

Think Automation and beyond...



# Ø22mm YW Series Control Units

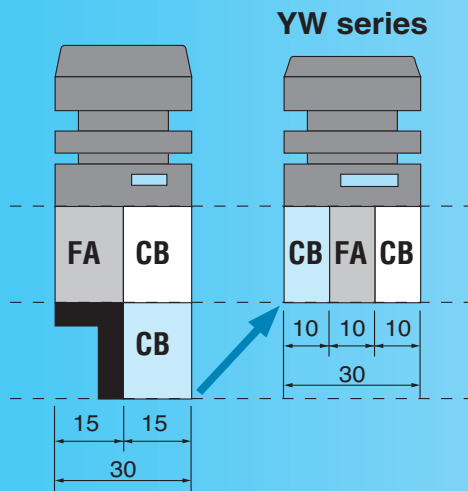


IDEC CORPORATION

# Innovative Design Enables Space-Saving and Safety With Reliable Self-Cleaning Contacts

## Save

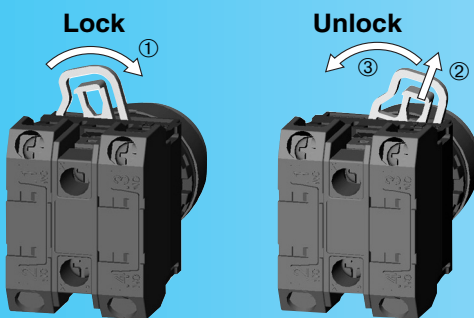
### New Contact Blocks



A new contact block design reduces the depth of pushbuttons, illuminated pushbuttons, and selector switches behind the panel. The new contact blocks are only 10 mm thick, so three contact blocks can mount in one deck. The full-voltage adapter for illuminated pushbuttons is also only 10 mm thick, so it can be mounted along with two contact blocks on the same deck.

**CB:** Contact block  
**FA:** Full-voltage adapter

### Retained Locking Lever



The innovative plastic locking lever is retained and eliminates the need for a separate lever lock.

To lock the locking lever with an operator installed, simply turn the locking lever to the right as viewed from the back. The latch inside the locking lever firmly retains the locking lever and withstands vibrations.

To unlock the locking lever, pull out the latch inside the locking lever and turn the locking lever to the left, then the operator can be removed from the contact blocks.

## Reliable

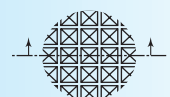
### Heavy-Duty Rugged Construction

The YW series control units are designed to withstand harsh operating conditions in factory environments. The rugged mechanical design provides reliability in critical switching applications.

### Self-Cleaning Wiping-Action Contacts with Scored Contact Surface

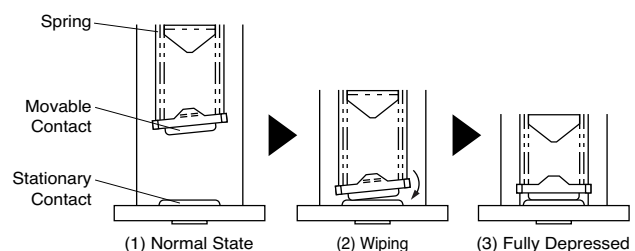
The YW contact blocks feature a wiping action on the movable contact and scored contact surfaces for higher contact reliability. The contacts can switch a wide range of loads from 5 mA at 3V DC up to 10A at 120V AC.

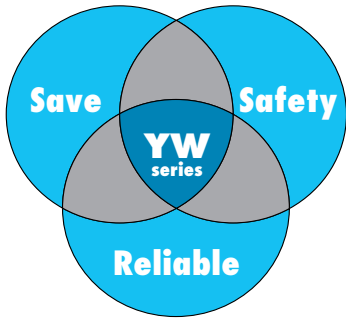
#### Scored Surface



### Wiping Action

After touching the stationary contact, the movable contact starts to wipe and cleans the contact surfaces.





# Safety

## Integrated Finger-safe Terminal Cover Degree of Protection: IP20

The new YW contact blocks, full-voltage adapter, and pilot light terminals feature integrated finger-safe terminal covers to prevent electrical shocks and ensure a high degree of safety during wiring and maintenance.



# Emergency Stop Switches



## Satisfy International Standards

- **Safety Lock Mechanism**

If any part of the body inadvertently touches the pushbutton, the contacts will not open until the operator mechanism is locked. This feature prevents unintentional operation of the emergency switch (compliant to EN418).

- **Direct Opening Function**

Even if the contacts become welded together, an operating force applied to the pushbutton forces the NC contacts to open and ensures a break in the circuit (compliant to IEC 60947-5-1, Annex K).

- **Safe Pushbutton Design**

The mushroom pushbutton is designed to ensure that an object cannot become trapped between the mushroom button and the panel, disabling the button operation. In addition, the pushbutton is designed to prevent any tampering from the front of the panel.

# YW Series Control Units

## Space-saving, 10-mm-thick contact blocks Removable operator

- Compact and light-weight
- IP20 finger-safe screw terminals (IEC 60529)
- Separate contact block makes installation and removal easy.
- Pilot lights feature a large lens for a wide viewing angle.
- Matted surfaces on the buttons, lenses, and bezels reduce reflection of ambient light.
- UL, c-UL listed, EN compliant, and CCC approved (except for emergency stop switches).



- UL508, CSA C22.2 No. 14, EN 60947-1, EN 60947-5-1 GB 14048.5



### Contact Ratings (Contact Block)

Rated Insulation Voltage		600V			
Rated Thermal Current		10A			
Operating Voltage		24V	120V	240V	380V
AC 50/60 Hz	Resistive Load (AC-12)	10A	10A	6A	2A
	Inductive Load (AC-15)	10A	6A	3A	1.9A
DC	Resistive Load (DC-12)	8A	2.2A	1.1A	—
	Inductive Load (DC-13)	4A	1.1A	0.55A	—

### LED Lamp Ratings

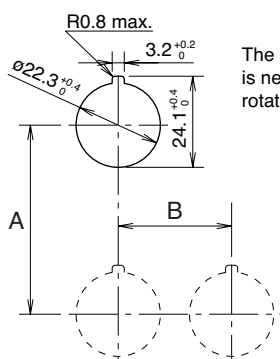
Type No.	Rated Voltage	Rated Current	Color Code
LSED-6②	6V AC/DC	10 mA (A, R, Y) 7 mA (G, PW, S)	A (amber) G (green) PW (pure white) R (red) S (blue) Y (yellow)
LSED-1②	12V AC/DC	14 mA (A, R, Y) 13 mA (G, PW, S)	
LSED-2②	24V AC/DC	14 mA (A, R, Y) 13 mA (G, PW, S)	
LSED-H②	110V AC/DC	5.5 mA	
LSED-M3②	230/240V AC/DC	2.7 mA	

Note: Specify a color code in place of ② in the Type No.  
Yellow LED lamps are used for white illumination of pilot lights and illuminated pushbuttons.

### Incandescent Lamp Ratings

Type No.	Rated Voltage	Ratings
LS-T6	6V AC/DC	6.3V 1W
LS-T8	12V AC/DC	18V 1W
LS-T3	24V AC/DC	30V 1W

### Mounting Hole Layout



The 3.2-mm-wide key recess is necessary when the anti-rotation ring is used.

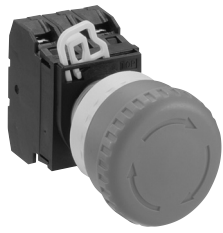
Unit	A (mm)	B (mm)
Emergency stop switch	50 min.	50 min.
Pushbutton Selector switch	50 min.	30 min.
Mushroom pushbutton	50 min.	40 min.
Pilot light	30 min.*	30 min.

\* Keep a minimum spacing of 50 mm when using a lamp of over 1W.

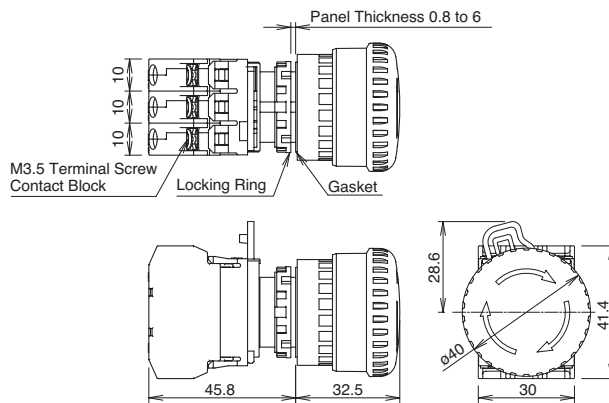
### Specifications

Operating Conditions	Operating temperature: -20 to +55°C (no freezing) Operating humidity: 45 to 85% RH (no condensation) Storage temperature: -45 to +80°C Storage humidity: 95% RH maximum
Degree of Protection	From panel front: IP65 (IEC 60529) Terminal: IP20 (IEC 60529)
Insulation Resistance	100 MΩ
Dielectric Strength	Contact block: 2,500V, 1 minute Pilot light: 2,000V, 1 minute
Vibration Resistance	<Emergency stop switch> Operating extremes / Damage limits: 10 to 500Hz, amplitude 0.35 mm, acceleration 50 m/s <sup>2</sup> <Pushbutton, pilot light, illuminated pushbutton, and selector switch> Operating extremes: 5 to 55 Hz, amplitude 0.5 mm Damage limits: 30 Hz, amplitude 1.5 mm
Shock Resistance	<Emergency stop switch> Operating extremes: 150 m/s <sup>2</sup> (15G) Damage limits: 1,000 m/s <sup>2</sup> (100G) <Pushbutton, pilot light, illuminated pushbutton, and selector switch> Operating extremes: 100 m/s <sup>2</sup> (10G) Damage limits: 1,000 m/s <sup>2</sup> (100G)
Mechanical Life (minimum operations)	<Emergency stop switch> 250,000 (single contact block) <Pushbutton and illuminated pushbutton> Momentary: 5,000,000 (single contact block) 1,000,000 (double contact block) Maintained: 250,000 (single contact block) 100,000 (double contact block) <Selector switch> 250,000 (single contact block) 100,000 (double contact block)
Electrical Life (minimum operations)	<Emergency stop switch> 100,000 (single contact block) <Pushbutton and selector switch> 100,000 (single contact block) 50,000 (double contact block)

**Emergency Stop Switches**


Style	Operation	Contact	Type No.	Button Color Code
	Pushlock Pull/Turn Reset	1NC	YW1B-V4E01R	Red only
		2NC	YW1B-V4E02R	
		3NC	YW1B-V4E03R	
		1NO-1NC	YW1B-V4E11R	
		1NO-2NC	YW1B-V4E12R	
		2NO-1NC	YW1B-V4E21R	

**Dimensions**



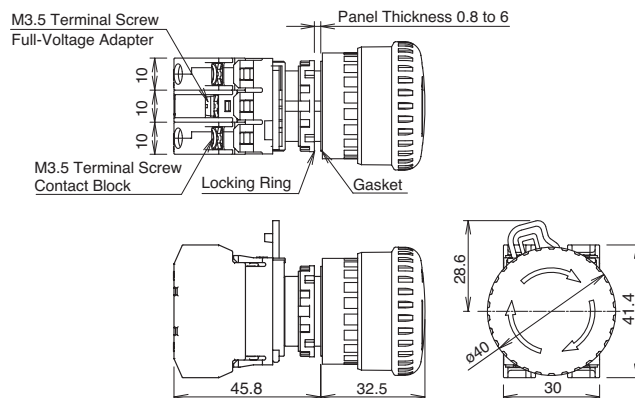
Note: When pressed, the button is locked in the depressed position, and is reset when either pulled or turned clockwise.

**Illuminated Emergency Stop Switches**

Style	Illumination Type	Operation	Contacts	Type No.	③ Operating Voltage Code	Lens Color Code
	Without Lamp	Pushlock Pull/Turn Reset	1NC	YW1L-V4E01Q0R	0 (without lamp) 250V AC/DC max.	Red only
			2NC	YW1L-V4E02Q0R		
			1NO-1NC	YW1L-V4E11Q0R		
	LED		1NC	YW1L-V4E01Q③R	2 (6V AC/DC) 3 (12V AC/DC) 4 (24V AC/DC) H (110V AC/DC) M3 (230/240V AC/DC)	
			2NC	YW1L-V4E02Q③R		
			1NO-1NC	YW1L-V4E11Q③R		
	Incandescent		1NC	YW1L-V4E01Q③R	5 (6V AC/DC) 6 (12V AC/DC) 7 (24V AC/DC)	
			2NC	YW1L-V4E02Q③R		
			1NO-1NC	YW1L-V4E11Q③R		

Note: Specify an operating voltage code in place of ③ in the Type No.




**Dimensions**



Note: When pressed, the button is locked in the depressed position, and is reset when either pulled or turned clockwise.

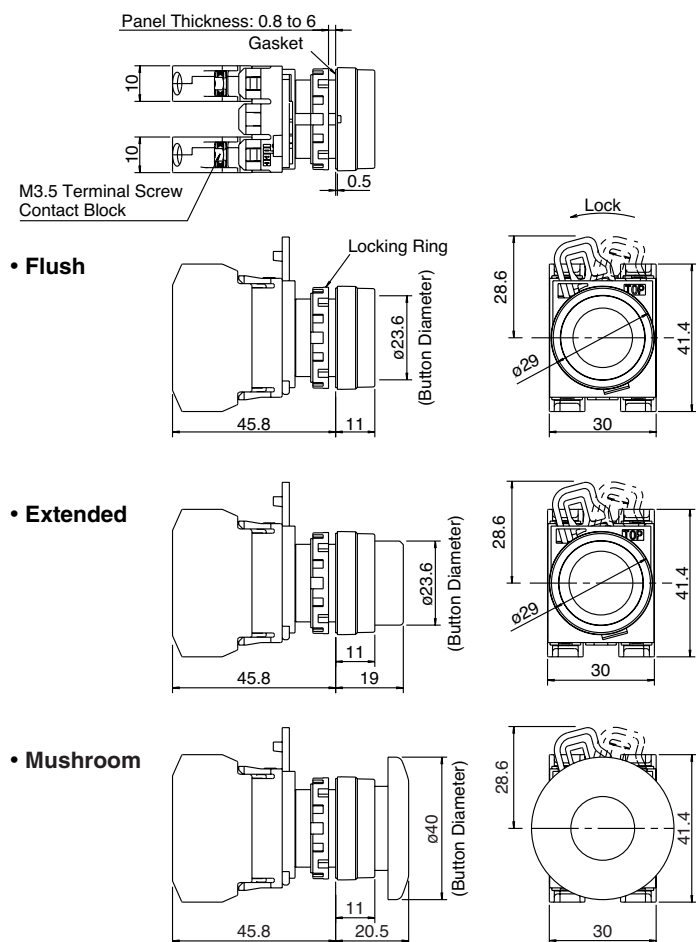
All dimensions in mm.

**Pushbuttons**

Style	Operation	Contact	Type No.	① Button Color Code			
<b>Flush</b>  	Momentary	1NO	YW1B-M1E10①	B (black) G (green) R (red) S (blue) W (white) Y (yellow)			
		1NC	YW1B-M1E01①				
		2NO	YW1B-M1E20①				
		2NC	YW1B-M1E02①				
		1NO-1NC	YW1B-M1E11①				
		3NO	YW1B-M1E30①				
		3NC	YW1B-M1E03①				
		2NO-1NC	YW1B-M1E21①				
	1NO-2NC	YW1B-M1E12①					
	Maintained	1NO	YW1B-A1E10①				
		1NC	YW1B-A1E01①				
		2NO	YW1B-A1E20①				
		2NC	YW1B-A1E02①				
		1NO-1NC	YW1B-A1E11①				
<b>Extended</b>  	Momentary	1NO	YW1B-M2E10①	B (black) G (green) R (red) S (blue) W (white) Y (yellow)			
		1NC	YW1B-M2E01①				
		2NO	YW1B-M2E20①				
		2NC	YW1B-M2E02①				
		1NO-1NC	YW1B-M2E11①				
	Maintained	1NO	YW1B-A2E10①				
		1NC	YW1B-A2E01①				
		2NO	YW1B-A2E20①				
		2NC	YW1B-A2E02①				
		1NO-1NC	YW1B-A2E11①				
		<b>Mushroom ø40mm</b>  	Momentary		1NO	YW1B-M4E10①	B (black) G (green) R (red) S (blue) W (white) Y (yellow)
					1NC	YW1B-M4E01①	
					2NO	YW1B-M4E20①	
	2NC				YW1B-M4E02①		
1NO-1NC	YW1B-M4E11①						
Maintained	1NO		YW1B-A4E10①				
	1NC		YW1B-A4E01①				
	2NO		YW1B-A4E20①				
	2NC		YW1B-A4E02①				
	1NO-1NC		YW1B-A4E11①				





Note: Specify a button color code in place of ① in the Type No.

### Dimensions (Pushbuttons)







All dimensions in mm.

**Pilot Lights**

Style	Illumination Type	Operating Voltage	Type No.	② Lens Color Code	
<b>Flush Full Voltage</b>  	Without Lamp	250V AC/DC max.	YW1P-1EQ0②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow)	
	LED	6V AC/DC	YW1P-1EQ2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-③②	
		12V AC/DC	YW1P-1EQ3②		
		24V AC/DC	YW1P-1EQ4②		
		110V AC/DC	YW1P-1EQH②		
		230/240V AC/DC	YW1P-1EQM3②		
	Incandescent	6V AC/DC	YW1P-1EQ5②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T③	
		12V AC/DC	YW1P-1EQ6②		
		24V AC/DC	YW1P-1EQ7②		
	<b>Flush Transformer Type</b>  	LED	100/110V AC	YW1P-1EH2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-6②
200/220V AC			YW1P-1EM2②		
115/120V AC			YW1P-1EH22②		
230/240V AC			YW1P-1EM42②		
Incandescent		100/110V AC	YW1P-1EH5②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T6	
		200/220V AC	YW1P-1EM5②		
		115/120V AC	YW1P-1EH25②		
		230/240V AC	YW1P-1EM45②		
<b>Flush Marking Type Full Voltage</b>  		Without Lamp	250V AC/DC max.	YW1P-1BEQ0②	A (amber), G (green), R (red), S (blue), W (white), Y (yellow)
		LED	6V AC/DC	YW1P-1BEQ2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-③②
	12V AC/DC		YW1P-1BEQ3②		
	24V AC/DC		YW1P-1BEQ4②		
	110V AC/DC		YW1P-1BEQH②		
	230/240V AC/DC		YW1P-1BEQM3②		
	Incandescent	6V AC/DC	YW1P-1BEQ5②	A (amber), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T③	
		12V AC/DC	YW1P-1BEQ6②		
		24V AC/DC	YW1P-1BEQ7②		
	<b>Flush Marking Type Transformer Type</b>  	LED	100/110V AC	YW1P-1BEH2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-6②
200/220V AC			YW1P-1BEM2②		
115/120V AC			YW1P-1BEH22②		
230/240V AC			YW1P-1BEM42②		
Incandescent		100/110V AC	YW1P-1BEH5②	A (amber), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T6	
		200/220V AC	YW1P-1BEM5②		
		115/120V AC	YW1P-1BEH25②		
		230/240V AC	YW1P-1BEM45②		

Note: Specify a lens color code in place of ② in the Type No.  
Clear lenses are used for PW (pure white) illumination of pilot lights.



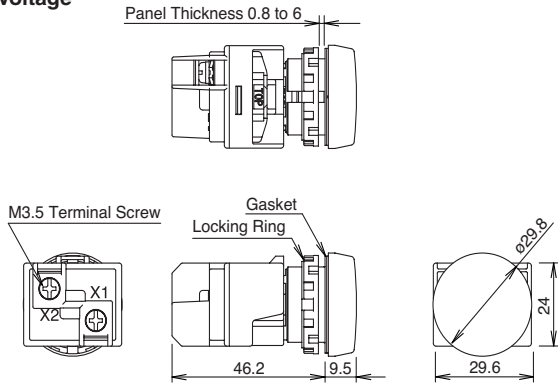
Style	Illumination Type	Operating Voltage	Type No.	② Lens Color Code	
<b>Extended Full Voltage</b>  	Without Lamp	250V AC/DC max.	YW1P-2TEQ0②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow)	
	LED	6V AC/DC	YW1P-2TEQ2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-③②	
		12V AC/DC	YW1P-2TEQ3②		
		24V AC/DC	YW1P-2TEQ4②		
		110V AC/DC	YW1P-2TEQH②		
		230/240V AC/DC	YW1P-2TEQM3②		
	Incandescent	6V AC/DC	YW1P-2TEQ5②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T③	
		12V AC/DC	YW1P-2TEQ6②		
		24V AC/DC	YW1P-2TEQ7②		
	<b>Extended Transformer Type</b>  	LED	100/110V AC	YW1P-2TEH2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-6②
200/220V AC			YW1P-2TEM2②		
115/120V AC			YW1P-2TEH22②		
230/240V AC			YW1P-2TEM42②		
Incandescent		100/110V AC	YW1P-2TEH5②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T6	
		200/220V AC	YW1P-2TEM5②		
		115/120V AC	YW1P-2TEH25②		
		230/240V AC	YW1P-2TEM45②		
<b>Dome Full Voltage</b>  		Without Lamp	250V AC/DC max.	YW1P-2EQ0②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow)
		LED	6V AC/DC	YW1P-2EQ2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-③②
	12V AC/DC		YW1P-2EQ3②		
	24V AC/DC		YW1P-2EQ4②		
	110V AC/DC		YW1P-2EQH②		
	230/240V AC/DC		YW1P-2EQM3②		
	Incandescent	6V AC/DC	YW1P-2EQ5②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T③	
		12V AC/DC	YW1P-2EQ6②		
		24V AC/DC	YW1P-2EQ7②		
	<b>Dome Transformer Type</b>  	LED	100/110V AC	YW1P-2EH2②	A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow) Built-in LED lamp: LSED-6②
200/220V AC			YW1P-2EM2②		
115/120V AC			YW1P-2EH22②		
230/240V AC			YW1P-2EM42②		
Incandescent		100/110V AC	YW1P-2EH5②	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow) Built-in incandescent lamp: LS-T6	
		200/220V AC	YW1P-2EM5②		
		115/120V AC	YW1P-2EH25②		
		230/240V AC	YW1P-2EM45②		

Note: Specify a lens color code in place of ② in the Type No.  
Clear lenses are used for PW (pure white) illumination of pilot lights.

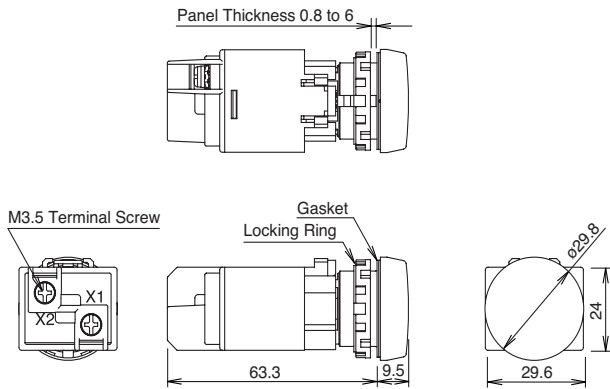
**Dimensions (Pilot Lights)**

• **Flush**

**Full Voltage**

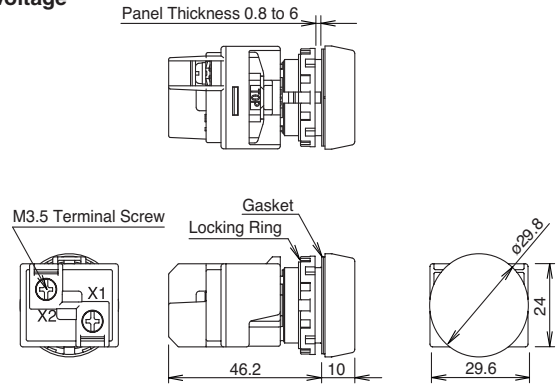


**Transformer Type**

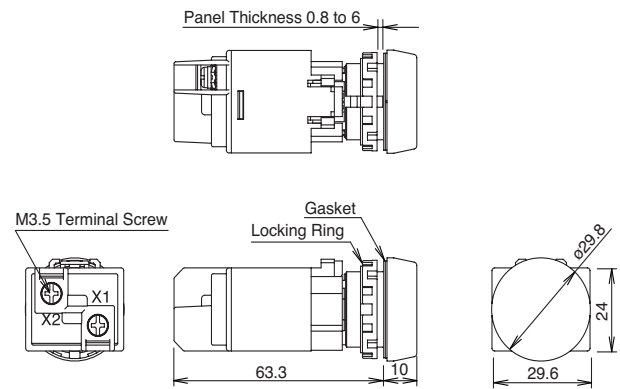


• **Flush Marking Type**

**Full Voltage**

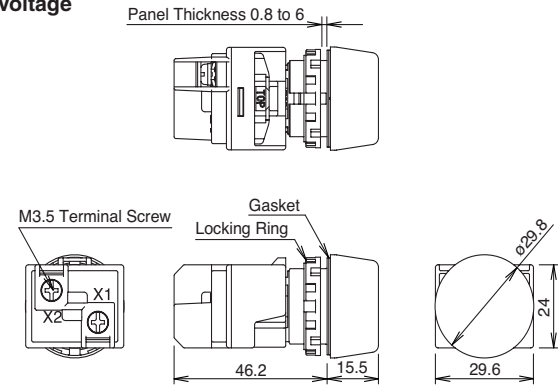


**Transformer Type**

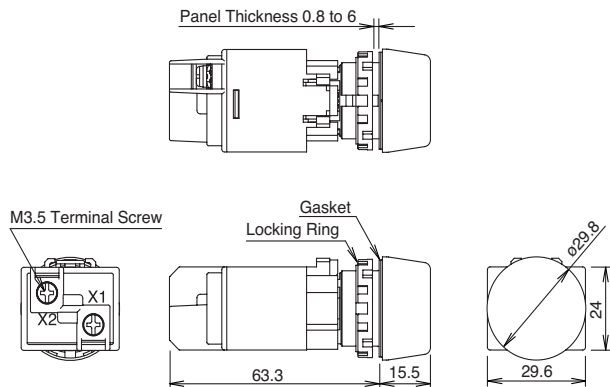


• **Extended**

**Full Voltage**

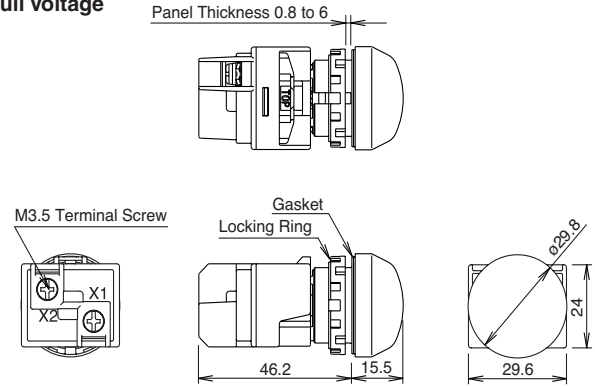


**Transformer Type**

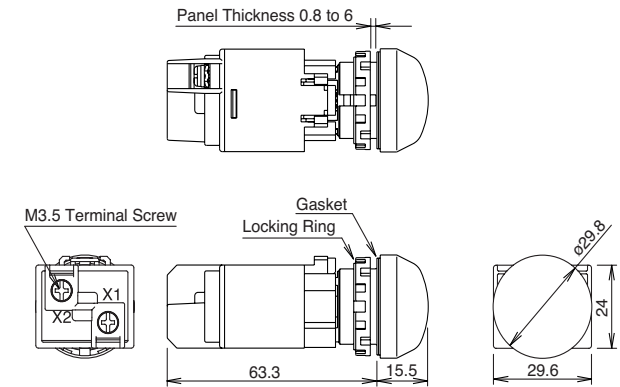


• **Dome**

**Full Voltage**





**Transformer Type**



All dimensions in mm.

**Illuminated Pushbuttons**

Style	Illumination Type	Operation	Contacts	Type No.	③ Operating Voltage Code	② Lens Color Code			
<b>Extended</b>  	Without Lamp	Momentary	1NO	YW1L-M2E10Q0②	0 (without lamp) 250V AC/DC max.	A (amber) G (green) R (red) S (blue) W (white) Y (yellow)			
			1NC	YW1L-M2E01Q0②					
			2NO	YW1L-M2E20Q0②					
			2NC	YW1L-M2E02Q0②					
		Maintained	1NO-1NC	YW1L-M2E11Q0②					
			1NO	YW1L-A2E10Q0②					
			1NC	YW1L-A2E01Q0②					
			2NO	YW1L-A2E20Q0②					
		LED	Momentary	2NC			YW1L-M2E02Q③②	2 (6V AC/DC) 3 (12V AC/DC) 4 (24V AC/DC) H (110V AC/DC) M3 (230/240V AC/DC)	A (amber) G (green) PW (pure white) R (red) S (blue) W (white) Y (yellow) Built-in LED lamp: LSED-③②
				1NO-1NC			YW1L-M2E11Q③②		
				1NO			YW1L-A2E10Q③②		
				1NC			YW1L-A2E01Q③②		
	Maintained		2NO	YW1L-A2E20Q③②					
			2NC	YW1L-A2E02Q③②					
			1NO-1NC	YW1L-A2E11Q③②					
			Incandescent	Momentary	1NO	YW1L-M2E10Q③②	5 (6V AC/DC) 6 (12V AC/DC) 7 (24V AC/DC)		
	1NC				YW1L-M2E01Q③②				
	2NO				YW1L-M2E20Q③②				
	2NC				YW1L-M2E02Q③②				
	Maintained			1NO-1NC	YW1L-M2E11Q③②				
		1NO		YW1L-A2E10Q③②					
		1NC		YW1L-A2E01Q③②					
		2NO		YW1L-A2E20Q③②					
	<b>Extended with Full Shroud</b>  	Without Lamp	Momentary	1NO	YW1L-MF2E10Q0②	0 (without lamp) 250V AC/DC max.	A (amber) G (green) R (red) S (blue) W (white) Y (yellow)		
				1NC	YW1L-MF2E01Q0②				
				2NO	YW1L-MF2E20Q0②				
				2NC	YW1L-MF2E02Q0②				
Maintained			1NO-1NC	YW1L-MF2E11Q0②					
			1NO	YW1L-AF2E10Q0②					
			1NC	YW1L-AF2E01Q0②					
			2NO	YW1L-AF2E20Q0②					
LED			Momentary	2NC	YW1L-MF2E02Q③②			2 (6V AC/DC) 3 (12V AC/DC) 4 (24V AC/DC) H (110V AC/DC) M3 (230/240V AC/DC)	A (amber) G (green) PW (pure white) R (red) S (blue) W (white) Y (yellow) Built-in LED lamp: LSED-③②
				1NO-1NC	YW1L-MF2E11Q③②				
				1NO	YW1L-AF2E10Q③②				
				1NC	YW1L-AF2E01Q③②				
		Maintained	2NO	YW1L-AF2E20Q③②					
			2NC	YW1L-AF2E02Q③②					
			1NO-1NC	YW1L-AF2E11Q③②					
			Incandescent	Momentary	1NO	YW1L-MF2E10Q③②	5 (6V AC/DC) 6 (12V AC/DC) 7 (24V AC/DC)		
		1NC			YW1L-MF2E01Q③②				
		2NO			YW1L-MF2E20Q③②				
		2NC			YW1L-MF2E02Q③②				
		Maintained		1NO-1NC	YW1L-MF2E11Q③②				
1NO				YW1L-AF2E10Q③②					
1NC				YW1L-AF2E01Q③②					
2NO				YW1L-AF2E20Q③②					
				2NC	YW1L-AF2E02Q③②				
				1NO-1NC	YW1L-AF2E11Q③②				

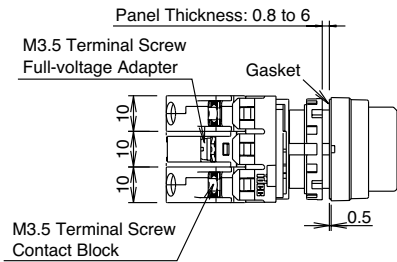
Note: Specify a lens color code in place of ② in the Type No.  
Specify an operating voltage code in place of ③ in the Type No.

# Ø22 YW Series Control Units

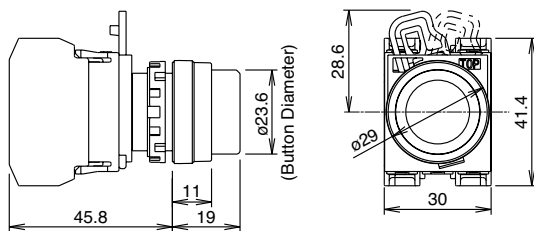
Style	Illumination Type	Operation	Contacts	Type No.	③ Operating Voltage Code	② Lens Color Code			
	Without Lamp	Momentary	1NO	YW1L-M4E10Q0②	0 (without lamp) 250V AC/DC max.	A (amber) G (green) R (red) S (blue) W (white) Y (yellow)			
			1NC	YW1L-M4E01Q0②					
			2NO	YW1L-M4E20Q0②					
			2NC	YW1L-M4E02Q0②					
		Maintained	1NO-1NC	YW1L-M4E11Q0②					
			1NO	YW1L-A4E10Q0②					
			1NC	YW1L-A4E01Q0②					
			2NO	YW1L-A4E20Q0②					
		LED	Momentary	1NO			YW1L-M4E10Q③②	2 (6V AC/DC) 3 (12V AC/DC) 4 (24V AC/DC) H (110V AC/DC) M3 (230/240V AC/DC)	A (amber) G (green) PW (pure white) R (red) S (blue) W (white) Y (yellow) Built-in LED lamp: LSED-③②
				1NC			YW1L-M4E01Q③②		
				2NO			YW1L-M4E20Q③②		
				2NC			YW1L-M4E02Q③②		
	Maintained		1NO-1NC	YW1L-M4E11Q③②					
			1NO	YW1L-A4E10Q③②					
			1NC	YW1L-A4E01Q③②					
			2NO	YW1L-A4E20Q③②					
	Incandescent		Momentary	1NO	YW1L-M4E10Q③②	5 (6V AC/DC) 6 (12V AC/DC) 7 (24V AC/DC)	A (amber) G (green) R (red) S (blue) W (white) Built-in incandescent lamp: LS-T③		
				1NC	YW1L-M4E01Q③②				
				2NO	YW1L-M4E20Q③②				
				2NC	YW1L-M4E02Q③②				
		Maintained	1NO-1NC	YW1L-M4E11Q③②					
			1NO	YW1L-A4E10Q③②					
			1NC	YW1L-A4E01Q③②					
			2NO	YW1L-A4E20Q③②					
				2NC	YW1L-A4E02Q③②				
				1NO-1NC	YW1L-A4E11Q③②				

Note: Specify a lens color code in place of ② in the Type No.  
Specify an operating voltage code in place of ③ in the Type No.

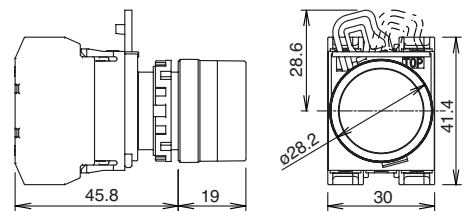
## Dimensions (Illuminated Pushbuttons)



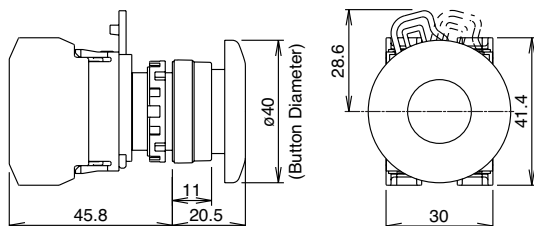
### • Extended



### • Extended with Full Shroud






### • Mushroom



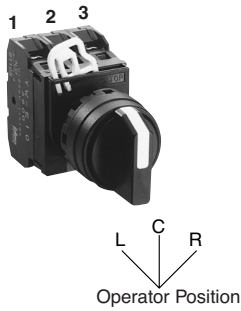
All dimensions in mm.

**Selector Switches**

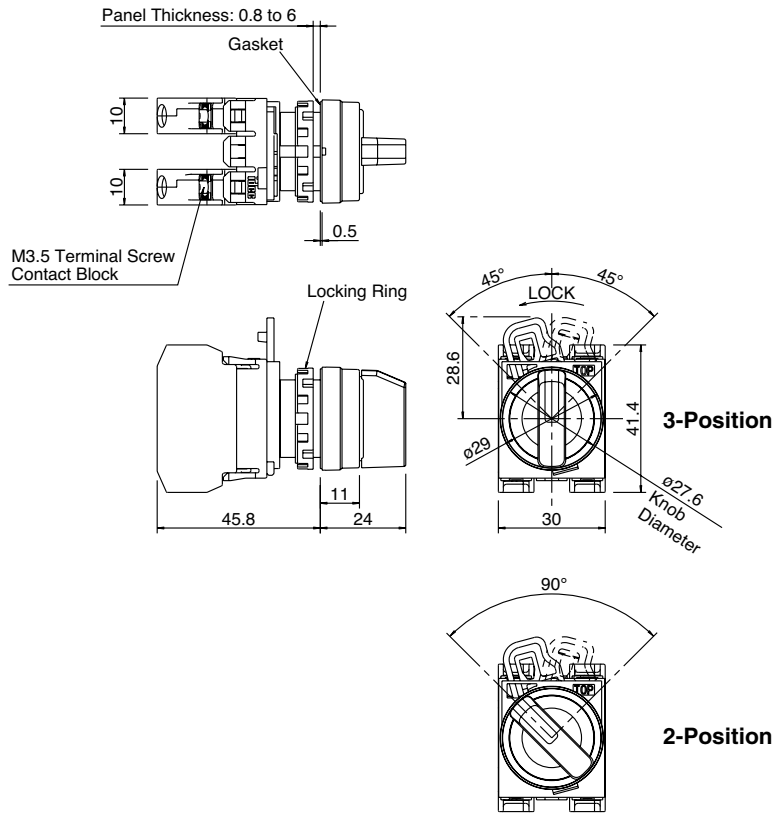
Style					Knob Type						
											
No. of Positions	Contact Configuration	Contact Block Mounting Position	Operator Position			Maintained	Spring Return from Right	—	—		
90° 2-Position 	1NO (10)	1	NO		●		YW1S-2E10	YW1S-21E10	—	—	
		2									
		3									
	1NC (01)	1					YW1S-2E01	YW1S-21E01	—	—	
		2									
		3	NC	●							
	2NO (20)	1	NO		●		YW1S-2E20	YW1S-21E20	—	—	
		2									
		3	NO		●						
	2NC (02)	1	NC	●			YW1S-2E02	YW1S-21E02	—	—	
		2									
		3	NC	●							
	1NO-1NC (11)	1	NO		●		YW1S-2E11	YW1S-21E11	—	—	
		2									
		3	NC	●							
	3NO (30)	1	NO		●		YW1S-2E30	YW1S-21E30	—	—	
		2	NO		●						
		3	NO		●						
3NC (03)	1	NC	●			YW1S-2E03	YW1S-21E03	—	—		
	2	NC	●								
	3	NC	●								
2NO-1NC (21)	1	NO		●		YW1S-2E21	YW1S-21E21	—	—		
	2	NO		●							
	3	NC	●								
1NO-2NC (12)	1	NO		●		YW1S-2E12	YW1S-21E12	—	—		
	2	NC	●								
	3	NC	●								
No. of Positions	Contact Configuration	Contact Block Mounting Position	Operator Position			Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-Way		
45° 3-Position 	2NO (20)	1	NO	●			YW1S-3E20	YW1S-31E20	YW1S-32E20	YW1S-33E20	
		2									
		3	NO			●					
	2NO (20N1)	1						YW1S-3E20N1	YW1S-31E20N1	YW1S-32E20N1	YW1S-33E20N1
		2	NO	●		●					
		3	NO			●					
	2NC (02)	1	NC					YW1S-3E02	YW1S-31E02	YW1S-32E02	YW1S-33E02
		2									
		3	NC								
	2NC (02N1)	1	NO	●			YW1S-3E02N1	YW1S-31E02N1	YW1S-32E02N1	YW1S-33E02N1	
		2	NC		●						
		3	NC								
	1NO-1NC (11)	1	NO		●		YW1S-3E11	YW1S-31E11	YW1S-32E11	YW1S-33E11	
		2									
		3	NC								
	1NO-1NC (11N1)	1	NC				YW1S-3E11N1	YW1S-31E11N1	YW1S-32E11N1	YW1S-33E11N1	
		2									
		3	NO			●					
	1NO-1NC (11N2)	1	NO	●			YW1S-3E11N2	YW1S-31E11N2	YW1S-32E11N2	YW1S-33E11N2	
		2	NC		●						
		3									
	1NO-1NC (11N3)	1					YW1S-3E11N3	YW1S-31E11N3	YW1S-32E11N3	YW1S-33E11N3	
		2	NC		●						
		3	NO			●					
1NO-1NC (11N4)	1					YW1S-3E11N4	YW1S-31E11N4	YW1S-32E11N4	YW1S-33E11N4		
	2	NO	●		●						
	3	NC									
3NO (30)	1	NO	●			YW1S-3E30	YW1S-31E30	YW1S-32E30	YW1S-33E30		
	2	NO	●								
	3	NO			●						
3NC (03)	1	NC				YW1S-3E03	YW1S-31E03	YW1S-32E03	YW1S-33E03		
	2	NC									
	3	NC									
2NO-1NC (21)	1	NO		●		YW1S-3E21	YW1S-31E21	YW1S-32E21	YW1S-33E21		
	2	NC		●							
	3	NO			●						
1NO-2NC (12)	1	NC				YW1S-3E12	YW1S-31E12	YW1S-32E12	YW1S-33E12		
	2	NO	●		●						
	3	NC									

## Contact Block Mounting Position

Contact Block Mounting Position


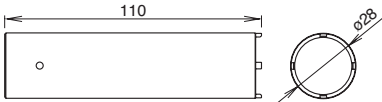

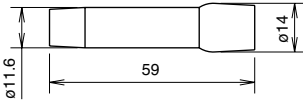

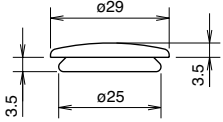

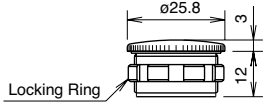

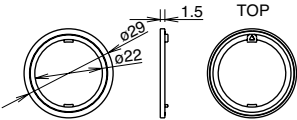



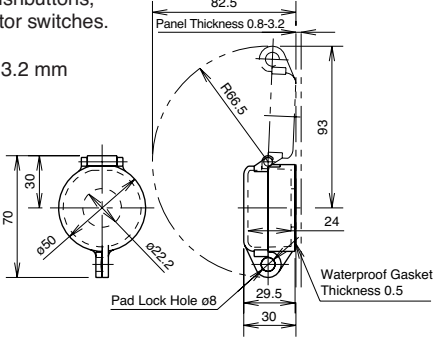
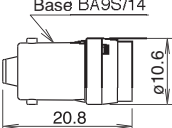
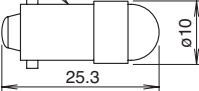
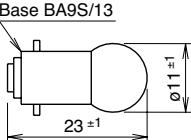

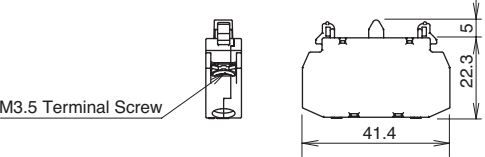
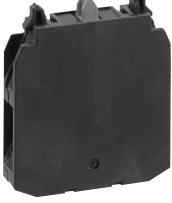
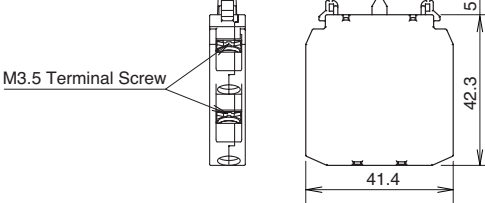
## Dimensions (Selector Switch)



All dimensions in mm.

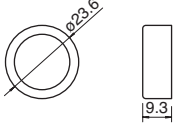
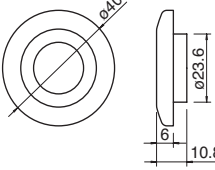
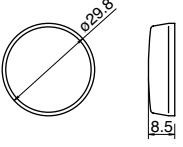
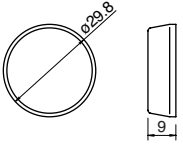
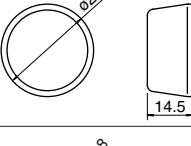
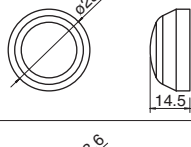
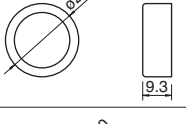
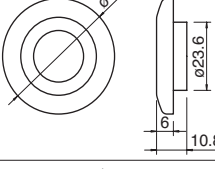
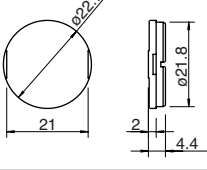
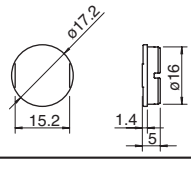
## Accessories

Name & Shape	Type No.	Description & Dimensions (mm)	Package Quantity
	MW9Z-T1	Metallic tool used to tighten the plastic locking ring when installing the YW series control unit on a panel. 	1
	OR-55	Made of rubber. Used for replacing lamps. 	1
	OB-31PN05	Used for plugging unused mounting holes in the panel. Color: Black 	5
	LW9Z-BM	Used for plugging unused mounting holes in the panel. Weight: Approx. 18g 	1
	HW9Z-RLPN10	Prevents rotation of switches in panel. Mainly used with selector switches when no nameplate is used. With waterproof gasket (IP65). Made of plastic (black). Applicable panel thickness: 1.2 to 4.5 mm 	10

Name & Shape	Type No.	Description & Dimensions (mm)		Package Quantity
	HW9Z-KL1	Plastic hinged cover to protect pushbuttons, illuminated pushbuttons, or selector switches. Degree of protection: IP65. Applicable panel thickness: 0.8 to 3.2 mm 		1
LED Lamp 	LSED-6②	6V AC/DC	Specify a color code in place of ② in the Type No. A (amber), G (green), PW (pure white), R (red), S (blue), Y (yellow) Applicable units: • LED illuminated pilot lights • LED illuminated pushbuttons For the rated current, see page 4. Note: Yellow LED lamps are used for white illumination of pilot lights and illuminated pushbuttons.	1
	LSED-1②	12V AC/DC		
	LSED-2②	24V AC/DC		
LED Lamp 	LSED-H②	110V AC/DC		
Incandescent Lamp 	LS-T6P	6.3V, 1W	One pack contains 100 incandescent lamps.	100
	LS-T8P	18V, 1W		
	LS-T3P	30V, 1W		
Single Contact Block 	YW-E10P	Contact: 1NO		10
	YW-E01P	Contact: 1NC		
Double Contact Block 	YW-EW20P	Contact: 2NO		10
	YW-EW11P	Contact: 1NO-1NC		
	YW-EW01P	Contact: 2NC		

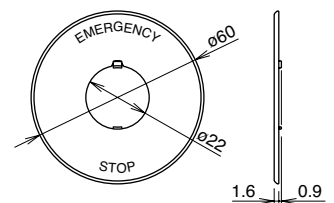
# Ø22 YW Series Control Units

## Buttons, Lenses, and Marking Plates


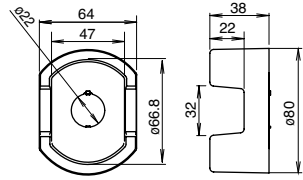

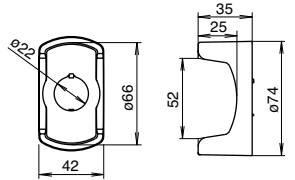

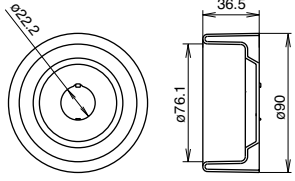

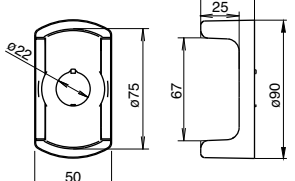
Name	Style	Type No.	① ② Color Code	Dimensions (mm)	Package Quantity
Button (for pushbuttons)	Extended	YW9Z-B12①PN10	B (black) G (green) R (red) S (blue) W (white) Y (yellow)		10
	Mushroom ø40mm	YW9Z-B14①PN10			
Lens (for pilot lights)	Flush	YW9Z-PL11②PN10	A (amber) C (clear) G (green) R (red) S (blue) W (white) Y (yellow)		10
	Flush Marking	YW9Z-PL11B②PN10	A (amber) C (clear) G (green) R (red) S (blue) Y (yellow)		10
	Extended	YW9Z-PL12T②PN10	A (amber) C (clear) G (green) R (red) S (blue) W (white) Y (yellow)		10
	Dome	YW9Z-PL12②PN10	A (amber) C (clear) G (green) R (red) S (blue) W (white) Y (yellow)		10
Lens (for illuminated pushbuttons)	Extended	YW9Z-L12②PN10	A (amber) C (clear) G (green) R (red) S (blue) Y (yellow)		10
	Mushroom ø40mm	YW9Z-L14②PN10			
Marking Plate (for pilot lights)	—	YW9Z-PP12PN10	—		10
Marking Plate (for illuminated pushbuttons)	—	YW9Z-P12PN10	—		10



### Nameplate

Description	Legend	Material	Type No.	Ordering Type No.	Package Quantity	Dimensions (mm)
HWAV	Blank	Plastic (yellow) 1.5 mm thick	HWAV-0	HWAV-0	1	 <p>• Legend "Emergency Stop" is indicated outside a ø44mm circle.</p>
	EMERGENCY STOP		HWAV-27	HWAV-27	1	

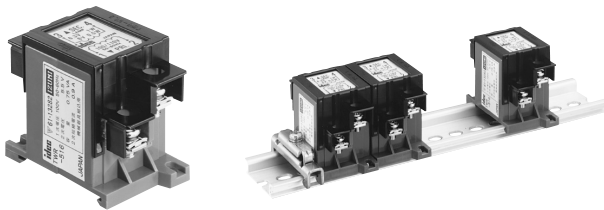
### EMO Switch Guards

Type No. & Appearance	Dimensions (mm)	Type No. & Appearance	Dimensions (mm)
<b>HW9Z-KG1</b>  EMO Switch Guard SEMI S2 compliant (Note 1)		<b>HW9Z-KG3</b>  EMO Switch Guard SEMI S2 compliant	
<b>HW9Z-KG2</b>  EMO Switch Guard SEMI S2 compliant (Note 1) SEMATECH compliant (Note 2)		<b>HW9Z-KG4</b>  EMO Switch Guard SEMI S2 compliant SEMATECH compliant (Note 2)	

Material: Polyamide (PA6)  
 Color: Yellow, Munsell 2.5Y 8/10 equivalent  
 Degree of protection: IP65

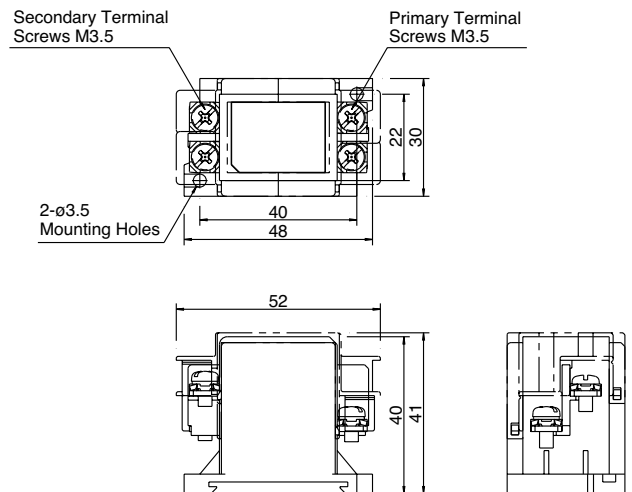
• Degree of protection IP65 applies to the combination of an emergency stop switch and an EMO switch guard.

### Separate DIN Rail Mounting Type Transformer



Primary Voltage (50/60 Hz)	Type No.	Applicable Lamp Rating
110V AC	TWR516	One full voltage type illuminated unit containing LED lamp LSED-6 (6V AC/DC) or incandescent lamp LS-T6 (6.3V)
115V AC	TWR5116	
120V AC	TWR5126	
220V AC	TWR526	
230V AC	TWR5236	
240V AC	TWR5246	
380V AC	TWR5386	
440V AC	TWR546	
480V AC	TWR5486	

#### • Dimensions (mm)



Note: Finger-safe terminal cover is supplied with the transformer.

## Safety Precautions

- Turn off the power to the YW 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 burning your hand, use the lamp holder tool when replacing lamps.

- For wiring, use wires of a proper size to meet the voltage and current requirements. Tighten the M3.5 terminal screws to a tightening torque of 1.0 to 1.3 N·m. Failure to tighten the terminal screws may cause overheating and fire.

## Instructions

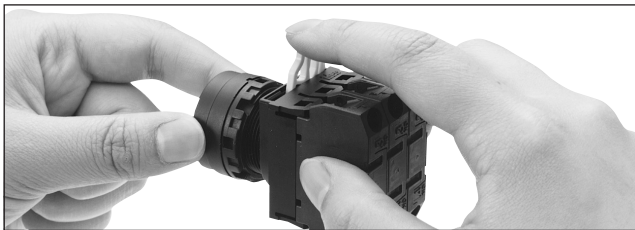
### Panel Mounting

- Remove the contact block from the operator (for pilot lights, remove the transformer or full voltage unit from the pilot light). Remove the locking ring from the operator. Insert the operator into the panel cut-out from the front, tighten the locking ring from the back, then install the contact block to the operator.
- **Removing and Installing the Contact Block**



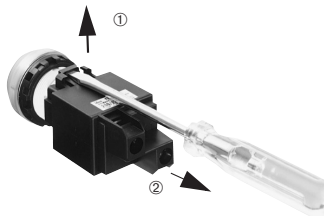
- ① Pull up the locking lever.
- ② Turn the lever to the left.
- ③ Pull out the contact block.

1. To remove the operator from the contact block, pull up the locking lever and turn it to the left. Then the operator can be pulled out.
2. To reinstall, place the TOP marking on the operator and the ide marking on the contact block mounting adapter in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever to the right.

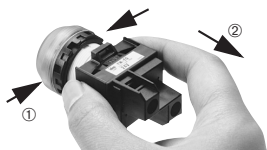


### Removing and Installing the Transformer Unit

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



### Removing the Full Voltage Unit



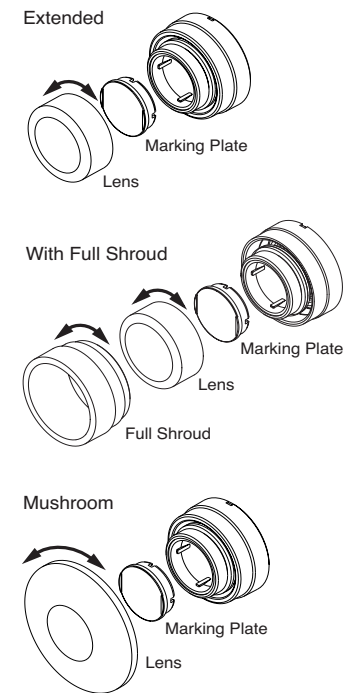
1. To remove the full voltage unit, squeeze the full voltage unit from both sides to disengage the latch as shown, and pull it out. Like the transformer unit, the full voltage unit can also be pulled out by inserting a flat screwdriver into the latch hole as shown.
2. To reinstall, place the TOP markings on the operator and the latch on the full voltage unit in the same direction, and insert the operator into the full voltage unit.

### Notes for Panel Mounting

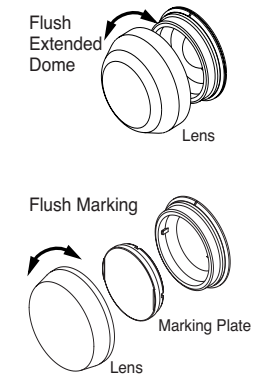
1. Use the optional locking ring wrench (MW9Z-T1) to mount the operator onto a panel. Tightening torque must not exceed 2.0 N·m. Do not use pliers. Excessive tightening will damage the locking ring.
2. For the contact blocks and transformers housing LED and incandescent lamps, make sure not to press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

## Insertion Order of Lens and Marking Plate

### • Illuminated Pushbutton



### • Pilot Light



## Marking

For YW series pilot lights and illuminated pushbuttons, legends and symbols can be engraved on the built-in marking plates, or printed mylar film can be inserted under the lens for labeling purposes. Mylar film is not supplied with the control units and must be supplied by the end user.

## • Built-in Marking Plate and Marking Film Size

Unit	Pilot Light	Illuminated Pushbutton
Built-in Marking Plate		
	Engraving depth: 0.5 mm maximum Marking plate material: White acrylic	
Applicable Marking Film		
	0.1-mm-thick × 2 sheets or 0.2-mm-thick × 1 sheet Film material: Mylar (recommended) Note: Marking film is not supplied with the pilot light or illuminated pushbutton.	

## • Replacement (LED and incandescent 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.

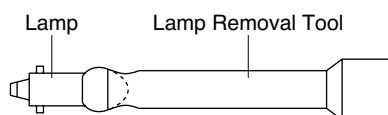
### • Removing the Lamp from the Front of the Panel

To remove, gently insert the lamp holder tool onto the lamp head. Then push slightly, and turn the lamp holder tool to the left.

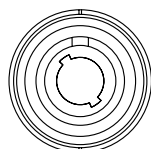


### • Installing the Lamp from the Front of the Panel

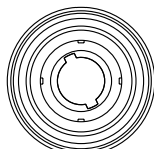
1. To install, insert the lamp head into the lamp holder tool, and hold the lamp as shown in the figure below.



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



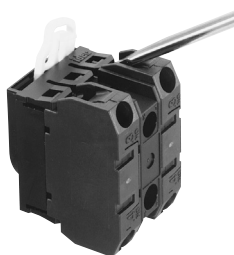
Pilot Light



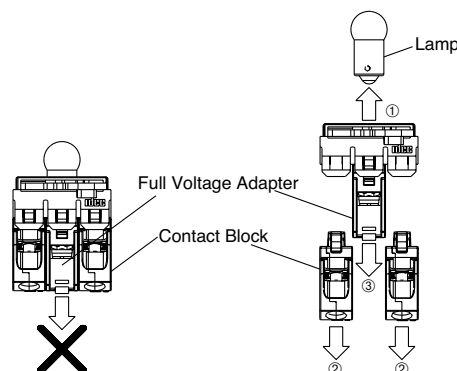
Illuminated Pushbutton

## Removing Contact Blocks and Full Voltage Adapter

Insert a flat screwdriver between the latch and contact block mounting adapter, and disengage the latch.



Make sure to remove the lamp and contact blocks before removing the full voltage adapter.

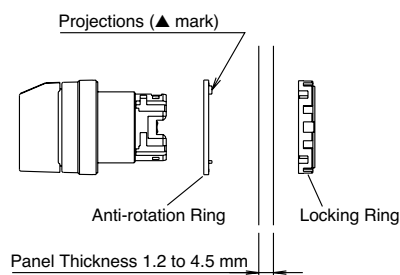


## Tightening Torque for Terminal Screws

Tighten terminal screws to a torque between 1.0 and 1.3 N·m.

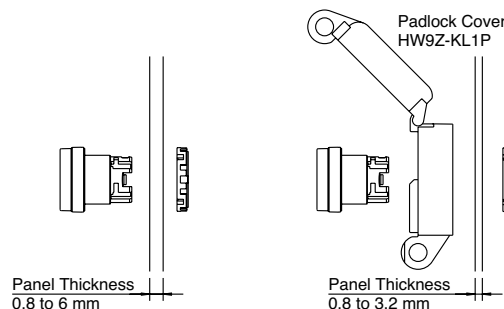
## Anti-rotation Ring and Mounting Panel

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



## Mounting Panel Thickness

The mounting panel must be 0.8 to 6.0 mm in thickness. When optional accessories are added, the applicable panel thickness changes as shown below.



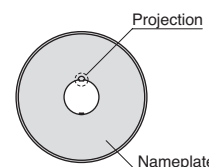
## Contact Bounce

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).

## Nameplate

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



## Handling

Do not expose the switch to excessive shock and vibration, otherwise the switch may be deformed or damaged, causing malfunction or operation failure.



**Instructions**

**LED Illumination**

LED lamps consist of semiconductors. If the applied voltage exceeds the rated voltage, LED elements deteriorate due to over-heat, resulting in significant decrease in luminance, hue change, or failure of lighting. Also, if extraneous noise, transient voltage, or transient current is applied to the circuit, similar effects will be caused. When using LED lamps, observe the following instructions.

**• Rated Voltage**

The LED illuminated units are rated at 6V, 12V, 24V, 110V, or 230/240V AC/DC, and can be used within ±10% the rated voltage of either AC or DC, except the 230/240V AC/DC types can be used on 250V AC/DC maximum.

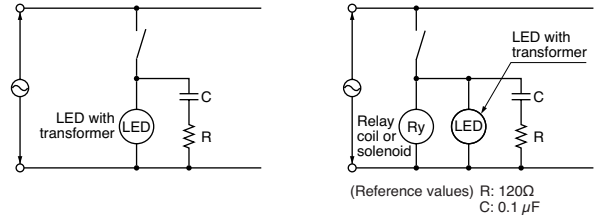
**• DC Power**

1. Switching power supply  
Regulated voltage from switching power supply is best suited. Make sure to use within the rated voltage of the LED lamp.
2. Rechargeable battery  
Note that the battery voltage may exceed the rated voltage of the LED lamp while the battery is being charged and immediately after the charging is complete. Be sure to use the LED lamp on a voltage of ±10% the rated voltage, except the 230/240V AC/DC types on 250V AC/DC maximum.
3. Full-wave rectification  
Since the LED lamp is AC/DC compatible, a diode bridge for rectification is not necessary. If the LED lamp is used on a full-wave rectification current through a diode bridge, the rectifier diodes will reduce the voltage, resulting in lower luminance.
4. Single-phase half-wave rectification  
This is not suitable for the power source of LED lamps. Use constant-voltage DC power.

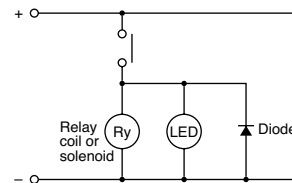
**• Noise**

LED elements deteriorate due to extraneous noise, resulting in significant decrease in luminance, hue change, or failure of lighting. When such effects are anticipated, take a protection measure shown below, such as RC elements or a surge absorber.

**[Protection Example 1] For AC circuit**



**[Protection Example 2] For DC circuit**

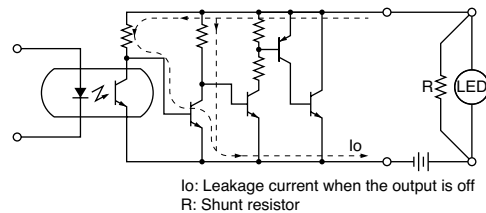


**• Countermeasures against Dim Lighting**

1. Leakage currents through the transistors or a contact protection circuit may cause the LED lamp to illuminate dimly even when the output is off.
2. When the LED lamp is illuminated by a transistor output, take the following measure.

**[Circuit Example]**

Connect shunt resistor R in parallel with the LED lamp.



I<sub>0</sub>: Leakage current when the output is off  
R: Shunt resistor

**Ordering Information**

- When ordering, specify the Type No. and quantity.
- Replacement contact blocks are supplied in a package containing 10 pieces.

Specifications and other descriptions in this catalog are subject to change without notice.



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