Lights

Actual Size

|  |  | Plastic Bezel |
|---|---|---|
| Jumbo Dome | *Operator Only* | *HW1P-5Q0* |
| LED | Full Voltage 24V AC/DC | HW1P-5Q4-② |

1. In place of ②, specify the Lens/LED Color Code.
2. Spring-Up terminals with 24V LED.
3. For nameplates and accessories, see page 677 and 680.
4. For dimensions, see page 682.

### ② Lens/LED Color Code

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

### Jumbo Dome Replacement Parts

| Item | Appearance | Description | Part Number |
|---|---|---|---|
| Lens |  | Polycarbonate Lens | HW1A-P5② |
| LED Diffusing Lens |  |  | HW9Z-PP5C |
| LED Lamps |  | LED Lamp | LSTDB-2② |

1. In place of ②, specify the Lens/LED Color Code.
2. Use white LED for yellow lens.

### Lamp Ratings

| Part Number | Operating Voltage | Rated Current | Power Consumption |
|---|---|---|---|
| LED | LSTDB-2 | 24V AC/DC ±10% | 15mA | 0.36W |

**Jumbo Dome**

## Pilot Lights (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

| | | Round Flush | | Dome | |
|---|---|---|---|---|---|
| | | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| *Operator Only* | | *HW1P-1FQ0-②* | *HW4P-1FQ0-②* | *HW1P-2FQ0-②* | *HW4P-2FQ0-②* |
| Full Voltage | | HW1P-1FQD-②-③ | HW4P-1FQD-②-③ | HW1P-2FQD-②-③ | HW4P-2FQD-②-③ |
| Transformer | 120V AC | HW1P-1FH2D-② | HW4P-1FH2D-② | HW1P-2FH2D-② | HW4P-2FH2D-② |
| | 240V AC | HW1P-1FM4D-② | HW4P-1FM4D-② | HW1P-2FM4D-② | HW4P-2FM4D-② |
| | 480V AC | HW1P-1FT8D-② | HW4P-1FT8D-② | HW1P-2FT8D-② | HW4P-2FT8D-② |
| DC-DC Converter* | 110V DC | HW1P-1D2D-② | – | HW1P-2D2D-② | – |

| | | Square Flush |
|---|---|---|
| | | Plastic Bezel |
| *Operator Only* | | *HW2P-1FQ0-②* |
| Full Voltage | | HW2P-1FQD-②-③ |
| Transformer | 120V AC | HW2P-1FH2D-② |
| | 240V AC | HW2P-1FM4D-② |
| | 480V AC | HW2P-1FT8D-② |
| DC-DC Converter* | 110V DC | HW2P-1D2D-② |

ℹ *DC-DC converter voltage input from 90-140V DC.

### ② Lens Color Code

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

### ③ LED Full Voltage Code

| Voltage | Code |
|---|---|
| 6VAC/DC | 6V |
| 12VAC/DC | 12V |
| 24VAC/DC | 24V |
| 120V AC/DC | 120V |
| 240V AC | 240V |

ℹ
1. In place of ②, specify the Lens Color Code from table below.
2. In place of ③ specify the Full Voltage Code from table below.
3. For nameplates and accessories, see page 677 and 680.
4. For dimensions, see page 682.
5. **Pilot lights do not come with anti-rotation ring.**
6. Operator models come with operator and lens.
7. **Yellow pilot light comes with white LED.**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

H W 1 P – 2 F Q D – R – 12V

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

**Operator**
1: Flush
2: Dome

**Illumination Circuit**
Q: Full Voltage
H2: 120V AC Transformer
M4: 240V AC Transformer
T8: 480V AC Transformer
D2: DC-DC Converter

**Lamp Type Code**
D: LED

**Lens Colors**
A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

**LED Voltage**
(full voltage units only)
6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC/DC
240V: 240V AC

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

### Pilot Lights (Replacement Parts)

| Transformer* | + | LED | + | Operator | + | Lens | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|

(not applicable for full voltage units)

## Transformer Units

| Style | Voltage | Part Number |
|---|---|---|
| LED | 120V AC | HW-FH20 |
| | 240V AC | HW-FM40 |
| | 480V AC | HW-FT80 |
| (6V secondary voltage) | 110V DC† | HW-RD0* |

1. *DC-DC convertor can only be used with HW1P-100 and HW2P-100 operators
2. † DC-DC converter voltage input from 90-140V DC.

## LED Lamps

| Style | Voltage | Part Number |
|---|---|---|
| LED | 6V AC/DC | LSRD-6 |
| | 12V AC/DC | LSRD-1 |
| | 24V AC/DC | LSRD-2 |
| | 120V AC/DC | LSRD-H2 |
| | 240V AC | LSRD-M4 |

1. All LED lamps are white
2. The LED contains a current-limiting resistor and reverse polarity protection diodes.

## Operators

| Style | | Type | Plastic Bezel | Metal Bezel |
|---|---|---|---|---|
| Round Flush | Full Voltage | Finger-Safe | HW1P-1FQ0 | HW4P-1FQ0 |
| | Transformer | Finger-Safe | HW1P-10 | HW4P-10 |
| | | Used for DC-DC convertor only | HW1P-100 | - |
| Dome | Full Voltage | Finger-Safe | HW1P-2FQ0 | HW4P-2FQ0 |
| | Transformer | Finger-Safe | HW1P-20 | HW4P-20 |
| Square Flush | Full Voltage | Finger-Safe | HW2P-1FQ0 | – |
| | Transformer | Finger-Safe | HW2P-10 | – |
| | | Used for DC-DC convertor only | HW2P-100 | – |

1. Transformer type requires separate transformer & LED. Must select correct transformer bases. Use 6V LEDs.
2. Full voltage type only requires LED.

## Lenses

| Style | | Part Number |
|---|---|---|
| Round/ Flush | | HW1A-P1-③-K |
| Dome | | HW1A-P2-③ -K |
| Square/ Flush | | HW2A-P1-③-K |

In place of ③, specify the Lens Color Code.

## ③ Lens Color Code

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

For yellow lens use white LED.

# Switches & Pilot Devices

**ø22mm - HW Series**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Illuminated Round Pushbuttons (Assembled)
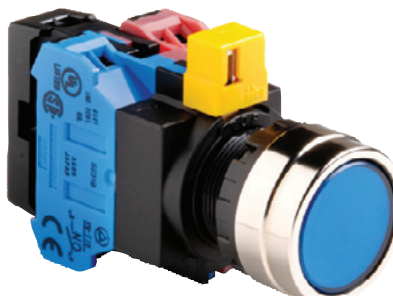


## Illuminated Full Voltage Pushbuttons



| | Contacts | Flush | | Extended | | Extended w/ Full Shroud | |
|---|---|---|---|---|---|---|---|
| | | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| Momentary | *Operator Only*<br>1NO<br>1NC<br>1NO-1NC<br>2NO | *HW1L-M1-*②<br>HW1L-M1F10QD-②-③<br>HW1L-M1F01QD-②-③<br>HW1L-M1F11QD-②-③<br>HW1L-M1F20QD-②-③ | *HW4L-M1-*②<br>HW4L-M1F10QD-②-③<br>HW4L-M1F01QD-②-③<br>HW4L-M1F11QD-②-③<br>HW4L-M1F20QD-②-③ | *HW1L-M2-*②<br>HW1L-M2F10QD-②-③<br>HW1L-M2F01QD-②-③<br>HW1L-M2F11QD-②-③<br>HW1L-M2F20QD-②-③ | *HW4L-M2-*②<br>HW4L-M2F10QD-②-③<br>HW4L-M2F01QD-②-③<br>HW4L-M2F11QD-②-③<br>HW4L-M2F20QD-②-③ | *HW1L-MF2-*②<br>HW1L-MF2F10QD-②-③<br>HW1L-MF2F01QD-②-③<br>HW1L-MF2F11QD-②-③<br>HW1L-MF2F20QD-②-③ | *HW4L-MF2-*②<br>HW4L-MF2F10QD-②-③<br>HW4L-MF2F01QD-②-③<br>HW4L-MF2F11QD-②-③<br>HW4L-MF2F20QD-②-③ |
| Maintained | *Operator Only*<br>1NO<br>1NC<br>1NO-1NC<br>2NO | *HW1L-A1-*②<br>HW1L-A1F10QD-②-③<br>HW1L-A1F01QD-②-③<br>HW1L-A1F11QD-②-③<br>HW1L-A1F20QD-②-③ | *HW4L-A1-*②<br>HW4L-A1F10QD-②-③<br>HW4L-A1F01QD-②-③<br>HW4L-A1F11QD-②-③<br>HW4L-A1F20QD-②-③ | *HW1L-A2-*②<br>HW1L-A2F10QD-②-③<br>HW1L-A2F01QD-②-③<br>HW1L-A2F11QD-②-③<br>HW1L-A2F20QD-②-③ | *HW4L-A2-*②<br>HW4L-A2F10QD-②-③<br>HW4L-A2F01QD-②-③<br>HW4L-A2F11QD-②-③<br>HW4L-A2F20QD-②-③ | *HW1L-AF2-*②<br>HW1L-AF2F10QD-②-③<br>HW1L-AF2F01QD-②-③<br>HW1L-AF2F11QD-②-③<br>HW1L-AF2F20QD-②-③ | *HW4L-AF2-*②<br>HW4L-AF2F10QD-②-③<br>HW4L-AF2F01QD-②-③<br>HW4L-AF2F11QD-②-③<br>HW4L-AF2F20QD-②-③ |

## Illuminated Transformer Pushbuttons



| | Contacts | Flush | | Extended | | Extended w/ Full Shroud | |
|---|---|---|---|---|---|---|---|
| | | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel | Plastic Bezel | Metal Bezel |
| Momentary | *Operator Only*<br>1NO-1NC<br>2NO | *HW1L-M1-*②<br>HW1L-M1F11-③D-②<br>HW1L-M1F20-③D-② | *HW4L-M1-*②<br>HW4L-M1F11-③D-②<br>HW4L-M1F20-③D-② | *HW1L-M2-*②<br>HW1L-M2F11-③D-②<br>HW1L-M2F20-③D-② | *HW4L-M2-*②<br>HW4L-M2F11-③D-②<br>HW4L-M2F20-③D-② | *HW1L-MF2-*②<br>HW1L-MF2F11-③D-②<br>HW1L-MF2F20-③D-② | *HW4L-MF2-*②<br>HW4L-MF2F11-③D-②<br>HW4L-MF2F20-③D-② |
| Maintained | *Operator Only*<br>1NO-1NC<br>2NO | *HW1L-A1-*②<br>HW1L-A1F11-③D-②<br>HW1L-A1F20-③D-② | *HW4L-A1-*②<br>HW4L-A1F11-③D-②<br>HW4L-A1F20-③D-② | *HW1L-A2-*②<br>HW1L-A2F11-③D-②<br>HW1L-A2F20-③D-② | *HW4L-A2-*②<br>HW4L-A2F11-③D-②<br>HW4L-A2F20-③D-② | *HW1L-AF2-*②<br>HW1L-AF2F11-③D-②<br>HW1L-AF2F20-③D-② | *HW4L-AF2-*②<br>HW4L-AF2F11-③D-②<br>HW4L-AF2F20-③D-② |

1. In place of ②, specify Lens Color Code from table.
2. In place of ③ specify Voltage Code from table.
3. Light independent of switch position.
4. For replacement part numbers, see page 648.
5. For nameplates and accessories, see page 677. and 680.
6. For dimensions, see page 682.
7. For contact assembly part numbers, see page 682.
8. Full voltage and transformer models use the same operator.
9. Additional contact configurations available (up to 6 total contacts).
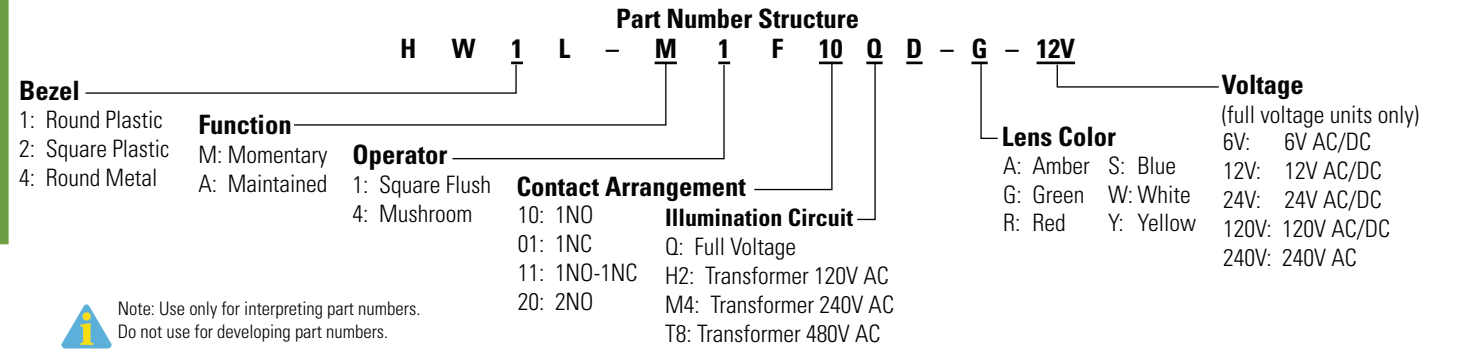10. **Yellow pushbutton comes with white LED.**

### ② Lens Color Code

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

### ③ Voltage Code

| Full Voltage Models | | Transformer Models | |
|---|---|---|---|
| Voltage | Code | Voltage | Code |
| 6V AC/DC | 6V | 120V AC | H2 |
| 12V AC/DC | 12V | 240V AC | M4 |
| 24V AC/DC | 24V | 480V AC | T8 |
| 120V AC/DC | 120V | | |
| 240V AC | 240V | | |

## Part Number Structure

**H W 1 L – M 1F 10 Q D – G – 12V**

**Bezel**
1: Plastic
4: Metal

**Function**
M: Momentary
A: Maintained

**Operator**
1F: Flush
2F: Extended
F2F: Extended w/ shroud

**Contact Arrangement**
10: 1NO
01: 1NC
11: 1NO-1NC
20: 2NO

**Illumination Circuit**
Q: Full Voltage
H2: Transformer 120V AC
M4: Transformer 240V AC
T8: Transformer 480V AC

**Lens Color**
A: Amber    S: Blue
G: Green    W: White
R: Red      Y: Yellow

**LED Lamp Voltage**
(full voltage units only)
6V:    6V AC/DC
12V:   12V AC/DC
24V:   24V AC/DC
120V:  120V AC/DC
240V:  240V AC

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Illuminated Round Pushbuttons (Replacement Parts)

| Transformer* | + | Contact Blocks | + | Lead Holder | + | Mounting Adaptor | + | Safety Lever Lock | + | Lamp | + | Anti-Rotation Ring | + | Operator | + | Lens | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

*Transformer not needed with full voltage models.

## Lamp Circuit Components

| Style | Description | Terminals | Part Number |
|---|---|---|---|
| Lead Holder | For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts. | | HW-LH3 |
| Dummy Block with Full Voltage Adaptor | For use with odd number of contacts. | Finger-Safe | HW-DA1FBN |
| Full Voltage Adaptor | For use with even number of contacts. | Finger-Safe | TW-DA1FB |
| Transformer Unit (6V secondary voltage) | 120VAC 240VAC 480VAC | Finger-Safe | TW-F126B TW-F246B TW-F486B |
| DC-DC Converter | 110VDC | | HW-L16D |

1. *With spring-up terminals - to use spring-up terminal type, must use transformer type operator designed for spring-up transformer.
2. ** DC-DC converter voltage input from 90-140V DC.

## Operators

| Style | | | Plastic Bezel | Metal Bezel |
|---|---|---|---|---|
| Round Flush/ Extended | | Momentary | HW1L-M0 | HW4L-M0 |
| | | Maintained | HW1L-A0 | HW4L-A0 |
| Extended with Full Shroud | | Momentary | HW1L-MF0 | HW4L-MF0 |
| | | Maintained | HW1L-AF0 | HW4L-AF0 |

## Contact Blocks

| Style | | Contacts | 1NO | 1NC |
|---|---|---|---|---|
| | | Finger-Safe Spring-Up Terminal | HW-U10-F HW-U10R-F (early make) | HW-U01-F HW-U01R-F (late break) |

1. All assembled part numbers in catalog include standard finger-safe spring-up (HW-U...) contacts.

## Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CBL |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

## Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

## Lenses

| Style | Part Number |
|---|---|
| Round Flush | HW1A-L1-②-K |
| Round Extended | HW1A-L2-②-K |

In place of ②, specify the Lens Color Code from previous page.

## Anti-Rotation Ring

| Appearance | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

## LED Lamps

| Style | Voltage | Part Number |
|---|---|---|
| LED | 6V AC/DC | LSRD-6 |
| | 12V AC/DC | LSRD-1 |
| | 24V AC/DC | LSRD-2 |
| | 120V AC/DC | LSRD-H2 |
| | 240V AC | LSRD-M4 |

1. All LED lamps are white
2. The LED contains a current-limiting resistor and reverse polarity protection diodes.

## Illuminated Mushroom & Square Pushbuttons (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
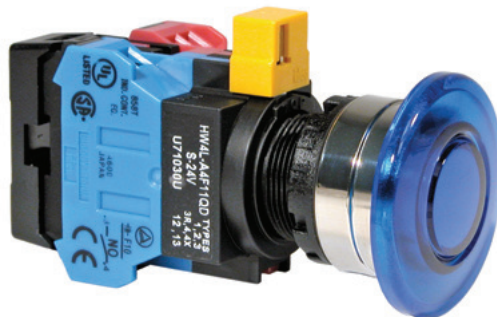
| | | | 40mm Mushroom Head | | Square Flush |
|---|---|---|---|---|---|
| | | Contacts | Plastic Bezel | Metal Bezel | Plastic Bezel |
| Full Voltage | Momentary | Operator Only† | HW1L-M4-② | HW4L-M4-② | HW2L-M1-② |
| | | 1NO | HW1L-M4F10QD-②-③ | HW4L-M4F10QD-②-③ | HW2L-M1F10QD-②-③ |
| | | 1NC | HW1L-M4F01QD-②-③ | HW4L-M4F01QD-②-③ | HW2L-M1F01QD-②-③ |
| | | 1NO-1NC | HW1L-M4F11QD-②-③ | HW4L-M4F11QD-②-③ | HW2L-M1F11QD-②-③ |
| | | 2NO | HW1L-M4F20QD-②-③ | HW4L-M4F20QD-②-③ | HW2L-M1F20QD-②-③ |
| | Maintained | Operator Only† | HW1L-A4-② | HW4L-A4-② | HW2L-A1-② |
| | | 1NO | HW1L-A4F10QD-②-③ | HW4L-A4F10QD-②-③ | HW2L-A1F10QD-②-③ |
| | | 1NC | HW1L-A4F01QD-②-③ | HW4L-A4F01QD-②-③ | HW2L-A1F01QD-②-③ |
| | | 1NO-1NC | HW1L-A4F11QD-②-③ | HW4L-A4F11QD-②-③ | HW2L-A1F11QD-②-③ |
| | | 2NO | HW1L-A4F20QD-②-③ | HW4L-A4F20QD-②-③ | HW2L-A1F20QD-②-③ |
| Transformer | Momentary | 1NO-1NC | HW1L-M4F11③D-② | HW4L-M4F11③D-② | HW2L-M1F11③D-② |
| | | 2NO | HW1L-M4F20③D-② | HW4L-M4F20③D-② | HW2L-M1F20③D-② |
| | Maintained | 1NO-1NC | HW1L-A4F11③D-② | HW4L-A4F11③D-② | HW2L-A1F11③D-② |
| | | 2NO | HW1L-A4F20③D-② | HW4L-A4F20③D-② | HW2L-A1F20③D-② |

1. † Full voltage and transformer units use the same operator.
2. In place of ②, specify the Lens Color Code from table.
3. In place of ③ specify the Voltage Code from table.
4. Light independent of switch position
5. For nameplates and accessories, see page 677. and 680.
6. For dimensions, see page 682.
7. For contact assembly part numbers, see page 682.
8. Additional contact configurations available (up to 6 total contacts).
9. **Yellow pushbutton comes with white LED.**

### ② Lens Color Code

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y* |

1. *40mm mushroom lenses not available in yellow.

### ③ Voltage Code

| Full Voltage Models | | Transformer Models | |
|---|---|---|---|
| Voltage | Code | Voltage | Code |
| 6V AC/DC | 6V | 120V AC | H2 |
| 12V AC/DC | 12V | 240V AC | M4 |
| 24V AC/DC | 24V | 480V AC | T8 |
| 120V AC/DC | 120V | | |
| 240V AC | 240V | | |

# Switches & Pilot Devices

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

**H W 1 L – M 1 F 10 Q D – G – 12V**

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

**Function**
M: Momentary
A: Maintained

**Operator**
1: Square Flush
4: Mushroom

**Contact Arrangement**
10: 1NO
01: 1NC
11: 1NO-1NC
20: 2NO

**Illumination Circuit**
Q: Full Voltage
H2: Transformer 120V AC
M4: Transformer 240V AC
T8: Transformer 480V AC

**Lens Color**
A: Amber     S: Blue
G: Green     W: White
R: Red       Y: Yellow

**Voltage**
(full voltage units only)
6V:    6V AC/DC
12V:   12V AC/DC
24V:   24V AC/DC
120V:  120V AC/DC
240V:  240V AC

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Illuminated Mushroom & Square Pushbuttons (Replacement Parts)

| Transformer* | + | Contact Blocks | + | Lead Holder | + | Adaptor† | + | Safety Lever Lock | + | LED | + | Anti-Rotation Ring | + | Operator | + | Lens | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

*Transformer not needed with full voltage models.

## Lamp Circuit Components

| Style | Description | Terminals | Part Number |
|---|---|---|---|
| Lead Holder | For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts. | | HW-LH3 |
| Dummy Block with Full Voltage Adaptor | For use with odd number of contacts. | Finger-Safe | HW-DA1FBN |
| Full Voltage Adaptor | For use with even number of contacts. | Finger-Safe | TW-DA1FB |
| Transformer Unit (6V secondary voltage) | 120VAC 240VAC 480VAC | Finger-Safe | TW-F126B TW-F246B TW-F486B |
| DC-DC Converter | 110VDC | | HW-L16D |

1. *With spring-up terminals - to use spring-up terminal type, must use transformer type operator designed for spring-up transformer.
2. ** DC-DC converter voltage input from 90-140V DC.

## Operators

| Style | | | Plastic Bezel | Metal Bezel |
|---|---|---|---|---|
| ø40mm Mushroom | | Momentary | HW1L-M0L | HW4L-M0L |
| | | Maintained | HW1L-A0L | HW4L-A0L |
| Square | | Momentary | HW2L-M0 | – |
| | | Maintained | HW2L-A0 | |

## Contact Blocks

| Style | | Contacts | 1NO | 1NC |
|---|---|---|---|---|
| | | Finger-Safe Spring-Up Terminal | HW-U10-F HW-U10R-F (early make) | HW-U01-F HW-U01R-F (late break) |

1. All assembled part numbers in catalog include standard finger-safe spring-up contacts (HW-U...).

## Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CBL |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

## Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

## Lenses

| Style | | Part Number |
|---|---|---|
| ø40mm Mushroom Lens | | ALW4BLU-②-K* |
| Square Flush | | HW2A-L1-②-K |

1. In place of ②, specify the Lens Color Code.
2. *Mushroom lens not available in yellow.

## Anti-Rotation Ring

| Appearance | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

## LED Lamps

| Style | Voltage | Part Number |
|---|---|---|
| LED | 6V AC/DC | LSRD-6 |
| | 12V AC/DC | LSRD-1 |
| | 24V AC/DC | LSRD-2 |
| | 120V AC/DC | LSRD-H2 |
| | 240V AC | LSRD-M4 |

1. All LED lamps are white
2. The LED contains a current-limiting resistor and reverse polarity protection diodes.

## Selector Switches 2-Position (Assembled)

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

### 2-Position Selector Switches

| Contact | Mounting | Operator Position | | Handle | Maintained | Spring Return from Right |
|---------|----------|---|---|--------|------------|--------------------------|
| | | L | R | | L ⟍ R | L ⟍ R |
| *Operator Only* | | | | Knob Lever | *HW⑤S-2T* *HW⑤S-2L* | *HW⑤S-21T* *HW⑤S-21L* |
| 1NO | 1 | O | X | Knob Lever | HW⑤S-2TF10 HW⑤S-2LF10 | HW⑤S-21TF10 HW⑤S-21LF10 |
| 1NO-1NC | 1 2 | O X | X O | Knob Lever | HW⑤S-2TF11 HW⑤S-2LF11 | HW⑤S-21TF11 HW⑤S-21LF11 |
| 2NO | 1 2 | O O | X X | Knob Lever | HW⑤S-2TF20 HW⑤S-2LF20 | HW⑤S-21TF20 HW⑤S-21LF20 |
| 2NO-2NC | 1 2 3 4 | O X O X | X O X O | Knob Lever | HW⑤S-2TF22 HW⑤S-2LF22 | HW⑤S-21TF22 HW⑤S-21LF22 |

1. In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
2. For nameplates, see page 677.
3. All assembled part numbers in catalog include standard finger-safe spring-up (HW-U...) contacts.
4. Standard color for knob and lever is black.
5. Optional colors available for lever type. Must order in components. See next page for part numbers.
6. Additional contact configurations available (up to 6 total contacts).
7. For Truth Tables see page 690.

**⑤ Bezel Type**

| Type | Code |
|------|------|
| Plastic | 1 |
| Metal | 4 |

# Switches & Pilot Devices

## Part Number Structure

**H   W   1   S   -   2   1   T   F   10**

**Bezel**
1: Plastic
4: Metal

**# of Positions**
2: 2-Position

**Operator**
blank: Maintained
1: Spring Return from Right

**Handle**
T: Knob
L: Lever

**Contact Arrangement**
10: 1NO
11: 1NO-1NC
20: 2NO

Note: Use only for interpreting part numbers. Do not use for developing part numbers.

## Selector Switches 2-Position (Replacement Parts)

| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Description | Handle | Plastic Bezel | Metal Bezel |
|---|---|---|---|---|
| | Maintained | Knob | HW1S-2T | HW4S-2T |
| | | Lever | HW1S-2 | HW4S-2 |
| | Spring Return from Right | Knob | HW1S-21T | HW4S-21T |
| | | Lever | HW1S-21 | HW4S-21 |

1. Knob operator comes with black handle.
2. To order lever type, lever and inserts must be ordered separately, along with lever operator. See part numbers below.

### Levers & Inserts

| Style | Part Number |
|---|---|
| Lever | ASWHHL-① |
| Lever Color Insert | TW-HC1-① |

Standard lever color is black. Standard insert color is white.

### ① Handle/Insert Color Code

| Color | Code |
|---|---|
| Black* | B |
| Blue | S |
| Green | G |
| Red | R |
| Yellow | Y |
| White† | W |

1. * Lever color inserts not available in black.
2. † Lever not available in white.

## Selector Switches 3-Position (Assembled)



### 3–Position Selector Switches

| Contact | Mounting | Operator Position L | C | R | Handle | Maintained | Spring Return from Right | Spring Return from Left | Spring Return Two-Way |
|---|---|---|---|---|---|---|---|---|---|
| Operator Only | | | | | Knob / Lever | HW⑤S-3T* / HW⑤S-3L | HW⑤S-31T / HW⑤S-31L | HW⑤S-32T / HW⑤S-32L | HW⑤S-33T / HW⑤S-33L |
| 1NO-1NC | 1 | 0 | X—X | X | Knob | HW⑤S-3TF11 | HW⑤S-31TF11 | HW⑤S-32TF11 | HW⑤S-33TF11 |
| | 2 | 0 | 0 | X | Lever | HW⑤S-3LF11 | HW⑤S-31LF11 | HW⑤S-32LF11 | HW⑤S-33LF11 |
| 2NO | 1 | X | 0 | 0 | Knob | HW⑤S-3TF20 | HW⑤S-31TF20 | HW⑤S-32TF20 | HW⑤S-33TF20 |
| | 2 | 0 | 0 | X | Lever | HW⑤S-3LF20 | HW⑤S-31LF20 | HW⑤S-32LF20 | HW⑤S-33LF20 |
| 2NC | 1 | 0 | X—X | X | Knob | HW⑤S-3TF02 | HW⑤S-31TF02 | HW⑤S-32TF02 | HW⑤S-33TF02 |
| | 2 | X—X | | 0 | Lever | HW⑤S-3LF02 | HW⑤S-31LF02 | HW⑤S-32LF02 | HW⑤S-33LF02 |
| 2NO-1NC | 1 | X | 0 | 0 | Knob | HW⑤S-3JTF21N1 | – | – | – |
| | 2 | 0 | 0 | X | | | | | |
| | 3 | 0 | X | 0 | | | | | |
| 2NO-2NC | 1 | X | 0 | 0 | Knob | HW⑤S-3TF22 | HW⑤S-31TF22 | HW⑤S-32TF22 | HW⑤S-33TF22 |
| | 2 | 0 | 0 | X | | | | | |
| | 3 | 0 | X—X | X | | | | | |
| | 4 | X—X | | 0 | | | | | |
| 2NO-2NC | 1 | 0 | 0 | X | Knob | HW⑤S-3STF22N9 | – | – | – |
| | 2 | X | 0 | 0 | | | | | |
| | 3 | X—X | | 0 | | | | | |
| | 4 | 0 | 0 | X | | | | | |
| 4NO | 1 | X | 0 | 0 | Knob | HW⑤S-3TF40 | HW⑤S-31TF40 | HW⑤S-32TF40 | HW⑤S-33TF40 |
| | 2 | 0 | 0 | X | | | | | |
| | 3 | X | 0 | 0 | | | | | |
| | 4 | 0 | 0 | X | | | | | |
| 4NO | 1 | X | 0 | 0 | Knob | HW⑤S-3STF40N2 | – | – | – |
| | 2 | 0 | X—X | X | | | | | |
| | 3 | X | 0 | 0 | | | | | |
| | 4 | 0 | 0 | X | | | | | |
| 4NC | 1 | 0 | X—X | X | Knob | HW⑤S-3TF04 | HW⑤S-31TF04 | HW⑤S-32TF04 | HW⑤S-33TF04 |
| | 2 | X—X | | 0 | | | | | |
| | 3 | 0 | X—X | X | | | | | |
| | 4 | X—X | | 0 | | | | | |

**⑤ Bezel Type**

| Type | Code |
|---|---|
| Plastic | 1 |
| Metal | 4 |

1. In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
2. Knob operator includes black knob/lever operator includes black lever.
3. * Three position operator is available with three different cams.
   HW⑤S-3T: Maintained (standard cam)
   HW⑤S-3ST: Maintained (S cam)
   HW⑤S-3JT: Maintained (J cam)
4. Operator cams are color coded (white=standard cam, red=S cam, black =J cam).
5. For nameplates, see page 677.
6. For contact assembly part numbers, see page 682.

7. All assembled part numbers in catalog include standard finger-safe spring-up (HW-U...) contacts.
8. Standard color for knob and lever is black.
9. Optional colors available for lever type. Must order in components. See next page for part numbers.
10. Additional contact configurations available (up to 6 total contacts).
11. For Truth Tables see page 690.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

# Switches & Pilot Devices

Switches & Pilot Devices

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Circuit Breakers

## Part Number Structure

HW 1 S - 3 1 T F 20

**Bezel**
1: Plastic
4: Metal

**# of Positions**
3: 3-Position

**Operator**
blank: Maintained
1: Spring Return from Right
2: Spring Return from Left
3: Spring Return Two Way

**Handle**
T: Knob
L: Lever

**Contact Arrangement**
11: 1NO-1NC
20: 2NO
21: 2NO-1NC
22: 2NO-2NC
40: 4NO
04: 4NC

Note: Use only for interpreting part numbers. Do not use for developing part numbers.

## Selector Switches 3-Position (Replacement Parts)

| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Description | Handle | Plastic Bezel | Metal Bezel |
|---|---|---|---|---|
| | Maintained (standard cam) | Knob | HW1S-3T | HW4S-3T |
| | | Lever | HW1S-3 | HW4S-3 |
| | Maintained (S cam) | Knob | HW1S-3ST | HW4S-3ST |
| | Maintained (J cam) | Knob | HW1S-3JT | HW4S-3JT |
| | Spring Return from Right (standard cam) | Knob | HW1S-31T | HW4S-31T |
| | | Lever | HW1S-31 | HW4S-31 |
| | Spring Return from Left (standard cam) | Knob | HW1S-32T | HW4S-32T |
| | | Lever | HW1S-32 | HW4S-32 |
| | 2-Way Spring Return (standard cam) | Knob | HW1S-33T | HW4S-33T |
| | | Lever | HW1S-33 | HW4S-33 |

1. Knob operator comes with black handle.
2. Three position knob operator is available with three different cams.
3. Operator cams are color coded (white=standard cam, red=S cam, black =J cam).
4. To order lever type, lever and inserts must be ordered separately, along with lever operator. See part numbers below.

### Levers & Inserts

| Style | | Part Number |
|---|---|---|
| | Lever | ASWHHL-① |
| | Lever Color Insert | TW-HC1-① |

Standard lever color is black. Standard insert color is white.

### ① Handle/Insert Color Code

| | | | | |
|---|---|---|---|---|
| Black* | B | | Color | Code |
| Blue | S | | Yellow | Y |
| Green | G | | White† | W |
| Red | R | | | |

1. * Lever color inserts not available in black.
2. †Lever not available in white.

# Switches & Pilot Devices

**ø22mm - HW Series**

Switches & Pilot Devices

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## Selector Switches 4- & 5-Position (Assembled)

### 4-Position Selector Switches

| Contact | Mounting | Operator Position | | | | Handle | Maintained |
|---------|----------|---|---|---|---|--------|------------|
| | | 1 | 2 | 3 | 4 | |  |
| *Operator Only* | | | | | | Knob<br>Lever | *HWⓈS-4T*<br>*HWⓈS-4L* |
| 1NO-<br>2NC | 1<br>2<br>3<br>4 | X<br>0<br>0<br>0 | 0<br>X<br>0<br>0 | 0<br>0<br>X<br>0 | 0<br>0<br>0<br>0 | Knob<br>Lever | HWⓈS-4TF12<br>HWⓈS-4LF12 |
| 1NO-<br>3NC | 1<br>2<br>3<br>4 | 0<br>0<br>0<br>0 | X<br>X<br>0<br>0 | X<br>0<br>X<br>0 | X<br>0<br>0<br>X | Knob<br>Lever | HWⓈS-4TF13N6<br>HWⓈS-4LF13N6 |
| 2NO-<br>2NC | 1<br>2<br>3<br>4 | X<br>0<br>0<br>0 | 0<br>X<br>0<br>0 | 0<br>0<br>X<br>0 | 0<br>0<br>0<br>X | Knob<br>Lever | HWⓈS-4TF22N3<br>HWⓈS-4LF22N3 |

### 5-Position Selector Switch

| Contact | Mounting | Operator Position | | | | | Handle | Maintained |
|---------|----------|---|---|---|---|---|--------|------------|
| | | 1 | 2 | 3 | 4 | 5 | |  |
| *Operator Only* | | | | | | | Knob<br>Lever | *HWⓈS-5T*<br>*HWⓈS-5L* |
| 2NO-<br>2NC | 1<br>2<br>3<br>4 | X<br>0<br>0<br>0 | 0<br>X<br>0<br>0 | 0<br>0<br>0<br>0 | 0<br>0<br>X<br>0 | 0<br>0<br>0<br>X | Knob<br>Lever | HWⓈS-5TF22N3<br>HWⓈS-5LF22N3 |

1. In place of Ⓢ enter 1 for plastic bezel or 4 for metal bezel.
2. Knob operator includes black knob/lever operator includes black lever.
3. For nameplates, see page 677.
4. For contact assembly part numbers, see page 682.
5. Five position circuit cannot be made to make five independent contact closures.
6. All assembled part numbers in catalog include standard finger-safe spring-up (HW-U...) contacts.
7. Standard color for knob and lever is black.
8. Optional colors available for lever type. Must order in components. See next page for part numbers.
9. Additional contact configurations available (up to 6 total contacts).
10. For Truth Tables see page 690.

### Ⓢ Bezel Type

| Type | Code |
|------|------|
| Plastic | 1 |
| Metal | 4 |
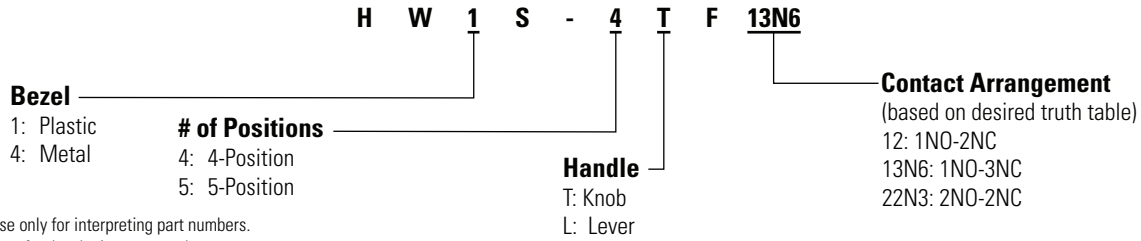
**ø22mm - HW Series**

**Switches & Pilot Devices**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

**H W 1 S - 4 T F 13N6**

**Bezel**
1: Plastic
4: Metal

**# of Positions**
4: 4-Position
5: 5-Position

**Handle**
T: Knob
L: Lever

**Contact Arrangement**
(based on desired truth table)
12: 1NO-2NC
13N6: 1NO-3NC
22N3: 2NO-2NC

ℹ️ Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Selector Switches 4- & 5-Position (Replacement Parts)
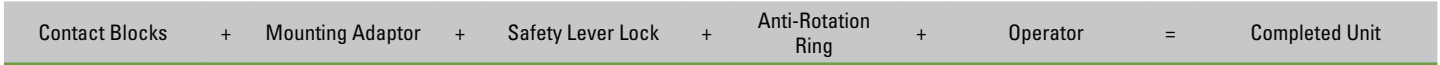
| Contact Blocks | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

ℹ️ 1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

ℹ️ Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Position | Description | Handle | Plastic Bezel | Metal Bezel |
|---|---|---|---|---|---|
| | 4 | Maintained | Knob | HW1S-4T | HW4S-4T |
| | | | Lever | HW1S-4 | HW4S-4 |
| | 5 | Maintained | Knob | HW1S-5T | HW4S-5T |
| | | | Lever | HW1S-5 | HW4S-5 |

ℹ️ 1. Knob operator comes with black handle.
2. To order lever type, lever and inserts must be ordered separately, along with lever operator. See part numbers below.

### Levers & Inserts

| Style | Part Number |
|---|---|
| Lever | ASWHHL-① |
| Lever Color Insert | TW-HC1-① |

ℹ️ Standard lever color is black. Standard insert color is white.

### ① Handle/Insert Color Code

| Color | Code |
|---|---|
| Black* | B |
| Blue | S |
| Green | G |
| Red | R |
| Yellow | Y |
| White† | W |

ℹ️ 1. * Lever color inserts not available in black.
2. †Lever not available in white.

## Key Switches 2-Position (Assembled)

### 2-Position Key Switches

| Contact | Mounting | Operator Position | | Maintained | Spring Return from Right |
|---|---|---|---|---|---|
| | | L ↖ | R ↗ | L ∨ R | L ↘ R |
| *Operator Only* | | | | *HW⑤K-2A* | *HW⑤K-21B* |
| 1NO | 1 | 0 | X | HW⑤K-2AF10 | HW⑤K-21BF10 |
| 1NO-1NC | 1 2 | 0 X | X 0 | HW⑤K-2AF11 | HW⑤K-21BF11 |
| 2NO | 1 2 | 0 0 | X X | HW⑤K-2AF20 | HW⑤K-21BF20 |
| 2NO-2NC | 1 2 3 4 | 0 X 0 X | X 0 X 0 | HW⑤K-2AF22 | HW⑤K-21BF22 |

1. In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
2. Key is removable in all maintained positions. Other key removable options available.
3. Two keys are supplied with all switches.
4. All standard operators are keyed alike.
5. Other key removable options available. See table below
6. For nameplates, see page 677.
7. For contact assembly part numbers, see page 682.
8. Key is retained in "Spring Return" position.
9. All assembled part numbers in catalog include finger-safe spring-up (HW-U...) contacts.
10. Additional contact configurations available (up to 6 total contacts).
11. For Truth Tables see page 682.

#### ⑤ Bezel Type

| Type | Code |
|---|---|
| Plastic | 1 |
| Metal | 4 |

### Key Removable Option Codes

| Code | Description |
|---|---|
| A | Key not retained in any position (removable in all positions) |
| B | Key retained in right position only (removable LEFT) |
| C | Key retained in left position only (removable RIGHT) |

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## Part Number Structure

**H W 1 K - 2 1 B F 10**

**Bezel**
1: Plastic
4: Metal

**# of Positions**
2: 2-Position

**Operator**
blank: Maintained
1: Spring Return from Right

**Key Retained Position**
A: Key not retained in any position (removable in all positions)
B: Key retained in right position only (removable LEFT)
C: Key retained in left position only (removable RIGHT)

**Contact Arrangement**
10: 1NO      20: 2NO
11: 1NO-1NC  22: 2NO-2NC

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Key Switches 2-Position (Replacement Parts)

| Contact Assembly | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Description | Plastic Bezel | Metal Bezel |
|---|---|---|---|
| | Maintained | HW1K-2A | HW4K-2A |
| | Maintained, key removed left only | HW1K-2B | HW4K-2B |
| | Spring Return from Right | HW1K-21B | HW4K-21B |
| | Maintained, key removed right only | HW1K-2C | HW4K-2C |

1. Operator includes two keys.
2. All standard operators are keyed alike.

## Key Switches 3-Position (Assembled)



### 3-Position Key Switches

| Contact | Mounting | Operator Position L | C | R | Maintained | Spring Return from Right | Spring Return from Left | Spring Return Two Way |
|---------|----------|---|---|---|------------|--------------------------|-------------------------|-----------------------|
| Operator Only | | | | | HW⑤K-3A * | HW⑤K-31B | HW⑤K-32C | HW⑤K-33D |
| 1NO-1NC | 1 | 0 | X—X | | HW⑤K-3AF11 | HW⑤K-31BF11 | HW⑤K-32CF11 | HW⑤K-33DF11 |
|  | 2 | 0 | 0 | X | | | | |
| 2NO | 1 | X | 0 | 0 | HW⑤K-3AF20 | HW⑤K-31BF20 | HW⑤K-32CF20 | HW⑤K-33DF20 |
|  | 2 | 0 | 0 | X | | | | |
| 2NC | 1 | 0 | X—X | | HW⑤K-3AF02 | HW⑤K-31BF02 | HW⑤K-32CF02 | HW⑤K-33DF02 |
|  | 2 | X—X | | 0 | | | | |
| 2NO-1NC | 1 | X | 0 | 0 | HW⑤K-3JAF21N1 | – | – | – |
|  | 2 | 0 | 0 | X | | | | |
|  | 3 | 0 | X | 0 | | | | |
| 2NO-2NC | 1 | X | 0 | 0 | HW⑤K-3AF22 | HW⑤K-31BF22 | HW⑤K-32CF22 | HW⑤K-33DF22 |
|  | 2 | 0 | 0 | X | | | | |
|  | 3 | 0 | X—X | | | | | |
|  | 4 | X—X | | 0 | | | | |
| 2NO-2NC | 1 | 0 | 0 | X | HW⑤K-3SAF22N9 | – | – | – |
|  | 2 | X | 0 | 0 | | | | |
|  | 3 | X—X | 0 | 0 | | | | |
|  | 4 | 0 | 0 | X | | | | |
| 4NO | 1 | X | 0 | 0 | HW⑤K-3AF40 | HW⑤K-31BF40 | HW⑤K-32CF40 | HW⑤K-33DF40 |
|  | 2 | 0 | 0 | X | | | | |
|  | 3 | X | 0 | 0 | | | | |
|  | 4 | 0 | 0 | X | | | | |
| 4NO | 1 | X | 0 | 0 | HW⑤K-3SAF40N2 | – | – | – |
|  | 2 | 0 | X—X | | | | | |
|  | 3 | X | 0 | 0 | | | | |
|  | 4 | 0 | 0 | X | | | | |
| 4NC | 1 | 0 | X—X | | HW⑤K-3AF04 | HW⑤K-31BF04 | HW⑤K-32CF04 | HW⑤K-33DF04 |
|  | 2 | X—X | | 0 | | | | |
|  | 3 | 0 | X—X | | | | | |
|  | 4 | X—X | | 0 | | | | |

### ⑤ Bezel Type

| Type | Code |
|------|------|
| Plastic | 1 |
| Metal | 4 |

1. In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
2. Key is removable in all maintained positions. Other key removable options available.
3. Two keys are supplied with all switches.
4. All standard operators are keyed alike.
5. Other key removable options available. See table to the right.
6. * Operator is available with three different cams.
   HW⑤K-3A: Maintained (standard cam)
   HW⑤K-3SA: Maintained (Cam S)
   HW⑤K-3JA: Maintained (Cam J)
7. For nameplates, see page 677.
8. For contact assembly part numbers, see page 682.
9. All assembled part numbers in catalog include standard Finger-Safe spring-up (HW-U...) contacts.
10. Additional contact configurations available (up to 6 total contacts).
11. For Truth Tables see page 690.

### Key Removable Option Codes

| Code | Description |
|------|-------------|
| A | Key not retained in any position (removable in all positions) |
| B | Key retained in right position only |
| C | Key retained in left position only |
| D | Key retained in left and right (3 position only) |
| E | Key retained in center only (3 position only) |
| G | Key retained right and center (3 position only) |
| H | Key retained left and center (3 position only) |

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## Part Number Structure

**H W 1 K - 3 1 B F 11**

**Bezel**
1: Plastic
4: Metal

**# of Positions**
3: 3-Position

**Operator**
blank: Maintained
1: Spring Return from Right
2: Spring Return from Left
3: Spring Return Two Way

**Key Removable Option Code**
(see chart on previous page)

**Contact Arrangement**
11: 1NO-1NC    40: 4NO
20: 2NO         04: 4NC
22: 2NO-2NC

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Key Switches 3-Position (Replacement Parts)

| Contact Assembly | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Description | Plastic Bezel | Metal Bezel |
|---|---|---|---|
| | Maintained (standard cam) | HW1K-3A | HW4K-3A |
| | Maintained (S cam) | HW1K-3SA | HW4K-3SA |
| | Maintained (J cam) | HW1K-3JA | HW4K-3JA |
| | Spring Return from Right (standard cam) | HW1K-31B | HW4K-31B |
| | Spring Return from Left (standard cam) | HW1K-32C | HW4K-32C |
| | 2-Way Spring Return (standard cam) | HW1K-33D | HW4K-33D |

1. Operator includes two keys.
2. All standard operators are keyed alike.
3. Other key removable options available. See table on previous page.
4. Key not removable from spring-returned position

## Illuminated Selector Switches 2-Position (Assembled)

Switches & Pilot Devices

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### 2-Position Illuminated Selector Switches

| | | Style | | | Part Number | |
|---|---|---|---|---|---|---|
| Contact | Mounting | Operator Position | Type | | Maintained | Spring Return from Right |
| | | L ↖ \| R ↗ | | | L ∖/R | L ∖↗R |
| *Operator Only* | | | | | *HW⑤F-2②* | *HW⑤F-21②* |
| 1NO-1NC | 1<br>2 | 0<br>X | X<br>0 | Full Voltage | HW⑤F-2F11QD-②-③ | HW⑤F-21F11QD-②-③ |
| | | | | Transformer 120V<br>240V<br>480V | HW⑤F-2F11H2D-②<br>HW⑤F-2F11M4D-②<br>HW⑤F-2F11T8D-② | HW⑤F-21F11H2D-②<br>HW⑤F-21F11M4D-②<br>HW⑤F-21F11T8D-② |
| 2NO | 1<br>2 | X<br>0 | 0<br>X | Full Voltage | HW⑤F-2F20QD-②-③ | HW⑤F-21F20QD-②-③ |
| | | | | Transformer 120V<br>240V<br>480V | HW⑤F-2F20H2D-②<br>HW⑤F-2F20M4D-②<br>HW⑤F-2F20T8D-② | HW⑤F-21F20H2D-②<br>HW⑤F-21F20M4D-②<br>HW⑤F-21F20T8D-② |
| 2NO-2NC | 1<br>2<br>3<br>4 | 0<br>X<br>0<br>X | X<br>0<br>X<br>0 | Full Voltage | HW⑤F-2F22QD-②-③ | HW⑤F-21F22QD-②-③ |
| | | | | Transformer 120V<br>240V<br>480V | HW⑤F-2F22H2D-②<br>HW⑤F-2F22M4D-②<br>HW⑤F-2F22T8D-② | HW⑤F-21F22H2D-②<br>HW⑤F-21F22M4D-②<br>HW⑤F-21F22T8D-② |

1. In place of ② specify Lens color code.
2. In place of ③ specify Full Voltage code.
3. In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
4. For nameplates, see page 677.
5. For contact assembly part numbers, see page 682.
6. Light is independent of switch position.
7. All assembled part numbers in catalog include standard Finger-Safe spring-up (HW-U...) contacts.
8. **Yellow selector switch comes with white LED.**
9. Additional contact configurations available (up to 6 total contacts).
10. For Truth Tables see page 690.

### ② Lens Color Code

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

### ③ Full Voltage Code

| Full Voltage Models | |
|---|---|
| Voltage | Code |
| 6VAC/DC | 6V |
| 12VAC/DC | 12V |
| 24VAC/DC | 24V |
| 120V AC/DC | 120V |
| 240V AC | 240V |

### ⑤ Bezel Code

| Type | Code |
|---|---|
| Plastic | 1 |
| Metal | 4 |

Signaling Lights | Relays & Sockets | Timers | Contactors | Terminal Blocks | Circuit Breakers

## Part Number Structure

**H W 1 F – 21 F 20 Q D – G – 24V**

**Bezel**
1: Plastic
4: Metal

**Position**
2: Maintained
21: Spring Return from Right

**Contact Arrangement**
11: 1NO-1NC
20: 2NO
22: 2NO-2NC

**Illumination Circuit**
Q: Full Voltage
H2: Transformer 120V AC
M4: Transformer 240V AC
T8: Tranformer 480V AC

**Lens Color**
A: Amber     S: Blue
G: Green     W: White
R: Red       Y: Yellow

**LED Voltage**
(Full voltage units only)
6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC/DC
240V: 240V AC

ℹ Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

### Illuminated Selector Switches 2-Position (Replacement Parts)

Transformer* + Contact Blocks + Lead Holder + Mounting Adaptor + Safety Lever Lock + LED + Anti-Rotation Ring + Operator + Lens = Completed Unit



ℹ *Transformer not needed with full voltage models.

## Lamp Circuit Components

| Style | Description | Terminals | Part Number |
|---|---|---|---|
| Lead Holder | For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts. | | HW-LH3 |
| Dummy Block with Full Voltage Adaptor | For use with odd number of contacts. | Finger-Safe | HW-DA1FBN |
| Full Voltage Adaptor | For use with even number of contacts. | Finger-Safe | TW-DA1FB |
| Transformer Unit (6V secondary voltage) | 120VAC 240VAC 480VAC | Finger-Safe | TW-F126B TW-F246B TW-F486B |
| DC-DC Converter | 110VDC | | HW-L16D |

ℹ 1. DC-DC convertor features spring-up terminals.
2. DC-DC convertor applicable voltage range 90-140V DC.

## Operators

| Style | Description | Plastic Bezel | Metal Bezel |
|---|---|---|---|
| | Maintained | HW1F-2 | HW4F-2 |
| | Spring return from right | HW1F-21 | HW4F-21 |

ℹ Illuminated knobs must be ordered separately.

## Contact Blocks

| Style | | Contacts | 1NO | 1NC |
|---|---|---|---|---|
| | | Finger-Safe Spring-Up Terminal | HW-U10-F HW-U10R-F (early make) | HW-U01-F HW-U01R-F (late break) |

## Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CBL |

ℹ 1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

## Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

## Illuminated Knob

| Appearance | Part Number |
|---|---|
| | HW9Z-FDY-②-K |

ℹ In place of ②, specify the Color Code.

## ② Lens Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Amber | A | Blue | S |
| Green | G | White | W |
| Red | R | Yellow | Y |

## Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

ℹ Use with notched panel cutout to prevent unit rotation.

## LED Lamps

| Style | Voltage | Part Number |
|---|---|---|
| LED | 6V AC/DC | LSRD-6 |
| | 12V AC/DC | LSRD-1 |
| | 24V AC/DC | LSRD-2 |
| | 120V AC/DC | LSRD-H2 |
| | 240V AC | LSRD-M4 |

ℹ 1. All LED lamps are white
2. The LED contains a current-limiting resistor and reverse polarity protection diodes.

## Illuminated Selector Switches 3-Position (Assembled)



### 3-Position Illuminated Selector Switches

| Style | | | | | | Part Number | | | |
|---|---|---|---|---|---|---|---|---|---|
| Contact | Mounting | Operator Position L | C | R | Type | | Maintained | Spring Return from Right | Spring Return from Left | Spring Return Two-Way |
| *Operator Only* | | | | | | | HW⑤F-3② | HW⑤F-31② | HW⑤F-32② | HW⑤F-33② |
| 1NO-1NC | 1 2 | 0 0 | X 0 | X X | Full Voltage | | HW⑤F-3F11QD-②-③ | HW⑤F-31F11QD-②-③ | HW⑤F-32F11QD-②-③ | HW⑤F-33F11QD-②-③ |
| | | | | | Transformer | 120V 240V 480V | HW⑤F-3F11H2D-② HW⑤F-3F11M4D-② HW⑤F-3F11T8D-② | HW⑤F-31F11H2D-② HW⑤F-31F11M4D-② HW⑤F-31F11T8D-② | HW⑤F-32F11H2D-② HW⑤F-32F11M4D-② HW⑤F-32F11T8D-② | HW⑤F-33F11H2D-② HW⑤F-33F11M4D-② HW⑤F-33F11T8D-② |
| 2NO | 1 2 | X 0 | 0 0 | 0 X | Full Voltage | | HW⑤F-3F20QD-②-③ | HW⑤F-31F20QD-②-③ | HW⑤F-32F20QD-②-③ | HW⑤F-33F20QD-②-③ |
| | | | | | Transformer | 120V 240V 480V | HW⑤F-3F20H2D-② HW⑤F-3F20M4D-② HW⑤F-3F20T8D-② | HW⑤F-31F20H2D-② HW⑤F-31F20M4D-② HW⑤F-31F20T8D-② | HW⑤F-32F20H2D-② HW⑤F-32F20M4D-② HW⑤F-32F20T8D-② | HW⑤F-33F20H2D-② HW⑤F-33F20M4D-② HW⑤F-33F20T8D-② |
| 2NC | 1 2 | 0 X | X X | X 0 | Full Voltage | | HW⑤F-3F02QD-②-③ | HW⑤F-31F02QD-②-③ | HW⑤F-32F02QD-②-③ | HW⑤F-33F02QD-②-③ |
| | | | | | Transformer | 120V 240V 480V | HW⑤F-3F02H2D-② HW⑤F-3F02M4D-② HW⑤F-3F02T8D-② | HW⑤F-31F02H2D-② HW⑤F-31F02M4D-② HW⑤F-31F02T8D-② | HW⑤F-32F02H2D-② HW⑤F-32F02M4D-② HW⑤F-32F02T8D-② | HW⑤F-33F02H2D-② HW⑤F-33F02M4D-② HW⑤F-33F02T8D-② |
| 2NO-2NC | 1 2 3 4 | X 0 0 X | 0 0 X X | 0 X X 0 | Full Voltage | | HW⑤F-3F22QD-②-③ | HW⑤F-31F22QD-②-③ | HW⑤F-32F22QD-②-③ | HW⑤F-33F22QD-②-③ |
| | | | | | Transformer | 120V 240V 480V | HW⑤F-3F22H2D-② HW⑤F-3F22M4D-② HW⑤F-3F22T8D-② | HW⑤F-31F22H2D-② HW⑤F-31F22M4D-② HW⑤F-31F22T8D-② | HW⑤F-32F22H2D-② HW⑤F-32F22M4D-② HW⑤F-32F22T8D-② | HW⑤F-33F22H2D-② HW⑤F-33F22M4D-② HW⑤F-33F22T8D-② |
| 4NO | 1 2 3 4 | X 0 X 0 | 0 0 0 0 | 0 X 0 X | Full Voltage | | HW⑤F-3F40QD-②-③ | HW⑤F-31F40QD-②-③ | HW⑤F-32F40QD-②-③ | HW⑤F-33F40QD-②-③ |
| | | | | | Transformer | 120V 240V 480V | HW⑤F-3F40H2D-② HW⑤F-3F40M4D-② HW⑤F-3F40T8D-② | HW⑤F-31F40H2D-② HW⑤F-31F40M4D-② HW⑤F-31F40T8D-② | HW⑤F-32F40H2D-② HW⑤F-32F40M4D-② HW⑤F-32F40T8D-② | HW⑤F-33F40H2D-② HW⑤F-33F40M4D-② HW⑤F-33F40T8D-② |
| 4NC | 1 2 3 4 | 0 X 0 X | X X X X | X 0 X 0 | Full Voltage | | HW⑤F-3F04QD-②-③ | HW⑤F-31F04QD-②-③ | HW⑤F-32F04QD-②-③ | HW⑤F-33F04QD-②-③ |
| | | | | | Transformer | 120V 240V 480V | HW⑤F-3F04H2D-② HW⑤F-3F04M4D-② HW⑤F-3F04T8D-② | HW⑤F-31F04H2D-② HW⑤F-31F04M4D-② HW⑤F-31F04T8D-② | HW⑤F-32F04H2D-② HW⑤F-32F04M4D-② HW⑤F-32F04T8D-② | HW⑤F-33F04H2D-② HW⑤F-33F04M4D-② HW⑤F-33F04T8D-② |

1. In place of ② specify Lens color code.
2. In place of ③ specify Full Voltage code.
3. In place of ⑤ enter 1 for plastic bezel or 4 for metal bezel.
4. For nameplates, see page 677.
5. For contact assembly part numbers, see page 682.
6. Light is independent of switch position.
7. All assembled part numbers in catalog include standard Finger-Safe spring-up (HW-U..) contacts.

8. **Yellow selector switch comes with white LED.**
9. Additional contact configurations available (up to 6 total contacts).
10. For Truth Tables see page 690.

#### ② Lens Color

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |
| Yellow | Y |

#### ③ Full Voltage Code

| Full Voltage Models | |
|---|---|
| Voltage | Code |
| 6VAC/DC | 6V |
| 12VAC/DC | 12V |
| 24VAC/DC | 24V |
| 120V AC/DC | 120V |
| 240V AC | 240V |

#### ⑤ Bezel Code

| Type | Code |
|---|---|
| Plastic | 1 |
| Metal | 4 |

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

**H W 1 F – 31 F 20 Q D – G – 24V**

**Bezel**
1: Plastic
4: Metal

**Position**
3: Maintained
31: Spring Return from Right
32: Spring Return from Left
33: Spring Return 2-Way

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

**Contact Arrangement**
11: 1NO-1NC   22: 2NO-2NC
20: 2NO       40: 4NO
02: 2NC       04: 4NC

**Illumination Circuit**
Q:  Full Voltage
H2: Transformer 120V AC
M4: Transformer 240V AC
T8: Tranformer 480V AC

**Lens Color**
A: Amber    S: Blue
G: Green    W: White
R: Red      Y: Yellow

**Full Voltage Code**
6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC/DC
240V: 240V AC

## Illuminated Selector Switches 3-Position (Replacement Parts)

Transformer* + Contact Blocks + Lead Holder + Mounting Adaptor + Safety Lever Lock + LED + Anti-Rotation Ring + Operator + Lens = Completed Unit

*Transformer not needed with full voltage models.

## Lamp Circuit Components

| Style | Description | Terminals | Part Number |
|---|---|---|---|
| Lead Holder | For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts. | | HW-LH3 |
| Dummy Block with Full Voltage Adaptor | For use with odd number of contacts. | Finger-Safe | HW-DA1FBN |
| Full Voltage Adaptor | For use with even number of contacts. | Finger-Safe | TW-DA1FB |
| Transformer Unit (6V secondary voltage) | 120VAC 240VAC 480VAC | Finger-Safe | TW-F126B TW-F246B TW-F486B |
| DC-DC Converter | 110VDC | | HW-L16D |

1. DC-DC convertor features spring-up terminals.
2. DC-DC convertor applicable voltage range 90-140V DC.

## Operators

| Style | Description | Plastic Bezel | Metal Bezel |
|---|---|---|---|
| | Maintained | HW1F-3 | HW4F-3 |
| | Spring return from right | HW1F-31 | HW4F-31 |
| | Spring return from left | HW1F-32 | HW4F-32 |
| | 2-Way spring return | HW1F-33 | HW4F-33 |

Illuminated knobs must be ordered separately.

## Contact Blocks

| Style | | Contacts | 1NO | 1NC |
|---|---|---|---|---|
| | | Finger-Safe Spring-Up Terminal | HW-U10-F HW-U10R-F (early make) | HW-U01-F HW-U01R-F (late break) |

## Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CBL |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

## Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

## Illuminated Knob

| Appearance | Part Number |
|---|---|
| | HW9Z-FDY-②-K |

In place of ②, specify the Color Code.

## ② Lens Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Amber | A | Blue | S |
| Green | G | White | W |
| Red | R | Yellow | Y |

## Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

## LED Lamps

| Style | Voltage | Part Number |
|---|---|---|
| LED | 6V AC/DC | LSRD-6 |
| | 12V AC/DC | LSRD-1 |
| | 24V AC/DC | LSRD-2 |
| | 120V AC/DC | LSRD-H2 |
| | 240V AC | LSRD-M4 |

1. All LED lamps are white
2. The LED contains a current-limiting resistor and reverse polarity protection diodes.

## Mono Lever Switches 2-Position (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

### 2-Position Mono Lever Switches

| Style | Part Number | Description |
|---|---|---|
| HW1M Standard Lever | HW1M-F1010-20 | Maintained up and down |
| | HW1M-F2020-20 | Spring return up and down |
| | HW1M-F1010-40 | Maintained up and down |
| | HW1M-F2020-40 | Spring return up and down |
| | HW1M-F0101-20 | Maintained right and left |
| | HW1M-F0202-20 | Spring return right and left |
| | HW1M-F0101-40 | Maintained right and left |
| | HW1M-F0202-40 | Spring return right and left |
| HW1M-L Interlocking Lever | HW1M-LF1010-20 | Maintained up and down |
| | HW1M-LF2020-20 | Spring return up and down |
| | HW1M-LF1010-40 | Maintained up and down |
| | HW1M-LF2020-40 | Spring return up and down |
| | HW1M-LF0101-20 | Maintained right and left |
| | HW1M-LF0202-20 | Spring return right and left |
| | HW1M-LF0101-40 | Maintained right and left |
| | HW1M-LF0202-40 | Spring return right and left |

ℹ All Assembled units with Finger-Safe spring-up (HW-U...) contacts

### Circuit Diagrams
### 2 Position Left/Right

| Circuit Number | Contact Mounting | | Position | | |
|---|---|---|---|---|---|
| | No. | | Left | Center | Right |
| 20 | 1 | HW-U10-F | X | 0 | 0 |
| | 2 | HW-U10-F | 0 | 0 | X |
| 40 | 1 | HW-U10-F | X | 0 | 0 |
| | 2 | HW-U10-F | 0 | 0 | X |
| | 3 | HW-U10-F | X | 0 | 0 |
| | 4 | HW-U10-F | 0 | 0 | X |

### 2 Position Up/Down

| Circuit Number | Contact Mounting | | Position | | |
|---|---|---|---|---|---|
| | No. | | Down | Center | Up |
| 20 | 1 | HW-U10-F | X | 0 | 0 |
| | 2 | HW-U10-F | 0 | 0 | X |
| 40 | 1 | HW-U10-F | X | 0 | 0 |
| | 2 | HW-U10-F | 0 | 0 | X |
| | 3 | HW-U10-F | X | 0 | 0 |
| | 4 | HW-U10-F | 0 | 0 | X |

## Part Number Structure
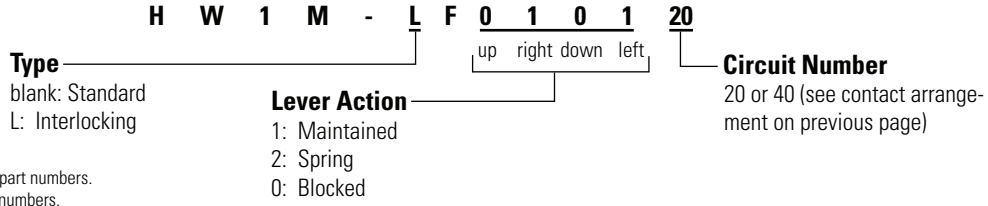
H W 1 M - L F 0 1 0 1 20

up right down left

**Type**
blank: Standard
L: Interlocking

**Lever Action**
1: Maintained
2: Spring
0: Blocked

**Circuit Number**
20 or 40 (see contact arrangement on previous page)

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Mono Lever Switches 2-Position (Sub-assembled) Part Numbers

Contact Assembly + Mounting Adaptor + Safety Lever Lock + Anti-Rotation Ring + Operator = Completed Unit

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| Finger-Safe Spring-Up Terminal | | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Description | Part Number |
|---|---|---|
| Standard | Maintained Up/Down | HW1M-1010 |
| | Spring return Up/Down | HW1M-2020 |
| | Maintained Left/Right | HW1M-0101 |
| | Spring return Left/Right | HW1M-0202 |
| Interlocking | Maintained Up/Down | HW1M-L1010 |
| | Spring return Up/Down | HW1M-L2020 |
| | Maintained Left/Right | HW1M-L0101 |
| | Spring return Left/Right | HW1M-L0202 |

### Replacement Parts

| Item | Part Number |
|---|---|
| Black Cap | HW9Z-CPM |
| Boot | HW9Z-BLM (fits standard operator only) |

## Mono Lever Switches 3- & 4-Position (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

### 3-Position

| Style | Part Number | Description |
|---|---|---|
| HW1M Standard Lever | HW1M-F0121-12N3 | Maintained right and left, spring return down |
| | HW1M-F0222-12N3 | Spring return right, down, left |
| HW1M-L Interlocking Lever | HW1M-LF0121-12N3 | Maintained right and left, spring return down |
| | HW1M-LF0222-12N3 | Spring return right, down, left |

#### Circuit Diagram

| Circuit Number | Contact Mounting | | Position | | | | |
|---|---|---|---|---|---|---|---|
| | No. | | Down | Left | Center | Up | Right |
| 12N3 | 1 | HW-U01-F | 0 | 0 | 0 | 0 | X |
| | 2 | HW-U01-F | X | 0 | 0 | 0 | 0 |
| | 3 | HW-U10-F | 0 | X | 0 | 0 | 0 |

### 4-Position

| Style | Part Number | Description |
|---|---|---|
| HW1M Standard Lever | HW1M-F1111-22N9 | Maintained all positions |
| | HW1M-F1212-22N9 | Maintained up and down, spring left and right |
| | HW1M-2121-22N9 | Spring up and down, maintained left and right |
| | HW1M-2222-22N9 | Spring return all positions |
| HW1M-L Interlocking Lever | HW1M-LF1111-22N9 | Maintained all positions |
| | HW1M-LF1212-22N9 | Maintained up and down, spring left and right |
| | HW1M-LF2121-22N9 | Spring up and down, maintained left and right |
| | HW1M-LF2222-22N9 | Spring return all positions |

#### Circuit Diagram

| Circuit Number | Contact Mounting | | Position | | | | |
|---|---|---|---|---|---|---|---|
| | No. | | Down | Left | Center | Up | Right |
| 22N9 | 1 | HW-U01-F | 0 | 0 | 0 | 0 | X |
| | 2 | HW-U01-F | X | 0 | 0 | 0 | 0 |
| | 3 | HW-U10-F | 0 | X | 0 | 0 | 0 |
| | 4 | HW-U10-F | 0 | 0 | 0 | X | 0 |

All assembled part numbers in catalog include Finger-Safe spring-up (HW-U...) contacts.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Part Number Structure

H W 1 M - L F 0 1 2 1 12N3

up right down left

**Type**
blank: Standard
L: Interlocking

**Lever Action**
1: Maintained
2: Spring
0: Blocked

**Circuit Number**
3 Position: 12N3
4 Position: 22N9
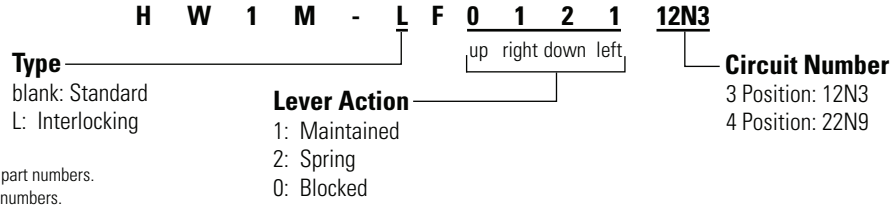
Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Mono Lever Switches 3 & 4-Position (Sub-assembled) Part Numbers

| Contact Assembly | + | Mounting Adaptor | + | Safety Lever Lock | + | Anti-Rotation Ring | + | Operator | = | Completed Unit |
|---|---|---|---|---|---|---|---|---|---|---|

### Contact Blocks

| Style | | Contacts | 1NO | 1NC |
|---|---|---|---|---|
| | | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Description | Part Number |
|---|---|---|
| Standard | Combination, 3 position | HW1M-0121 |
| | Spring return, 3 position | HW1M-0222 |
| | Maintained, 4 position | HW1M-1111 |
| | Combination, 4 position | HW1M-1212 |
| | Combination, 4 position | HW1M-2121 |
| | Spring return, 4 position | HW1M-2222 |
| Interlocking | Combination, 3 position | HW1M-L0121 |
| | Spring return, 3 position | HW1M-L0222 |
| | Maintained, 4 position | HW1M-L1111 |
| | Combination, 4 position | HW1M-L1212 |
| | Combination, 4 position | HW1M-L2121 |
| | Spring return, 4 position | HW1M-L2222 |

### Replacement Parts

| Item | Part Number |
|---|---|
| Black Cap | HW9Z-CPM |
| Boot | HW9Z-BLM (fits standard operator only) |

## Pushbutton Selectors (Assembled)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

### 2-Position Pushbutton Selectors

| Cam | Contacts | Mounting | | Left Normal | Left Push | Right Normal | Right Push | Part Number |
|-----|----------|----------|---|---|---|---|---|---|
| **A** | *Operator Only* | | | | | | | *HW1R-2A-①* |
| | 1NO-1NC | 1 | HW-U10-F | 0 | X | 0 | X | HW1R-2AF11-① |
| | | 2 | HW-U01-F | X | 0 | 0 | 0 | |
| | 2NO | 1 | HW-U10-F | 0 | X | 0 | X | HW1R-2AF20-① |
| | | 2 | HW-U10-F | 0 | X | X———X | | |
| | 2NO-2NC | 1 | HW-U10-F | 0 | X | 0 | X | HW1R-2AF22-① |
| | | 2 | HW-U01-F | X | 0 | 0 | 0 | |
| | | 3 | HW-U10-F | 0 | X | 0 | X | |
| | | 4 | HW-U01-F | X | 0 | 0 | 0 | |
| **D** | *Operator Only* | | | | | | | *HW1R-2D-①* |
| | 2NO | 1 | HW-U10-F | 0 | X | 0 | 0 | HW1R-2DF20-① |
| | | 2 | HW-U10-F | 0 | 0 | 0 | X | |
| | 2NO-2NC | 1 | HW-U10-F | 0 | X | 0 | 0 | HW1R-2DF22N1-① |
| | | 2 | HW-U10-F | 0 | 0 | 0 | X | |
| | | 3 | HW-U01-F | X | 0 | X———X | | |
| | | 4 | HW-U01-F | X———X | | X | 0 | |
| **E** | *Operator Only* | | | | | | | *HW1R-2E-①* |
| | 2NO-2NC | 1 | HW-U10-F | 0 | X | 0 | 0 | HW1R-2EF22N1-① |
| | | 2 | HW-U10-F | 0 | 0 | 0 | X | |
| | | 3 | HW-U01-F | 0 | 0 | X———X | | |
| | | 4 | HW-U01-F | X———X | | 0 | 0 | |
| **F** | *Operator Only* | | | | | | | *HW1R-2F-①* |
| | 2NO-2NC | 1 | HW-U10-F | 0 | 0 | 0 | X | HW1R-2FF22N1-① |
| | | 2 | HW-U10-F | 0 | X | 0 | 0 | |
| | | 3 | HW-U01-F | 0 | 0 | X | 0 | |
| | | 4 | HW-U01-F | X | 0 | 0 | 0 | |
| **N** | *Operator Only* | | | | | | | *HW1R-2N-①* |
| | 2NO-2NC | 1 | HW-U01-F | 0 | 0 | X | 0 | HW1R-2NF22N2-① |
| | | 2 | HW-U10-F | 0 | X | 0 | X | |
| | | 3 | HW-U01-F | 0 | 0 | X | 0 | |
| | | 4 | HW-U10-F | 0 | X | 0 | X | |
| **T** | *Operator Only* | | | | | | | *HW1R-2T-①* |
| | 2NO-2NC | 1 | HW-U10-F | 0 | X | X | Blocked | HW1R-2TF22N1-① |
| | | 2 | HW-U10-F | 0 | X | X | | |
| | | 3 | HW-U01-F | X | 0 | 0 | | |
| | | 4 | HW-U01-F | X | 0 | 0 | | |

1. All assembled part numbers in catalog include Finger-Safe spring-up (HW-U...) contacts.
2. Operator only models come with operator and button.

### ① Button Color Code

| Color | Code | Color | Code |
|-------|------|-------|------|
| Black | B | White | W |
| Green | G | Yellow | Y |
| Red | R | | |
| Blue | S | | |

**Switches & Pilot Devices** *(side tab)*

## Part Number Structure

**H W 1 R - 2 D F 22N1 – R**

**Operator**
A: Cam A
D: Cam D
E: Cam E
F: Cam F
N: Cam N
T: Cam T

**Contact Arrangement Code**
11: 1NO-1NC
20: 2NO
(For additional contact codes see previous page)

**Button Colors**
B: Black
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Pushbutton Selectors (Sub-assembled)

Contact Blocks + Mounting Adaptor + Safety Lever Lock + Anti-Rotation Ring + Operator + Button = Completed Unit

### Contact Blocks

| Style | Contacts | 1NO | 1NC |
|---|---|---|---|
| | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | Dummy Block | HW-DB | |

### Contact Block Mounting Adaptor
(safety lever lock included)

| Style | Part Number |
|---|---|
| | HW-CB2C |

1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

### Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

### Anti-Rotation Ring

| Style | Part Number |
|---|---|
| | HW9Z-RL |

Use with notched panel cutout to prevent unit rotation.

### Operators

| Style | Description | Part Number |
|---|---|---|
| | Cam A | HW1R-2A |
| | Cam D | HW1R-2D |
| | Cam E | HW1R-2E |
| | Cam F | HW1R-2F |
| | Cam N | HW1R-2N |
| | Cam T | HW1R-2T |

### Buttons

| Style | Part Number |
|---|---|
| Round Flush | HW1A-B1-① |

In place of ①, specify the Button Color Code from table below.

### ① Button Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Black | B | White | W |
| Green | G | Yellow | Y |
| Red | R | | |
| Blue | S | | |

# Switches & Pilot Devices

**ø22mm - HW Series**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Dual Pushbutton Switches

**Key features:**

- Two pushbuttons and a pilot light are integrated into one space-saving ø22 mm control unit.
- Momentary and interlock types are available for pushbuttons. Interlock type prevents both buttons from being pressed at the same time.
- Pilot lights are available in full voltage and transformer with LED.
- IP40 protection, IP65 when using silicon boot.

**Applications:**

- 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.

### Dual Pushbutton Switches (Assembled) Part Numbers

**Without Center Pilot Light**

| Operation Type | Button Style | | Contact Arrangement | | Part Number | ④Button Color Code | ⑤Legend Code |
|---|---|---|---|---|---|---|---|
| | | | Top Button | Bottom Button | | | |
| Momentary | Flush (top) Flush (bottom) | | 1NO | 1NC | HW7D-B11F1001-④⑤ | | |
| | | | 1NO | 1NO | HW7D-B11F1010-④⑤ | | |
| | | | 1NO-1NC | 1NO-1NC | HW7D-B11F1111-④⑤ | | |
| | | | 2NO | 2NC | HW7D-B11F2002-④⑤ | | |
| | | | 2NO | 2NO | HW7D-B11F2020-④⑤ | | |
| | Flush (top) Extended (bottom) | | 1NO | 1NC | HW7D-B12F1001-④⑤ | GR: Green (top) Red (bottom) | Blank: Without legend |
| | | | 1NO | 1NO | HW7D-B12F1010-④⑤ | | |
| | | | 1NO-1NC | 1NO-1NC | HW7D-B12F1111-④⑤ | | |
| | | | 2NO | 2NC | HW7D-B12F2002-④⑤ | | 1: I/ON (top) O/OFF (bottom) |
| | | | 2NO | 2NO | HW7D-B12F2020-④⑤ | | |
| Interlock* | Flush (top) Flush (bottom) | | 1NO | 1NC | HW7D-B21F1001-④⑤ | WB: White (top) Black (bottom) | |
| | | | 1NO | 1NO | HW7D-B21F1010-④⑤ | | |
| | | | 1NO-1NC | 1NO-1NC | HW7D-B21F1111-④⑤ | | |
| | | | 2NO | 2NC | HW7D-B21F2002-④⑤ | | |
| | | | 2NO | 2NO | HW7D-B21F2020-④⑤ | | |
| | Flush (top) Extended (bottom) | | 1NO | 1NC | HW7D-B22F1001-④⑤ | | |
| | | | 1NO | 1NO | HW7D-B22F1010-④⑤ | | |
| | | | 1NO-1NC | 1NO-1NC | HW7D-B22F1111-④⑤ | | |
| | | | 2NO | 2NC | HW7D-B22F2002-④⑤ | | |
| | | | 2NO | 2NO | HW7D-B22F2020-④⑤ | | |

1. *Interlock type prevents both top and bottom buttons from being pressed simultaneously.
2. Clear silicon rubber cover part number HW9Z-D7D.
3. Additional contact configurations available (up to 6 total contacts).

## With Center Pilot Light

| Operation Type | Button Style | | Top Button | Bottom Button | Part Number |
|---|---|---|---|---|---|
| Momentary | Flush (Top) Flush (Bottom) | Flush (top) Flush (bottom) | 1NO | 1NC | HW7D-L11F1001②③-④⑤ |
| | | | 1NO | 1NO | HW7D-L11F1010②③-④⑤ |
| | | | 1NO-1NC | 1NO-1NC | HW7D-L11F1111②③-④⑤ |
| | | | 2NO | 2NC | HW7D-L11F2002②③-④⑤ |
| | | | 2NO | 2NO | HW7D-L11F2020②③-④⑤ |
| | Flush (Top) Extended (Bottom) | | 1NO | 1NC | HW7D-L12F1001②③-④⑤ |
| | | | 1NO | 1NO | HW7D-L12F1010②③-④⑤ |
| | | | 1NO-1NC | 1NO-1NC | HW7D-L12F1111②③-④⑤ |
| | | | 2NO | 2NC | HW7D-L12F2002②③-④⑤ |
| | | | 2NO | 2NO | HW7D-L12F2020②③-④⑤ |
| Interlock* | Flush (Top) Flush (Bottom) | Flush (top) Extended (bottom) | 1NO | 1NC | HW7D-L21F1001②③-④⑤ |
| | | | 1NO | 1NO | HW7D-L21F1010②③-④⑤ |
| | | | 1NO-1NC | 1NO-1NC | HW7D-L21F1111②③-④⑤ |
| | | | 2NO | 2NC | HW7D-L21F2002②③-④⑤ |
| | | | 2NO | 2NO | HW7D-L21F2020②③-④⑤ |
| | Flush (Top) Extended (Bottom) | | 1NO | 1NC | HW7D-L22F1001②③-④⑤ |
| | | | 1NO | 1NO | HW7D-L22F1010②③-④⑤ |
| | | | 1NO-1NC | 1NO-1NC | HW7D-L22F1111②③-④⑤ |
| | | | 2NO | 2NC | HW7D-L22F2002②③-④⑤ |
| | | | 2NO | 2NO | HW7D-L22F2020②③-④⑤ |

1. *Interlock type prevents both top and bottom buttons from being pressed simultaneously.
2. Clear silicon rubber cover part number HW9Z-D7D.
3. All assembled part numbers in catalog include Finger-Safe spring-up (HW-U...) contacts.

### ② Pilot Light Illumination & Voltage Code

| Full Voltage | |
|---|---|
| **Voltage** | **Code** |
| 6V AC/DC, LED | Q2 |
| 12V AC/DC, LED | Q3 |
| 24V AC/DC, LED | Q4 |
| 120V AC, LED | Q8 |

| Step-Down Transformer (6V Secondary LED Voltage) | |
|---|---|
| **Voltage** | **Code** |
| 120V AC, LED | H22 |
| 240V AC, LED | M42 |
| 480V AC, LED | T82 |

### ③ Pilot Lamp Color Code

| Color | Code |
|---|---|
| Amber | A |
| Green | G |
| Red | R |
| Blue | S |
| White | W |

### ④ Pushbutton Color Code

| Color | | Code |
|---|---|---|
| Top | Green | GR |
| Bottom | Red | |
| Top | White | WB |
| Bottom | Black | |

### ⑤ Engraving Codes

| Engraving | | Code |
|---|---|---|
| No Engraving | | Blank |
| I/ON | Top | 1 |
| O/OFF | Bottom | |

## Part Number Structure

**H W 7 D – L 21 F 20 20 H22 R – GR 1**

**Pilot Light**
B: Without Center Pilot Light
L: With Center Pilot Light

**Button Arrangement**
11: Momentary (Flush/Flush)
12: Momentary (Flush/Extended)
21: Interlock (Flush/Flush)
22: Interlock (Flush/Extended)

**Contact Arrangement**

**Top Button**
01: 1NC       02: 2NC
10: 1NO       20: 2NO

**Bottom Button**
01: 1NC       02: 2NC
10: 1NO       20: 2NO

**Voltage Code**
blank: without center pilot light

**Full Voltage***          **Transformer***
Q2: 6V LED                 H22: 120V AC LED

*For additional voltage codes, please see previous page

**Pilot Lamp Color**
A: Amber      Y: Yellow
G: Green      blank: with-
R: Red        out center
S: Blue       pilot light
W: White

**Engraving Code**
blank: No Engraving
1: Top: I/ON
   Bottom: O/OFF

**Pushbutton Color**
GR:   Top: Green
      Bottom: Red
WB:   Top: White
      Bottom: Black

ℹ️ Note: Use only for interpreting part numbers.
Do not use for developing part numbers.

## Dual Pushbutton Switches (Sub-assembled) Part Numbers

Contact Blocks + Mounting Adaptor + Safety Lever Lock + Operator + Lens = Completed Unit
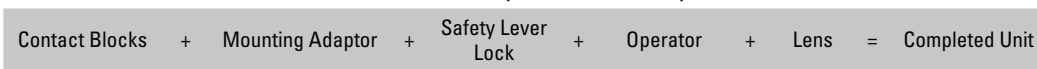
## Lamp Circuit Components with Finger-Safe Terminals

| Style | | Description | Part Number |
|---|---|---|---|
| Lead Holder | | For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts. | HW-LH3 |
| Dummy Block with Full Voltage Adaptor | | For use with odd number of contacts. | HW-DA1FBN |
| Full Voltage Adaptor | | For use with even number of contacts. | TW-DA1FB |
| Transformer Unit (6V secondary voltage) | | 120VAC 240VAC 480VAC | TW-F126B TW-F246B TW-F486B |

## Contact Blocks

| Style | | Contacts | 1NO | 1NC |
|---|---|---|---|---|
| | | Finger-Safe Spring-Up Terminal | HW-U10-F | HW-U01-F |
| | | | HW-U10R-F (early make) | HW-U01R-F (late break) |
| | | Dummy Block | HW-DB | |

## Contact Block Mounting Adaptor

| Style | | Part Number |
|---|---|---|
| | Non-illuminated | HW-CB2C |
| | Illuminated (with Pilot Light) | HW-CBL |

ℹ️ 1. Used to mount contact blocks to operator (first pair only).
2. SOCOJE strongly recommends using the safety lever lock (included) to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

## Safety Lever Lock

| Style | Part Number |
|---|---|
| | HW9Z-LS |

## Anti-Rotation Ring

| Appearance | Part Number |
|---|---|
| | HW9Z-RL |

ℹ️ Use with notched panel cutout to prevent unit rotation.

## ⑤Engraving Codes

| Engraving | | Code |
|---|---|---|
| No Engraving | | Blank |
| I/ON | Top | 1 |
| O/OFF | Bottom | |

## Lamps/Lens

| Style | | Voltage | Part Number |
|---|---|---|---|
| | LED | 6V AC/DC | LSTD-6② |
| | | 12V AC/DC | LSTD-1② |
| | | 24V AC/DC | LSTD-2② |
| | | 120V AC | LSTD-H2② |
| | | 240V AC | LSTD-M4② |
| Non-illuminated | | | HW9Z-B7B |
| Illuminated | | | HW9Z-L7W |

ℹ️ 1. In place of ②, specify the LED Color Code.
2. The LED contains a current-limiting resistor and reverse polarity protection diodes.

## ②LED Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Amber | A | Blue | S |
| Green | G | White | W |
| Red | R | | |

## Operators

| Style | | Button | Part Number |
|---|---|---|---|
| Momentary | | Flush (top) | HW7D-*11④-⑤ |
| | | Flush (bottom) | |
| | | Flush (top) | HW7D-*12④-⑤ |
| | | Extended (bottom) | |
| Interlock | | Flush (top) | HW7D-*21④-⑤ |
| | | Flush (bottom) | |
| | | Flush (top) | HW7D-*22④-⑤ |
| | | Extended (bottom) | |

ℹ️ Instead of * insert:
B: Non-illuminated
L: Illuminated

## ④Pushbutton Color Code

| Color | | Code | Color | | Code |
|---|---|---|---|---|---|
| Top | Green | GR | Top | White | WB |
| Bottom | Red | | Bottom | Black | |

## Contact Arrangement Chart

| Contact Arrangement | | | Contact Block | | Top Button | | Bottom Button | |
|---|---|---|---|---|---|---|---|---|
| Top Button | Bottom Button | Contact Code | Mounting Position | Type | Normal | Push | Normal | Push |
| 1NO | 1NO | 1010 | 1 | NO | | X | | |
| | | | 2 | NO | | | | X |
| 1NO | 1NC | 1001 | 1 | NO | | X | | |
| | | | 2 | NC | | | X | |
| 1NC | 1NO | 0110 | 1 | NC | X | | | |
| | | | 2 | NO | | | | X |
| 1NC | 1NC | 0101 | 1 | NC | X | | | |
| | | | 2 | NC | | | X | |
| 1NO | 2NO | 1020 | 1 | NO | | X | | |
| | | | 2 | NO | | | | X |
| | | | 3 | Dummy | | | | |
| | | | 4 | NO | | | | X |
| 1NO | 1NO-1NC | 1011 | 1 | NO | | X | | |
| | | | 2 | NO | | | | X |
| | | | 3 | Dummy | | | | |
| | | | 4 | NC | | | X | |
| 1NO | 2NC | 1002 | 1 | NO | | X | | |
| | | | 2 | NC | | | X | |
| | | | 3 | Dummy | | | | |
| | | | 4 | NC | | | X | |
| 1NC | 2NO | 0120 | 1 | NC | X | | | |
| | | | 2 | NO | | | | X |
| | | | 3 | Dummy | | | | |
| | | | 4 | NO | | | | X |
| 1NC | 1NO-1NC | 0111 | 1 | NC | X | | | |
| | | | 2 | NO | | | | X |
| | | | 3 | Dummy | | | | |
| | | | 4 | NC | | | X | |
| 1NC | 2NC | 0102 | 1 | NC | X | | | |
| | | | 2 | NC | | | X | |
| | | | 3 | Dummy | | | | |
| | | | 4 | NC | | | X | |
| 2NO | 1NO | 2010 | 1 | NO | | X | | |
| | | | 2 | NO | | | | X |
| | | | 3 | NO | | X | | |
| | | | 4 | Dummy | | | | |
| 2NO | 1NC | 2001 | 1 | NO | | X | | |
| | | | 2 | NC | | | X | |
| | | | 3 | NO | | X | | |
| | | | 4 | Dummy | | | | |
| 1NO-1NC | 1NO | 1110 | 1 | NO | | X | | |
| | | | 2 | NO | | | | X |
| | | | 3 | NC | X | | | |
| | | | 4 | Dummy | | | | |
| 1NO-1NC | 1NC | 1101 | 1 | NO | | X | | |
| | | | 2 | NC | | | X | |
| | | | 3 | NC | X | | | |
| | | | 4 | Dummy | | | | |

## Contact Block Mounting Position Example

Mounting Position 4
Mounting Position 2
Mounting Position 3
Mounting Position 1
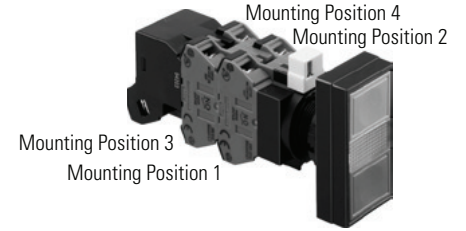
1. Transformers can have two or four contact blocks only.
2. Contact blocks 1 and 3 are actuated by the top button. Contact blocks 2 and 4 are actuated by the bottom button.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Contact Arrangement Chart (con't)

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

## Contact Block Mounting Position Example

Mounting Position 4
Mounting Position 2

Mounting Position 3
Mounting Position 1

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
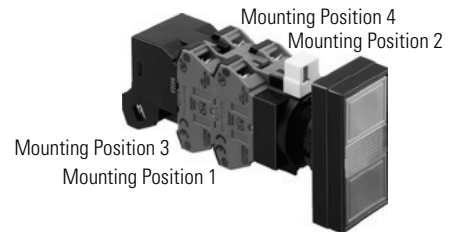
## Contactor Reset Button

### Reset Buttons (Assembled)

|  | Plastic Bezel | Metal Bezel |
|---|---|---|
| (Blank) | HW1B-M1RS-①T | HW4B-M1RS-①T |
| Engraved "R" | HW1B-M1RS-①T-ENG-R | HW4B-M1RS-①T-ENG-R |

ℹ️ 1. In place of ① specify Button Color Code.
2. 130mm (5.1") overall length.
3. 16mm flat base for easy alignment

### ① Button Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Black | B | White | W |
| Green | G | Yellow | Y |
| Red | R |  |  |
| Blue | S |  |  |

### Contactor Reset Button (Sub-assembled)

| Rod | + | Operator | + | Button | = | Completed Unit |
|---|---|---|---|---|---|---|
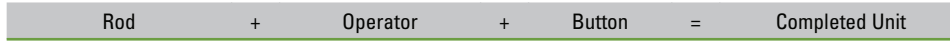
### Rod

| Style | Part Number |
|---|---|
|  | HW9Z-RS-TK2141 |

### Operator

| Style | Plastic | Metal |
|---|---|---|
|  | HW1B-M0 | HW4B-M0 |

### Button

| Style | Part Number |
|---|---|
|  | HW1A-B1-① |

ℹ️ In place of ①, specify the Button Color Code from table.

### ① Button Color Code

| Color | Code | Color | Code |
|---|---|---|---|
| Black | B | White | W |
| Green | G | Yellow | Y |
| Red | R |  |  |
| Blue | S |  |  |

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Nameplates - HW Series

| | HWAM–Black Plastic | HWAQ–Black Plastic | HWAS–Black Plastic | HWAV–Yellow Plastic |
|---|---|---|---|---|
| | | | | |
| Nameplate (blank engraving plate included) | HWAM-0B | HWAQ-0B | HWAS-0B | HWAV-0-Y HWAV5-0† |
| Nameplate (engraved) | HWAM-① | HWAQ-① | HWAS-① | HWAV-27-Y* HWAV5-27† |
| Additional Insert (blank) | HWNP-0 | HWNP-0 | HWNP Dimensions | |
| Additional Insert (engraved) | HWNP-① | HWNP-① | | |

1. In place of ①, insert either the standard legend code from table below or custom engraving delimited by " ".
2. Standard engravings are available at no charge.
3. * HWAV-27-Y comes engraved "Emergency Stop" as shown in drawing.
4. † HWAV5-27 and HWAV5-0 for 60mm diameter E-Stops (80mm diameter nameplate).

### Standard Legend Codes

| Pushbuttons | | | | Pushbuttons/Selector Switches | | | | Selector Switches | |
|---|---|---|---|---|---|---|---|---|---|
| Legend | Code | Legend | Code | Legend | Code | Legend | Code | Legend | Code |
| AUTO | 101 | OPEN | 116 | AUTO-MAN | 201 | REV-FOR | 216 | AUTO-MAN-OFF | 301 |
| CLOSE | 102 | OUT | 117 | CLOSE-OPEN | 202 | RUN-JOG | 217 | AUTO-OFF-MAN | 302 |
| DOWN | 103 | RAISE | 118 | DOWN-UP | 203 | RUN-SAFE | 218 | CLOSE-OFF-OPEN | 303 |
| EMERG.STOP | 104 | RESET | 119 | FAST-SLOW | 204 | SAFE-RUN | 219 | DOWN-OFF-SLOW | 304 |
| FAST | 105 | REVERSE | 120 | FOR-REV | 205 | SLOW-FAST | 220 | FAST-OFF-SLOW | 305 |
| FORWARD | 106 | RUN | 121 | HAND-AUTO | 206 | START-STOP | 221 | FOR-OFF-REV | 306 |
| HAND | 107 | SLOW | 122 | HIGH-LOW | 207 | STOP-START | 222 | LEFT-OFF-RIGHT | 307 |
| HIGH | 108 | START | 123 | JOG-RUN | 208 | UP-DOWN | 223 | LOWER-OFF-RAISE | 308 |
| IN | 109 | STOP | 125 | LEFT-RIGHT | 209 | OI (Int'l OFF ON) | 250 | OFF-MAN-AUTO | 309 |
| INCH | 110 | TEST | 126 | LOWER-RAISE | 210 | | | OFF-SLOW-FAST | 310 |
| JOG | 111 | UP | 127 | MAN-AUTO | 211 | | | OFF-1-2 | 311 |
| LOW | 112 | I (Int'l On) | 150 | OFF-ON | 212 | | | OPEN-OFF-CLOSE | 312 |
| LOWER | 113 | O (Int'l Off) | 151 | ON-OFF | 213 | | | SLOW-OFF-FAST | 313 |
| OFF | 114 | EMO | 152 | OPEN-CLOSE | 214 | | | SUMMER-OFF-WINTER | 314 |
| ON | 115 | | | RAISE-LOWER | 215 | | | UP-OFF-DOWN | 315 |
| | | | | | | | | 1-OFF-2 | 316 |
| | | | | | | | | HAND-OFF-AUTO | 317 |

1. To order engraved nameplates, add legend code to nameplate part number.
2. Character height based on the number of characters and size of nameplate. Standard character size is 3/16".
3. Nameplates with standard legends are the same list price as blank nameplates.
4. Nameplates have built-in anti-rotation feature for use with notched panel cut-outs. Additional anti-rotation ring (HW9Z-RL) is not necessary.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

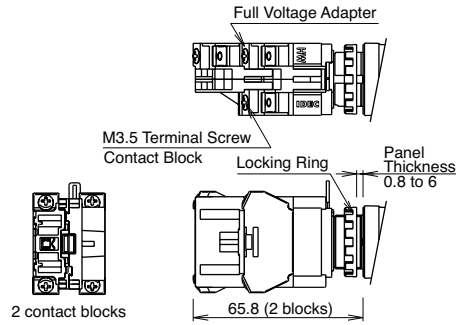## Nameplates Order Form — HW Series
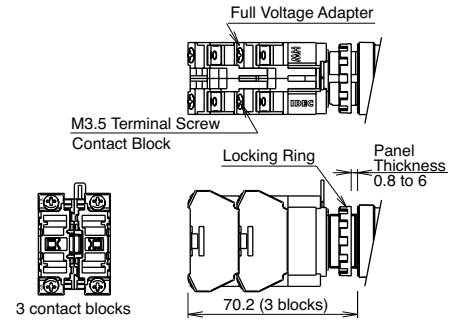
Copy this order form and use it to specify Letter Height, Custom Engravings, Location of Engraving on Nameplate, and Quantity Desired.
To ensure engraving accuracy, fax it to your SOCOJE representative or Distributor.

Your Company: _____      SOCOJE Rep/Distributor Contact: _____

Name: _____      PO number (if known): _____

Telephone: _____      SOCOJE Rep/Distributor Phone: _____

Fax & Email: _____      SOCOJE Rep/Distributor Fax & _____

Email: _____

### HWAM Nameplate
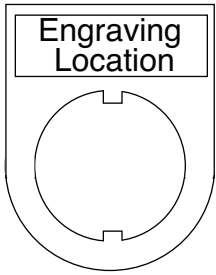
Engraving Location

**Step 1.**
**Choose Letter Size - 7/64" or 1/8".**
Check the box for the letter size you want. Then write your lettering in box below the check boxes. Note: 1/8" size letters cannot exceed 9 characters.

**7/64"** Letter Size ☐   11 characters maximum (for 7/64" size letters)

**1/8"** Letter Size ☐   9 characters maximum (for 7/8" size letters)

**Step 2.**
**Specify Quantity.**
Enter the number of nameplates desired in the box on the right.   Qty

1  2  3  4  5  6  7  8  9  10  11

Sample Letter Sizes
7/64" Letters:  A B C D
1/8" Letters: A B C D

### HWAQ Nameplate
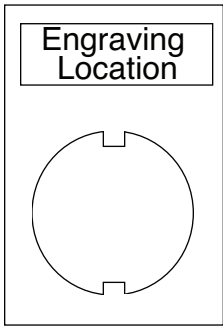
Engraving Location

**Step 1.**
**Choose Letter Size - 7/64" or 1/8".**
Check the box for the letter size you want. Then write your lettering in box below the check boxes. Note: 1/8" size letters cannot exceed 9 characters.

**7/64"** Letter Size ☐   11 characters maximum (for 7/64" size letters)

**1/8"** Letter Size ☐   9 characters maximum (for 1/8" size letters)

**Step 2.**
**Specify Quantity.**
Enter the number of nameplates desired in the box on the right.   Qty

1  2  3  4  5  6  7  8  9  10  11

Sample Letter Sizes
7/64" Letters:  A B C D
1/8" Letters: A B C D

### HWAS Nameplate

Engraving Location **A**

Engraving Location **B**
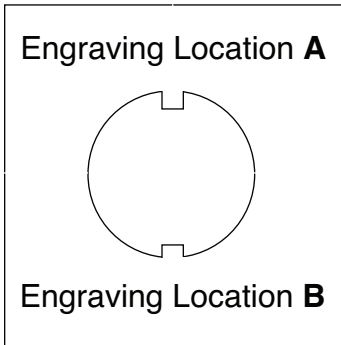
**Step 1.**
**Choose Letter Size - 3/32" or 1/8".**
Check the box for the letter size you want. Then write your lettering in box below the check boxes. Note: 1/8" size letters cannot exceed 14 characters.

**3/32"** Letter Size ☐   20 characters maximum (for 3/32" size letters)

**1/8"** Letter Size ☐   14 characters maximum (for 1/8" size letters)

**Step 2.**
**Specify Quantity.**
Enter the number of nameplates desired in the box on the right.   Qty

**Step 3.**
**Specify Location.**
Enter the location of engraving (A or B or Both), in box on the right.   Location

A  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20

B  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20

Sample Letter Sizes
3/32" Letters:  A B C D
1/8" Letters: A B C D

# Switches & Pilot Devices

**ø22mm - HW Series**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Switch Engraving Order Form – HW Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.

To ensure engraving accuracy, fax it to your SOCOJE representative or Distributor.

Your Company: _____

Name: _____

Address: _____

PO: _____

Telephone: _____

Fax: _____

Email: _____

Part Number to be Engraved: _____

Please check one of the boxes below to indicate your choice of engraving options:

**Square Switch**
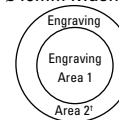
| | # of Lines | Letter Height | Max. Characters Per Line |
|---|---|---|---|
| ☐ | 1 | 5/32 | 5 |
| ☐ | | 1/8 | 6 |
| ☐ | 2 | 5/32 | 5 |
| ☐ | | 1/8 | 6 |
| ☐ | 3 | 1/8 | 6 |
| ☐ | 4 | 3/32 | 5 |

**Round Switch**

| | # of Lines | Letter Height | Max. Characters Per Line |
|---|---|---|---|
| ☐ | 1 | 5/32 | 5 |
| ☐ | | 1/8 | 5 |
| ☐ | 2 | 5/32 | 5 |
| ☐ | | 1/8 | 6 |
| ☐ | 3 | 1/8 | 5 |
| ☐ | 4 | 3/32 | 5 |

**ø29mm, ø40mm Mushroom Head**

Engraving
Engraving Area 1
Area 2†

| | | # of Lines | Letter Height | Max. Characters Per Line |
|---|---|---|---|---|
| ☐ | Engraving Area 1 | 1 | 5/32 | 5 |
| ☐ | | | 1/8 | 5 |
| ☐ | Engraving Area 2 | 1 | 5/32 | 7 |
| ☐ | | | 1/8 | 7 |

1. Above mentioned specifications hold true for standard size pushbuttons (round and square).
2. †Engraving Area 2 can be engraved for 40mm mushroom Head non-Illuminated push button only.
3. Engraving is done on the button itself for non-Illuminated push buttons and on marking plate for illuminated push buttons and pilot lights.
4. Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

Enter text to be engraved:

Line 1: _____

Line 2: _____

Line 3: _____

Line 4: _____

**Sample Letter Sizes**

1/8 Letters: OPEN

5/32 Letters: OPEN
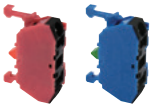
For SOCOJE Internal Use Only:

Work Order #: _____

# Switches & Pilot Devices

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Accessories

| Item | Appearance | Description/Usage | Part Number | |
|---|---|---|---|---|
| Locking Ring Wrench | | Metallic tool used to tighten the plastic locking ring when installing the HW series in a panel | MW9Z-T1 | |
| Lamp/LED Removal Tool | | Rubber tool makes lamp/LED removal easier. | OR-55 | |
| Anti-Rotation Ring | | Prevents rotation of switches in panel. (included with all assembled switches except pilot lights) | for notched panel cutout (standard) | HW9Z-RL |
| | | | for round panel cutout | LW9Z-L |
| Rubber Mounting Hole Plug | | Black rubber plug fills unused 7/8" mounting holes in panel. | OB-31 | |
| Metallic Mounting Hole Plug | | For plugging unused 7/8" mounting holes in the panel. Tighten the attached locking ring to a torque of 12 kfg-cm maximum. Degree of protection: IP66 | LW9Z-BM | |
| Pushbutton Clear Boot | | Used to cover and protect pushbuttons. Operating temperature: –50 to +60°C | Flush Pushbuttons | OC-31 |
| | | | Extended Pushbuttons | OC-32 |
| Padlock Cover | | Plastic hinged padlockable cover to protect pushbuttons or selector switches. (Not intended for E-Stops) Degree of protection: IP65 | HW9Z-KL1 | |
| Tab Terminal Adapter | | Tab #250 (6.35 x 0.8mm): Single tab | TW-FA4 | |
| Mounting Adaptor | | Used to mount round HW series (except Jumbo Mushroom, unibody, and square units) into a larger panel cut-out. (includes both pieces) | 22 to 30mm | HW9Z-A30 |
| | | | 22 to 25mm | HW9Z-A25 |
| Replacement Safety Lever Lock | | Used to prevent contact mounting lever from moving due to heavy vibration or panel maintenance. | HW9Z-LS | |
| Reset Rod for Contactors Overload | | 5" rod used with HW1B-M0. | HW9Z-RS-TK2141 | |
| Replacement Operator Washer | | Provided with operator. Insert between bezel and locking ring. | HWM-WASHER | |
| Replacement Locking Ring | | Plastic locking nut comes with all HW operators & assemblies. | Standard (plastic) | HW9Z-LN |
| | | | Optional (metal) | HW9Z-LNM |
| Switch Cover (Square) | | Used only with round or square flush pushbuttons. | HW9Z-K1 (spring return) HW9Z-K11 (maintained cover) | |
| Replacement Keys | | Pair of Keys (#231) | HW9Z-SKP | |
| Replacement Lens | | HW Illuminated Unibody Replacement Lens | HWLV-LENSR | |

| Item | Appearance | Description/Usage | Part Number | |
|------|-----------|------------------|-------------|---|
| Replacement Jumbo Dome Lens | | Polycarbonate Replacement Lens (If using yellow lens, use white LED.) | HW1A-P5① ① = (A, G, R, S, W, Y)) | |
| Replacement Jumbo LED Diffusing Lens | | | HW9Z-PP5C | |
| Replacement LED Lamps for HW Jumbo Dome | | Replacement LED Lamp - applicable for jumbo pilot lights only | LSTDB-2① ① = (A, G, R, S, W) | |
| Rubber Cover for Dual Pushbuttons | | Clear Silicon rubber cover | HW9Z-D7D | |
| Barrier for Dual Pushbuttons | | Plastic barrier. Used when mounting the HW7 units on 30mm horizontal centers, to prevent possible interconnections between adjoining terminals. | HW-VU1 | |
| EMO Sticker | **EMO** | Emergency stop nameplate sticker | HW9Z-EMO-NP-TK2120 | |

| Item | Appearance | Description/Usage | 1NC | 1NO |
|------|-----------|------------------|-----|-----|
| Contact Blocks (with side entry) | | These contacts are applicable for wires terminated by ring, fork, terminals, **not recommended for bare wire connections**. | HW-U01 HW-U01-MAU HW-U01R HW-U01R-MAU (with side entry) | HW-U10 HW-U10-MAU HW-U10R HW-U10R-MAU (with side entry) |
| Contact Blocks (without side entry) | | These contacts are applicable for wires terminated by ring, fork, or ferule terminals, and **also bare wire connections**. | HW-U01-F HW-U01-MAU-F HW-U01R-F HW-U01R-MAU-F (no side entry) | HW-U10-F HW-U10-MAU-F HW-U10R-F HW-U10R-MAU-F (no side entry) |

## E-Stop Shrouds

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

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

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

# Switches & Pilot Devices

## Contact Assemblies

### Standard Contact Assemblies
For use with Non-Illuminated Pushbuttons & E-Stops

| Style | Contacts | Part Number |
|---|---|---|
| Standard Finger-Safe Contacts | 1NO | HW-CBF10 |
| | 1NC | HW-CBF01 |
| | 1NO/1NC | HW-CBF11 |
| | 2NO | HW-CBF20 |
| | 2NC | HW-CBF02 |
| | 2NO/2NC | HW-CBF22 |

ℹ️ Gold contact option is available. Add suffix "MAU" to end of part number. For example, HW-CBF20 becomes HW-CBF20-MAU.

### Full Voltage Contact Assemblies
For use with Illuminated Pushbuttons.

| Style | Contacts | Part Number |
|---|---|---|
| | 1NO | HW-FL10Q0 |
| | 2NO | HW-FL20Q0 |
| | 1NO/1NC | HW-FL11Q0 |
| | 1NC | HW-FL01Q0 |
| | 2NC | HW-FL02Q0 |

ℹ️ Order LED separately.

### Transfomer Contact Assemblies
For use with Illuminated Pushbuttons.

| Style | | Contacts | Part Number |
|---|---|---|---|
| | 120V AC with LED | 1NO | HW-FL10H2-② |
| | | 2NO | HW-FL20H2-② |
| | | 1NC | HW-FL01H2-② |
| | | 1NO/1NC | HW-FL11H2-② |
| | 240V AC with LED | 1NO | HW-FL10M4-② |
| | | 2NO | HW-FL20M4-② |
| | | 1NC | HW-FL01M4-② |
| | | 1NO/1NC | HW-FL11M4-② |
| | 480V AC with LED | 1NO | HW-FL10T8-② |
| | | 2NO | HW-FL20T8-② |
| | | 1NC | HW-FL01T8-② |
| | | 1NO/1NC | HW-FL11T8-② |

ℹ️ 1. In place of ②, specify the LED Color Code.
② = A, G, R, S, or W
2. 6V LED included.

## Dimensions (mm)

### Non-Illuminated Pushbuttons

Flush (HW1B-M1, -A1)
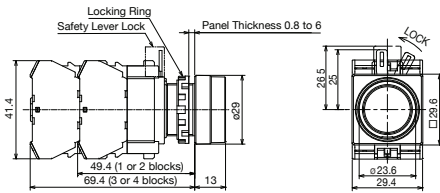


Extended (HW1B-M2, -A2)
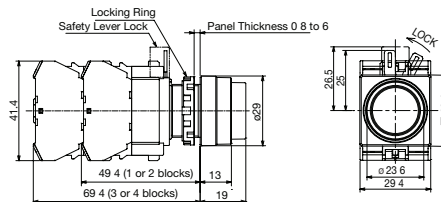


ø29mm Mushroom (HW1B-M3 -A3)
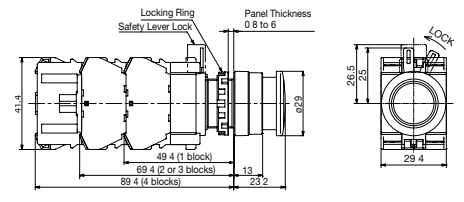


ø40mm Mushroom (HW1B-M4, -A4)
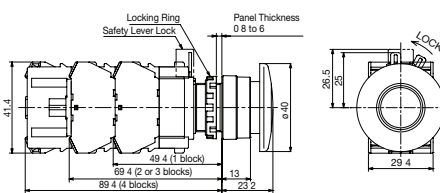


ø60mm Mushroom (HW1B-M5)
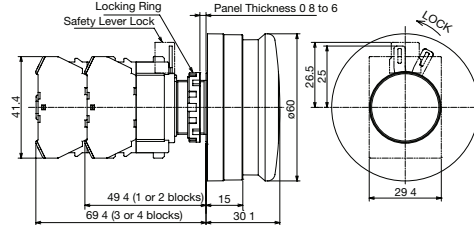


Square Flush (HW2B-M1, -A1)
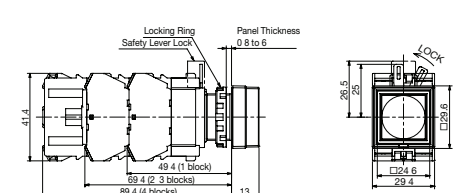
Square Extended (HW2B-M2, -A2)
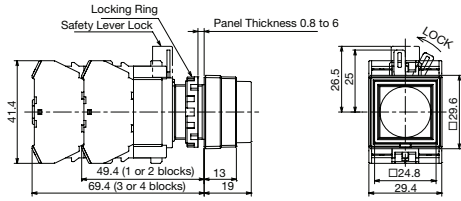
Contact Block (Bottom View)

Terminal Wiring

Arrows indicate access directions for wiring

Dimensions (mm)

1 contact block

2 contact blocks
4 contact blocks
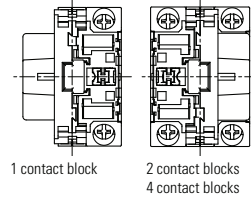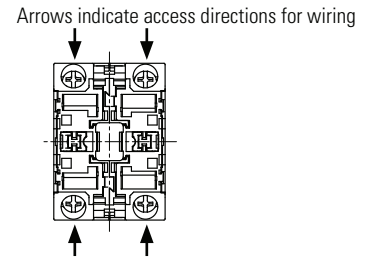
**Operators**

Flush (Round & Square)

Extended

Round    Square
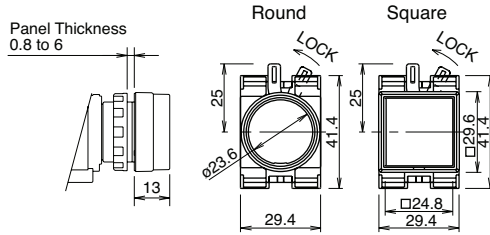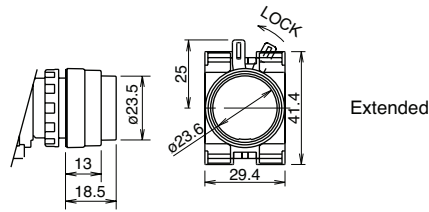
Extended

Extended with Full Shroud
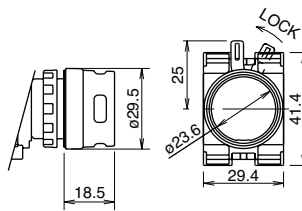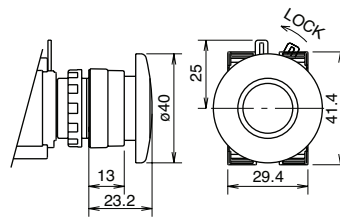
ø40mm Mushroom

**Emergency Stop Pushbuttons**

Dimensions (mm)

ø29mm Head Pushlock Turn Reset (HW1B-V3)

Panel Thickness 0.8 to 6

Gasket

Terminal Screw M3.5

Locking Ring

1 contact block

2 contact blocks
4 contact blocks
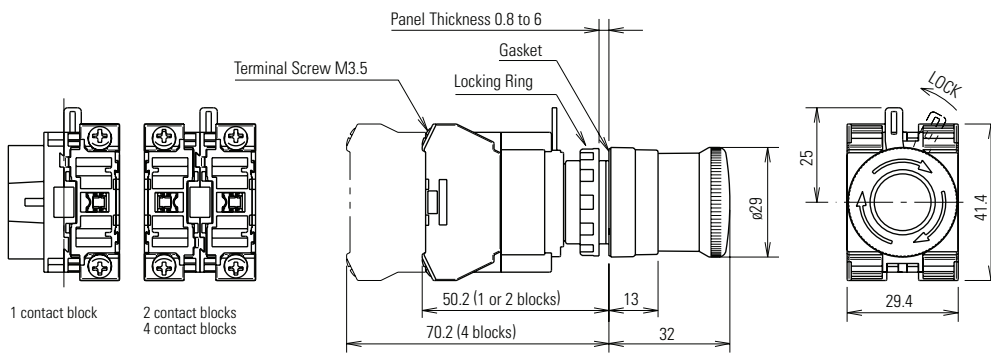
ø40mm Head Pushlock Turn Reset (HW1B-V4)

ø40mm Head EMO Pushlock Turn Reset (HW1B-V4)

Locking Ring

Lock Lever

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
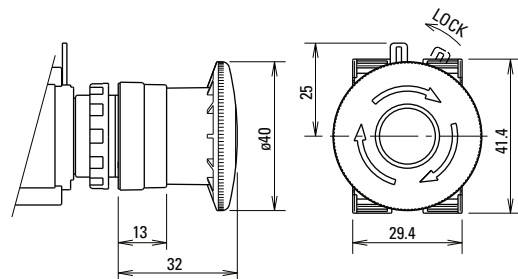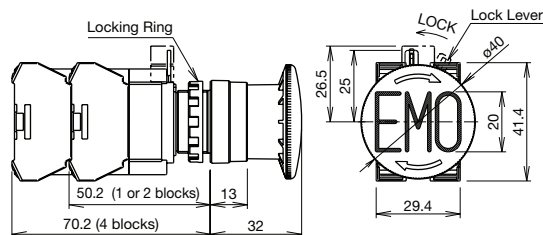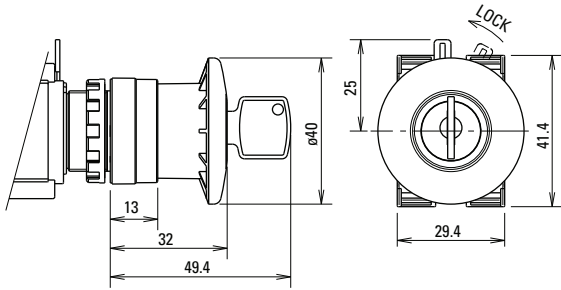
ø40mm Head Pushlock Key Reset (HW1B-X4)

ø60mm Head Pushlock Turn Reset (HW1B-V5)
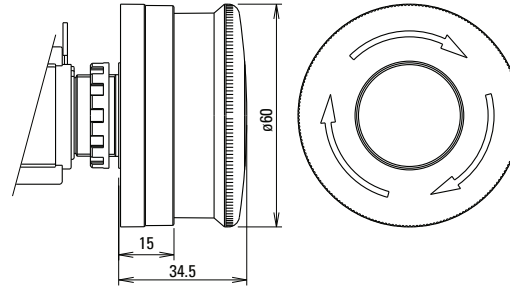
ø40mm Head Push-Pull (HW1B-Y2)
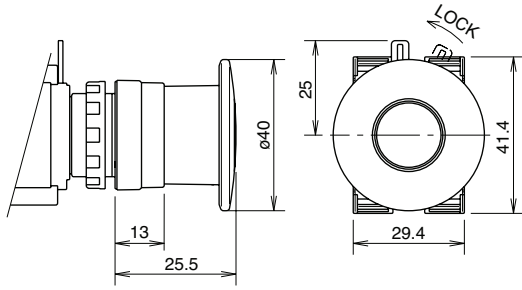
ø40mm Head Unibody Pushlock Turn Reset (HW1B-BV4)

Panel Thickness 0.8 to 6
M3.5 Terminal Screw
Gasket
Locking Ring
TOP Marking
Terminal Cover
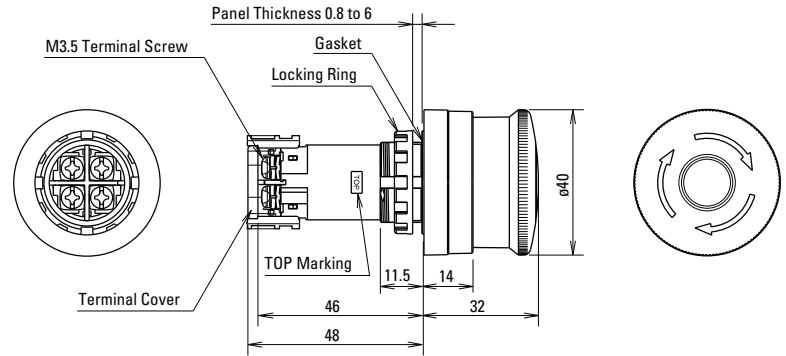
Illuminated E-Stop Pushbuttons (HW1E-LV4)

Panel Thickness 0.8 to 6
M3.5 Terminal Screw
Gasket
Locking Ring
TOP Marking
M3.5 Terminal Screw
Lamp Terminal
Terminal Cover

Mounting Hole

R0.8 max.
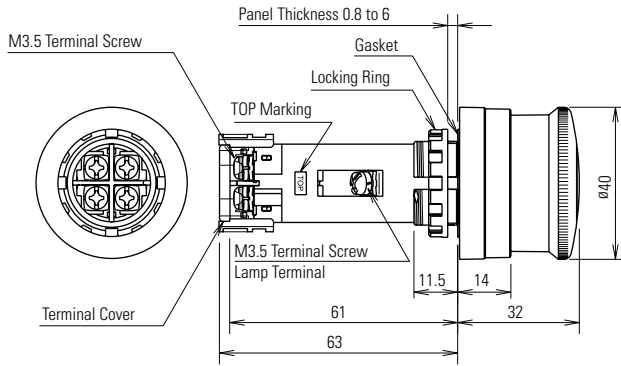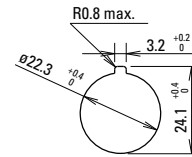
The minimum mounting centers shown below are applicable to E-Stop switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers for ease of wiring.

| Unit | Vertical Spacing | Horizontal Spacing |
|---|---|---|
| HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2 | 50 mm | 50 mm |
| HW1B-V5 | 60 mm | 60 mm |

Terminal Arrangement (Bottom View)

HW1E-BV4 Side

.2 (NC) .3 (NO)
.1 (NC) .4 (NO)
(1NO-1NC)

HW1E-LV4

TOP
X1
LAMP ⊗
.2 (NC) .3 (NO)
.1 (NC) .4 (NO)
X2
(1NO-1NC)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors
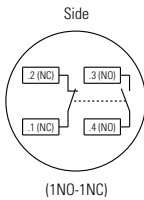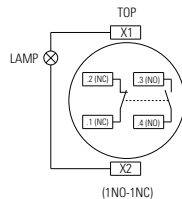
Terminal Blocks

Circuit Breakers

## Emergency Stop Stations

Dimensions (mm)



HW1B-V4R

Box Cover Mounting Screws    Box Cover    Box Base
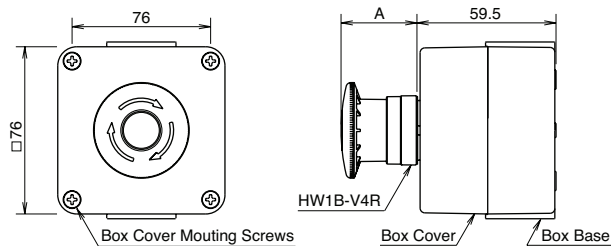
| Operator | Dimension A (mm) |
|---|---|
| Pushlock Turn Reset | 32 |
| Pushlock Key Reset | 32 (Key inserted: 49.4) |
| Push Pull | 25.5 |

### Mounting Hole Layout
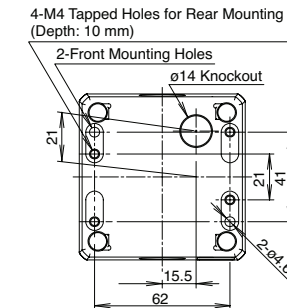
4-M4 Tapped Holes for Rear Mounting (Depth: 10 mm)
2-Front Mounting Holes
ø14 Knockout



## Pilot Lights

Dimensions (mm)

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

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



Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø29
ø23.5
11.5
43.3
7

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



Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.5
ø29
24
60.8
7
29.6

110V DC, 380V AC minumum



Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.5
ø29
24
76.2
7
29.6
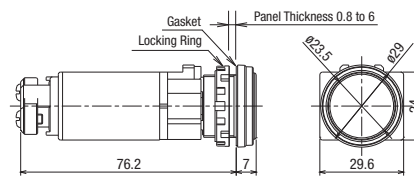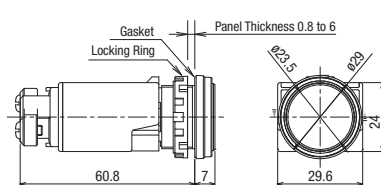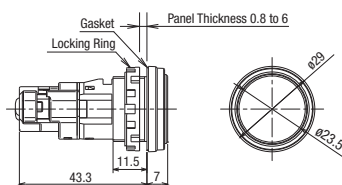
### Extended    Terminal screws: M3.5, integrated terminal cover

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



Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.6
ø29
11.5
43.3
17.5

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



Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.6
ø29
24
60.8
17.5
29.6

110V DC, 380V AC minimum



Gasket
Locking Ring
Panel Thickness 0.8 to 6
ø23.6
ø29
24
76.2
17.5
29.6
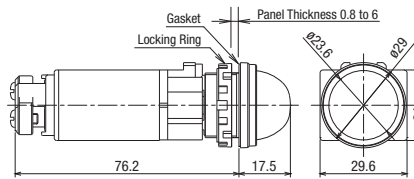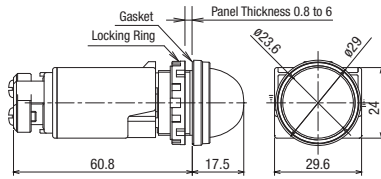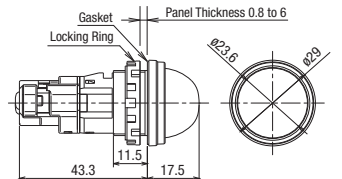
### Square Flush    Terminal screws: M3.5, integrated terminal cover

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



Gasket
Locking Ring
Panel Thickness 0.8 to 6
□24.6
11.5
43.3
7
□29.6

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



Gasket
Locking Ring
Panel Thickness 0.8 to 6
□24.6
60.8
7
□29.6

110V DC, 380V AC minimum



Gasket
Locking Ring
Panel Thickness 0.8 to 6
□24.6
76.2
7
□29.6
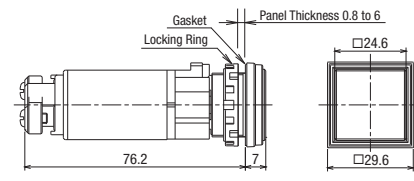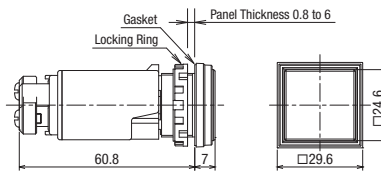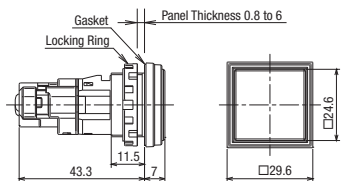
### Jumbo Dome Pilot Light    Terminal screws: M3.5, integrated terminal cover

Panel Thickness 1 to 5



Locking Ring
Gasket
34.4
0.5
50.5
ø66

### LED Lamp LSTDB

Light blue: LSTDB
Base BA9S/13
Illumination Color
ø10.6
20.4

### Mounting Hole Layout

R0.8 max.
ø22.3 +0.4 / 0
3.2 +0.2 / 0
24.1 +0.4 / 0
85
85
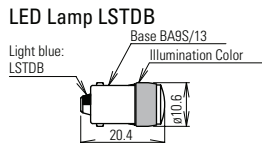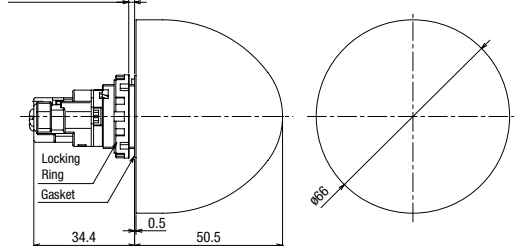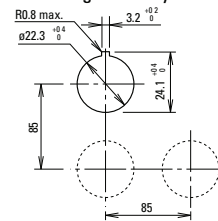
### Mounting Hole Layout

Close mounting on 30mm centers
Degree of protection: IP65



ø22.3 +0.4 / 0
30 min.
30 min.
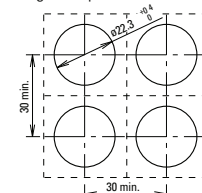
When mounting transformer or DC-DC converter type units on 30mm centers vertically and horizontally, keep the ambient temperature below 40°C.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Illuminated Pushbuttons
Full Voltage Models

**1 Contact Block**

Full Voltage Adapter

M3.5 Terminal Screw
Contact Block

Locking Ring

Panel Thickness 0.8 to 6

1 contact block

50.2 (1 block)

**2 Contact Blocks**

Full Voltage Adapter

M3.5 Terminal Screw
Contact Block

Locking Ring

Panel Thickness 0.8 to 6

2 contact blocks

65.8 (2 blocks)

**3 Contact Blocks**

Full Voltage Adapter

M3.5 Terminal Screw
Contact Block

Locking Ring

Panel Thickness 0.8 to 6
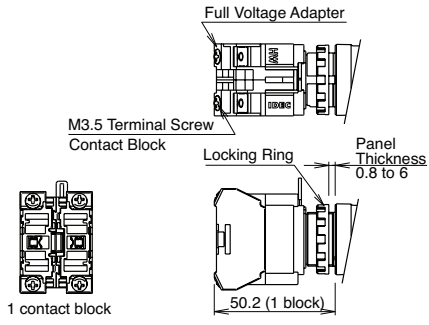
3 contact blocks

70.2 (3 blocks)

## Illuminated Pushbuttons con't
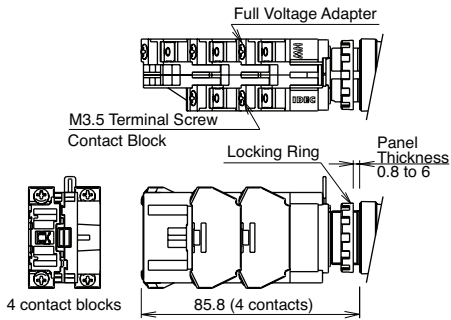
Dimensions (mm)

**4 Contact Blocks**

Full Voltage Adapter

M3.5 Terminal Screw
Contact Block

Locking Ring

Panel Thickness 0.8 to 6

4 contact blocks

85.8 (4 contacts)

Terminal Wiring
Arrows indicate access directions for wiring.

**Contact Block**
**Full Voltage Adaptor**

**Transformer**

X1     X2

**Transformer Models**

X1     X2

M3.5 Terminal Screws

89.7 (2 blocks)
109.5 (4 blocks)

**DC-DC Converter Models**

X1

X2

M3.5 Terminal Screw

Safety Lever Lock

Locking Ring

89.5 (2 blocks)
109.5 (4 blocks)
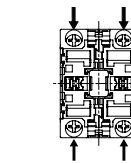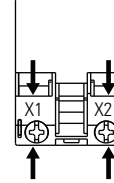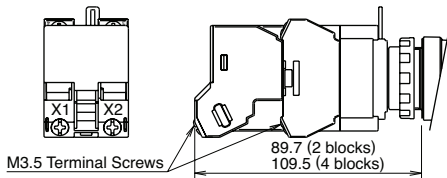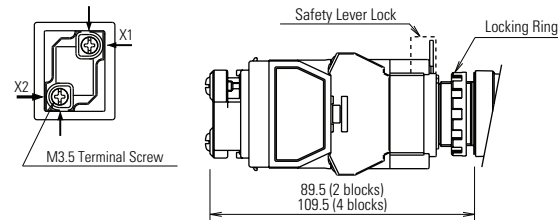
**Non-Illuminated Selector & Key Switches**

Knob Operator
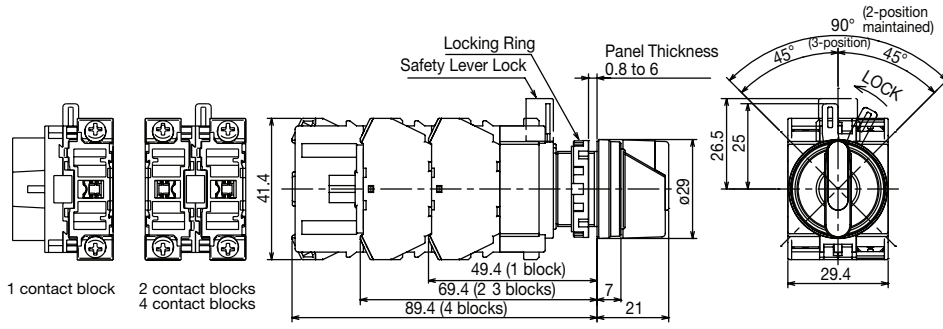
Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

(2-position 90° maintained)
45° (3-position) 45°
LOCK

26.5
25
ø29

41.4

1 contact block    2 contact blocks / 4 contact blocks

49.4 (1 block)
69.4 (2  3 blocks)
89.4 (4 blocks)
7
21

29.4

**Terminal Wiring**

Arrows indicate access directions for wiring.

**Contact Block
Full Voltage Adaptor**

Key Operator

LOCK
ø29.4
25
17

13
30.5

29.4

41.4

**Tranformer**

X1    X2
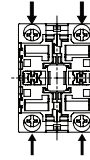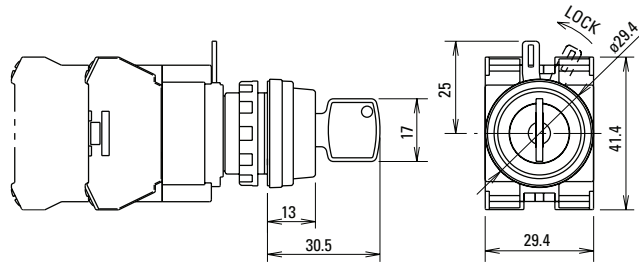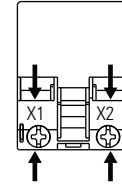
**Illuminated Selector Switches**

Full Voltage Model
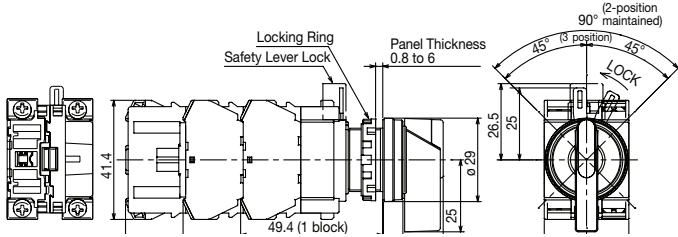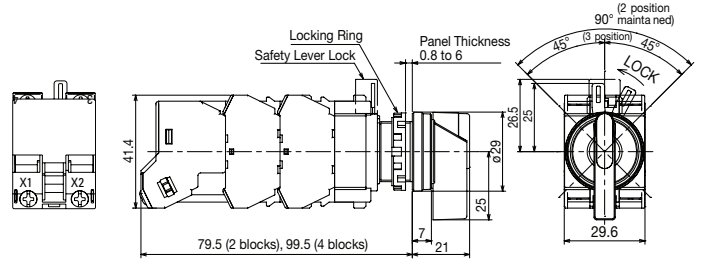
Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

(2-position 90° maintained)
45° (3 position) 45°
LOCK

26.5
25
ø29

41.4

49.4 (1 block)
25

Transformer Model

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

(2 position 90° mainta ned)
45° (3 position) 45°
LOCK

26.5
25
ø29

41.4

X1    X2

79.5 (2 blocks), 99.5 (4 blocks)
7
21

29.6

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Dual Pushbutton

Dimensions (mm)

### Without Pilot Light

Mounting Hole Layout

49.4 (2 contacts)
69.4 (3 or 4 contacts)

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4

49.4 (1 or 2 blocks)   14.5
69.4 (3 or 4 blocks)    20

18.7
54.8
18.7

24.6
29.8

ON
OFF
18.7
54.8
18.7

24.6
29.8

R0.8 max.
*3.2 $^{+0.2}_{0}$
ø22.3 $^{+0.4}_{0}$
24.1 $^{+0.4}_{0}$
55 **
30
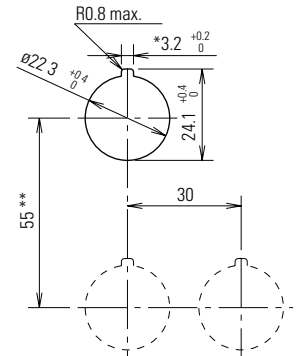
-The 3.2 mm recess is for preventing rotation and is not necessary when a nameplate or anti-rotation ring is not used.
-When using the safety lever lock, determine the vertical spacing in consideration of convenience for installing and removing the safety lever lock.
-Recommended vertical spacing: 100 mm
-The minimum mounting centers are applicable to switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers for ease of wiring.

### With Pilot Light

#### Full Voltage

Full Voltage Adapter

(Bottom Button)
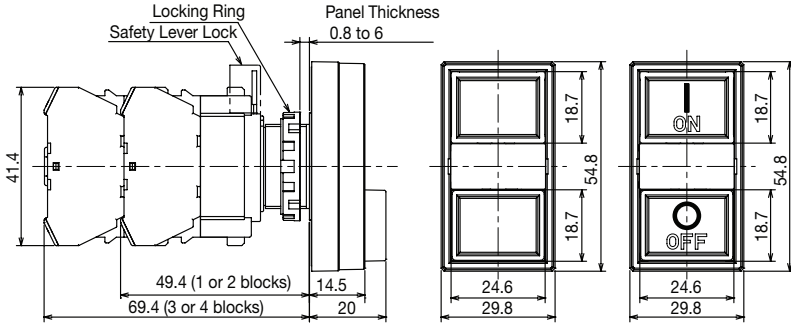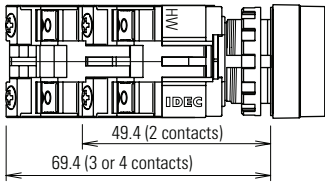
(Top Button)

69.4 (2 contacts), 89.4 (4 contacts)
(Note)
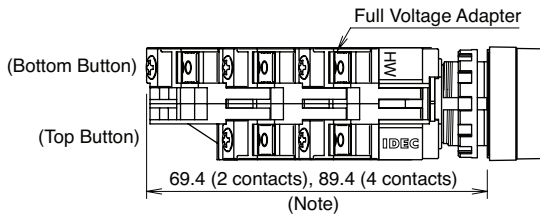
The depth of a 3-contact model depends on the combination of contact blocks at top and bottom pushbuttons.

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

#### Transfomer (240V minimum)

Transformer

79.5 (2 contacts), 99.5 (4 contacts)

#### Transformer (480V)

Transformer, DC-DC Converter

89.5 (2 contacts), 109.5 (4 contacts)
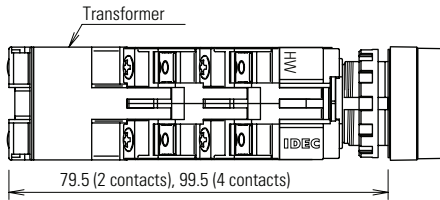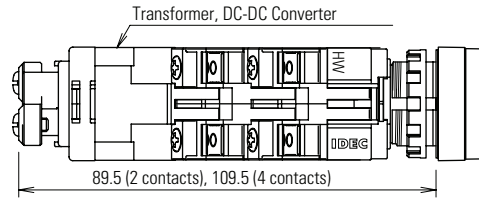
## Monolever

### Dimensions

#### Standard Lever

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4

49.4 (1 2 blocks)
69.4 (3 4 blocks)    72

24°
36 max.
26.5
25
24°
36 max.

LOCK
29.4
ø30

#### Interlocking Lever

All dimensions in mm.

Locking Ring
Safety Lever Lock
Panel Thickness 0.8 to 6

41.4

49.4 (1 2 blocks)
69.4 (3 4 blocks)    72

24°
36 max.
26.5
25
24°
36 max.

LOCK
29.4
ø34.2
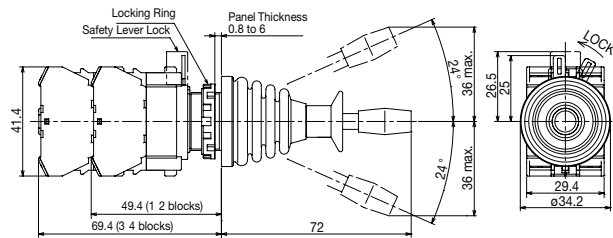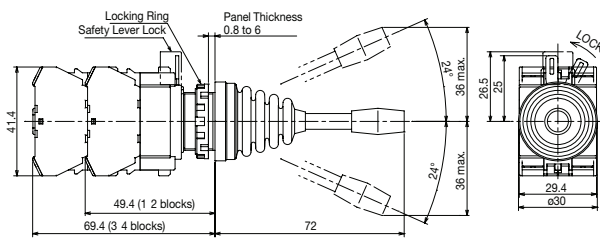
Terminal Screws M3.5    Integrated Terminal Cover

## Accessory Dimensions

**LW9Z-BM**
Metallic Mounting Hole Plug

ø25.8
3
12
Gasket
Locking Ring
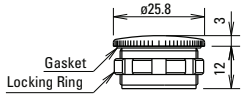
**OB-31**
Rubber Mounting Hole Plug

ø29
3.5
3.5
ø25
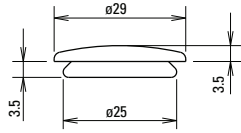
**HW9Z-RL**
Anti-Rotation Ring

1.5
ø29
ø22
TOP
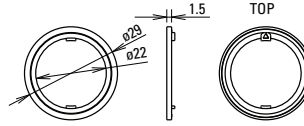
**OR-55**
Lamp/LED Removal Tool

ø11.6
59
ø14
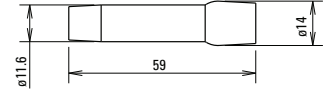
**HW9Z-D7D**
Dual Pushbutton Rubber Cover

33
22.5
58
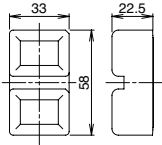
**HW-VU1**
Dual Pushbutton Barrier

45
20
1.5
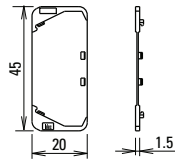
**MW9Z-T1**
Locking Ring Wrench

110
ø28

**HW-VL1**
Barrier

45
20
1.5

**HW9Z-KL1**
Padlock Cover

82.5
Panel Thickness 0.8 to 3.2
R86.5
93
30
70
24
ø50
(I.D. ø44.4)
ø22.2
Key Hole ø8
29.5
30
Waterproof Rubber Gasket 0.5t
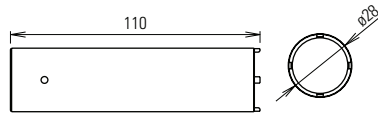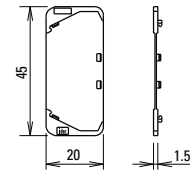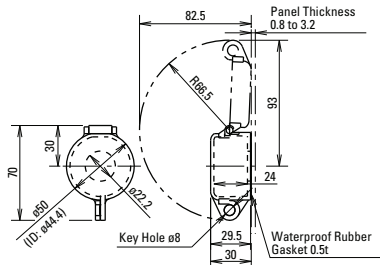
**HWLS-TK1971**
Safety Lever Lock

Safety Lever Lock
Screwdriver
Remove
Operator
Lock Lever
Install
Safety Lever Lock
LOCK
26.5
Contact Block Mounting Adapter
Panel

**HW9Z-KG1**

64
48
38
22
80
32
ø22
Gasket
TOP Marking
TOP Marking
Locking Ring
Operator
Panel Thickness: 1.2 to 4

**HW9Z-KG2**

ø22.2
36.5
ø76.1
ø90
Operator
Panel Thickness: 1.2 to 4

**HW9Z-KG3**

ø22
35
25
ø66
52
ø74
42

**HW9Z-KG4**

ø22
35
25
ø75
67
ø90
50

**LSTD**

ø9.5
ø10.6
20.4

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Specification Charts

**INDUCTIVE**

**DC Voltages**

| Voltage V | 24 | 48 | 110 |
|---|---|---|---|
| Current A | 4 | 2 | 1.1 |
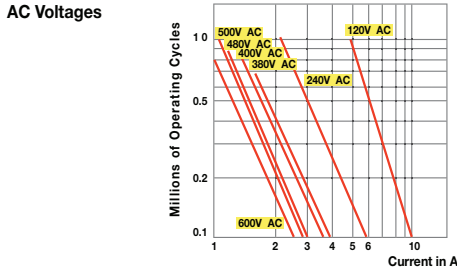
**AC Voltages**



**RESISTIVE**

**DC Voltages**

| Voltage V | 24 | 48 | 110 |
|---|---|---|---|
| Current A | 8 | 4 | 2.2 |

**AC Voltages**
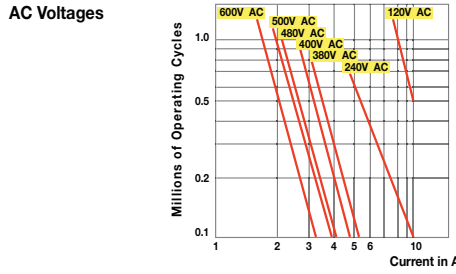


Conforming to IEC 947-5-1 Appendix C.
Utilization categories AC-15 and DC-13.
Operation rate: 1,800 op. hour
Load factor:
 Inductive 0.4 ± 0.05
 Resistive 0.9 ± 0.05

## Operator Truth Tables

### 2 Position Selector Switches

| Contact | Mounting Position | Operator Position | |
|---|---|---|---|
| | | Left | Right |
| HW-U10-F (NO) | L | O | X |
| | R | O | X |
| HW-U01-F (NC) | L | X | O |
| | R | X | O |
| HW-U10R-F (NO-EM) | L | O | X |
| | R | O | X |
| HW-U01R-F (NC-LB) | L | X | O |
| | R | X | O |

HW1S-2T
HW1K-2*
HW1F-2

### 3 Position Selector Switches

| Contact | Mounting Position | Operator Position | | |
|---|---|---|---|---|
| | | Left | Center | Right |
| HW-U10-F (NO) | L | X | O | O |
| | R | O | O | X |
| HW-U01-F (NC) | L | O | X | X |
| | R | X | X | O |
| HW-U10R-F (NO-EM) | L | X | O | O |
| | R | O | O | X |
| HW-U01R-F (NC-LB) | L | O | X | X |
| | R | X | X | O |

HW1S-3T
HW1K-3*
HW1F-3

| Contact | Mounting Position | Operator Position | | |
|---|---|---|---|---|
| | | Left | Center | Right |
| HW-U10-F (NO) | L | X | O | O |
| | R | O | O | X |
| HW-U01-F (NC) | L | O | O | X |
| | R | X | O | O |
| HW-U10R-F (NO-EM) | L | X | X | O |
| | R | O | X | X |
| HW-U01R-F (NC-LB) | L | O | X | X |
| | R | X | X | O |

HW1S-3ST
HW1K-3S*

### 3 Position Selector Switches con't

| Contact | Mounting Position | Operator Position | | |
|---|---|---|---|---|
| | | Left | Center | Right |
| HW-U10-F (NO) | L | X | O | O |
| | R | O | O | X |
| HW-U01-F (NC) | L | O | X | O |
| | R | O | X | O |
| HW-U10R-F (NO-EM) | L | X | O | X |
| | R | X | O | X |
| HW-U01R-F (NC-LB) | L | O | X | X |
| | R | X | X | O |

HW1S-3JT
HW1K-3J*

### 4 Position Selector Switches

| Contact | Mounting Position | Operator Position | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| HW-U10-F (NO) | L | X | O | O | O |
| | R | O | O | O | X |
| HW-U01-F (NC) | L | O | O | X | O |
| | R | O | X | O | O |
| HW-U10R-F (NO-EM) | L | X | X | O | X |
| | R | X | O | X | X |
| HW-U01R-F (NC-LB) | L | O | X | X | X |
| | R | X | X | X | X |

HW1S-4T

### 5 Position Selector Switches

| Contact | Mounting Position | Operator Position | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| HW-U10-F (NO) | L | X | O | O | O | O |
| | R | O | O | O | O | X |
| HW-U01-F (NC) | L | O | O | O | X | O |
| | R | O | X | O | O | O |
| HW-U10R-F (NO-EM) | L | X | X | X | O | X |
| | R | X | O | X | X | X |
| HW-U01R-F (NC-LB) | L | O | X | X | X | X |
| | R | X | X | X | X | O |

HW1S-5T

1. Mounting position indicates which side of operator each contact should be mounted (as viewed from the front of the panel).
2. *For key removable code see page 660.

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

## HW Safety Precautions

Turn off power to HW series control units before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.

To avoid the possibility of burning yourself, use the lamp holder tool when replacing lamps.

For wiring, use wires of a proper size to meet voltage and current requirements.

## HW General Instructions

### Panel Mounting

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

### Removing and Installing the Contact Block Assembly

1. To remove the operator from the contact block, turn the locking lever in the direction of the arrow shown below. The operator can now be removed.

2. To reinstall, place the TOP markings on the operator and the contact block mounting adapter in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever in the opposite direction.
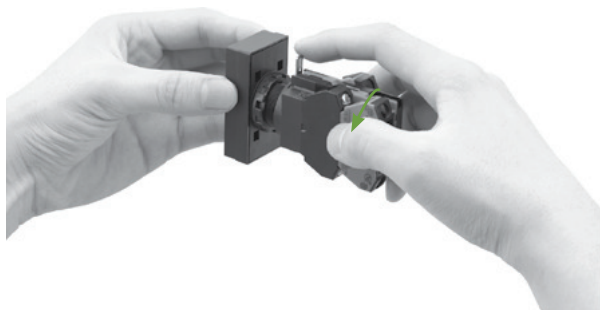


### Notes for Panel Mounting

1. When mounting the operator onto a panel, use the optional locking ring wrench (MW9Z-T1) to tighten the locking ring. Tightening torque must not exceed 2.0 N·m. Do not use pliers. Excessive tightening will damage the locking ring.

2. For the contact blocks and transformers housing LED lamps, make sure not to press the lamps too hard, otherwise the lamp socket may be damaged.

### Safety Lever Lock

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

1. HW series can be mounted vertically with a minimum spacing of 55 mm but spacing should be determined to ensure easy operation (recommended minimum spacing: 100 mm).

2. Mount the control unit onto the panel, lock the lever, and push in the safety lever lock to install.

3. When the spacing is narrower than the recommended value, with the lever unlocked, mount the safety lever lock and insert the contact unit to the operator. Then, lock the lever and strongly push in the safety lever lock to install.

4. To remove the safety lever lock, insert a flat screwdriver into the safety lever and push upwards.
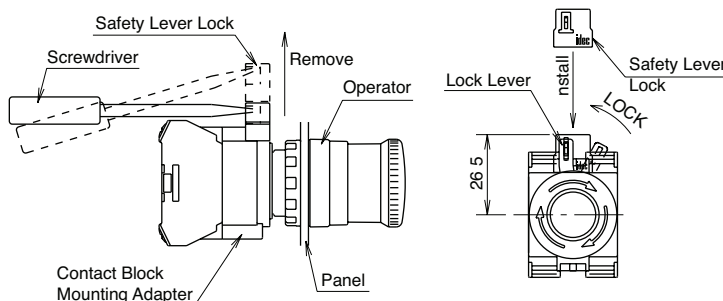


## Dual Pushbutton Instructions

### Replacement of Lens

#### Removing
Remove the lens by inserting a screwdriver into the recess of the lens through the bezel.

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

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
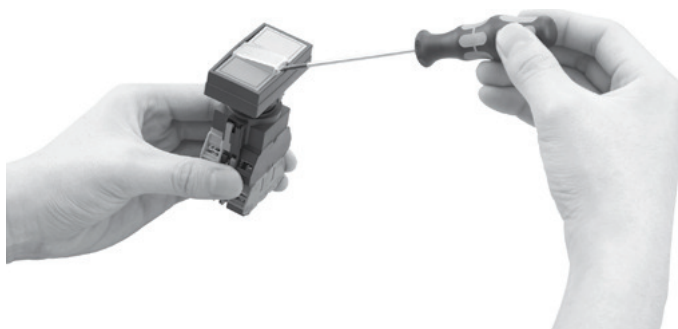
## Dual Pushbuttons Instructions continued

### Replacement of 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 assembly from the operator unit.

### Removing the Lamps from the Front of the Panel

#### Removal

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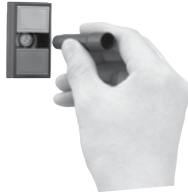
#### Installation

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

Lamp    Lamp Holder Tool

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

Lamp Base
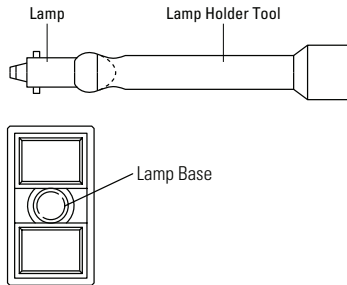
### About Dual Pushbutton Switches

The dual pushbuttons cannot be removed or replaced!

Do not attempt to remove using a flat screwdriver or pincers, otherwise the dual pushbuttons may be damaged.

Pushbuttons

Do not attempt to remove the pushbuttons!
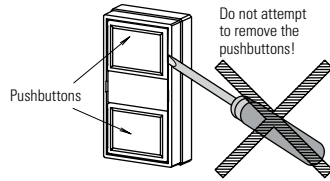
### Narrow Mounting

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

30    30

Barrier

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

X1    X2    X1    X2

Inside    Inside
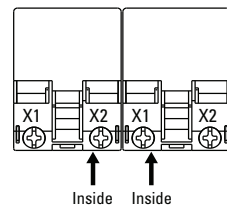
### Installation of LED Illuminated Units

When using full voltage type LED illuminated units, provide protection against electrical noise, if necessary.

### Applicable Wiring

The applicable wire size is 2 mm$^2$ maximum. (solid wire ø1.6mm$^2$ maximum) One or two wires can be connected.

### Applicable Crimping Terminal

ø3.6 min.

7.9 max.

4 max.    5.5 min.
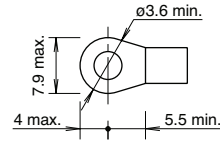
Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

### Solid Wire

ø1.6 max.

8 max.
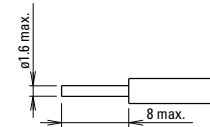
Note: When connecting wires to contact blocks or transformers in the direction shown below, keep the insulation stripping length 6.6 mm at the maximum.

X1    X2    X1    X2

Inside    Inside
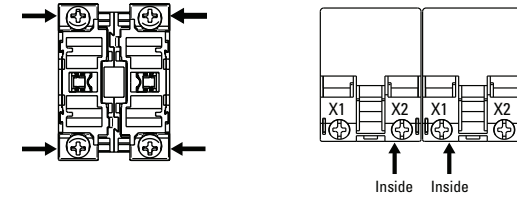
### Installing the Rubber Boot

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

### Notes for Installing the Rubber Boot

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

1. Remove the gasket.    2. Install the rubber boot on the pushbuttons.    3. Rubber boot is installed.

Seals

Install

Remove

Gasket    Seals

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
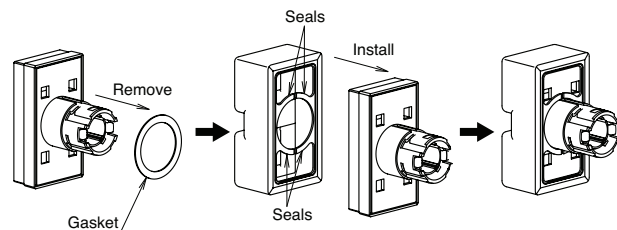
# ø22 HW Series Push-in Switches & Pilot Lights

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

c(UL)us LISTED  △  CE  CCC

File No. E68961

- See website for details on approvals and standards.
- Note) Approvals for pushbuttons, selector switches, pilot lights only.
  For illuminated/non-illuminated buzzer (page 775) and emergency stop switches (page 776), see each page.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Specifications and Ratings

Contact Ratings

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

- See website for approved contact ratings.

### Rated Operating Voltage and Current by Utilization Category

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

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

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

### Push-in Contact Block (HW-P..)



HW-P10 (NO contact)  
HW-P01 (NC contact)

Wire port, Pusher, Housing, Terminal No. 2, Terminal No. 1, Terminal No. 4, Test point, Terminal No. 3, Push rod
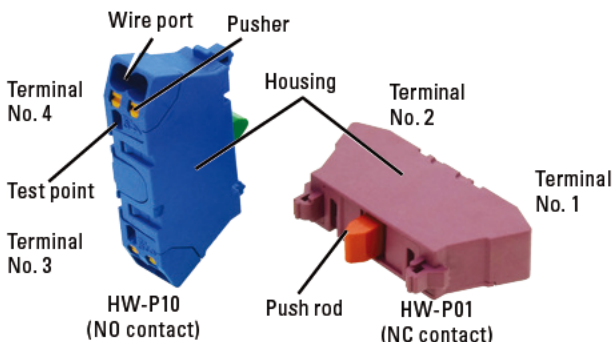
| | Single Contact Block | | Double Contact Block | | |
|---|---|---|---|---|---|
| Contact | 1NO | 1NC | 2NO | 2NC | 1NO-1NC |
| Part No. | HW-P10 | HW-P01 | HW-PW20 | HW-PW02 | HW-PW11 |
| Shape |  |  |  |  |  |
| Housing | Blue | Purple red | Blue | Purple red | Blue/Purple red |
| Push Rod | Green | Red | Green | Red | Light Blue |
| Contact No. | 3-4 | 1-2 | 1st deck: 13-14<br>2nd deck: 23-24 | 1st deck: 11-12<br>2nd deck: 21-22 | 1st deck: 13-14<br>2nd deck: 21-22 |
| Weight | 8g | | 16g | | |

## LED Illuminated Part Specifications

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

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

## Pilot Light (Short Body)

| Rated Voltage | | Operating Voltage | | LED Lamp | |
|---|---|---|---|---|---|
| | | | | Ramp Base | Part No. |
| 6V AC/DC | | 6V AC/DC | | | LSRD-6 |
| 12V AC/DC | | 12V AC/DC | | | LSRD-1 |
| 24V AC/DC | | 24V AC/DC | ±10% | BA9S/13 | LSRD-2 |
| 100/120V AC | 50/60Hz | 100/120V AC | | | LSRD-6 |
| 200/240V AC | | 200/240V AC | | | |

## LED Lamp Ratings

| Part No. | | LSRD-6 | LSRD-1 | LSRD-2 | LSRD-H2 | LSRD-M2 | LSRD-M4 |
|---|---|---|---|---|---|---|---|
| Ramp Base | | BA9S/13 | | | | | |
| Rated Voltage | | 6V AC/DC | 12V AC/DC | 24V AC/DC | 100/120V AC/DC | 200/220V AC | 230/240V AC |
| Voltage Range | | 6V AC/DC ±10% | 12V AC/DC ±10% | 24V AC/DC ±10% | 100/120V AC/DC ±10% | 200/220V AC ±10% | 230/240V AC ±10% |
| Current Draw | DC | 10mA | 7mA | 7mA | 2mA | 2mA | 2mA |
| | AC | 14mA | 8mA | 8mA | 2mA | 2mA | 2mA |
| Life (reference value) | | Approx. 50,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC at 25°C.) | | | | | |
| Internal Circuit | | X1 —— Limited current circuit / Noise protection circuit / X2 —— Rectifier circuit / Dimmer protection circuit | | | | | |

## Direct Opening of Key Selector Switch

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

## Degree of Protection

### IEC60529

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

*1) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 780 are used.
(IP40 when other ø22 namplates such as NWA are used)
*2) IP65 when used with button covers (HW9Z-D7D).

### UL50

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

*3) When using a nameplate with the HW series, IP65 protection degree is achieved only when nameplates shown on page 780 are used.
*4) For dual pushbuttons, Type 4X is acheived when used with button covers (HW9Z-D7D).

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Specifications

### Switches (except for emergency stop switch)

| | |
|---|---|
| Operating Temperature | −25 to +60°C (no freezing)<br>Illuminated unit: −25 to +50°C |
| Operating Humidity | 45 to 85% RH (no condensation) |
| Storage Temperature | −40 to +80°C (no freezing) |
| Contact Resistance | 50 mΩ maximum (initial value) |
| Insulation Resistance | 100 MΩ minimum (500V DC megger) |
| Overvoltage Category | II |
| Impulse Withstand Voltage | 4.0kV<br>Illuminated unit: 2.5kV |
| Pollution Degree | 3 (IEC60947-5-1) |
| Dielectric Strength | Between live and dead parts: 2500V AC, 1 minute |
| Vibration Resistance | Damage limits: 30 Hz, amplitude 1.5 mm<br>Operating extremes: 5 to 55Hz, amplitude 0.5 mm |
| Shock Resistance | Damage limits: 1,000 m/s²<br>Operating extremes: 100 m/s² |
| Degree of Protection | Terminal: Finger-safe (IP20) structure<br>Panel front: IP65 (IEC 60529), UL Type 4X |
| Recommended Tightening Torque for Locking Ring | 2.0N·m |
| Terminal Style | Push-in terminal |
| Mechanical Life (minimum operations) | Pushbuttons, Illuminated Pushbuttons<br>　Momentary ·················· 5,000,000 (*5)<br>　·················· 1,000,000 (*6)<br>　Maintained·················500,000 (*5)<br>　·················· 100,000 (*6)<br>Dual pushbuttons·················500,000 (*5)<br>　·················· 100,000 (*6)<br>Selector switches·················500,000 (*5)<br>　·················· 100,000 (*6)<br>Key selector switches (Disc tumbler)·················500,000 (*5)<br>　·················· 100,000 (*6)<br>Key selector switches (Pin tumbler)·················100,000 (*5)<br>　100,000 (*6)<br>Illuminated selector switches·················500,000 (*5)<br>　·················· 100,000 (*6)<br>Selector pushbuttons·················250,000 (*5)<br>　·················· 100,000 (*6)<br>Monolever switches·················250,000 (*5)<br>　·················· 100,000 (*6) |
| Electrical Life (*5) | Pushbuttons, Illuminated Pushbuttons<br>　Momentary ·················· 500,000 (*1)(*5)<br>　·················· 50,000 (*1)(*6)<br>　Maintained·················500,000 (*3)(*5)<br>　·················· 50,000 (*3)(*6)<br>Dual pushbuttons·················500,000 (*1)(*5)<br>　·················· 50,000 (*1)(*6)<br>Selector switches·················500,000 (*2)(*5)<br>　·················· 50,000 (*2)(*6)<br>Key selector switches (Disc tumbler)·················500,000 (*2)(*5)<br>　·················· 50,000 (*2)(*6)<br>Key selector switches (Pin tumbler)·················100,000 (*2)(*5)<br>　50,000 (*2)(*6)<br>Illuminated selector switches·················500,000 (*2)(*5)<br>　·················· 50,000 (*2)(*6)<br>Selector pushbuttons·················250,000 (*2)(*5)<br>　·················· 50,000 (*2)(*6)<br>Monolever switches·················250,000 (*3)(*5)<br>　·················· 50,000 (*3)(*6) |
| Weight (approx.) | 38g (HW1B-M1P11), 54g (HW1B-M1P22)<br>38g (HW1S-2TP11), 54g (HW1S-2TP22)<br>76g (HW1K-2AP11), 92g (HW1K-2AP22N2)<br>66g (HW1K-2PCP11), 45g (HW1L-M1P11Q4)<br>44g (HW1F-2P11Q4), 43g (HW1R-2AP11)<br>55g (HW1M-1010P-20), 45g (HW7D-B11P1001) |

*1) Switching frequency 1,800 operations/h, duty ratio 40%
*2) Switching frequency 1,200 operations/h, duty ratio 40%
*3) Switching frequency 900 operations/h, duty ratio 40%
*4) Load condition 220V AC, 3A (AC-15)
*5) Single contact block
*6) Double contact block

### Pilot lights

| | |
|---|---|
| Operating Temperature | −25 to +50°C (no freezing) |
| Operating Humidity | 45 to 85% RH (no condensation) |
| Storage Temperature | −40 to +80°C (no freezing) |
| Insulation Resistance | 100 MΩ minimum (500V DC megger) |
| Overvoltage Category | II |
| Impulse Withstand Voltage | 2.5kV |
| Pollution Degree | 3 |
| Dielectric Strength | Between live and dead parts:<br>2000V AC, 1 minute |
| Vibration Resistance | Damage limits: 30 Hz, amplitude 1.5 mm<br>Operating extremes: 5 to 55Hz, amplitude 0.5 mm |
| Shock Resistance | Damage limits: 1,000 m/s²<br>Operating extremes: 100 m/s² |
| Degree of Protection | Terminal: Finger-safe (IP20) structure<br>Panel front: IP65 (IEC 60529), UL Type 4X |
| Recommended Tightening Torque for Locking Ring | 2.0N·m |
| Terminal Style | Push-in terminal |
| Weight (approx.) | 26g (HW1P-2JPQ4)<br>27g (HW1P-2JPRH2)<br>28g (HW1P-2JPCM2) |

### Mounting Hole Layout
### Panel Cut (IEC60947-5-1)
(Dimensions in mm)
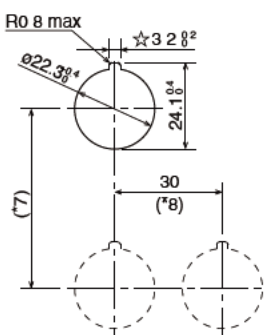


- When high temperature is expected, take necessary measures such as securing sufficient mounting centers or using a cooling fan.
- The 3.2 mm recess is for preventing rotation and is not necessary when the nameplate or anti-rotation ring is not used.

### Minimum Mounting Centers
(Dimensions in mm)

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

- For emergency stop switch mounting centers, see page 776.
- Determine the mounting cetners in consideration of the operation, wiring, and testing terminals.

### Ordering Information

- Specify the Ordering No. when ordering.
  When ordering, specify button color, lens color, key removal specification, or key number codes.
- Some combinations cannot be ordered. For details, contact SOCOJE.
- Nameplates and accessories for mono-lever switch are ordered separately. See page 780 to 785.

Illuminated / non-illuminated buzzer specifications: see page 775　　　Emergency stop switch specifications: see page 776

Switches & Pilot Devices

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

**Pushbuttons**

### Assembled

Package Quantity: 1

| Name / Shape | Operation | Contact Configuration | Part No. Coded | ⑤ Color Code |
|---|---|---|---|---|
| **Flush** HW1B-M1 / HW1B-A1 | Momentary | 1NO | **HW1B-M1P10⑤** HW4B-M1P10⑤ | B (black) G (green) R (red) Y (yellow) S (blue) W (white) |
| | | 1NC | **HW1B-M1P01⑤** HW4B-M1P01⑤ | |
| HW1B-A1 / HW4B-A1 | | 1NO-1NC | **HW1B-M1P11⑤** HW4B-M1P11⑤ | |
| | | 2NO | **HW1B-M1P20⑤** HW4B-M1P20⑤ | |
| | | 2NC | **HW1B-M1P02⑤** HW4B-M1P02⑤ | |
| | | 2NO-2NC | HW1B-M1P22⑤ HW4B-M1P22⑤ | |
| | Maintained | 1NO | HW1B-A1P10⑤ HW4B-A1P10⑤ | |
| **Extended** HW1B-M2 / HW4B-M2 | Momentary | 1NO | HW1B-M2P10⑤ HW4B-M2P10⑤ | |
| | | 1NC | HW1B-M2P01⑤ HW4B-M2P01⑤ | |
| | | 1NO-1NC | HW1B-M2P11⑤ HW4B-M2P11⑤ | |

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

Pushbuttons Part No. Example

### Assembled and sub-assembled unit

**Assembled**

**HW1B - M1 P10 B**

①Bezel shape code
  1: Round black
  2: Square black
  4: Round metal

②Operation code
  M: Momentary
  A: Maintained

③Button style code
  1: Flush
  2: Extended
  3: ø29mm Mushroom
  4: ø40mm Mushroom
  5: ø60mm Mushroom

⑤Button color code
  (see the table above)

④Contact configuration code
  10: 1NO
  01: 1NC
  11: 1NO-1NC
  20: 2NO
  02: 2NC
  22: 2NO-2NC

• For available assembled products, see above table.

Package Quantity: 1

| Name / Shape | Operation | Contact Configuration | Part No. Coded | ⑤ Color Code |
|---|---|---|---|---|
| **ø60mm Mushroom** HW1B-M5 | Momentary | 1NO | HW1B-M5P10⑤ | B (black) G (green) R (red) Y (yellow) S (blue) * W (white) * |
| | | 1NC | HW1B-M5P01⑤ | |
| **ø40mm Mushroom** HW1B-M4 / HW4B-M4 | Momentary | 1NO | HW1B-M4P10⑤ HW4B-M4P10⑤ | * Not available for ø60mm |
| | | 1NC | HW1B-M4P01⑤ HW4B-M4P01⑤ | |
| | | 1NC-1NC | HW1B-M4P11⑤ HW4B-M4P11⑤ | |

• Specify a button color code in place of ⑤ in the Part No.
• Pushbuttons with 1 contact block contain 2 dummy blocks. Pushbuttons with 2 contact blocks contain 1 dummy block.
• When requiring flush type maintained switches other than 1NO contact configuration, select from sub-assembled product.

**Operator unit**

**MW1B - M1 - B**

①Bezel shape code
  1: Round black
  2: Square black
  4: Round metal

②Operation code
  M: Momentary
  A: Maintained

⑤Button color code

③Button style code
  1: Flush
  2: Extended
  3: ø29mm Mushroom
  4: ø40mm Mushroom
  5: ø60mm Mushroom

**Contact unit**

**HW- CN P10**

④Contact configuration code
  (see page 743)

696

## Pushbuttons

**Sub-Assembled** — **When ordering, specify the sub-assembled ordering no. See page 742 for available assembled products.**

| Assembled | **—** | Operator unit | **+** | Contact unit (Contact block, dummy block, connecting unit) |



### Sub-Assembled Ordering No.

Package Quantity: 1

| Name / Shape | Operation | Contact Configuration | &lt;Reference&gt; Assembled Part No. ① = 1 or 4 | ⑤ Button Color Code |
|---|---|---|---|---|
| Flush | Momentary | 1NO | HW①B-M1P10⑤ | |
| | | 1NC | HW①B-M1P01⑤ | |
| | | 1NO-1NC | HW①B-M1P11⑤ | |
| | | 2NO | HW①B-M1P20⑤ | B (black) |
| | | 2NC | HW①B-M1P02⑤ | G (green) |
| | | 2NO-2NC | HW①B-M1P22⑤ | R (red) |
| | Maintained | 1NO | HW①B-A1P10⑤ | Y (yellow) |
| | | 1NC | HW①B-A1P01⑤ | S (blue) |
| | | 1NO-1NC | HW①B-A1P11⑤ | W (white) |
| | | 2NO | HW①B-A1P20⑤ | |
| | | 2NC | HW①B-A1P02⑤ | |
| | | 2NO-2NC | HW①B-A1P22⑤ | |
| Flush | Momentary | 1NO | HW①B-M2P10⑤ | |
| | | 1NC | HW①B-M2P01⑤ | |
| | | 1NO-1NC | HW①B-M2P11⑤ | |
| | | 2NO | HW①B-M2P20⑤ | B (black) |
| | | 2NC | HW①B-M2P02⑤ | G (green) |
| | | 2NO-2NC | HW①B-M2P22⑤ | R (red) |
| | Maintained | 1NO | HW①B-A2P10⑤ | Y (yellow) |
| | | 1NC | HW①B-A2P01⑤ | S (blue) |
| | | 1NO-1NC | HW①B-A2P11⑤ | W (white) |
| | | 2NO | HW①B-A2P20⑤ | |
| | | 2NC | HW①B-A2P02⑤ | |
| | | 2NO-2NC | HW①B-A2P22⑤ | |
| ø29mm Mushroom | Momentary | 1NO | HW①B-M3P10⑤ | |
| | | 1NC | HW①B-M3P01⑤ | |
| | | 1NO-1NC | HW①B-M3P11⑤ | |
| | | 2NO | HW①B-M3P20⑤ | B (black) |
| | | 2NC | HW①B-M3P02⑤ | G (green) |
| | | 2NO-2NC | HW①B-M3P22⑤ | R (red) |
| | Maintained | 1NO | HW①B-A3P10⑤ | Y (yellow) |
| | | 1NC | HW①B-A3P01⑤ | S (blue) |
| | | 1NO-1NC | HW①B-A3P11⑤ | W (white) |
| | | 2NO | HW①B-A3P20⑤ | |
| | | 2NC | HW①B-A3P02⑤ | |
| | | 2NO-2NC | HW①B-A3P22⑤ | |

#### Operator Unit

| Name / Shape | Part No. |
|---|---|
| Flush | HW①B-M1-⑤ |
| | HW①B-A1-⑤ |
| Extended | HW①B-M2-⑤ |
| | HW①B-A2-⑤ |
| ø29mm Mushroom | HW①B-M3-⑤ |
| | HW①B-A3-⑤ |

#### Contact Unit

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

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

For Part No. (Ordering No.)/ mounting positions of contact units, see page **781**.

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Signaling Lights · Relays & Sockets · Timers · Contactors · Terminal Blocks · Circuit Breakers

**Pushbuttons**

**Sub-Assembled**   **When ordering, specify the sub-assembled ordering no. See page 742 for available assembled products.**

Sub–Assembled Ordering No.

Package Quantity: 1

| Name / Shape | Operation | Contact Configuration | \<Reference\> Assembled Part No. ① = 1 or 4 | ⑤ Button Color Code |
|---|---|---|---|---|
| ø40mm Mushroom | Momentary | 1NO | HW①B-M4P10⑤ | |
| | | 1NC | HW①B-M4P01⑤ | |
| | | 1NO-1NC | HW①B-M4P11⑤ | |
| | | 2NO | HW①B-M4P20⑤ | B (black) |
| | | 2NC | HW①B-M4P02⑤ | G (green) |
| | | 2NO-2NC | HW①B-M4P22⑤ | R (red) |
| | Maintained | 1NO | HW①B-A4P10⑤ | Y (yellow) |
| | | 1NC | HW①B-A4P01⑤ | S (blue) |
| | | 1NO-1NC | HW①B-A4P11⑤ | W (white) |
| | | 2NO | HW①B-A4P20⑤ | |
| | | 2NC | HW①B-A4P02⑤ | |
| | | 2NO-2NC | HW①B-A4P22⑤ | |
| ø60mm Mushroom | Momentary | 1NO | HW1B-M5P10⑤ | |
| | | 1NC | HW1B-M5P01⑤ | |
| | | 1NO-1NC | HW1B-M5P11⑤ | B (black) |
| | | 2NO | HW1B-M5P20⑤ | G (green) R (red) Y (yellow) |
| | | 2NC | HW1B-M5P02⑤ | |
| | | 2NO-2NC | HW1B-M5P22⑤ | |
| Square Flush | Momentary | 1NO | HW2B-M1P10⑤ | |
| | | 1NC | HW2B-M1P01⑤ | |
| | | 1NO-1NC | HW2B-M1P11⑤ | |
| | | 2NO | HW2B-M1P20⑤ | B (black) |
| | | 2NC | HW2B-M1P02⑤ | G (green) |
| | | 2NO-2NC | HW2B-M1P22⑤ | R (red) |
| | Maintained | 1NO | HW2B-A1P10⑤ | Y (yellow) |
| | | 1NC | HW2B-A1P01⑤ | S (blue) |
| | | 1NO-1NC | HW2B-A1P11⑤ | W (white |
| | | 2NO | HW2B-A1P20⑤ | |
| | | 2NC | HW2B-A1P02⑤ | |
| | | 2NO-2NC | HW2B-A1P22⑤ | |
| Square Extended | Momentary | 1NO | HW2B-M2P10⑤ | |
| | | 1NC | HW2B-M2P01⑤ | |
| | | 1NO-1NC | HW2B-M2P11⑤ | |
| | | 2NO | HW2B-M2P20⑤ | B (black) |
| | | 2NC | HW2B-M2P02⑤ | G (green) |
| | | 2NO-2NC | HW2B-M2P22⑤ | R (red) |
| | Maintained | 1NO | HW2B-A2P10⑤ | Y (yellow) |
| | | 1NC | HW2B-A2P01⑤ | S (blue) |
| | | 1NO-1NC | HW2B-A2P11⑤ | W (white) |
| | | 2NO | HW2B-A2P20⑤ | |
| | | 2NC | HW2B-A2P02⑤ | |
| | | 2NO-2NC | HW2B-A2P22⑤ | |

**Operator Unit**

| Name / Shape | Part No. |
|---|---|
| ø40mm Mushroom | HW①B-M4-⑤ |
| | HW①B-A4-⑤ |
| ø60mm Mushroom | HW1B-M5-⑤ (*1) |
| Square Flush | HW2B-M1-⑤ |
| | HW2B-A1-⑤ |
| Square Extended | HW2B-M2-⑤ |
| | HW2B-A2-⑤ |

**Contact Unit**

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

- Specify a bezel type code in place of ① in the Part No. See page 742.
- Specify a button color code in place of ⑤ in the Part No.
  B (black), G (green), R (red), Y (yellow), S (blue), W (white)
- *1) Only B (black), G (green), R (red), Y (yellow) available for ø60mm mushroom.
  The anti-rotation ring P/N: HW9Z-RL is **not** included with the operator and can
  be purchased separately.

For Part No. (Ordering No.)/ mounting positions of contact units, see page **781**.

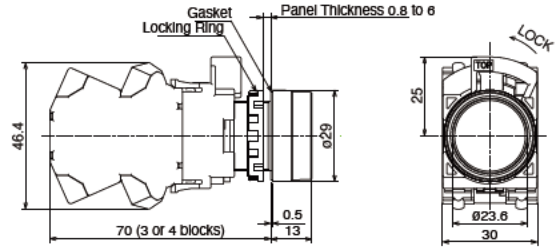## Pushbuttons Dimensions

All dimensions in mm.
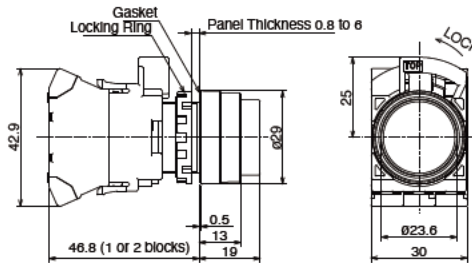
### Flush

**1 to 2 contacts**
HW1B-□1P
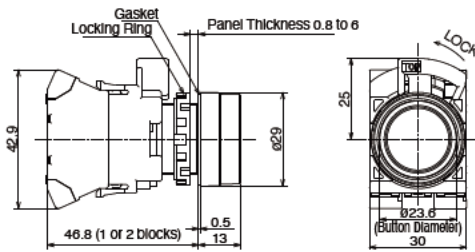
**3 to 4 contacts**
HW1B-□1P
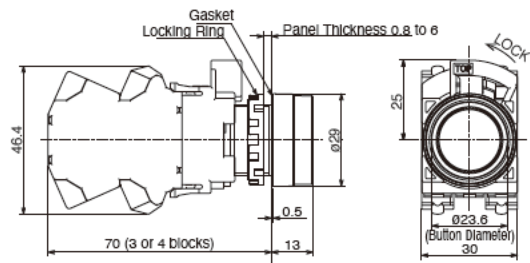
### Extended

**1 to 2 contacts**
HW1B-□2P
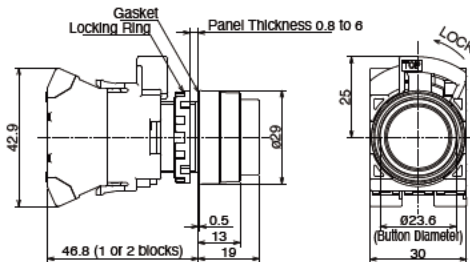
**3 to 4 contacts**
HW1B-□2P
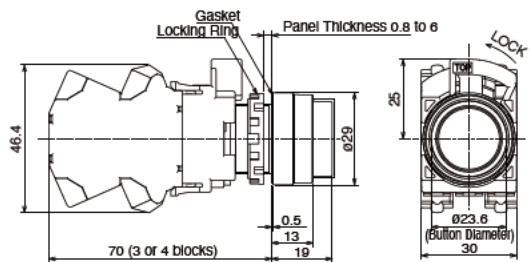
### ø29mm Mushroom

**1 to 2 contacts**
HW1B-□3P
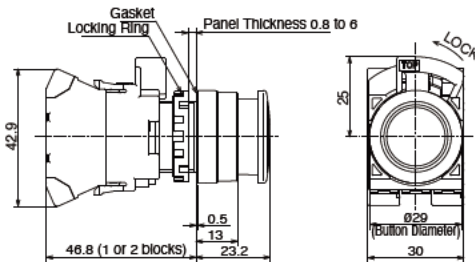
**3 to 4 contacts**
HW1B-□3P
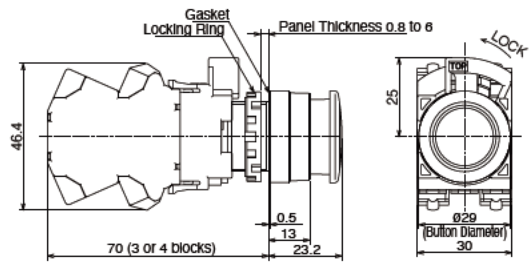
### ø40mm Mushroom

**1 to 2 contacts**
HW1B-□4P

**3 to 4 contacts**
HW1B-□4P

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

**Switches & Pilot Devices**

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
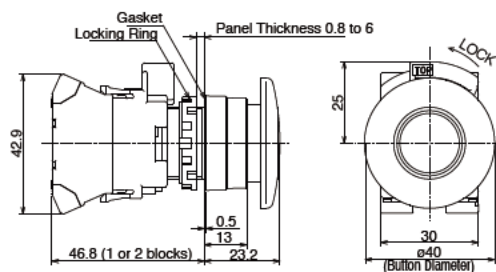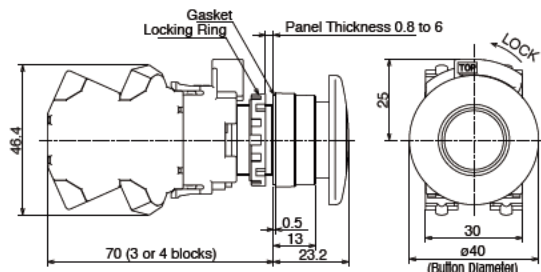
### Pushbuttons Dimensions

All dimensions in mm.

## ø60mm Mushroom

**1 to 2 contacts**
HW1B-M5P
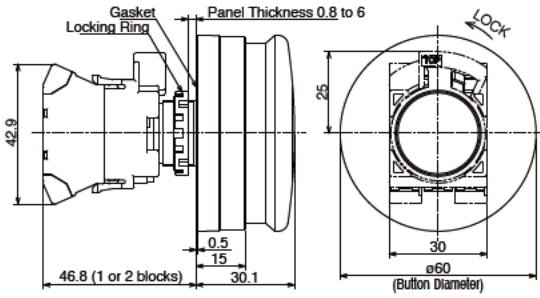


**3 to 4 contacts**
HW1B-M5P
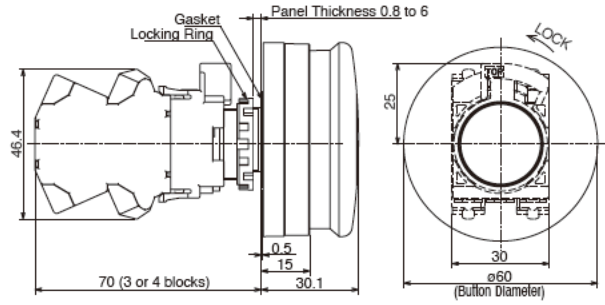


## Square Flush

**1 to 2 contacts**
HW2B-□1P
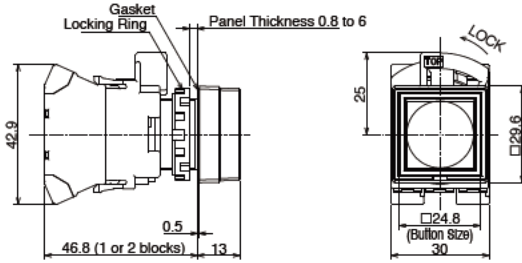


**3 to 4 contacts**
HW2B-□1P
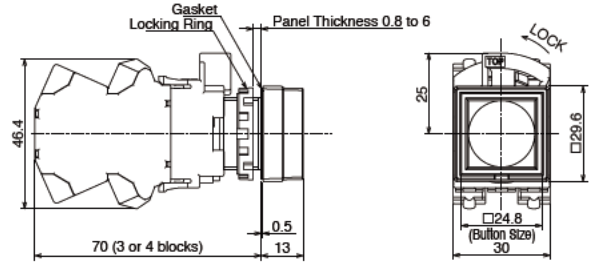


## Square Extended

**1 to 2 contacts**
HW2B-□2P
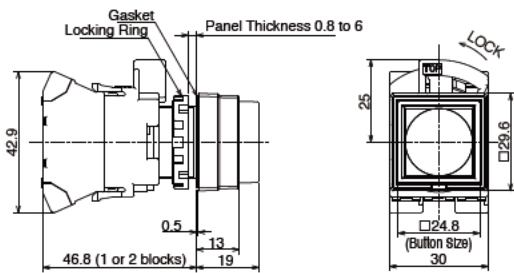


**3 to 4 contacts**
HW2B-□2P
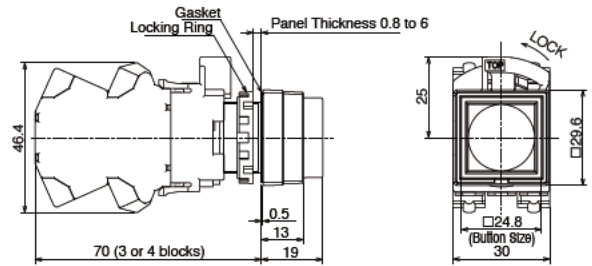
**Illuminated Pushbuttons**

### Assembled

**Package Quantity: 1**

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

- Specify a bezel type code in place of ① in the Part No. See page 742.
- Specify an illumination color code in place of ⑥ in the Part No.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets
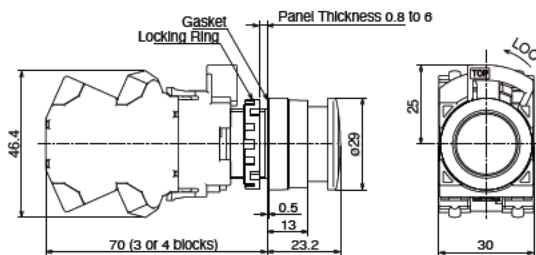
Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Signaling Lights | Relays & Sockets | Timers | Contactors | Terminal Blocks | Circuit Breakers

## Illuminated Pushbuttons

### Sub-Assembled

**When ordering, specify the sub-assembled ordering no. See page 747 for available assembled products.**
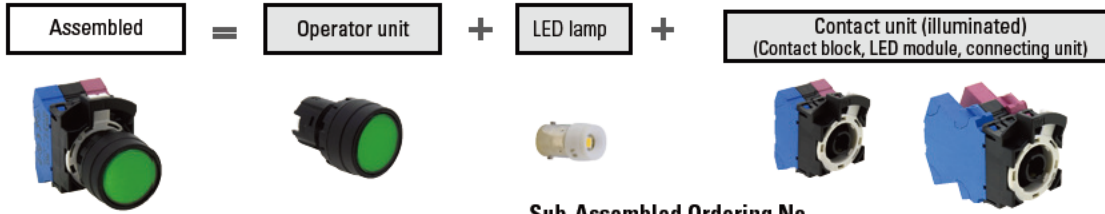
**Assembled** = **Operator unit** + **LED lamp** + **Contact unit (illuminated)** (Contact block, LED module, connecting unit)



**Sub-Assembled Ordering No.**

Package Quantity: 1

| Name / Shape | Operation | Contact Configuration | <Reference> Assembled Part No. ① = 1 or 4 | ⑥ Illumination Color Code |
|---|---|---|---|---|
| Round Flush (marking) | Momentary | 1NO | HW①L-M1P10⑤⑥ | |
| | | 1NC | HW①L-M1P01⑤⑥ | |
| | | 1NO-1NC | HW①L-M1P11⑤⑥ | |
| | | 2NO | HW①L-M1P20⑤⑥ | R (red) |
| | | 2NC | HW①L-M1P02⑤⑥ | G (green) |
| | | 2NO-2NC | HW①L-M1P22⑤⑥ | Y (yellow) |
| | Maintained | 1NO | HW①L-A1P10⑤⑥ | A (amber) |
| | | 1NC | HW①L-A1P01⑤⑥ | S (blue) |
| | | 1NO-1NC | HW①L-A1P11⑤⑥ | PW (pure white) |
| | | 2NO | HW①L-A1P20⑤⑥ | |
| | | 2NC | HW①L-A1P02⑤⑥ | |
| | | 2NO-2NC | HW①L-A1P22⑤⑥ | |
| Round Extended (marking) | Momentary | 1NO | HW①L-M2P10⑤⑥ | |
| | | 1NC | HW①L-M2P01⑤⑥ | |
| | | 1NO-1NC | HW①L-M2P11⑤⑥ | |
| | | 2NO | HW①L-M2P20⑤⑥ | R (red) |
| | | 2NC | HW①L-M2P02⑤⑥ | G (green) |
| | | 2NO-2NC | HW①L-M2P22⑤⑥ | Y (yellow) |
| | Maintained | 1NO | HW①L-A2P10⑤⑥ | A (amber) |
| | | 1NC | HW①L-A2P01⑤⑥ | S (blue) |
| | | 1NO-1NC | HW①L-A2P11⑤⑥ | PW (pure white) |
| | | 2NO | HW①L-A2P20⑤⑥ | |
| | | 2NC | HW①L-A2P02⑤⑥ | |
| | | 2NO-2NC | HW①L-A2P22⑤⑥ | |
| Round Extended with Full Shroud (marking) | Momentary | 1NO | HW①L-MF2P10⑤⑥ | |
| | | 1NC | HW①L-MF2P01⑤⑥ | |
| | | 1NO-1NC | HW①L-MF2P11⑤⑥ | |
| | | 2NO | HW①L-MF2P20⑤⑥ | R (red) |
| | | 2NC | HW①L-MF2P02⑤⑥ | G (green) |
| | | 2NO-2NC | HW①L-MF2P22⑤⑥ | Y (yellow) |
| | Maintained | 1NO | HW①L-AF2P10⑤⑥ | A (amber) |
| | | 1NC | HW①L-AF2P01⑤⑥ | S (blue) |
| | | 1NO-1NC | HW①L-AF2P11⑤⑥ | PW (pure white) |
| | | 2NO | HW①L-AF2P20⑤⑥ | |
| | | 2NC | HW①L-AF2P02⑤⑥ | |
| | | 2NO-2NC | HW①L-AF2P22⑤⑥ | |

| | Operator unit | |
|---|---|---|
| Name / Shape | <Reference> Assembled Part No. ① = 1 or 4 | |
| Round Flush (marking) | HW①L-M1⑥-PI-USA | |
| | HW①L-A1⑥-PI-USA | |
| Round Extended (marking) | HW①L-M2⑥-PI-USA | |
| | HW①L-A2⑥-PI-USA | |
| Round Extended with Full Shroud (marking) | HW①L-MF2⑥-PI-USA | |
| | HW①L-AF2⑥-PI-USA | |

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

- Specify a bezel type code in place of ① in the Part No. See page 742.
- Specify a rated voltage code in place of ⑤ in the Part No.

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

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

For Part No. (Ordering No.)/ mounting positions of contact units, see page **782**.

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

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

## Illuminated Pushbuttons

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

| Name / Shape | Operation | Contact Configuration | \<Reference\> Assembled Part No. ① = 1 or 4 | ⑥ Color Code |
|---|---|---|---|---|
| Square Flush (marking) | Momentary | 1NO | **HW2L-M1P10⑤⑥** | R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white) |
| | | 1NC | **HW2L-M1P01⑤⑥** | |
| | | 1NO-1NC | **HW2L-M1P11⑤⑥** | |
| | | 2NO | **HW2L-M1P20⑤⑥** | |
| | | 2NC | **HW2L-M1P02⑤⑥** | |
| | | 2NO-2NC | **HW2L-M1P22⑤⑥** | |
| | Maintained | 1NO | **HW2L-A1P10⑤⑥** | |
| | | 1NC | **HW2L-A1P01⑤⑥** | |
| | | 1NO-1NC | **HW2L-A1P11⑤⑥** | |
| | | 2NO | **HW2L-A1P20⑤⑥** | |
| | | 2NC | **HW2L-A1P02⑤⑥** | |
| | | 2NO-2NC | **HW2L-A1P22⑤⑥** | |
| ø29 Mushroom (marking) | Momentary | 1NO | HW①L-M3P10⑤⑥ | R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white) |
| | | 1NC | HW①L-M3P01⑤⑥ | |
| | | 1NO-1NC | HW①L-M3P11⑤⑥ | |
| | | 2NO | HW①L-M3P20⑤⑥ | |
| | | 2NC | HW①L-M3P02⑤⑥ | |
| | | 2NO-2NC | HW①L-M3P22⑤⑥ | |
| | Maintained | 1NO | HW①L-A3P10⑤⑥ | |
| | | 1NC | HW①L-A3P01⑤⑥ | |
| | | 1NO-1NC | HW①L-A3P11⑤⑥ | |
| | | 2NO | HW①L-A3P20⑤⑥ | |
| | | 2NC | HW①L-A3P02⑤⑥ | |
| | | 2NO-2NC | HW①L-A3P22⑤⑥ | |
| ø40 Jumbo Mushroom (marking) | Momentary | 1NO | HW①L-M4P10⑤⑥ | R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white) |
| | | 1NC | HW①L-M4P01⑤⑥ | |
| | | 1NO-1NC | HW①L-M4P11⑤⑥ | |
| | | 2NO | HW①L-M4P20⑤⑥ | |
| | | 2NC | HW①L-M4P02⑤⑥ | |
| | | 2NO-2NC | HW①L-M4P22⑤⑥ | |
| | Maintained | 1NO | HW①L-A4P10⑤⑥ | |
| | | 1NC | HW①L-A4P01⑤⑥ | |
| | | 1NO-1NC | HW①L-A4P11⑤⑥ | |
| | | 2NO | HW①L-A4P20⑤⑥ | |
| | | 2NC | HW①L-A4P02⑤⑥ | |
| | | 2NO-2NC | HW①L-A4P22⑤⑥ | |

- Specify a bezel type code in place of ① in the Part No. See page 742.
- Specify a rated voltage code in place of ⑤ in the Part No.

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

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

## Sub-Assembled Ordering No.

**Package Quantity: 1**

### Operator unit

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

### Contact Unit

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

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

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

**Illuminated Pushbuttons Dimensions**

All dimensions in mm.

## Round Flush

**1 to 2 contacts**
HW1L-□1P
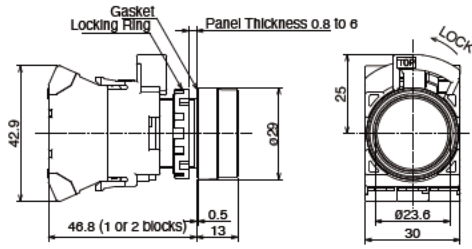
**3 to 4 contacts**
HW1L-□1P

## Round Extended

**1 to 2 contacts**
HW1L-□2P

**3 to 4 contacts**
HW1L-□2P
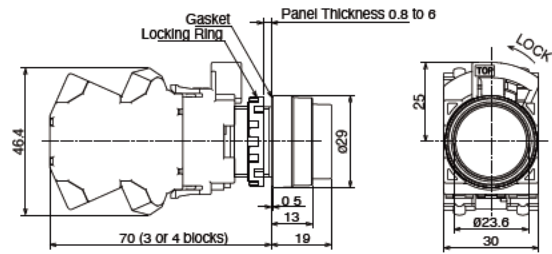
## Round Extended with Full Shroud

**1 to 2 contacts**
HW1L-□F2P
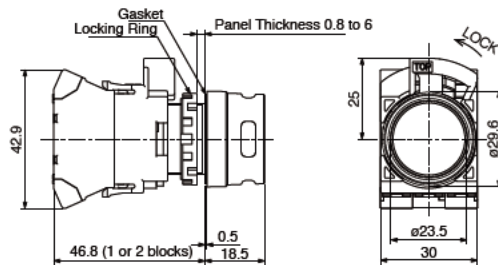
**3 to 4 contacts**
HW1L-□F2P
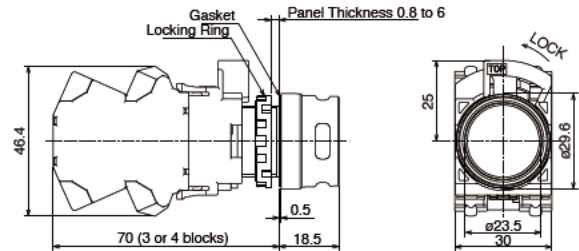
## Square Flush

**1 to 2 contacts**
HW2L-□1P
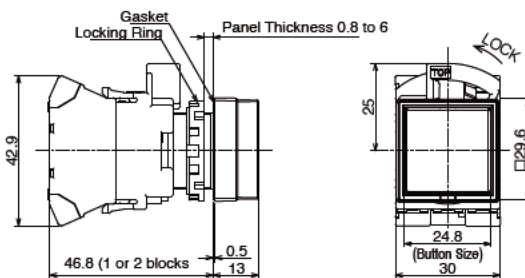
**3 to 4 contacts**
HW2L-□1P
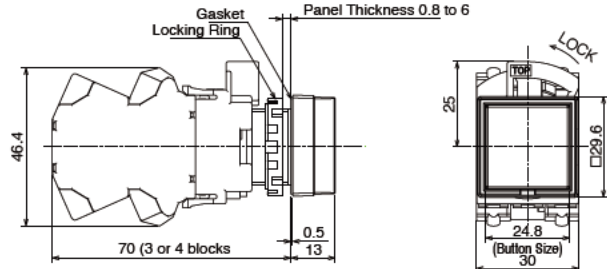
## Illuminated Pushbuttons Dimensions

All dimensions in mm.

### ø29 Mushroom

**1 to 2 contacts**
HW1L-□3P



Gasket
Locking Ring
Panel Thickness 0.8 to 6
LOCK
TOP
42.9
ø40
25
0.5
13
46.8 (1 or 2 blocks)
23.2
30

**3 to 4 contacts**
HW1L-□3P



Gasket
Locking Ring
Panel Thickness 0.8 to 6
LOCK
TOP
46.4
ø29
25
0.5
13
70 (3 or 4 blocks)
23.2
30
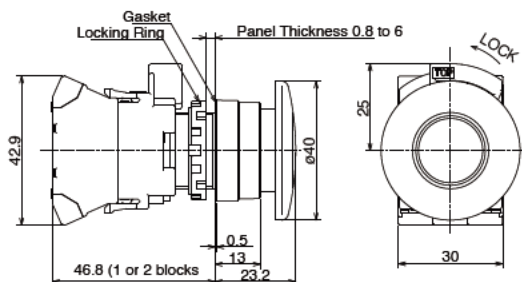
### ø40 Jumbo Mushroom

**1 to 2 contacts**
HW1L-□4P



Gasket
Locking Ring
Panel Thickness 0.8 to 6
LOCK
TOP
42.9
ø40
25
0.5
13
46.8 (1 or 2 blocks)
23.2
30

**3 to 4 contacts**
HW1L-□4P



Gasket
Locking Ring
Panel Thickness 0.8 to 6
LOCK
TOP
46.4
ø40
25
0.5
13
70 (3 or 4 blocks)
23.2
30
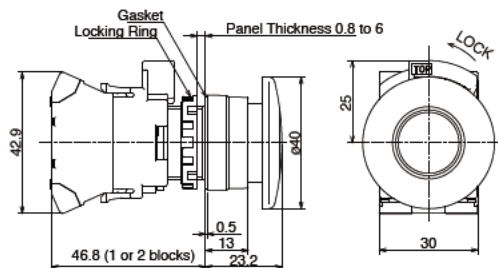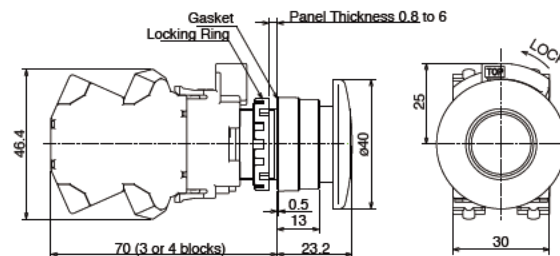
### Illuminated Pushbuttons Part No. Example
### Assembled and sub-assembled unit

**Assembled**

HW1L - M 1 P 11 Q4 R

①Bezel shape code
1: Round black
2: Square black
4: Round Metal

②Operation code
M: Momentary
A: Maintained

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

④Contact configuration code
10: 1NO
01: 1NC
11: 1NO1NC
20: 2NO
02: 2NC
22: 2NO-2NC

⑤Rated voltage code
Q2  : 6V AC/DC
Q3  : 12V AC/DC
Q4  : 24V AC/DC
QH2 : 100/120V AC/DC
QM  : 200/220V AC
QM4 : 230/240V AC

⑥Button color code
(see page **747**)

• For available assembled products, see table on page **747**.

**Operator unit**

HW1L - M 1 R - PI-USA

①Bezel shape code
1: Round black
2: Square black
4: Round metal

②Operation code
M: Momentary
A: Maintained

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

⑥Button color code
(see page **748 & 749**)

**Contact unit (illuminated)**

HW - CN P 10 Q0

④Contact configuration code
(see page **748**)

• LED lamps are not supplied.

**LED lamp**

LSRD - 6

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Signaling Lights — Relays & Sockets — Timers — Contactors — Terminal Blocks — Circuit Breakers

**Dual Pushbuttons without Pilot Light**

## Sub-Assembled

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

| Assembled (Flush–Flush, Flush–Extended) | = | Operator unit | + | Contact unit (Contact block, dummy block, connecting unit) |

### Without Pilot Light

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

### Sub-Assembled Ordering No.

Package Quantity: 1

| Operator Unit Part No. (Ordering No.) |
|---|
| HW7D-B11⑥⑦ |
| HW7D-B12⑥⑦ |
| HW7D-B21⑥⑦ |
| HW7D-B22⑥⑦ |

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

*1) Interlock: Momentary operation. When one of the buttons is pressed, the other button cannot be operated.
Do not operate top and bottom buttons at the same time. Operating the buttons at the same time may lead to malfunctions.

• For contact mounting position, see page **781**.
• Specify a code in place of ⑥⑦ in the Part No. See tables below

### ⑥Button Color Code

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

### ⑦Button Legends Code

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

### Contact Block Mounting Position

(2) (3)
(1)

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

### Contact Configuration

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

← Button Position
← Pushbutton Operation
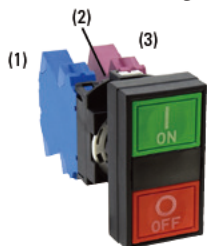
Contact block (1) is actuated by the top button.
Contact block (3) is actuated by the bottom button.

For Part No. (Ordering No.)/ mounting positions of contact units, see page **781**.

## Dual Pushbuttons with Pilot Light

### Sub-Assembled

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

| Assembled (Flush–Flush, Flush–Extended) | − | Operator unit | + | LED Lamp | + | Contact unit (illuminated) (Contact block, LED module, connecting unit) |

**With Pilot Light**

<Reference>

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

**Sub-Assembled Ordering No.**

**Package Quantity: 1**

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

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

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

- Do not operate top and bottom buttons at the same time.
  Operating the buttons at the same time may lead to malfunctions.
- For contact mounting position, see page 782.
- Specify a code in place of ⑥⑦ in the Part No. See tables below

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

**⑥Button Color Code**

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

**⑦Button Legends Code**

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

**Contact Block Mounting Position**

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

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

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

**Dual Pushbuttons**

Dual Pushbuttons Part No. Example
Assembled and sub-assembled unit

## Assembled (without pilot light)

**HW7D - B 1 1 P 10 10 GR 1**

①Operation code
  1: Momentary
  2: Interlocking

②Button style code
  1: Flush–Flush
  2: Flush–Extended

③Contact arrangement code
  (top button)

④Contact arrangement code
  (bottom button)

⑦Button Legends Code
  **Blank**: Blank
  **1**: I & ON / O & OFF

⑥Button color code
  **GR**: Top Button Green
    Bottom Button Red
  **WB**: Top Button White
    Bottom Button Black

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

## Assembled (with pilot light)

**HW7D - L 1 1 P 11 20 QH2 PW GR 1**

①Operation code
  1: Momentary
  2: Interlocking

②Button style code
  1: Flush–Flush
  2: Flush–Extended

③Contact arrangement code
  (top button)

④Contact arrangement code
  (bottom button)

⑦Button Legends Code
  **Blank**: Blank
  **1**: I & ON / O & OFF

⑥Button color code
  **GR**: Top Button Green
    Bottom Button Red
  **WB**: Top Button White
    Bottom Button Black

⑤Rated voltage code
  **Q2**: 6V AC/DC
  **Q3**: 12V AC/DC
  **Q4**: 24V AC/DC
  **QH2**: 100/120V AC/DC
  **QM**: 200-220V AC
  **QM4**: 220-240V AC

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

## Operator unit (without pilot light)

**HW7D - B 1 1 GR 1**

①Operation code
  1: Momentary
  2: Interlocking

②Button style code
  1: Flush–Flush
  2: Flush–Extended

⑦Button Legends Code
  **Blank**: Blank
  **1**: I & ON / O & OFF

⑥Button color code
  **GR**: Top Button Green
    Bottom Button Red
  **WB**: Top Button White
    Bottom Button Black

## Contact unit

**HW- CN P 20**

④Contact configuration code
  (see page **752**)

## Operator unit (with pilot light)

**HW7D - L 1 1 PW GR 1**

①Operation code
  1: Momentary
  2: Interlocking

②Button style code
  1: Flush–Flush
  2: Flush–Extended

⑦Button Legends Code
  **Blank**: Blank
  **1**: I & ON / O & OFF

⑥Button color code
  **GR**: Top Button Green
    Bottom Button Red
  **WB**: Top Button White
    Bottom Button Black

## Contact unit (for illuminated unit)

**HW- CN P 20 Q0**

④Contact configuration code
  (see page **753**)

• LED lamps are not supplied.

## LED Lamp

**LSRD - 6**

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

## Dual Pushbuttons Dimensions

**All dimensions in mm.**

### Without Pilot Light
### Flush–Flush
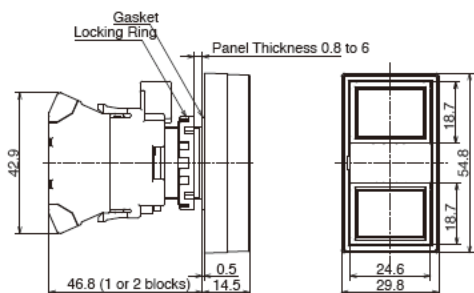
**1 to 2 contacts**
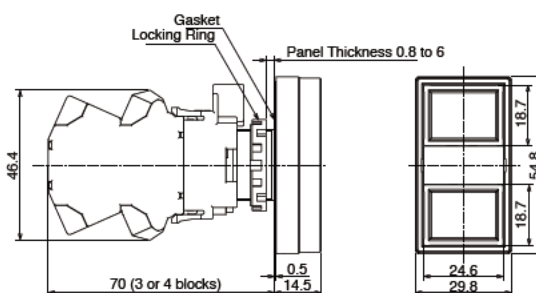
**3 to 4 contacts**



### Flush–Extended
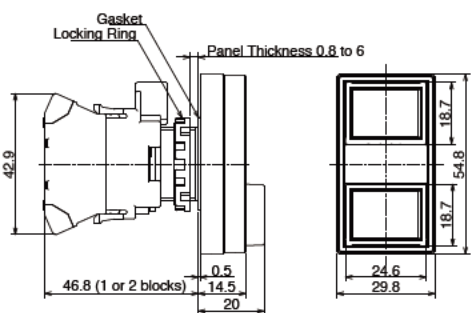
**1 to 2 contacts**
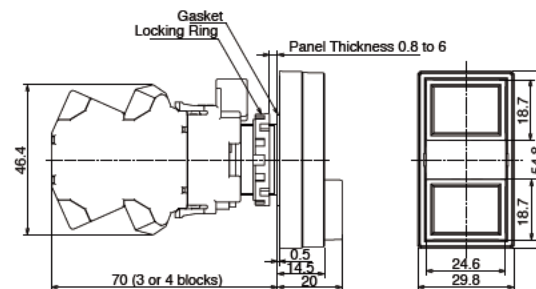
**3 to 4 contacts**



### With Pilot Light
### Flush–Flush
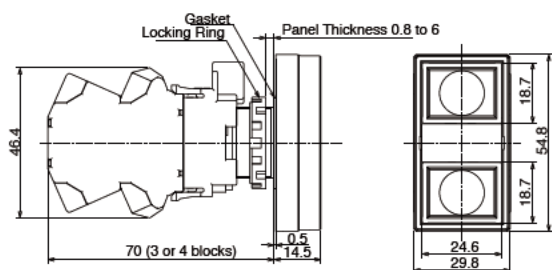
**1 to 2 contacts**
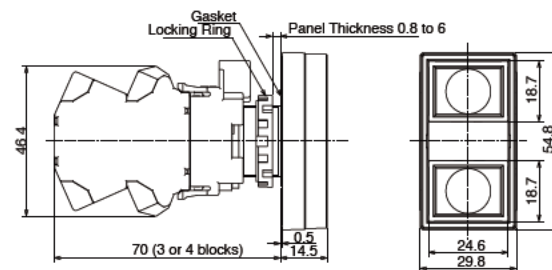
**3 to 4 contacts**



### Flush–Extended

**1 to 2 contacts**

**3 to 4 contacts**

Switches & Pilot Devices
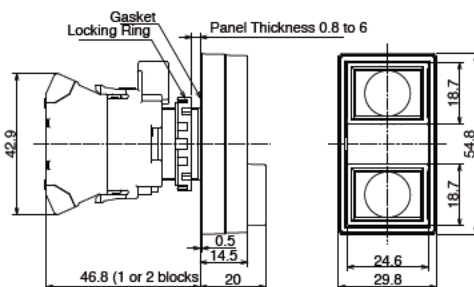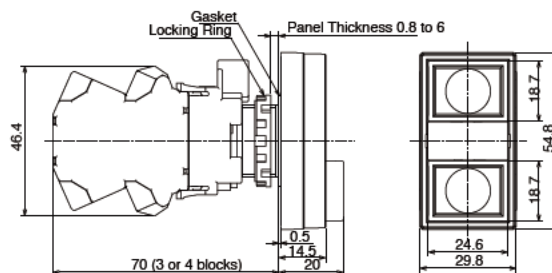
### Selector Switches (Knob Operator)

### Assembled

Package Quantity: 1

| Shape | No. of Positions | Contact Configuration (Code) | Contact Block Mounting Position | Contact | Operator Position 1 | Operator Position 2 | Cam Code | Maintained ∨ 1 2 | |
|---|---|---|---|---|---|---|---|---|---|
| HW⓪S ⓪: Bezel Type 1: Black 2: Metal | 90° 2-position | 1NO (10) | (1) | NO | | X | — | HW⓪S-2TP10 | |
| | | | (3) | — | Dummy | | | | |
| | | 1NC (01) | (1) | — | Dummy | | | HW⓪S-2TP01 | |
| | | | (3) | NC | X | | | | |
| | | 1NO-1NC (11) | (1) | NO | | X | | HW⓪S-2TP11 | |
| | | | (3) | NC | X | | | | |
| | | 2NO (20) | (1) | NO | | X | | HW⓪S-2TP20 | |
| | | | (3) | NO | | X | | | |
| | | 2NO-2NC (22) | (1) | NONC NO | | X | | HW⓪S-2TP22 | |
| | | | | NC | X | | | | |
| | | | (3) | NONC NO | | X | | | |
| | | | | NC | X | | | | |

| | | Contact Configuration (Code) | Contact Block Mounting Position | Contact | Operator Position 1 | Operator Position 0 | Operator Position 2 | | Maintained ∨ 1 0 2 | Spring return two-way ∧ 1 0 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| | 45° 3-position | 2NO (20) | (1) | NO | X | | | — | HW⓪S-3TP20 | HW⓪S-33TP20 |
| | | | (3) | NO | | | X | | | |
| | | 2NO-1NC (21N1) ★☆ | (1) | NONC NO | X | | | J | HW⓪S-3JTP21N3 | |
| | | | | NC | | | X | | | |
| | | | (3) | NO NO | | | X | | | |
| | | 2NO-2NC (22) | (1) | NONC NO | X | | | — | HW⓪S-3TP22 | |
| | | | | NC | X— | | X | | | |
| | | | (3) | NONC NO | | | X | | | |
| | | | | NC | X— | | X | | | |
| | | 4NO (40) | (1) | 2NO NO | X | | | — | HW⓪S-3TP40 | |
| | | | | NO | X | | | | | |
| | | | (3) | 2NO NO | | | X | | | |
| | | | | NO | | | X | | | |

- On the contact configuration marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- On the contact configuration marked with ☆ in the table above, contacts may overlap when the operator position is changed.
- Knob operator: white indicator on black body
- Selector switches with 1 contact block contain 2 dummy blocks. Selector switches with 2 contact blocks contain 1 dummy block.
- Turn the operator to each position accurately.

### Contact Block Mounting Position

(1) (2) (3)

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

## Dimensions

All dimensions in mm.

### 1 to 2 contacts

Gasket
Locking Ring
Panel Thickness 0.8 to 6

(2-position Maintained, spring-return 60°)
90°
45° 45°
LOCK
ⓇTOP
25

42.9
ø29
0.5
46.8 (1 or 2 blocks)  7  21
30

### 3 to 4 contacts

Gasket
Locking Ring
Panel Thickness 0.8 to 6

(2-position Maintained, spring-return 60°)
90°
45° (3-position) 45°
LOCK
ⓇTOP
25

46.4
ø29
0.5
70 (3 or 4 blocks)  7  21
30

Left margin tabs: Switches & Pilot Devices · Signaling Lights · Relays & Sockets · Timers · Contactors · Terminal Blocks · Circuit Breakers

### Selector Switches (Knob / Lever Operator) 2-Position

**Sub-Assembled**　　**When ordering, specify the sub-assembled ordering no. See page 756 for available assembled products.**

| Assembled | = | Operator unit | + | Contact unit (Contact block, dummy block, connecting unit) |
|---|---|---|---|---|

Knob operator　　Lever operator

**90° 2-position**　　　　　　　　　　　　　　　　　　　　Package Quantity: 1

<table>
<tr>
<th colspan="7">&lt;Reference&gt; Assembled Part No.</th>
<th colspan="2">Operator Unit Ordering No.</th>
<th colspan="2">Contact Unit</th>
</tr>
<tr>
<th rowspan="4">No. of Positions</th>
<th rowspan="4">Contact Configuration (Code)</th>
<th colspan="2">Contact Block</th>
<th colspan="2">Operator Position</th>
<th rowspan="3">Cam Code</th>
<th>Operator Position Code</th>
<th rowspan="3">④ Operator type</th>
<th>Operator Position Code</th>
<th rowspan="3">Shape</th>
<th rowspan="3">Part No. (Ordering No.)</th>
</tr>
<tr>
<th rowspan="2">Mounting Position</th>
<th rowspan="2">Contact</th>
<th rowspan="2">1</th>
<th rowspan="2">2</th>
<th>Maintained 1 2</th>
<th>Maintained (90°) 1 2</th>
</tr>
<tr>
<th>&lt;Reference&gt; Assembled Part No.</th>
<th>Part No. (Ordering No.)</th>
</tr>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
<tr>
<td rowspan="24">90° 2-position</td>
<td rowspan="2">1NO (10)</td>
<td>(1)</td><td>NO</td><td></td><td>X</td>
<td rowspan="24">—</td>
<td rowspan="2">HW◎S-2④P10</td>
<td rowspan="4">Knob Operator</td>
<td rowspan="24">HW◎S-2④</td>
<td rowspan="24"></td>
<td rowspan="2">HW-CNP10</td>
</tr>
<tr><td>(3)</td><td>—</td><td>Dummy</td><td></td></tr>
<tr>
<td rowspan="2">1NC (01)</td>
<td>(1)</td><td>—</td><td>Dummy</td><td></td>
<td rowspan="2">HW◎S-2④P01</td>
<td rowspan="2">HW-CNP01</td>
</tr>
<tr><td>(3)</td><td>NC</td><td>X</td><td></td></tr>
<tr>
<td rowspan="2">1NO-1NC (11)</td>
<td>(1)</td><td>NO</td><td></td><td>X</td>
<td rowspan="2">HW◎S-2④P11</td>
<td rowspan="4">Lever Operator</td>
<td rowspan="2">HW-CNP11</td>
</tr>
<tr><td>(3)</td><td>NC</td><td>X</td><td></td></tr>
<tr>
<td rowspan="2">2NO (20)</td>
<td>(1)</td><td>NO</td><td></td><td>X</td>
<td rowspan="2">HW◎S-2④P20</td>
<td rowspan="2">HW-CNP20</td>
</tr>
<tr><td>(3)</td><td>NO</td><td></td><td>X</td></tr>
<tr>
<td rowspan="2">2NC (02)</td>
<td>(1)</td><td>NC</td><td>X</td><td></td>
<td rowspan="2">HW◎S-2④P02</td>
<td rowspan="2">HW-CNP02</td>
</tr>
<tr><td>(3)</td><td>NC</td><td>X</td><td></td></tr>
<tr>
<td rowspan="4">2NO-2NC (22)</td>
<td rowspan="2">(1)</td><td>NO</td><td></td><td>X</td>
<td rowspan="4">HW◎S-2④22</td>
<td rowspan="4">HW-CNP22</td>
</tr>
<tr><td>NC</td><td>X</td><td></td></tr>
<tr><td rowspan="2">(3)</td><td>NO</td><td></td><td>X</td></tr>
<tr><td>NC</td><td>X</td><td></td></tr>
<tr>
<td rowspan="3">3NO-1NC (31N1)</td>
<td rowspan="2">(1)</td><td>NC</td><td>X</td><td></td>
<td rowspan="3">HW◎S-2④31N1</td>
<td rowspan="3">HW-CNP31N1</td>
</tr>
<tr><td>NO</td><td></td><td>X</td></tr>
<tr><td>(3)</td><td>NO</td><td></td><td>X</td></tr>
<tr>
<td rowspan="3">4NO (40)</td>
<td>(1)</td><td>NO</td><td></td><td>X</td>
<td rowspan="3">HW◎S-2④40</td>
<td rowspan="3">HW-CNP40</td>
</tr>
<tr><td>(4)</td><td>NO</td><td></td><td>X</td></tr>
<tr><td>(5)</td><td>NO</td><td></td><td>X</td></tr>
<tr>
<td rowspan="3">3NC (03N2)</td>
<td rowspan="2">(1)</td><td>NC</td><td>X</td><td></td>
<td rowspan="3">HW◎S-2④03N2</td>
<td rowspan="3">HW-CNP03N2</td>
</tr>
<tr><td>NC</td><td>X</td><td></td></tr>
<tr><td>(3)</td><td>NC</td><td>X</td><td></td></tr>
<tr>
<td rowspan="3">2NO-1NC (21N1)</td>
<td rowspan="2">(1)</td><td>2NO</td><td>NO</td><td></td><td>X</td>
<td rowspan="3">HW◎S-2④21N1</td>
<td rowspan="3">HW-CNP21N1</td>
</tr>
<tr><td>NO</td><td></td><td>X</td></tr>
<tr><td>(3)</td><td>NC</td><td>NC</td><td>X</td><td></td></tr>
</table>

**90° 2-position Reversed Cam**　　　　　　　　　　　　Package Quantity: 1

<table>
<tr>
<th colspan="7">&lt;Reference&gt; Assembled Part No.</th>
<th colspan="2">Operator Unit Ordering No.</th>
<th colspan="2">Contact Unit</th>
</tr>
<tr>
<th rowspan="4">No. of Positions</th>
<th rowspan="4">Contact Configuration (Code)</th>
<th colspan="2">Contact Block</th>
<th colspan="2">Operator Position</th>
<th rowspan="3">Cam Code</th>
<th>Operator position code</th>
<th rowspan="3">Shape</th>
<th>Operator position code</th>
<th rowspan="3">Shape</th>
<th rowspan="3">Part No. (Ordering No.)</th>
</tr>
<tr>
<th rowspan="2">Mounting Position</th>
<th rowspan="2">Contact</th>
<th rowspan="2">2</th>
<th rowspan="2">1</th>
<th>Maintained 1 2</th>
<th>Maintained (90°) 1 2</th>
</tr>
<tr>
<th>&lt;Reference&gt; Assembled Part No.</th>
<th>Part No. (Ordering No.)</th>
</tr>
<tr><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr>
<tr>
<td rowspan="2">90° 2-position</td>
<td rowspan="2">2NC (02)</td>
<td>(1)</td><td>NC</td><td></td><td>X</td>
<td rowspan="2">J</td>
<td rowspan="2">HW◎S-2J④TP02</td>
<td>Knob Operator</td>
<td rowspan="2">HW◎S-2J④</td>
<td rowspan="2"></td>
<td rowspan="2">HW-CNP02</td>
</tr>
<tr><td>(3)</td><td>NC</td><td></td><td>X</td><td>Lever Operator</td></tr>
</table>

- For part no. other than maintained position, see Part No. Example on page 759.
- Note: Turn the operator to each position accurately.
- Specify an operator unit code in place of ④ in the Part No.
- ◎ Bezel Type: 1: Black, 4: Metal

④Operator Unit Code

| Code | Operator style | Code | Operator style |
|---|---|---|---|
| T | Knob Operator | L | Lever Operator |

**For Part No. (Ordering No.)/ mounting positions of contact units, see page 781.**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Selector Switches (Knob / Lever Operator) 3-Position

**Sub-Assembled** — **When ordering, specify the sub-assembled ordering no. See page 756 for available assembled products.**

| Assembled | = | Operator unit | + | Contact unit (Contact block, dummy block, connecting unit) |



Knob operator   Lever operator

**45° 3-position**

Package Quantity: 1

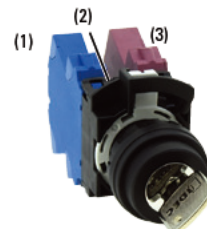| No. of Positions | Contact Configuration (Code) | Contact Block Mounting Position | Contact | Operator Position 1 | Operator Position 0 | Operator Position 2 | Cam Code | Operator position code Maintained <Reference> Assembled Part No. | ④ Operator type | Operator position code Maintained Part No.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

- On the contact configuration marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- On the contact configuration marked with ☆ in the table above, contacts may overlap when the operator position is changed.
- For part no. other than maintained position, see Part No. Example on page 759.
- ◎ Bezel Type: 1: Black, 4: Metal
- Specify an operator unit code in place of ④ in the Part No.

④Operator Unit Code

| Code | Operator style | Code | Operator style |
|---|---|---|---|
| T | Knob Operator | L | Lever Operator |

Note: Turn the operator to each position accurately.

**Contact Block Mounting Position**

(1)   (2)   (3)
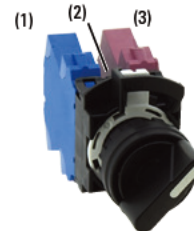


Note) (2) can only be mounted with a dummy block.

For Part No. (Ordering No.)/ mounting positions of contact units, see page **780**.

## Selector Switches (Knob / Lever Operator)

Selector Switches Part No. Example

### Assembled and sub-assembled unit

**Assembled (Without Pilot Light)**

### HW1S - 2 J T P 10

⓪ Bezel Type
- **1:** Black,
- **4:** Metal

① Operator position code:
- **2:** 2-position, maintained
- **21:** 2-position, spring return from right
- **3:** 3-position, maintained
- **31:** 3-position, spring return from right
- **32:** 3-position, spring return from left
- **33:** 3-position, spring return two way

③ Contact configuration code
(see page **757**)

④ Operator unit code
- **T:** Knob Operator
- **L:** Lever Operator

② Cam code
- **J:** Specified
  (① Operator position: 2, 3 only)
- **Blank:** Not specified

**Operator (Without Pilot Light)**

### HW1S - 2 J L

⓪ Bezel Type
- **1:** Black,
- **4:** Metal

① Operator position code
- **2:** 2-position, maintained
- **21:** 2-position, spring return from right
- **3:** 3-position, maintained
- **31:** 3-position, spring return from right
- **32:** 3-position, spring return from left
- **33:** 3-position, spring return two way

④ Operator unit code
- **T:** Knob Operator
- **L:** Lever Operator

② Cam code
- **J:** Specified
  (① Operator position: 2, 3 only)
- **Blank:** Not specified

**Contact Unit**

### HW- CN P 10

③ Contact configuration code
(see page **757, 758**)

## ① Operator position code

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

- For available assembled products, see table on page **756**.

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

## Operator Truth Tables

### 2 Position Selector Switches

| Contact | | Mounting Position | Operator Position | |
|---|---|---|---|---|
| | | | Left | Right |
| HW⊚S-2T HW⊚K-2* HW⊚F-2 | HW-P10 (NO) | 1 | 0 | X |
| | | 3 | 0 | X |
| | HW-P01 (NC) | 1 | X | 0 |
| | | 3 | X | 0 |
| | HW-P10R (NO-EM) | 1 | 0 | ~~X~~ |
| | | 3 | 0 | ~~X~~ |

### 3 Position Selector Switches

| Contact | | Mounting Position | Operator Position | | |
|---|---|---|---|---|---|
| | | | Left | Center | Right |
| HW⊚S-3T HW⊚K-3* HW⊚F-3 | HW-P10 (NO) | 1 | X | 0 | 0 |
| | | 3 | 0 | 0 | X |
| | HW-P01 (NC) | 1 | 0 | ~~X~~ | ~~X~~ |
| | | 3 | ~~X~~ | ~~X~~ | 0 |
| | HW-P10R (NO-EM) | 1 | ~~X~~ | 0 | 0 |
| | | 3 | 0 | 0 | ~~X~~ |

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

### 3 Position Selector Switches con't

| Contact | | Mounting Position | Operator Position | | |
|---|---|---|---|---|---|
| | | | Left | Center | Right |
| HW⊚S-3JT HW⊚K-3J* | HW-P10 (NO) | 1 | X | 0 | 0 |
| | | 3 | 0 | 0 | X |
| | HW-P01 (NC) | 1 | 0 | X | 0 |
| | | 3 | 0 | X | 0 |
| | HW-P10R (NO-EM) | 1 | X | 0 | X |
| | | 3 | ~~X~~ | 0 | ~~X~~ |

### 4 Position Selector Switches

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

### 5 Position Selector Switches

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

1. Mounting position indicates which side of operator each contact should be mounted (as viewed from the front of the panel).
2. *For key removable code see page 763

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

Switches & Pilot Devices

## Key Selector Switches (Disc Tumbler Key)

**Assembled**

Package Quantity: 1

| Name / Shape | No. of Positions | Contact Configuration (Code) | Contact Block | | Operator Position | | Cam Code | Operator position code | — |
|---|---|---|---|---|---|---|---|---|---|
| | | | Mounting Position | Contact | 1 | 2 | | Maintained (90°) 1⌄2 | |
| Disc Tumbler Key HW1K / HW4K | 90° 2-position | 1NO (10) | (1) | NO | | X | | HW◎K-2AP10 (Key removable in all positions) HW◎K-2BP10 (Key removable at left) | |
| | | | (3) | — | Dummy | | | | |
| | | 1NO-1NC (11) | (1) | NO | | X | | HW◎K-2AP11 (Key removable in all positions) HW◎K-2BP11 (Key removable at left) | |
| | | | (3) | NC | X | | | | |
| | | 2NO (20) | (1) | NO | | X | — | HW◎K-2AP20 (Key removable in all positions) HW◎K-2BP20 (Key removable at left) | |
| | | | (3) | NO | | X | | | |
| | | 2NO-2NC (22) | (1) | NONC NO | | X | | HW◎K-2AP22N2 (Key removable in all positions) HW◎K-2BP22N2 (Key removable at left) | |
| (NC contact only) | | | | NC | X | | | | |
| | | | (3) | NONC NO | | X | | | |
| | | | | NC | X | | | | |

| | No. of Positions | Contact Code | Contact Block | | Operator Position | | | Cam Code | Operator position code | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mounting Position | Contact | 1 | 0 | 2 | | Maintained 1⌄0⌄2 | Spring return from right 1⌄0⌄2 |
| | 45° 3-position | 2NO (20) | (1) | NO | X | | | — | HW◎K-3AP20 (Key removable in all positions) HW◎K-3BP20 (Key removable at left/center) HW◎K-3DP20 (Key removable at center) | |
| | | | (3) | NO | | | X | | | |
| | | 1NO-1NC (11N1) | (1) | NC | | X | | J | HW◎K-3JBP11N1 (Key removable at left/center) HW◎K-3JGP11N1 (Key removable at left) | |
| | | | (3) | NO | | | X | | | |
| | | 2NO-2NC (22) | (1) | NONC NO | X | | | — | | HW◎K-31BP22 (Key removable at left/center) HW◎K-31GP22 (Key removable at left) |
| | | | | NC | X—X | | | | | |
| | | | (3) | NONC NO | | | X | | | |
| | | | | NC | X—X | | | | | |
| | | 2a-2b (22N2) | (1) | 2NC NC | X—X | | | — | | HW◎K-31BP22N2 (Key removable at left/center) HW◎K-31GP22N2 (Key removable at left) |
| | | | | NC | X—X | | | | | |
| | | | (3) | 2NO NO | | | X | | | |
| | | | | NO | | | X | | | |

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

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

- For other contact configuration or operator position, select from sub-assembled units (page 761 to 762).

## Key removal position

◎ **Bezel Type 1: Black, 4: Metal**

① **90° 2-position**

| Key Retained Position (Cam code: blank) | |
|---|---|
| **A:** Key removable in all positions ①⌄② | **B:** Key removable at left ①⌄❷ |

①②: Key removal position　❶❷: Key retained position

② **45° 3-position**

| Key Retained Position | | | |
|---|---|---|---|
| **A:** Key removable in all positions ①⌄⓪⌄② | **B:** Key removable at left / center ①⌄⓪⌄❷ | **D:** Key removable at center ①⌄⓪⌄❷ | **G:** Key removable at left ①⌄❶⌄❷ |

①⓪②: Key removal position　❶⓪❷: Key retained position
Note: The key cannot be removed in a spring return position.

**Contact Block Mounting Position**

(2)
(1)　(3)

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

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

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

### Sub-Assembled

**When ordering, specify the sub-assembled ordering no. See page 760 for available assembled products.**

| Assembled | = | Operator unit | + | Contact unit (Contact block, dummy block, connecting unit) |

Disc Tumbler    Pin Tumbler

90° 2-position                                                                                                  Package Quantity: 1

| No. of Positions | Contact Configuration (Code) | Contact Block Mounting Position | Contact Block Contact | Operator Position 1 | Operator Position 2 | Cam Code | Operator position code Maintained <Reference> Assembled Part No. | ③Key Operator Type | Operator position code Maintained Part No. (Ordering No.) | Shape | Part No. (Ordering No.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 90° 2-position | 1NO (10) | (1) | NO | | X | | HW◎K-2③④P10 | Disc Tumbler | HW◎K-2③④⑥ | | HW-CNP10 |
| | | (3) | — | Dummy | | | | | | | |
| | 1NC (01) | (1) | — | Dummy | | | HW◎K-2③④P01 | | | | HW-CNP01 |
| | | (3) | NC | X | | | | | | | |
| | 1NO-1NC (11) | (1) | NO | | X | | HW◎K-2③④P11 | | | | HW-CNP11 |
| | | (3) | NC | X | | | | | | | |
| | 2NO (20) | (1) | NO | | X | | HW◎K-2③④P20 | Pin Tumbler | | | HW-CNP20 |
| | | (3) | NO | | X | | | | | | |
| | 2NC (02) | (1) | NC | X | | | HW◎K-2③④P02 | | | | HW-CNP02 |
| | | (3) | NC | X | | | | | | | |
| | 2NO-2NC (22) | (1) | NONC NO | | X | | HW◎K-2③④P22 | | | | HW-CNP22 |
| | | | NONC NC | X | | | | | | | |
| | | (3) | NONC NO | | X | | | | | | |
| | | | NONC NC | X | | | | | | | |
| | 3NO-1NC (31) | (1) | NONC NO | | X | | HW◎K-2③④P31 | | | | HW-CNP31 |
| | | | NONC NO | | X | | | | | | |
| | | (3) | NONC NO | | X | | | | | | |
| | | | NONC NC | X | | | | | | | |
| | 4NO (40) | (1) | 2NO NO | | X | | HW◎K-2③④P40 | | | | HW-CNP40 |
| | | | 2NO NO | | X | | | | | | |
| | | (3) | 2NO NO | | X | | | | | | |
| | | | 2NO NO | | X | | | | | | |
| | 3NC (03N2) | (1) | 2NC NC | X | | | HW◎K-2③④P03N2 | | | | HW-CNP03N2 |
| | | | 2NC NC | X | | | | | | | |
| | | (3) | NC NC | X | | | | | | | |
| | 2NO-1NC (21N1) | (1) | 2NO NO | | X | | HW◎K-2③④P21N1 | | | | HW-CNP21N1 |
| | | | 2NO NO | | X | | | | | | |
| | | (3) | NC NC | X | | | | | | | |

- For part no. other than maintained position, see Part No. Example on page 763.
- Each selector key switch is supplied with two keys.
- ◎ Bezel Type 1: Black, 4: Metal
- Specify the key style in ③.
  ③Key type code

| Code | Key Operator Shape |
|---|---|
| Blank | Disc tumbler |
| P | Pin tumbler |

See page **763** Part No. Development for details.

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

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

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

**Sub-Assembled**

**When ordering, specify the sub-assembled ordering no. See page 760 for available assembled products.**

| Assembled | = | Operator unit | + | Contact unit (Contact block, dummy block, connecting unit) |
|---|---|---|---|---|

Disc Tumbler    Pin Tumbler

45° 3-position                       Package Quantity: 1

| No. of Positions | Contact Configuration (Code) | Contact Block Mounting Position | Contact Block Contact | Operator Position 1 | Operator Position 0 | Operator Position 2 | Cam Code | <Reference> Assembled Part No. Maintained | ③Key Operator Type | Operator Unit Ordering No. Maintained Part No. (Ordering No.) | Contact Unit Shape | Contact Unit Part No. (Ordering No.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45° 3-position | 1NO-1NC (11) | (1) | NO | X | | | | HW◎K-3③④P11 | Disc Tumbler | HW◎K-3④⑥ | | HW-CNP11 |
| | | (3) | NC | X—X | | | | | | | | |
| | 1NO-1NC (11N1) | (1) | NC | | X—X | | | HW◎K-3③④P11N1 | | | | HW-CNP11N1 |
| | | (3) | NO | | | X | | | | | | |
| | 2NO (20) | (1) | NO | X | | | | HW◎K-3③④P20 | | | | HHW-CNP20 |
| | | (3) | NO | | | X | | | | | | |
| | 2NC (02) | (1) | NC | | X—X | | | HW◎K-3③④P02 | Pin Tumbler | | | HW-CNP02 |
| | | (3) | NC | X—X | | | | | | | | |
| | 1NO-1NC (11N1) ★☆ | (1) | NC | X | | | J | HW◎K-3J③④P11N1 | | HW◎K-3J④⑥ | | HW-CNP11N1 |
| | | (3) | NO | | | X | | | | | | |
| | 2NO-1NC (21N3) ★☆ | (1) | NONC NO | X | | | J | HW◎K-3J③④P21N3 | | | | HW-CNP21N3 |
| | | | NC | | X | | | | | | | |
| | | (3) | NO | | | X | | | | | | |
| | 2NO-2NC (22) | (1) | NONC NO | X | | | | HW◎K-3③④P22 | | HW◎K-3④⑥ | | HW-CNP22N1 |
| | | | NC | X—X | | | | | | | | |
| | | (3) | NONC NO | | | X | | | | | | |
| | | | NC | X—X | | | | | | | | |
| | 2NO-2NC (22N2) | (1) | NONC NC | X—X | | | | HW◎K-3③④P22N2 | | | | HW-CNP22N2 |
| | | | NC | X—X | | | | | | | | |
| | | (3) | NONC NO | | | X | | | | | | |
| | | | NO | | | X | | | | | | |
| | 4NO (40) | (1) | NONC NO | X | | | | HW◎K-3③④P40 | | | | HW-CNP40 |
| | | | NO | X | | | | | | | | |
| | | (3) | NONC NO | | | X | | | | | | |
| | | | NO | | | X | | | | | | |
| | 4NC (04) | (1) | NONC NC | X—X | | | | HW◎K-3③④P04 | | | | HW-CNP04 |
| | | | NC | X—X | | | | | | | | |
| | | (3) | NONC NC | X—X | | | | | | | | |
| | | | NC | X—X | | | | | | | | |

- On the contact arrangement marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator position is changed.
- For part no. other than maintained position, see Part No. Example on page 763.
- Each selector key switch is supplied with two keys.
- ◎ Bezel Type 1: Black, 4: Metal
- Specify the key style in ③.
  ③Key type code

| Code | Key Operator Shape |
|---|---|
| Blank | Disc tumbler |
| P | Pin tumbler |

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

### Contact Block Mounting Position

(2)
(1)    (3)

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

# Switches & Pilot Devices

## HW Push-in Series

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

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

Key Selector Switches Part No. Example

### Assembled and sub-assembled unit

### Assembled Part No. Example

**HW1K - 2 J P A P 01 - 501**

⑥**Bezel Type**
- **1:** Black,
- **4:** Metal

①**Operator position code:**
- **2:** 2-position, maintained
- **21:** 2-position, spring return from right
- **3:** 3-position, maintained
- **31:** 3-position, spring return from right
- **32:** 3-position, spring return from left
- **33:** 3-position, spring return two way

②**Cam code**
- **J:** Specified (①Operator position: 2, 3 only)
- **Blank:** Not specified

③**Key Style**
- **Blank:** Disc Tumbler Key
- **P:** Pin Tumbler Key

⑥**Key No.**
Disc Tumbler Key
Blank: Standard (231)

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

Pin Tumbler Key
Blank: Standard (500)
-501 to -515 (non-standard)

Note: The key number is engraved on the key cylinder.

⑤**Contact configuration code**

④**Key removal position**

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

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

### Operator unit

**HW1K - 2 J P A - 501**

⑥**Bezel Type**
- **1:** Black,
- **4:** Metal

①**Operator position code:**
- **2:** 2-position, maintained
- **21:** 2-position, spring return from right
- **3:** 3-position, maintained
- **31:** 3-position, spring return from right
- **32:** 3-position, spring return from left
- **33:** 3-position, spring return two way

②**Cam code**
- **J:** Specified (①Operator position: 2, 3 only)
- **Blank:** Not specified

③**Key Style**
- Blank: Disc Tumbler Key
- P: Pin Tumbler Key

⑥**Key No.**
Disc Tumbler Key
Blank: Standard (231)

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

Pin Tumbler Key
Blank: Standard (500)
-501 to -515 (non-standard)

Note: The key number is engraved on the key cylinder.

④**Key removal position**

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

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

### Contact unit

**HW- CN P 10**

⑤Contact configuration code
(see page **761, 762**)

④**Key removal position**

**90° 2-position / 60° 2-position**

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

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

**45° 3-position**

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

①**Operator position code**

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

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

• For available assembled products, see table on page **760**.

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

**Key Selector Switches (Pin Tumbler Key)**

All dimensions in mm

Dimensions

## Disc Tumbler Key

### 1 to 2 contacts
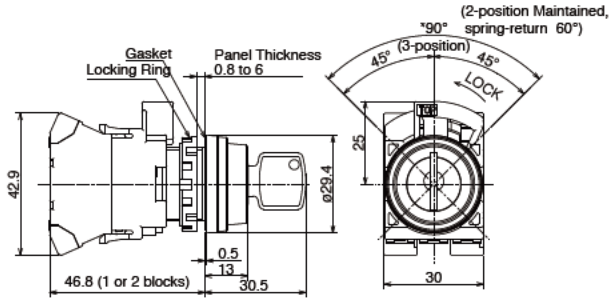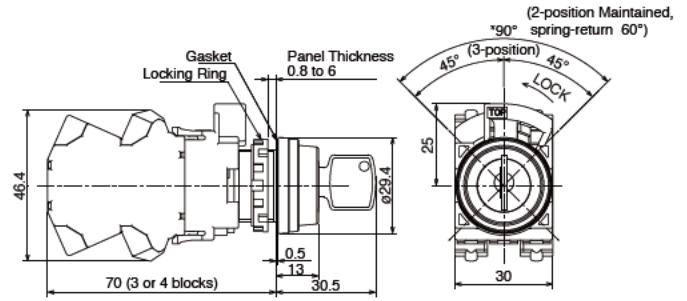


### 3 to 4 contacts



## Pin Tumbler Key

### 1 to 2 contacts
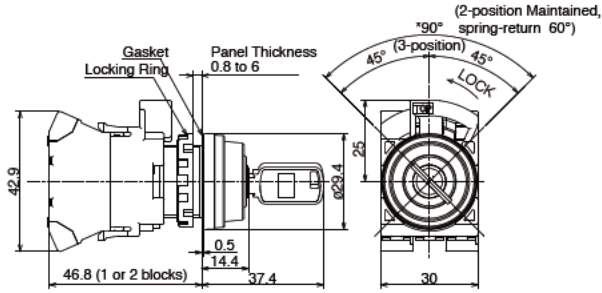


### 3 to 4 contacts
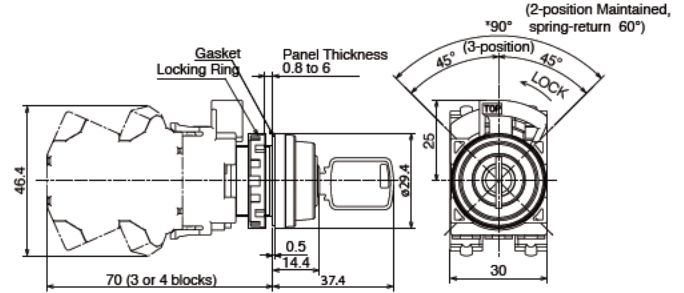
**Lever operator can be purchased only as a sub-assembled product.**

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

**Assembled**

**Package Quantity: 1**

| Name / Shape | No. of Positions | Contact Configuration Table | | | | | Operating Voltage | Functional Specifications | | | ◎ Illumination Color Code |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Contact Configuration | Contact Block | | Operator Position | | | Maintained 1 2 | | — | |
| | | | Mounting Position | Contact | 1 | 2 | | | | | |
| | 90° 2-position | 1NO (10) | (1) | NO | | X | 24V AC/DC | HW◎F-2P10Q4◎ | | | R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white) |
| | | | (3) | ⚲◆○○▨ | | | | | | | |
| | | 1NO-1NC (11) | (1) | NO | | X | | HW◎F-2P11Q4◎ | | | |
| | | | (3) | – | X | | | | | | |
| | | 2NO (20) | (1) | NO | | X | | HW◎F-2P20Q4◎ | | | |
| | | | (3) | NO | | X | | | | | |
| | | 2NO-2NC (22) | (1) | NONC NO | | X | | HW◎F-2P22Q4◎ | | | |
| | | | | NC | X | | | | | | |
| | | | (3) | NONC NO | | X | | | | | |
| | | | | NC | X | | | | | | |
| | | 1NO (10) | (1) | NO | | X | 100/120V AC/DC | HW◎F-2P10QH2◎ | | | |
| | | | (3) | – Dummy | | | | | | | |
| | | 1NO-1NC (11) | (1) | NO | | X | | HW◎F-2P11QH2◎ | | | |
| | | | (3) | NC | X | | | | | | |
| | | 2NO (20) | (1) | NO | | X | | HW◎F-2P20QH2◎ | | | |
| | | | (3) | NO | | X | | | | | |

| | No. of Positions | Contact Configuration Table | | | | | | Cam Code | Operator position code | | ◎ Illumination Color Code |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Contact Configuration | Contact Block | | Operator Position | | | | Maintained 1 0 2 | Spring return two-way 1 0 2 | |
| | | | Mounting Position | Contact | 1 | 0 | 2 | | | | |
| | 45° 3-position | 2NO (20) | (1) | NO | X | | | 24V AC/DC | HW◎F-3P20Q4◎ | HW◎F-33P20Q4◎ | R (red) G (green) Y (yellow) A (amber) S (blue) PW (pure white) |
| | | | (3) | NO | | | X | | | | |

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

Contact Block Mounting Position

(1) (2) (3)

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

Signaling Lights  
Relays & Sockets  
Timers  
Contactors  
Terminal Blocks  
Circuit Breakers

**719**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

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

**Sub-Assembled**    **When ordering, specify the sub-assembled ordering no. See page 765 for available assembled products.**

Assembled   **−**   Operator unit   **+**   LED Lamp   **+**   Contact unit (illuminated) (Contact block, LED module, connecting unit)

Knob operator    Lever operator

90° 2-position

Package Quantity: 1

| No. of Positions | Contact Configuration | Contact Block Mounting Position | Contact Block Contact | Operator Position 1 | Operator Position 2 | Cam Code | Operator position code Maintained 1 2 <Reference> Assembled Part No. | Name / Shape | Operator position code Maintained 1 2 Part No. (Ordering No.) | Shape | Part No. (Ordering No.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 90° 2-position | 1NO (10) | (1) | NO | | X | | HW⊚F-2③P10⑤⑥ | Knob Operator | | | HW-CNP10Q0 |
| | | (3) | — | Dummy | | | | | | | |
| | 1NC (01) | (1) | — | Dummy | | | HW⊚F-2③P01⑤⑥ | | | | HW-CNP01Q0 |
| | | (3) | NC | X | | | | | | | |
| | 1NO-1NC (11) | (1) | NO | | X | | HW⊚F-2③P11⑤⑥ | Lever Operator | | | HW-CNP11Q0 |
| | | (3) | NC | X | | | | | | | |
| | 2NO (20) | (1) | NO | | X | | HW⊚F-2③P20⑤⑥ | | | | HW-CNP20Q0 |
| | | (3) | NO | | X | | | | | | |
| | 2NC (02) | (1) | NC | X | | | HW⊚F-2③P02⑤⑥ | | | | HW-CNP02Q0 |
| | | (3) | NC | X | | | | | | | |
| | 2NO-2NC (22) | (1) | NONC | NO / X, NC / X | | — | HW⊚F-2③P22⑤⑥ | | HW⊚F-2③⑥-PI-USA | | HW-CNP22Q0 |
| | | (3) | NONC | NO / X, NC / X | | | | | | | |
| | 3NO-1NC (31) | (1) | NONC | NO / X, NO / X | | | HW⊚F-2③P31⑤⑥ | | | | HW-CNP31Q0 |
| | | (3) | NONC | NO / X, NC / X | | | | | | | |
| | 4NO (40) | (1) | 2NO | NO / X, NO / X | | | HW⊚F-2③P40⑤⑥ | | | | HW-CNP40Q0 |
| | | (3) | 2NO | NO / X, NO / X | | | | | | | |
| | 3NC (03N2) | (1) | 2NC | NC / X, NC / X | | | HW⊚F-2③P03N2⑤⑥ | | | | HW-CNP03N2Q0 |
| | | (3) | NC | NC / X | | | | | | | |

- ⊚ Bezel Type 1: Black, 4: Metal
- Specify an operator unit code in place of ③ in the Part No. ③Operator Unit Code

| Code | Operator style |
|---|---|
| Blank | Knob Operator |
| L | Lever Operator |

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

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

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

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

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

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

### Sub-Assembled

**When ordering, specify the sub-assembled ordering no. See page 765 for available assembled products.**

45° 3-position

Package Quantity: 1

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

- ◎ Bezel Type 1: Black, 4: Metal
- Specify an operator unit code in place of ③ in the Part No.
  ③Operator Unit Code

| Code | Operator style |
|---|---|
| Blank | Knob Operator |
| L | Lever Operator |

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

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

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

### Contact Block Mounting Position

(1) (2) (3)
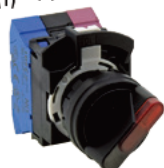
Note) (2) can only be mounted with a LED module.

- For part no. other than maintained position, see Part No. Example on page 768.

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

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

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

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

All dimensions in mm.

Dimensions

## Knob Operator

### 1 to 2 contacts
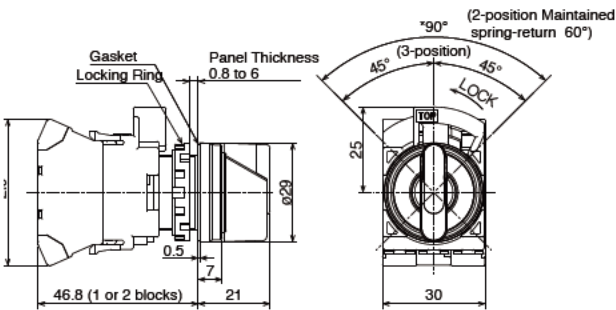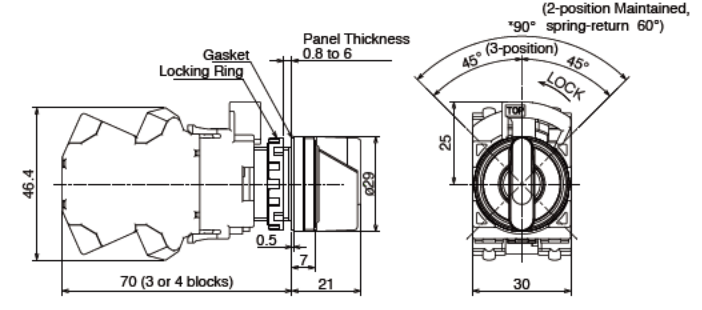


### 3 to 4 contacts



## Lever Operator

### 1 to 2 contacts
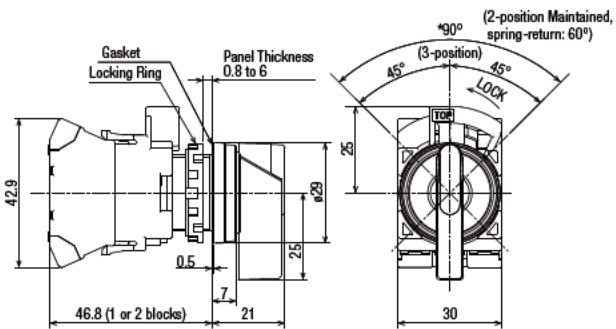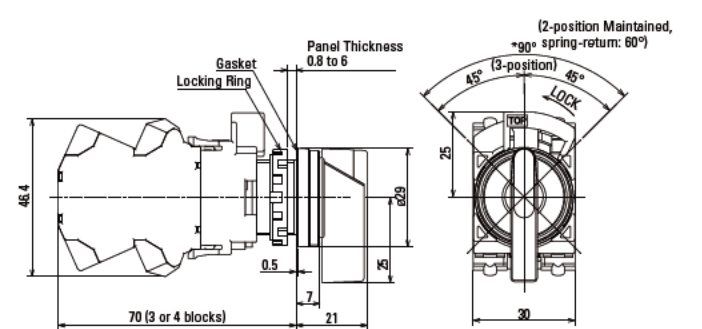


### 3 to 4 contacts



Illuminated Selector Switches Part No. Example

Assembled and sub-assembled unit

**Assembled Part No. Example**

HW1F - 2 J L P 11 Q4 R

⑥Illuminated color code
(see page **765**)

⑤Operating voltage
- **Q2** : 6V AC/DC
- **Q3** : 12V AC/DC
- **Q4** : 24V AC/DC
- **QH2** : 100/120V AC/DC
- **QM** : 200/220V AC
- **QM4** : 200/240V AC

④Contact configuration code
(see page **767**)

⑥Bezel Type
- **1**: Black,
- **4**: Metal

①Operator position code:
- **2**: 2-position, maintained
- **21**: 2-position, spring return from right
- **3**: 3-position, maintained
- **31**: 3-position, spring return from right
- **32**: 3-position, spring return from left
- **33**: 3-position, spring return two way

②Cam code
- **J**: Specified
  (①Operator position: **2, 3** only)
- **Blank**: Not specified

③Operator unit code
- **Blank**: Knob Operator
- **L**: Lever Operator

• For available assembled products, see table on page **765**.

**Operator unit**

HW1F - 2 L R - PI-USA

⑥Bezel Type
- **1**: Black,
- **4**: Metal

①Operator position code
- **2**: 2-position, maintained
- **21**: 2-position, spring return from right
- **3**: 3-position, maintained
- **31**: 3-position, spring return from right
- **32**: 3-position, spring return from left
- **33**: 3-position, spring return two way

⑥Illuminated color code
(see page **765**)

④ Operator unit code
- **T**: Knob Operator
- **L**: Lever Operator

**Contact Unit (for illuminated unit)**

HW- CN P 20 Q0

④Contact configuration code
(see page **766, 767**)

Note) LED lamps are not supplied.

**LED Lamp**

LSRD - 6

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

## Selector Pushbuttons

### Assembled

**Package Quantity: 1**

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

• Specify a button color code in place of ③ in the part No.

• When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.

• For other circuit codes, select from sub-assembled units (page 770).

**Contact Block Mounting Position**
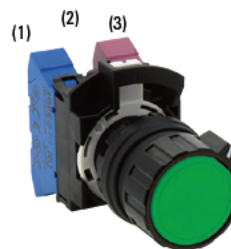
(1) (2) (3)

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

## Dimensions

Gasket
Locking Ring
Panel Thickness 0.8 to 6
90° (2-position)
LOCK
TOP
42.9
25
17
46.8 (1 or 2 blocks)
23.5
0.5
ø29.6
ø23.6 (Button Diameter)
30

All dimensions in mm.

Gasket
Locking Ring
Panel Thickness 0.8 to 6
90° (2-position)
LOCK
TOP
46.4
25
17
70 (3 or 4 blocks)
0.5
23.5
ø29.6
ø23.6 (Button Size)
30
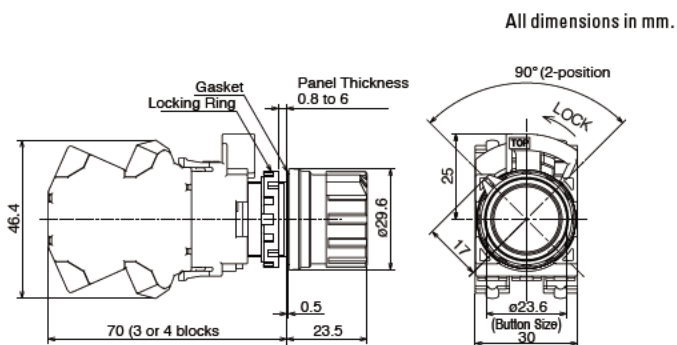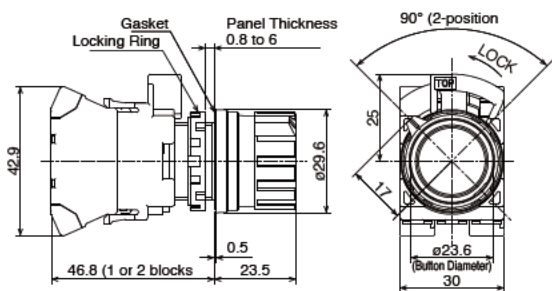
## Selector Pushbuttons Part No. Example

### Assembled and sub-assembled unit

**Assembled  Part No. Example**

HW1R - 2 D P 20 B

①Circuit code (see page 770)

⑤Button color code (see page 770)

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

• For available assembled products, see table on page 770.

**Operator unit**

HW1R - 2 A B

①Circuit code (see page 770)

③Button color code (see page 770)

**Contact unit**

HW - CN P 10

⑤Contact configuration code (see page 770)

**HW Push-in Series**

Switches & Pilot Devices

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Selector Pushbuttons

**Sub-Assembled** — When ordering, specify the sub-assembled ordering no. See page 769 for available assembled products.

Assembled = Operator unit + Contact unit (Contact block, dummy block, connecting unit)

Sub-Assembled Ordering No.

Package Quantity: 1

| Circuit Code | Contact Configuration (Code) | Contact Block — Mounting Position | Contact | Left Normal | Left Push | Right Normal | Right Push | Ring Operator Part No. (Ordering No.) | ③ Button Color Code | Operator unit Part No. (Ordering No.) | Contact unit Contact Configuration (Code) | Contact unit Part No. (Ordering No.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1NO-1NC (11) | (1) | NO | | X | | X | HW1R-2AP11③ | | HW1R-2A③ | 1NO-1NC (11) | HW-CNP11 |
| | | (3) | NC | X | | | | | | | | |
| | 2NO (20) | (1) | NO | | X | | X | HW1R-2AP20③ | | | 2NO (20) | HW-CNP20 |
| | | (3) | NO | | X | X—X | | | | | | |
| | 2NO-2NC (22) | (1) | 2NO NO | | X | | | HW1R-2AP22N1③ | | | 2NO-2NC (22N1) | HW-CNP22N1 |
| | | | NO | | X | | | | | | | |
| | | (3) | 2NC NC | X | | | | | | | | |
| | | | NC | X | | | | | | | | |
| D | 2NO (20) | (1) | NO | | X | | | HW1R-2DP20③ | | HW1R-2D③ | 2NO (20) | HW-CNP20 |
| | | (3) | NO | | | | X | | | | | |
| | 2NO-2NC (22) | (1) | NONC NO | | X | | | HW1R-2DP22③ | B (black) | | 2NO-2NC (22) | HW-CNP22 |
| | | | NC | X | | X—X | | | G (green) | | | |
| | | (3) | NONC NO | | | | X | | R (red) | | | |
| | | | NC | X—X | | | | | Y (yellow) | | | |
| E | 2NO-2NC (22)★ | (1) | NONC NO | | X | | | HW1R-2EP22③ | S (blue) | HW1R-2E③ | 2NO-2NC (22) | HW-CNP22 |
| | | | NC | | | X—X | | | W (white) | | | |
| | | (3) | NONC NO | | | | X | | | | | |
| | | | NC | X—X | | | | | | | | |
| F | 2NO-2NC (22)★☆ | (1) | NONC NO | | | | X | HW1R-2FP22③ | | HW1R-2F③ | 2NO-2NC (22) | HW-CNP22 |
| | | | NC | | | X | | | | | | |
| | | (3) | NONC NO | | X | | | | | | | |
| | | | NC | X | | | | | | | | |
| N | 2NO-2NC (22N2)★☆ | (1) | 2NC NC | | | X | | HW1R-2NP22N2③ | | HW1R-2N③ | 2NO-2NC (22N2) | HW-CNP22N2 |
| | | | NC | | | X | | | | | | |
| | | (3) | 2NO NO | | X | | X | | | | | |
| | | | NO | | X | | X | | | | | |
| T | 2NO-2NC (22) | (1) | NONC NO | | X | X | | HW1R-2TP22③ | | HW1R-2T③ | 2NO-2NC (22) | HW-CNP22 |
| | | | NC | X | | | | | | | | |
| | | (3) | NONC NO | | X | X | | Operation Blocked | | | | |
| | | | NC | X | | | | | | | | |

- On the contact arrangement marked with ★ in the table above, the rated load switching current is reduced to a half of the related current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
- For models with ☆, contacts may overlap when the operator position is changed.
- When operating the pushbutton selector, do not turn the operator ring or the lock lever while the button is depressed. Otherwise the pushbutton selector may be damaged.
- For contact mounting position, see page **781**.

For Part No. (Ordering No.)/ mounting positions of contact units, see page **781**.

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

## Monolever Switches

### Sub-Assembled

**When ordering, specify the sub-assembled ordering no.**

| Assembled | = | Operator unit | + | Contact unit (Contact block, dummy block, connecting unit) |
|---|---|---|---|---|
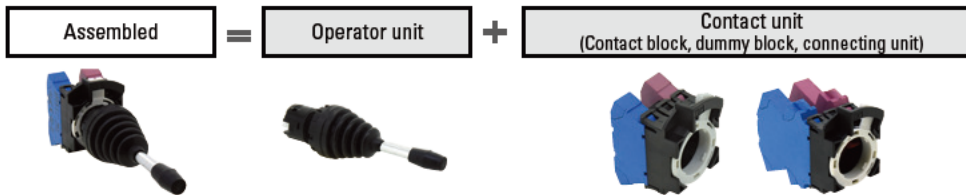
### Sub-Assembled Ordering No.

**Package Quantity: 1**

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

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

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

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

- For contact mounting position, see page 781.

**For Part No. (Ordering No.)/ mounting positions of contact units, see page 781.**

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Switches & Pilot Devices · Signaling Lights · Relays & Sockets · Timers · Contactors · Terminal Blocks · Circuit Breakers

## Monolever Switches

### Contact Configuration

**2-position (Right/Left)**

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

**2-position (Up/Down)**

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

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

### Contact Block Mounting Position



(1) (2) (3)

Up
Right
Left
Down

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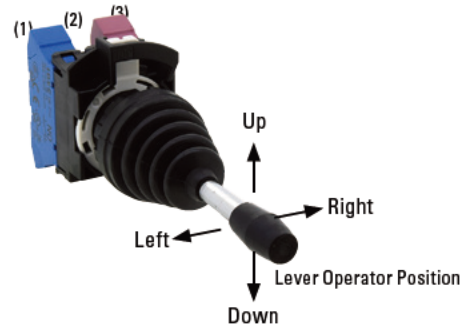
Note) (2) can only be mounted with a dummy block.

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

### Monolever Switches Part No. Example

**Assembled and sub-assembled unit**

**Assembled Part No. Example**

**HW1M-L P 1 0 1 0 - 20**
Up Right Down Left

① Model
HW1M: Standard
HW1M-L: Interlocking

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

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

**Operator unit**

**HW1M - L 1 0 1 0**
Up Right Down Left

① Model
HW1M: Standard
HW1M-L: Interlocking

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

**Contact unit**

**HW- CN P 10 20**

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

### Dimensions

All dimensions in mm.

**Standard**
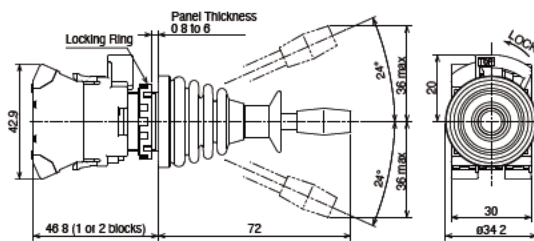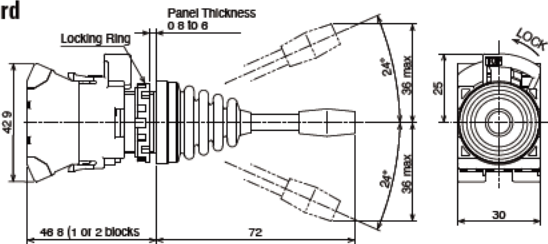


**Interlocking**
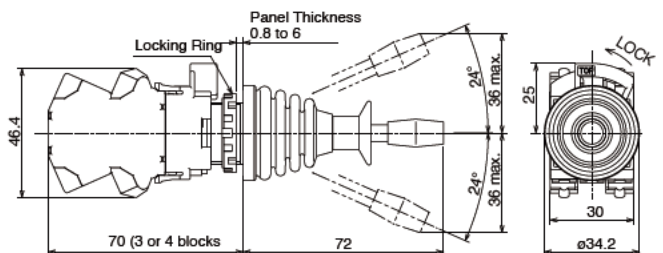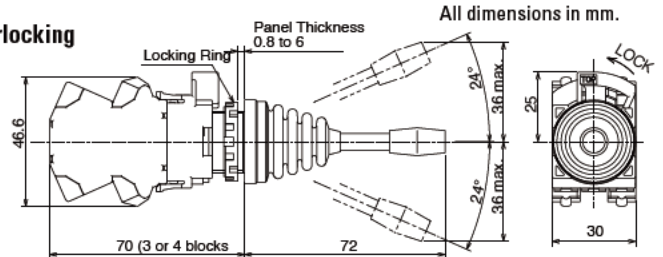
## Short Body Pilot Lights

### Assembled

Package Quantity: 1

| Name / Shape | Operating Voltage | Part No. (Ordering No.) | ① Lens Color Code |
|---|---|---|---|
| Extended (Dome) HW1P | 6V AC/DC | HW1P-2JPQ2① | R (red) G (green) Y (yellow) A (amber) S (blue) PW (Pure white) |
| | 12V AC/DC | HW1P-2JPQ3① | |
| | 24V AC/DC | HW1P-2JPQ4① | |
| | 100/120V AC/DC | HW1P-2JPRH2① | |
| | 200/240V AC/DC | HW1P-2JPCM2① | |
| Square Flush HW2P | 6V AC/DC | HW2P-1JPQ2① | R (red) G (green) Y (yellow) A (amber) S (blue) PW (Pure white) |
| | 12V AC/DC | HW2P-1JPQ3① | |
| | 24V AC/DC | HW2P-1JPQ4① | |
| | 100/120V AC/DC | HW2P-1JPRH2① | |
| | 200/240V AC/DC | HW2P-1JPCM2① | |

- Built-in BA9S base LED lamp. See page **787** for LED Lamps.
- For square flush pilot lights, legends and symbols can be engraved on marking plates, or printed film can be inserted. For details on marking plates or film, see page **792**. Engraving and films must be prepared by the customer.
- Specify a lens color code in place of ① in the Part No.

## Short Body Pilot Lights

Dimensions

All dimensions in mm.

### Extended (Dome)

6V, 12V, 24V AC/DC

100/120V AC/DC, 200/240V AC
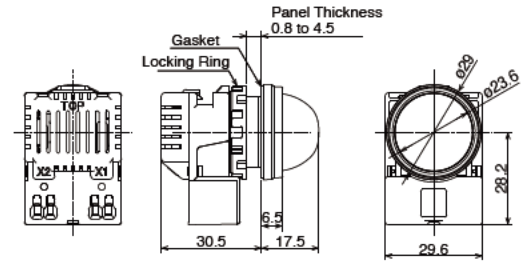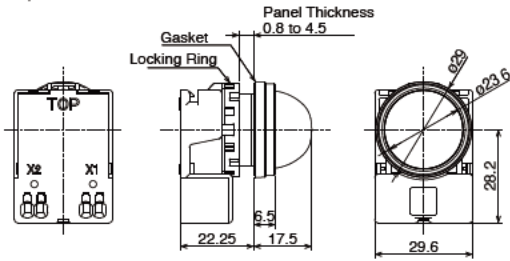
### Square Flush

6V, 12V, 24V AC/DC

100/120V AC/DC, 200/240V AC
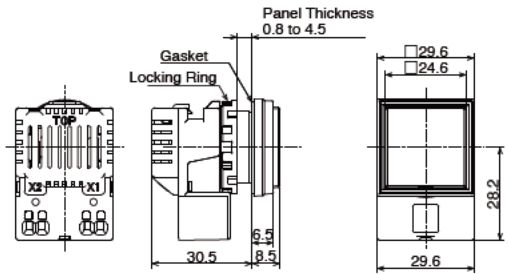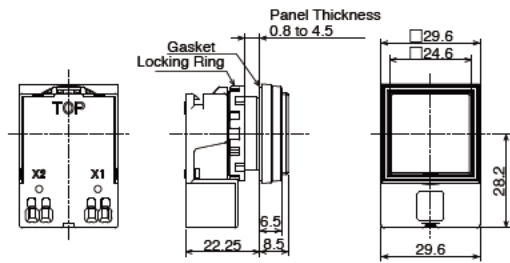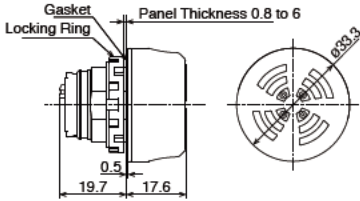
## Illuminated / Non-Illuminated Buzzers

# Easy installation of buzzers and lamps

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

UL CE

- See website for details on approvals and standards.

| Name / Shape | Part No. (Ordering No.) | Illumination Color | Sound Type | Package Quantity | Dimensions (All dimensions in mm.) |
|---|---|---|---|---|---|
| Illuminated Buzzer | HW1Z-P1F2PQ4R | Red | Intermittent | 1 | Gasket, Locking Ring, Panel Thickness 0.8 to 6, ø39.3, 0.5, 19.7, 17.6 |
| | HW1Z-P1F2PQ4Y | Yellow | | | |
| Non-Illuminated Buzzer | HW1Z-2PQ4B | — | Steady | 1 | |
| | HW1Z-F2PQ4B | — | Intermittent | | |

- See page **784** for details on terminal rubber boot.

## Specifications and Ratings

| | | |
|---|---|---|
| Rated Insulation Voltage | | 30V |
| Rated Voltage | | 12 to 24V DC |
| Voltage Range | | 10.8 to 26.4V DC |
| Rated Current (effective value) | | Illuminated: 18mA (24V DC), 8mA (12V DC) Non-Illuminated (Steady sound): 9mA (24V DC), 4mA (12V DC) (Intermittent sound): 7mA (24V DC), 3mA (12V DC) |
| Inrush Current | | 100mA maximum |
| Buzzer | Sound Pressure (of HW1Z itself) (at 25ºC) | 90dB min. at 0.1m (24VDC) 70dB min. at 1m (24V DC, equivalent value) 84dB min. at 0.1m (12V DC) 64dB min. at 1m (12VDC, equivalent value) |
| | Sound Frequency (at 25ºC) | 2,200 to 2,450Hz |
| | Sound Type | Illuminated: Intermittent Non-Illuminated: Steady/Intermittent |
| | Intermittent Cycle (at 25ºC) | 105 cycles/minute approx. (1.75Hz approx.) |
| Illumination | Illumination Type | Flashing |
| | Flash Cycle (at 25ºC) | 105 cycles/minute approx. (1.75Hz approx.) |
| Operating Temperature | | −20 to +50ºC (no freezing) |
| Operating Humidity | | 20 to 85% RH (no condensation) |
| Storage Temperature | | −30 to +80ºC (no freezing) |
| Insulation Resistance | | 100 MΩ minimum (500V DC megger) |
| Dielectric Strength | | Between live and earthed metal parts: 1000 AC, 1 minute |
| Vibration Resistance | | Damage limits: 5 to 55Hz, amplitude 0.5 mm Operating extremes: 5 to 55Hz, amplitude 0.5 mm |
| Shock Resistance | | Operating extremes: 100 m/s² Damage limits: 1,000 m/s² |
| Degree of Protection | Panel front | IP65 (IEC60529) |
| | Terminal | IP40 (IEC 60529) IP54 (with terminal rubber boot) (IEC 60529) |
| Terminal Style | | Push-in terminal |
| Applicable Wire | | Solid wire/ferrule (without insulation cover): 0.2 to 1.5 mm², AWG24-16 Ferrule (with insulation cover): 0.2 to 0.75 mm², AWG24-18 |
| Weight (approx.) | | 17g |

## Dimensions

All dimensions in mm.

### With terminal rubber boot

Cut here when cable size is ø5.5 to 6.5 (*1)
Cut here when cable size is ø6.5 to 7.5 (*1)
Cut here when cable size is ø7.5 to 8.5 (*1)

ø30

45° max. (*3)

Bellows (*2) 17 to 22
54 to 59
58 to 63
62 to 67
66 to 71
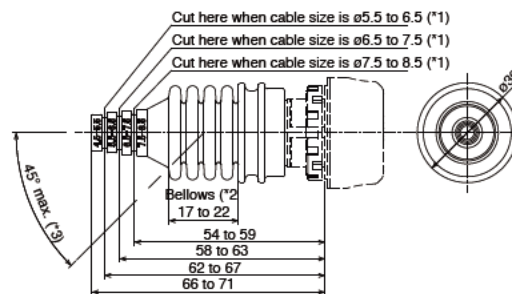
*1 ø4.5-5.5 cable needs no cutting.
*2 The bellows must be 17 to 22mm long after installing the terminal rubber boot.
*3 Maintain a cable angle of 45° max. to the HW1Z axis.

### Terminal Arrangement
(botom view)

X2  X1
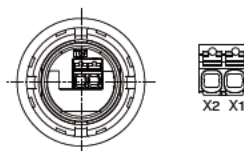
X1 and X2 have no polarity.

### Mounting Hole Layout

3.2 0/2
R0.8 max.
24.1 0/8
ø22.3 0/8
Panel cut-out
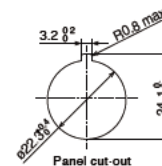
3.2 0/2 hole is for anti-rotation.
Not required when nameplate/anti-rotation is not used.

Instructions for Illuminated / Non-illuminated buzzers: see page **795**

**Emergency Stop Switches**

# Emergency Stop Switches

- Direct opening action (IEC 60947-5-5; 5.2, IEC 60947-5-1; Annex K)

- Safety lock mechanism (IEC 60947-5-5; 6.2)

- Degree of Protection IP65 (IEC 60529)

- See website for details on approvals and standards.

## Specifications

| Operating Temperature | −25 to +60°C (no freezing) |
|---|---|
| Operating Humidity | 45 to 85% RH (no condensation) |
| Storage Temperature | −40 to +80°C (no freezing) |
| Minimum Force Required for Direct Opening Action | 80N |
| Minimum Operator Stroke Required for Direct Opening Action | 5.5mm |
| Maximum Operator Stroke | 10.0mm |
| Contact Resistance | 50 mΩ maximum (initial value) |
| Insulation Resistance | 100 MΩ minimum (500V DC megger) |
| Dielectric Strength | Between live and dead parts:<br>    2500V AC, 1 minute<br>Between terminals of different poles:<br>    2500V AC, 1 minute<br>Bet ween terminals of the same poles:<br>    2500V AC, 1 minute |
| Vibration Resistance | Damage limits | 10 to 500 Hz, Amplitude 0.35 mm, Acceleration 50m/s² |
| | Operating extremes | 10 to 500 Hz, Amplitude 0.35 mm, Acceleration 50m/s² |
| Shock Resistance | Damage limits: 1,000 m/s2 |
| | Operating extremes: 150 m/s2 |
| Operation Frequency | 900 operations/hour |
| Life | Mechanical | Single contact block: 100,000 operations minimum<br>Double contact block: 50,000 operations minimum |
| | Electrical | Single contact block: 100,000 operations minimum<br>Double contact block: 50,000 operations minimum<br>(at 900 operations/h, duty ratio 40%) |
| Degree of Protection | IP65 (IEC 60529), UL Type 4X |
| Short-circuit Protection | 250V/10A fuse (Type aM IEC 60269-1/IEC 60269-2) |
| Weight (approx.) | 51g (HW1B-V4P02)<br>67g (HW1B-V4P04)<br>48g (HW1B-Y2P02) |



Mounting Hole Layout

All dimensions in mm.
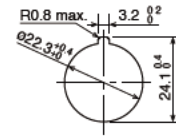


### Minimum Mounting Centers for HW1B (emergency stop switch)

| | Vertical Spacing | Horizontal Spacing |
|---|---|---|
| HW1B-V3<br>HW1B-V4<br>HW1B-Y2 | 50 mm minimum | 50 mm minimum |
| HW1B-V5 | 60 mm minimum | 60 mm minimum |

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

## Nameplate (for ø22 mm Emergency Stop Switches)

Package Quantity: 1

| Shape | Legend | Part No. | Ordering No. | Remarks |
|---|---|---|---|---|
|  | (blank) | **HWAV-0-Y** | HWAV-0-Y | **HWAV-27-Y**<br>Nameplate color: yellow<br>Legend color: black<br>Panel thickness: 0.8 to 4.5 mm<br>Material: Polyamide<br><br>Note) Cannot be used on ø60 mushroom pushlock turn reset switches. Use a nameplate exclusive for ø60 mushroom e-stop. See XW series catalog. |
| | EMERGENCY STOP | **HWAV-27-Y** | HWAV-27-Y | |
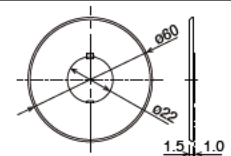
- "EMERGENCY OFF" and white (blank) nameplates available. See website or catalog for SEMI Emergency off (EMO) switches and Stop switches.

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Emergency Stop Switches

### Assembled



Package Quantity: 1

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

Package Quantity: 1

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

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

Part No. Example

## Assembled and sub-assembled unit

### Assembled  Part No. Example

**HW1B-V 4 P 11 R**

◎Bezel Type
1: Black,
4: Metal

①Operation code
V: Pushlock Turn Reset
Y: Push Pull

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

④Button color code

③Contact configuration code
01: 1NC
11: 1NO-1NC
02: 2NC
12N1: 1NO-2NC
03N2: 3NO
22: 2NO-2NC
04: 4NC

- For available assembled products, see table above.

### Sub-assembled operator unit

**HW1B - V 3 R**

◎Bezel Type
1: Black,
4: Metal

①Operation code
V: Pushlock Turn Reset
Y: Push Pull

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

④Button color code
(see page 778)

Note) Only up to 2 contacts can be used for push-pull switches

### Sub-assembled contact unit

**HW- CN P 10**

Note) When choosing sub-assembled push-pull operators, only up to 2 contacts can be used.

③Contact configuration code
01: 1NC
11: 1NO-1NC
02: 2NC
12N1: 1NO-2NC
03N2: 3NO
22: 2NO-2NC
04: 4NC

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

**Emergency Stop Switches**

| Sub-Assembled |

**When ordering, specify the sub-assembled ordering no.**

| Assembled | = | Operator unit | **+** | Contact unit (Contact block, dummy block, connecting unit) |
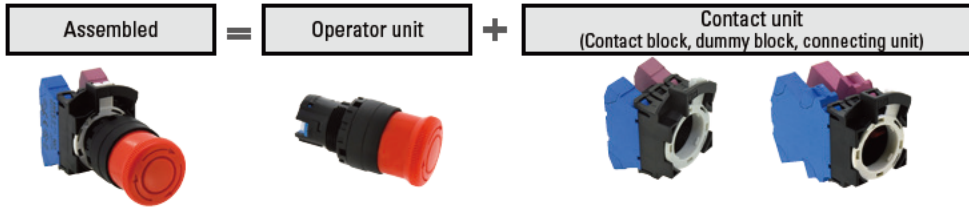
## Pushlock Turn Reset

| Name / Shape | Contact Configuration | <Reference> Assembled Part No. ◎ = 1 or 4 | ④ Button Color Code |
|---|---|---|---|
| ø29mm Mushroom HW◎B-V3 | 1NC | HW◎B-V3P01④ | |
| | 1NO-1NC | HW◎B-V3P11④ | |
| | 2NC | HW◎B-V3P02④ | |
| | 1NO-2NC | HW◎B-V3P12N1④ | **R** (red) **Y** (yellow) |
| | 3NC | HW◎B-V3P03N2④ | |
| | 2NO-2NC | HW◎B-V3P22④ | |
| | 4NC | HW◎B-V3P04④ | |
| ø40mm Mushroom HW◎B-V4 | 1NC | HW◎B-V4P01④ | |
| | 1NO-1NC | HW◎B-V4P11④ | |
| | 2NC | HW◎B-V4P02④ | |
| | 1NO-2NC | HW◎B-V4P12N1④ | **R** (red) **Y** (yellow) |
| | 3NC | HW◎B-V4P03N2④ | |
| | 2NO-2NC | HW◎B-V4P22④ | |
| | 4NC | HW◎B-V4P04④ | |
| ø60mm Mushroom HW◎B-V5 | 1NC | HW◎B-V5P01④ | |
| | 1NO-1NC | HW◎B-V5P11④ | |
| | 2NC | HW◎B-V5P02④ | |
| | 1NO-2NC | HW◎B-V5P12N④ | **R** (red) **Y** (yellow) |
| | 3NC | HW◎B-V5P03N2④ | |
| | 2NO-2NC | HW◎B-V5P22④ | |
| | 4NC | HW◎B-V5P04④ | |

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

## Sub-assembled Ordering No.
## Pushlock Turn Reset

Package Quantity: 1

| Operator Unit | | Contact Unit | | |
|---|---|---|---|---|
| Name / Shape | Part No. (Ordering No.) | Shape | Contact Configuration | Part No. (Ordering No.) |
| ø29mm Mushroom | HW◎B–V3④ | | 1NC | **HW-CNP01** |
| | | | 1NO-1NC | **HW-CNP11** |
| | | | 2NC | **HW-CNP02** |
| | | | 1NO-2NC | **HW-CNP12N1** |
| | | | 3NC | **HW-CNP03N2** |
| | | | 2NO-2NC | **HW-CNP22** |
| | | | 4NC | **HW-CNP04** |
| ø40mm Mushroom | HW◎B–V4④ | | 1NC | **HW-CNP01** |
| | | | 1NO-1NC | **HW-CNP11** |
| | | | 2NC | **HW-CNP02** |
| | | | 1NO-2NC | **HW-CNP12N1** |
| | | | 3NC | **HW-CNP03N2** |
| | | | 2NO-2NC | **HW-CNP22** |
| | | | 4NC | **HW-CNP04** |
| ø60mm Mushroom | HW◎B–V5④ | | 1NC | **HW-CNP01** |
| | | | 1NO-1NC | **HW-CNP11** |
| | | | 2NC | **HW-CNP02** |
| | | | 1NO-2NC | **HW-CNP12N1** |
| | | | 3NC | **HW-CNP03N2** |
| | | | 2NO-2NC | **HW-CNP22** |
| | | | 4NC | **HW-CNP04** |

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

## Push Pull

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

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

## Push Pull

Package Quantity: 1

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

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

**Emergency Stop Switches Dimensions**

All dimensions in mm

Dimensions

All dimensions in mm.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

### ø29mm Mushroom Pushlock Turn Reset
### HW1B-V3

**1 to 2 contacts**
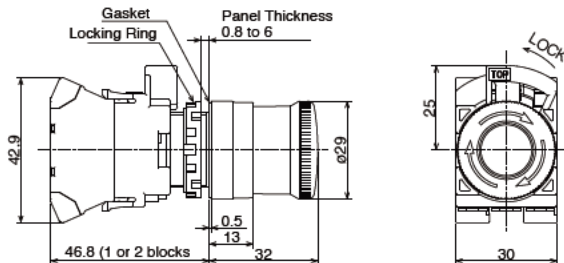
**3 to 4 contacts**
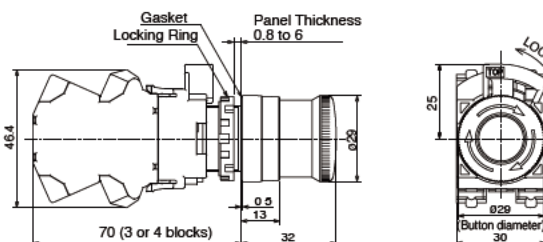
### ø29mm Mushroom Pushlock Turn Reset
### HW1B-V4

**1 to 2 contacts**
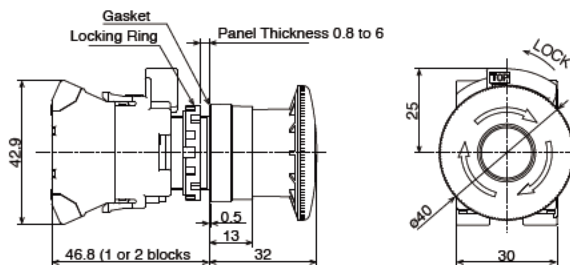
**3 to 4 contacts**
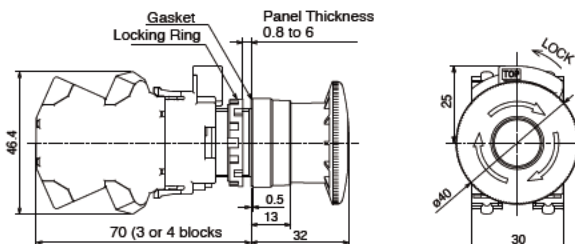
### ø60mm Mushroom Pushlock Turn Reset
### HW1B-V5

**1 to 2 contacts**
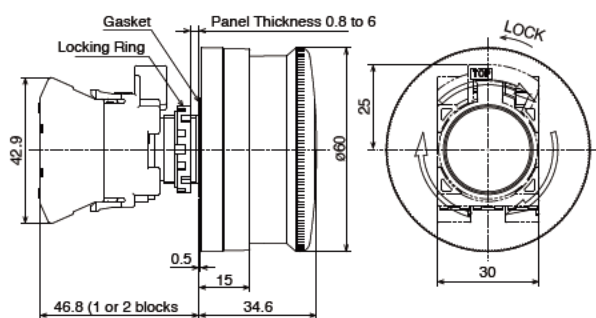
**3 to 4 contacts**
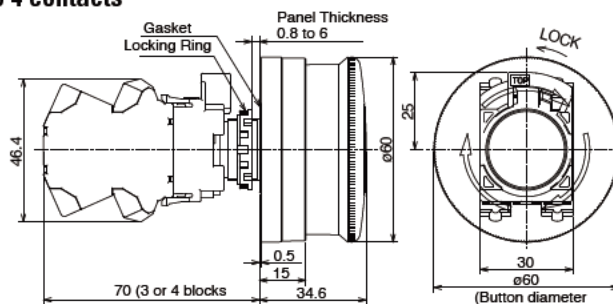
### ø40mm Mushroom Push Pull (2-position)
### HW1B-Y2

**1 to 2 contacts**

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
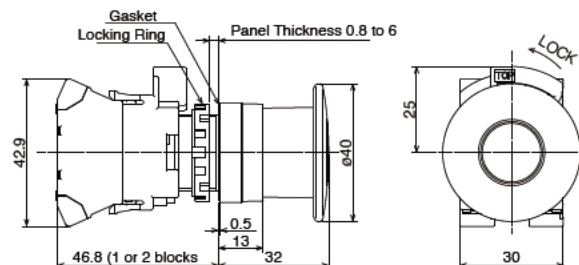
## Nameplates

All dimensions in mm

When ordering, specify the Ordering No.

| Description | | Material | Part No. | Ordering No. | Dimensions (mm) |
|---|---|---|---|---|---|
| | Legend | | | | |
| HWAM | Order marking plate (round) separately. | Plastic (black) | HWAM | HWAM | HWNP-□ marking plate (sold separately) is necessary. |
| | | | | HWAMPN10 | |
| HWAQ | Order marking plate (square) separately. | Plastic (black) | HWAQ | HWAQ | HWNP-□ marking plate (sold separately) is necessary. |
| | | | | HWAQPN10 | |
| HWAS | Blank | Plastic (black) | HWAS-0 | HWAS-0 | □45   1.6  0.9   ⌀22 |
| | | | | HWAS-0PN10 | |

## Marking Plates for HWAM/HWAQ

When ordering, specify the Ordering No.

| Description | Material | Part No. | Ordering No. | Dimensions (mm) |
|---|---|---|---|---|
| HWNP | Aluminum (black) Thickness = 1.0mm | HWNP-□ | HWNP-□ | White legend on black background. Engraving area: W25×H7 |
| | | | HWNP-□PN10 | 27 / 12 |

• 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 for how to install nameplates/marking plates, and how to remove marking plates.

### E-Stop Shrouds

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

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

## Contact Unit

### Contact Unit Part No. / Contact Configuration

Package Quantity: 1

**Shape / Contact Block Mounting Position**
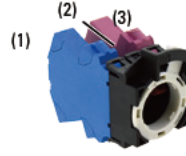


1 to 2 contacts     3 to 4 contacts

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

| Contact Configuration (Code) | Part No. (Ordering No.) | Mounting Position | Contact | Component Part No. |
|---|---|---|---|---|
| 1NO (10) | HW-CNP10 | (1) | 1NO | HW-P10 |
| | | (2) | Dummy | CW-DB |
| | | (3) | Dummy | CW-DB |
| 1NC (01) | HW-CNP01 | (1) | Dummy | CW-DB |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NC | HW-P01 |
| 1NO-1NC (11) | HW-CNP11 | (1) | 1NO | HW-P10 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NC | HW-P01 |
| 1NO-1NC (11N1) | HW-CNP11N1 | (1) | 1NC | HW-P01 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NO | HW-P10 |
| 2NO (20) | HW-CNP20 | (1) | 1NO | HW-P10 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NO | HW-P10 |
| 2NC (02) | HW-CNP02 | (1) | 1NC | HW-P01 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NC | HW-P01 |
| 2NO-2NC (22) | HW-CNP22 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NO-1NC | HW-PW11 |
| 2NO-2NC (22N1) | HW-CNP22N1 | (1) | 2NO | HW-PW20 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 2NC | HW-PW02 |
| 2NO-2NC (22N2) | HW-CNP22N2 | (1) | 2NC | HW-PW02 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 2NO | HW-PW20 |

| Contact Configuration (Code) | Part No. (Ordering No.) | Mounting Position | Contact | Component Part No. |
|---|---|---|---|---|
| 3NO (30N1) | HW-CNP30N1 | (1) | 2NO | HW-PW20 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NO | HW-P10 |
| 3NC (03N2) | HW-CNP03N2 | (1) | 2NC | HW-PW02 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NC | HW-P01 |
| 1NO-2NC (12N1) | HW-CNP12N1 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NC | HW-P01 |
| 1NO-3NC (13) | HW-CNP13 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 2NC | HW-PW-02 |
| 2NO-1NC (21N3) | HW-CNP21N3 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 1NO | HW-P10 |
| 3NO-1NC (31) | HW-CNP31N1 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 2NO | HW-PW20 |
| 1NO-3NC (13) | HW-CNP13 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 2NC | HW-PW02 |
| 4NO (40) | HW-CNP40 | (1) | 2NO | HW-PW20 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 2NO | HW-PW20 |
| 4NC (04) | HW-CNP04 | (1) | 2NC | HW-PW02 |
| | | (2) | Dummy | CW-DB |
| | | (3) | 2NC | HW-PW02 |

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

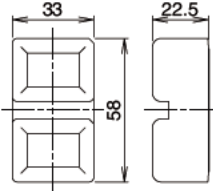Circuit Breakers

**Contact Unit**

## Contact Unit (illuminated) Part No. / Contact Configuration

Package Quantity: 1

| Shape / Contact Block Mounting Position |
|---|

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

1 to 2 contacts          3 to 4 contacts

| Contact Configuration (Code) | Part No. (Ordering No.) | Mounting Position | Contact | Component Part No. |
|---|---|---|---|---|
| 1NO (10) | HW-CNP10Q0 | (1) | 1NO | HW-P10 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | Dummy | CW-DB |
| 1NC (01) | HW-CNP01Q0 | (1) | Dummy | CW-DB |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NC | HW-P01 |
| 1NO-1NC (11) | HW-CNP11Q0 | (1) | 1NO | HW-P10 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NC | HW-P01 |
| 1NO-1NC (11N1) | HW-CNP11N1Q0 | (1) | 1NC | HW-P01 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NO | HW-P10 |
| 2NO (20) | HW-CNP20Q0 | (1) | 1NO | HW-P10 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NO | HW-P10 |
| 2NC (02) | HW-CNP02Q0 | (1) | 1NC | HW-P01 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NC | HW-P01 |
| 2NO-2NC (22) | HW-CNP22Q0 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NO-1NC | HW-PW11 |
| 2NO-2NC (22N1) | HW-CNP22N1Q0 | (1) | 2NO | HW-PW20 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 2NC | HW-PW02 |
| 2NO-2NC (22N2) | HW-CNP22N2Q0 | (1) | 2NC | HW-PW02 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 2NO | HW-PW20 |

| Contact Configuration (Code) | Part No. (Ordering No.) | Mounting Position | Contact | Component Part No. |
|---|---|---|---|---|
| 3NO (30N1) | HW-CNP30N1Q0 | (1) | 2NO | HW-PW20 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NO | HW-P10 |
| 3NC (03N2) | HW-CNP03N2Q0 | (1) | 2NC | HW-PW02 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NC | HW-P01 |
| 1NO-2NC (12N1) | HW-CNP12N1Q0 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NC | HW-P01 |
| 1NO-3NC (13) | HW-CNP13Q0 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 2NC | HW-PW02 |
| 2NO-1NC (21N3) | HW-CNP21N3Q0 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NO | HW-P10 |
| 3NO-1NC (31) | HW-CNP31Q0 | (1) | 1NO | HW-P10 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 1NO-1NC | HW-PW11 |
| 1NO-3NC (13) | HW-CNP13Q0 | (1) | 1NO-1NC | HW-PW11 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 2NC | HW-PW02 |
| 4NO (40) | HW-CNP40Q0 | (1) | 2NO | HW-PW20 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 2NO | HW-PW20 |
| 4NC (04) | HW-CNP04Q0 | (1) | 2NC | HW-PW02 |
| | | (2) | Full voltage adapter | HW-DP |
| | | (3) | 2NC | HW-PW02 |

• Contact unit (illuminated) includes a contact block(s), full voltage adapter, and a connecting unit.

• Switches with 1 contact block contain 2 dummy blocks. Switches with 2 contact blocks contain 1 dummy block.
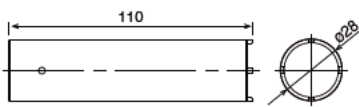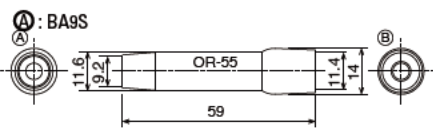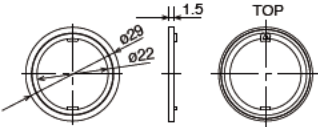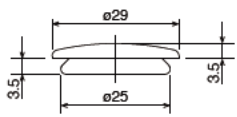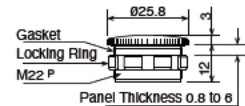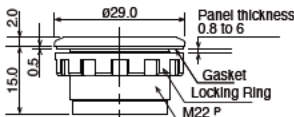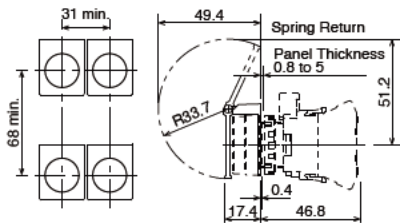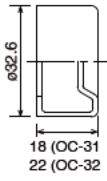
Note) LED lamp is not installed. When ordering a contact unit (illuminated), select a LED lamp from below.

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

## Accessories

All dimensions in mm

When ordering, specify the Ordering No.

| Name / Shape | | Material | Part No. | Remarks |
|---|---|---|---|---|
| **Tool** Locking Ring Wrench | | Metal (nickel-plated brass) Weight: approx. 150g | **MW9Z-T1** | • Used to tighten the locking ring when installing the HW switch onto a panel. <br> 110 ⌀28 |
| Lamp Holder Tool | | Nitrile rubber (black) | **OR-55** | • Used to install and remove the LED lamps. See page **789** for how to install. <br> Ⓐ : BA9S <br> Ⓐ 11.6 9.2 OR-55 11.4 14 Ⓑ 59 |
| Anti-rotation Ring | | Ring: polyamide Gasket: nitril rubber | **HW9Z-RL** | • Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and pushbutton selectors. <br> 1.5 TOP ⌀29 ⌀22 |
| Rubber Mounting Hole Plug | | Nitril rubber (black) | **OB-31** | • Degree of protection: IP65 (round hole), IP40 (with anti-rotation function) <br> ⌀29 3.5 3.5 ⌀25 |
| Mounting Hole Plug | | Plug: Metal (Zinc diecast) Locking nut: Polyamide Gasket: Nitrile rubber | **LW9Z-BM** | • Degree of protection: IP66 (round hole), IP40 (with anti-rotation function) <br> • Tightening torque: 1.2 N·m <br> ⌀25.8 3 Gasket Locking Ring 12 M22 P Panel Thickness 0.8 to 6 |
| Mounting Hole Plug | | Polyamide | **LW9Z-BP1** | • Degree of protection: IP65 <br> • Tightening torque: 2.0 N·m <br> 2.0 ⌀29.0 Panel thickness 0.8 to 6 15.0 0.5 Gasket Locking Ring M22 P |
| Switch Guard | Spring Return | Guard: Polyacetal Cover: polyarylate Gasket: Nitrile rubber | **HW9Z-K1** | • Used to prevent inadvertent operation for flush pushbuttons. Degree of protection: IP65 <br> • Maintained type stops at 90° and 180°. <br> 31 min. 49.4 Spring Return 68 min. Panel Thickness 0.8 to 5 51.2 R33.7 17.4 46.8 0.4 |
| | Maintained | | **HW9Z-K11** | |
| Button Clear Boot | For flush pushbuttons | Rubber (EPDM) | **OC-31** | • Used to cover and protect pushbuttons where units are subject to waterslash. Not suitable for outdoor use or where the units are subject to oil splash. <br> • Cannot be used with nameplates HWAM, HWAQ, HWAS, or HWAV. <br> ⌀32.6 18 (OC-31) 22 (OC-32) |
| | For extended pushbuttons | | **OC-32** | |

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors
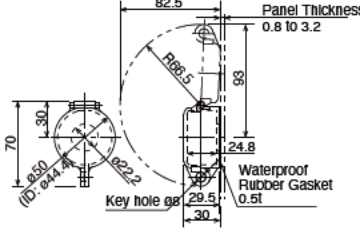
Terminal Blocks

Circuit Breakers

## Accessories

All dimensions in mm

When ordering, specify the Ordering No.

| Name / Shape | Material | Part No. | Remarks |
|---|---|---|---|
| Padlock Cover | Polyarylate<br><br>Gasket:<br>Nitrile rubber | HW9Z-KL1 | • Used to protect pushbuttons, selector switches, and key selector switches.<br><br>82.5 · Panel Thickness 0.8 to 3.2 · 93 · R66.5 · 70 · 30 · ø50 · (ID: ø44.4) · ø22.2 · 24.8 · Waterproof Rubber Gasket 0.5t · Key hole ø8 · 29.5 · 30 |
| Rubber Boot for Dual Pushbutton Switches | Clear Silicon Rubber | HW9Z-D7D | • IP65<br><br>33 · 22.5 · 58 |
| Ring Adapter | Nitryl rubber | HW9Z-A25 | • Used to install the HW series units into ø25 mm mounting holes. Degree of protection: IP65<br>• Cannot be used with anti-rotation and nameplate.<br>• Mounting panel thickness: 1.2 to 6.0 mm<br>• See page **792** for details. |
| Ring Adapter | Gasket:<br>polyamide<br><br>Washer:<br>metal (brass) | HW9Z-A30 | • Used to install the HW series units (round type) into ø30 mm mounting holes (except HW1P-5, HW1E, HW1B-M5/V5, HW7D). Degree of protection: IP65<br>• Cannot be used with anti-rotation ring and nameplate. Cannot be used on full shroud illuminated pushbuttons, selector pushbuttons, and mono-lever switches.<br>• Mounting panel thickness: 1.6 to 4.0 mm |
| For Illuminated Buzzer Terminal Rubber Boot | Nitrile rubber | HW9Z-CZ1 | • Applicable cable: ø4.5 to 8.5 mm<br>• Cut the end of rubber boot to fit the cable size (see dimensions on page **796**).<br>• Weight: 10 g (approx.) |

## Accessories

When ordering, specify the Ordering No.

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Maintenance Parts

When ordering, specify the Ordering No.

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

## Maintenance Parts
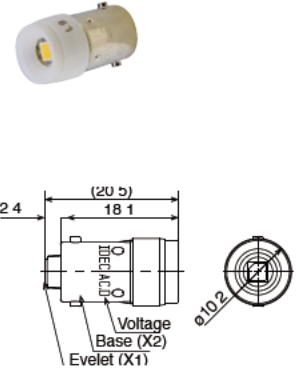
All dimensions in mm

When ordering, specify the Ordering No.

| Name / Shape | | Material/Dimensions | Part No. | Remarks |
|---|---|---|---|---|
| Spare Key (Pin Tumber Key) | | Metal (nickel-plated brass) | **LW9Z-SK-500** | • Standard key number |
| | | | **LW9Z-SK-▢** | • Key number ▢ : 501 to 515 |
| Lockig Ring | | Polyamide (black) ø28.4  H5  M22P1 | **HW9Z-LN** | |
| Cap for Mono-lever Switch | Standard | Nitryl rubber ø10  L20 | **HW9Z-CPM** | |
| Boot for Mono-lever Switch | Standard | Nitryl rubber ø29.2  L34.4 | **HW9Z-BLM** | |
| Gasket | | Nitryl rubber (black) | **HW9Z-WM** | Thickness  0.5  ø21.6 ±0.15  ø28.0 ±0.15 |

## HW Series LED Lamps

When ordering, specify the Ordering No.

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

**741**

## ⚠ Safety Precautions

- Turn off the power to the HW series switches & pilot lights before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.

- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.

- For wiring, use wires of a proper size to meet the voltage, current requirements, and the number of connectable wires (page **795**). Failure to tighten the terminal screws may cause overheating and fire.

- Avoid using in places mentioned below to maintain performance of the product.
  - Exposed to direct sunlight
  - Subject to corrosive or flammable gases

## Instructions

### Panel Mounting

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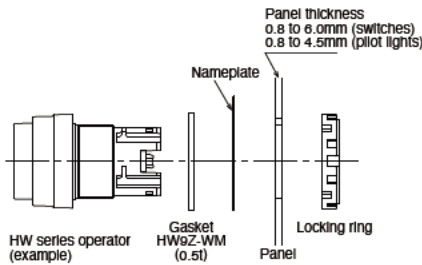


Mounting panel thickness is reduced by 1.5 mm when using a nameplate.

### Removing the Contact Block

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

2. To reinstall, place the TOP marking on the operator and the lock lever in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever in the opposite direction.



### Anti-rotation Ring and Mounting Panel

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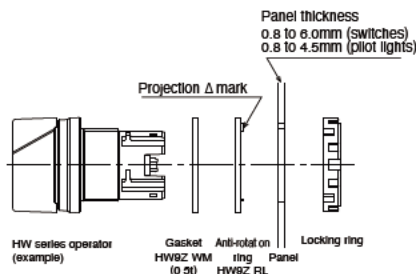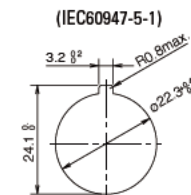


### Installing the Pilot Light

Detach the operator unit from the LED unit. After mounting the operator from the front of the panel, attach the LED unit.

### Installing / Removing the LED Unit

1. Detach the LED unit by lifting the latch using a small flat blade screwdriver width 0.5mm max.

2. To install, align the TOP marking on the operator with the TOP marking on the LED unit.



### Notes for Panel Mounting

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

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



Locking ring wrench (MW9Z-T1)

### Panel Thickness

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

*Signaling Lights*

*Relays & Sockets*

*Timers*

*Contactors*

*Terminal Blocks*

*Circuit Breakers*

## Instructions

### Replacing LED Lamps

Lamps can be replaced using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator unit.
(See page **783** for lamp holder tool.)

### Removing the LED lamp from the front of the panel

### Removing

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

Lamp Holder Tool (OR-55)
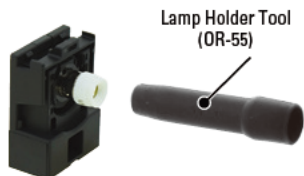
### Installing

Insert the lamp head into the lamp holder tool.
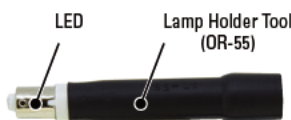
LED  Lamp Holder Tool (OR-55)

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

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

### Removing

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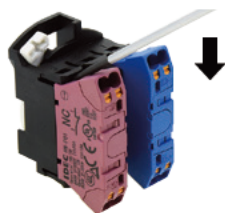
### Installing

When installing the contact block or dummy block, make sure that it snaps on to the operator.
For No. 1 and 3 only a contact block or dummy block can be installed.
For No. 2, only a dummy block can be installed.

LOCK
3 2 1

LOCK
3 2 1

Dummy block
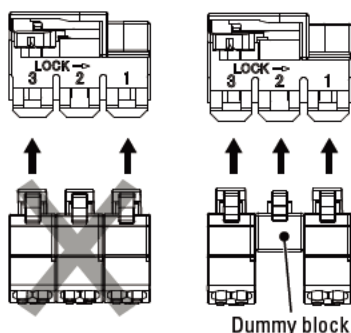
Note) Make sure to attach a correctly assembled connection unit to the operator.
Note) When attaching the contact block to the connection unit, make sure that the connection is detached from the operator. If a contact block is installed with the operator attached to the connection unit, malfunction of the switch may occur.
Note) Full voltage adapters cannot be removed or atached with contact blocks attached.
Note) Attach the full voltage adapter vertically to the connection unit.

Operator

Connection unit
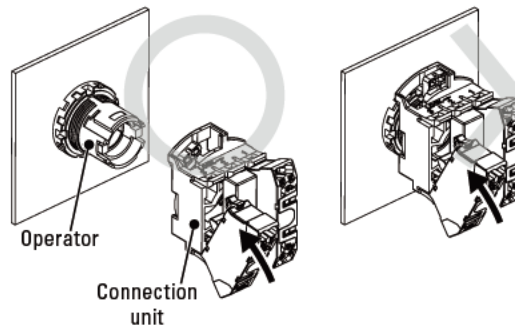
### Test Points

Note) Do not insert wires into the test point.

### Single contact block

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

Test points
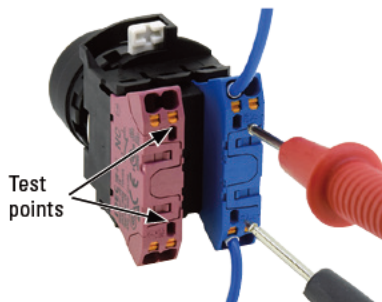
### Double contact block

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

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

①First deck
Test point location

②Second deck
Test point

①

②

②

①

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
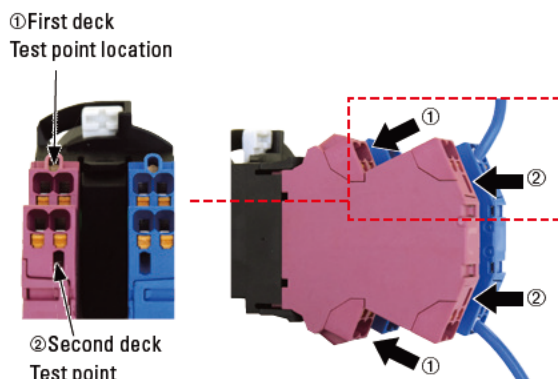
## Instructions

### Installing/Removing the Buttons and Lenses

<To install>        <To remove>

### Pushbutton Button

#### • Flush/Extended

Push in the button to install.

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

#### • Mushroom/Jumbo Mushroom

Button has threads. Turn clockwise to install the button.

Turn the button counterclockwise to remove.

Note: Jumbo mushroom button cannot be removed.

### Illuminated Pushbutton Lens

#### • Flush/Extended

Push in the lens holder into the operator unit.
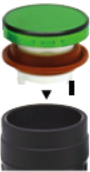
Insert a flat screwdriver between the button and the bezel to remove the lens holder.

#### • Mushroom/Jumbo Mushroom

Lens has threads. Turn clockwise to install the lens.

Lens has threads. Turn counterclockwise to remove the lens.

### Pilot Light Lens

#### • Extended

Lens has threads. Turn clockwise to install the lens.

Turn the lens counterclockwise to remove.

#### • Square Flush

Push in the lens holder into the operator unit.

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

### Installing/Removing the Lenses and Marking Plates
### Removing

#### Removing the lens unit

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

#### Removing the lens

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

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

### Installing

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

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

Lens    Marking plate    Lens holder

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers
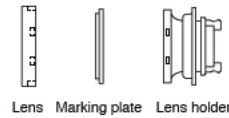
## Instructions

### Using a Ring Adapter

### HW9Z-A25

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

Nitryl Rubber

**Dimensions**

ø21.8
ø25.1
ø28

1.1  0.5

**Installation**

Locking Ring    Ring Adapter

Note
The bezel protrudes
0.5 mm to the front if
the gasket is not removed.

Remove the rubber gasket.

Panel

**Panel Cut-out**

ø25.5 +0.5/0
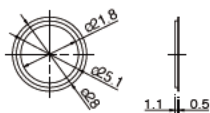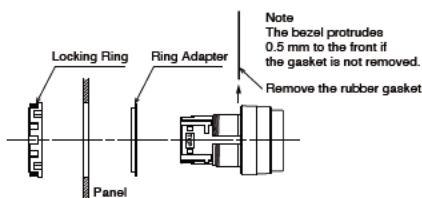
### HW9Z-A30

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**

ø22.5    ø34

ø22    ø35

0.6

1.4  8.9

Washer    Adapter
ø30

**Panel Cut-out**

ø30.5 +0.5/0

**Installation**

Washer    Panel    Adapter    Operator (example)

Locking Ring
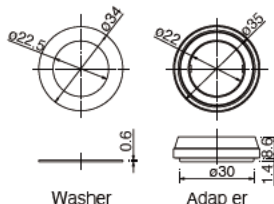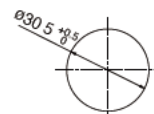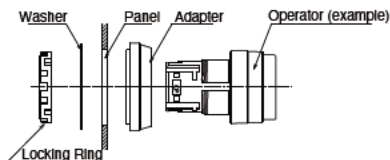
### Dual Pushbutton Switches

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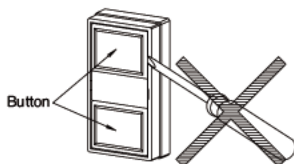
Button

### Installing the Rubber Boot for Dual Pushbuttons

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

### Notes for Installing the Rubber Boot

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

① Remove the gasket.

Remove

Gasket
HW9Z-WM

② Install the rubber boot on the pushbuttons

Seals

Install

Seals

Rubber Boot
HW9Z-D7D
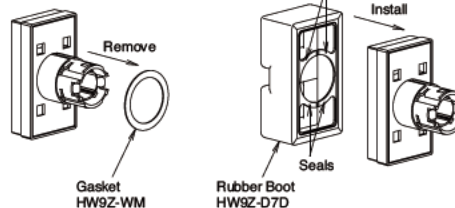
**Rubber Boot Installed**
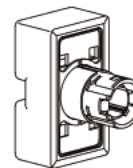
### Selector Switches

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

### Key Selector Switches
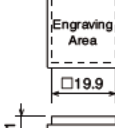
Observe the following instructions to prevent malfunction or damage.

• Turn the key securely to each position.

• Insert the key to the bottom of the key hole.

• Do not remove the key from any key retained position.

• Use a key that matches with the number on the key cylinder.
  However, for standard keys, the key number is engraved on the key but not on the key cylinder.

## Marking

For HW series pilot lights, legends and symbols can be engraved on the built-in marking plates, or printed film can be inserted under the lens for labeling purposes.

### Marking plate and marking film size (mm)

| Built-in marking plate and engraving area | Applicable marking film size |
|---|---|
| Outside diameter: □22.7<br>Engraving depth: 0.5mm max.<br>Engraving Area □19.9 | □22.7<br>• Two 0.1 mm-thick films or one 0.2 mm-thick film |

*Marking films are not supplied.

### Insertion Order of Marking Plate and Film

#### Square Lens (Square flush lens)

Lens   Film   Marking Plate   Lens Holder   Main Unit
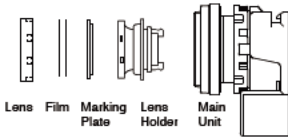
Note: Films are not supplied. When inserting a film, make sure that the marking plate is installed with its uneven side facing the lens holder.

### Nameplate

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

#### Installing a Marking Plate

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

Nameplate ②
Marking Plate
①
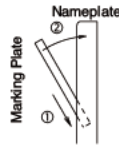
#### Removing a Marking Plate

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.

Screwdriver
Marking Plate
Projection
Nameplate
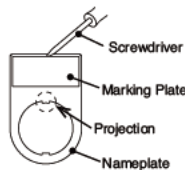
### Applicable Wire

When wiring, use the applicable wires shown below.

### Applicable Wire and Specifications

| Applicable Wire (*1) | 0.25 to 1.5mm² (AWG16 to 24) |
|---|---|
| Wire Strip Length (*2) | 8 ± 1mm (*3) |
| Ferrule Size (*3) (Weidmüller) | H0.25 to H1.5 (without insulated cover) |
| | H0.25 to H1.5 (with insulated cover) |

*1) For applicable wires confirmed by SOCOJE, see website.

*2) For details on ferrules, see "Wire Size and Recommended Ferrules" table below.

*3) Strip the sheath of the wire 8±1mm from the end.

8±1mm

Note: Make sure that the stranded wires do not loosen when using wiring without ferrules.

### Wire Size and Recommended Ferrules

#### Ferrules without insulated covers

| Applicable Wire (Stranded Wire) | | Wire Strip Length | Weidmüller Recommended Part No. |
|---|---|---|---|
| AWG | mm² | | |
| 24 | 0.25 | 5 to 6mm | H0.25/5 |
| 20 | 0.50 | 10 to 11mm | H0.5/10 |
| 18 | 0.75 | 10 to 11mm | H0.75/10 |
| 18 | 1.00 | 10 to 11mm | H1.0/10 |
| 16 | 1.50 | 10 to 11mm | H1.5/10 |

#### Ferrules with insulated covers

| Applicable Wire (Stranded Wire) | | Wire Strip Length | Weidmüller Recommended Part No. |
|---|---|---|---|
| AWG | mm² | | |
| 24 | 0.25 | 10 to 11mm | H0.25/12 HBL |
| 22 | 0.34 | 10 to 11mm | H0.34/12 TK |
| 20 | 0.50 | 10 to 11mm | H0.5/14 OR |
| 18 | 0.75 | 10 to 11mm | H0.75/14 W |
| 18 | 1.00 | 10 to 11mm | H1.0/14 GE |
| 16 | 1.50 | 10 to 11mm | H1.5/14 R |

### Recommended Tools (Optional)

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

Note 1) Note the crimping dimensions When using tools other than the recommended crimping tool. For details, see page 793.

Note 2) Use a flat blade screwdriver with a blade size of 0.4×2 to 2.5 mm.
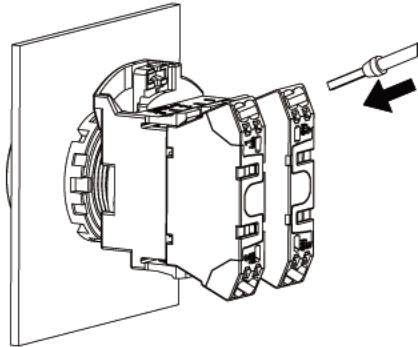
0 4mm
2 0 2 5mm

## Wiring Procedure

### Connecting the wire

#### Stranded wires with ferrules or solid wire

① Insert the wire to the back of the wire port.

② After wiring, tug lightly to make sure that the wire is properly connected.



#### Stranded wire

① While pressing the pusher (orange button) using a flat blade screwdriver (recommended: SDS 0.4×2.0×60 (optional). Insert the wire fully in the wiring port. Wire is connected when the pusher is released.

② After wiring, tug lightly to make sure that the wire is properly connected.



Flat blade screwdriver

Pusher
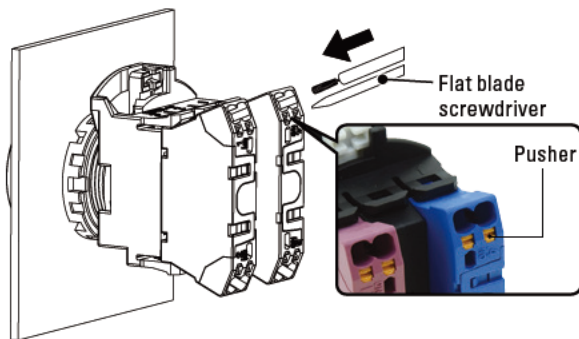
### Crimping of Ferrules and Wiring

• Choose an appropriate ferrule for the wire.

• Cut the wire carefully to get a flat end.

• Make sure that ferrule sleeve is completely filled by the conductor. Depending on the cross section, the conductor should protrude approx. 0 to 1 mm from the ferrule sleeve.



0 to 1mm
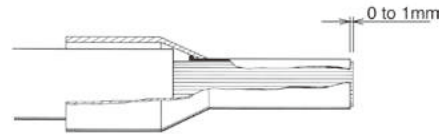
• When crimping, refer to the instructions of the crimping tool.

### Faults which can occur during crimping:

• Cracks along the sides and die impressions

• Splitting of the ferrules

• Asymmetrical crimping shape

• Extreme burrs formed along the sides

• Ferrule not filled by conductor

• Single conductors pushed back by protruding from the insulated cover

• Single conductors squeezed off

• Insulation cover damaged by the crimping jaw

• Conductor insulation not pushed into the insulated cover

• Ferrule bent longitudinally after crimping



Formation of cracks at the sides.
Sides spilt open

Formation of cracks at the impressions of the crimping jaw

Asymmetrical crimping shape.
Burr formation on one side

Asymmetrical crimping shape.
Burr formation on one side

Single conductor squeezed off

Single conductor pushed back

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Instructions

## Instructions (Emergency Stop Switches)

### Crimping dimensions: W2.4×H1.9 mm

Maximum connectable crimping size is W2.4×H1.9. Make sure that the ferrule size will be smaller than this dimension. (Recommended crimping tool: PZ 6 Roto (optional) Weidmüller



Max. 1.9mm

Max. 2.4mm
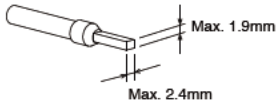
Note 1) If a tool other than the recommended crimping tool is used, the ferrule may not be crimped to the appropriate size and the clamp or spring inside the contact block may be deformed and may not operate normally.

Note 2) Pin crimp terminals cannot be used.

### Removing the Wire

When removing the wire, push the pusher using a flat blade screwdriver (recommended: SDS 0.4×2.0×60) and pull wire out in the direction of the arrow.



Flat blade screwdriver

Pusher

<Notes>
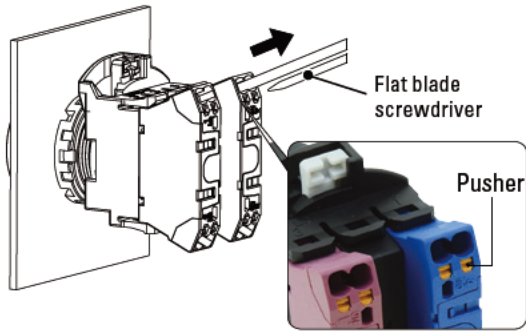
• Operate the pusher with a force of 20N. Do not press excessively. Otherwise, the switch may be damaged.

• Do not pull the wire out without depressing the pusher. When pulling the wire, be sure to pull in a straight direction. Otherwise, the socket may be damaged.

### Number of Connectable Wires

| Unit | | Connectable wires | No. of connectable wires |
|---|---|---|---|
| HW-P Contact block Pilot light | Solid wire | 0.25 to 1.5mm² (AWG16 to 24) | 2 |
| | Stranded wire | 0.25 to 1.5mm² (AWG16 to 24) | |
| | Ferrule | Without insulated cover 0.25mm²: conductor length:5 to 10mm 0.5 to 1.0mm²: conductor length: 6 to 10mm 1.5mm²: conductor length 8 to 10mm With insulated cover 0.25 to 1.0mm²: conductor length 6 to 10mm 1.5mm²: conductor length 8 to 10mm Note) Pin terminals cannot be used | |

Note) Only one wire can be inserted into one wire port.

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

### Chattering / Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce. When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).
Also, do not apply shock to the switch as chattering may occur.
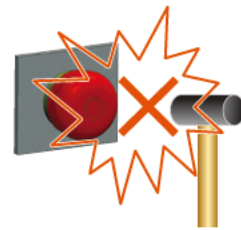
### Nameplate or Switch Guard

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



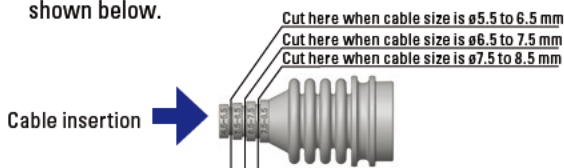Projec ions

Nameplа e

Swi ch Guard
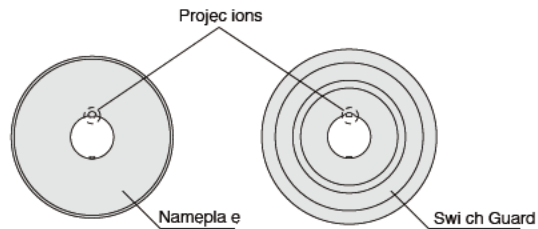
### Handling

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

## Instructions (Illuminated / Non-illuminated Buzzers)

### Installing the terminal rubber boot

1. Cut the end of terminal rubber boot to fit the cable size.
2. Insert the cable into the terminal rubber boot in the direction of arrow shown below.

Cut here when cable size is ø5.5 to 6.5 mm
Cut here when cable size is ø6.5 to 7.5 mm
Cut here when cable size is ø7.5 to 8.5 mm

Cable insertion

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

5. Cover part B with part A.

Installed
(terminal rubber boot: cross section view)
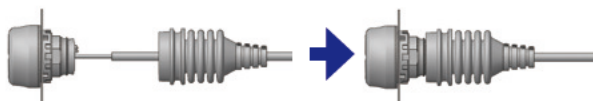
Part B    Part A
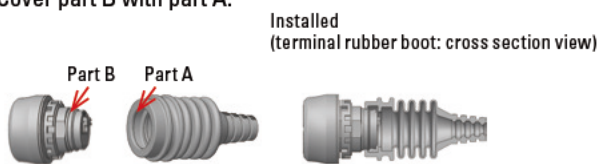
6. Make sure that the bellows is 17 to 22 mm long.
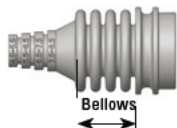
Bellows

### Note for terminal rubber boot

- Be sure to use bellows with an appropriate length. Otherwise, waterproof characteristics cannot be achieved.
- Maintain a cable angle of 45° maximum to the axis of the buzzer, otherwise the terminal rubber boot may come off.

45°

Bent
excessively
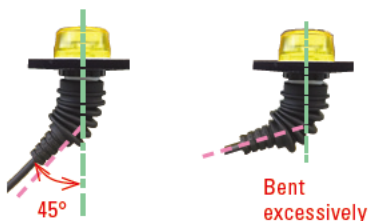
### Panel Mounting

- Insert the buzzer into the panel cut-out from the front, and tighten the locking ring from the back.

### Note for panel mounting

- Use the optional locking ring wrench (MW9Z-T1) to tighten the locking ring to a recommended tightening torque of 1.5 to 2.0 N·m.
- Do not use pliers and do not tighten excessively, otherwise the buzzer may be damaged.

Panel

Locking
Ring
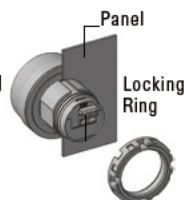
## Wiring Procedure

### Connecting the wire

#### Solid wire

Strip the insulation of the cable from 8mm from the end and insert into the wire port.
After wiring, tug lightly to make sure that the wire is properly connected.

#### Stranded wire with ferrule

Crimp a ferrule with a conductor length of 8mm and insert to the back of the wire port. After wiring, tug lightly to make sure that the wire is properly connected.

### Stranded wire

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

Wire Release Pin
(orange)

Wire Port

### Wire removal

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

### Flat blade screwdriver

Use a flat blade screwdriver blade size 2.5mm

### Notes for wiring

- Make sure that the terminal is not constantly pulled by the wire.
- Wiring must be performed in environments of –5 to +50°C.
- Do not damage the conductor wire when stripping the wire insulation.
- Do not use wires with bent or deformed conductors wires. Deformed wiring may cause failures such as strength degradation and overheating. Connect one wire per terminal. Connecting two wires to a terminal may cause loose wiring and strength degradation.
- Do not solder the conductor lines. Connecting soldered stranded wires may loose wiring and strength degradation.
- If a stranded wire has loose wires, twist the conductor wires before connection. However be careful not to twist excessively.

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# S³ Connect® Push-in Wiring Enabled Product Selection Guide

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

| RFID Reader & Tags | Tools & Accessories |
|---|---|
| KW2D | |
| RFID Solution for industrial authentication & access control | Crimping tool Wire stripping tool Ferrules |
| KW2D RFID Reader | |
| RFID Fobs and tags | |
| IP65/67 | |