ø22 LW Series Switches & Pilot Lights

Light touch mechanism designed to reduce strain injuries
Endures repetitive operation suitable for food processing and packaging industries

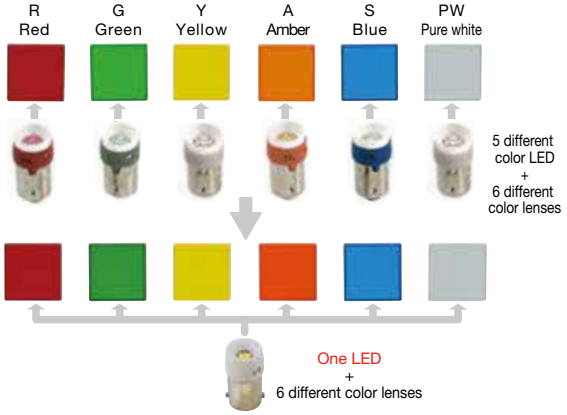


- Light touch
- Collective mounting is possible.
- Locking lever removable contact blocks enables easy installation even when mounted collectively.
- Gold plated silver or silver contacts.
- Degree of protection: IP65 (IEC 60529) (except buzzer)
- UL recognized and CSA certified. EN compliant. (except buzzers)

- See website for details on approvals and standards.

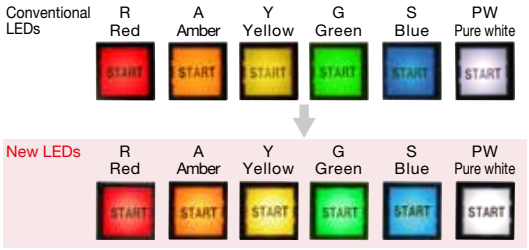
First in the industry! Six different colors with a single LED (LSRD)

Previously, 5 different color LEDs were required but with the new illuminated unit, only a single LED is used.
Only the lens needs to be replaced to change the illumination color.
The new LED reduces maintenance time, makes stock control easier, and is enviromentally friendly.



High visibility with new LED (LSRD)

Brighter and clearer compared to conventional LEDS



Specifications and Ratings

Contact Ratings

Gold Contact

Rated Insulation Voltage			250V		
Thermal Current			3A		
Operating Voltage			30V DC	125V AC	250V
Operating Current (resistive load)	AC 50/60Hz	Resistive load		1A	0.5A
		Inductive load		0.7A	0.5A
	DC	Resistive load	1A	0.2A	
		Inductive load	0.7A	0.1A	
Contact Material			Gold plated silver		

Minimum applicable load (reference value): 5V AC/DC, 1mA
(Applicable range is subject to the operating condition and load.)

Silver Contact

Rated Insulation Voltage			250V		
Rated Operating Voltage			30V	125V	250V
Rated Operating Current	AC 50/60Hz	Resistive load	—	3A	2A
		Inductive load	—	2A	1.5A
	DC	Resistive load	2A	0.4A	—
		Inductive load	1A	0.2A	—
Rated Thermal Current			5A		
Contact Material			Silver		

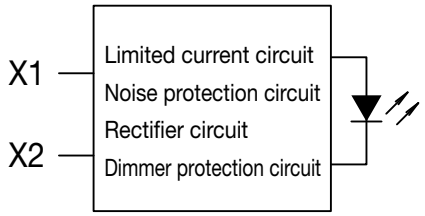
• AC inductive load: PF=0.6 to 0.7 DC inductive load: L/R=7 ms max.

Specifications

Operating Temperature		–25 to +60°C (no freezing) Illuminated units: –25 to +50°C
Storage Temperature		–40 to +80°C (no freezing)
Operating Humidity		45 to 85% RH (no condensation)
Contact Resistance		50 mΩ maximum (initial value)
Insulation Resistance		100 MΩ minimum (500V DC megger)
Dielectric Strength	Switch Unit	Between live part and ground: 2,500V AC, 1 minute Between terminals of different poles: 2,500V AC, 1 minute Between terminals of the same pole: 1,000V AC, 1 minute
	Illumination Unit	Between live part and ground: 2,500V AC, 1 minute
Vibration Resistance		Damage Limits, Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance		Damage limits: 1,000 m/s² Operating extremes: 100 m/s²
Mechanical Life (minimum operations)		Momentary: 1,000,000 Maintained: 500,000 Selector switches: 250,000 Key selector switches: 250,000 Illuminated selector switches: 250,000
Electrical Life (minimum operations)		Momentary: 100,000 (switching frequency 1800 operations/h) Maintained: 100,000 (switching frequency 900 operations/h) Selector switches: 100,000 (switching frequency 900 operations/h)
Degree of Protection		IP65 (IEC 60529) (except buzzer)
Terminal Style		Solder/tab terminal no. 110 PC board terminal Screw terminal
Weight (approx.)		10g (LW1B-M1C3) 24g (LW1S-2C3) 15g (LW1P-14) 39g (LW1K-2C3A) 24g (LW1L-M1C34) 27g (LW1F-2C34)

LED Lamp Ratings

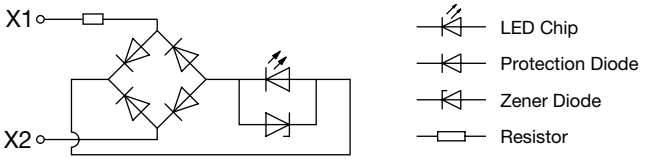
LSRD

Part No.		LSRD-6	LSRD-1	LSRD-2
Lamp Base		BA9S/13		
Rated Voltage		6V AC/DC	12V AC/DC	24V AC/DC
Voltage Range		6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%
Current Draw	DC	10 mA	7 mA	7 mA
	AC	14 mA	8 mA	8 mA
Voltage Marking		Die stamped on the base		
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				Example: LSRD-2 
Weight		Approx. 2g		

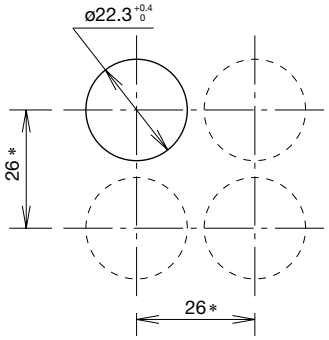
- Only one color is available for LSRD so there are no codes to specify the color in the part no.

LSTD

Series discontinued on 30/6/2022

Part No.		LSTD-6②	LSTD-1②	LSTD-2②
Lamp Base		BA9S/13		
Rated Voltage		6V AC/DC	12V AC/DC	24V AC/DC
Voltage Range		6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%
Current Draw	AC	8 mA (A, G, PW, R), 7 mA (S)	11 mA (A, G, PW, R), 9 mA (S)	11 mA (A, G, PW, R), 9 mA (S)
	DC	7 mA (A, R), 5.5 mA (G, PW), 4.5 mA (S)	10 mA (A, G, PW, R), 8 mA (S)	10 mA (A, G, PW, R), 8 mA (S)
Color Code ②		A (amber), G (green), PW (pure white), R (red), S (blue)		
Lamp Base Color		Same as illumination color		
Voltage Marking		Die stamped on the base		
Life (reference value)		Approx. 50,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC.)		
Internal Circuit				

Mounting Hole Layout



dimensions in mm.

Note: Determine the mounting centers to ensure easy operation.

- ø30mm Mushroom: Vertical: 32 mm minimum
  Horizontal: 32 mm minimum
- Solder/Tab Terminal
  Without terminal cover: Vertical: 26 mm minimum
  Horizontal: 26 mm minimum
  With terminal cover: Vertical: 26 mm minimum
  Horizontal: 27 mm minimum
- Screw terminal: Vertical: 40 mm minimum
  Horizontal: 26 mm minimum
- PC board terminal: Vertical: 26 mm minimum
  Horizontal: 26 mm minimum

Ordering Information

Standard Units

- Specify a button or lens color code in the Part No.
- All illuminated units are supplied with an LED lamp.
- All standard units are UL recognized, CSA certified, and EN compliant (TÜV Rheinland).

Round Flush Pushbuttons

Quantity: 1

Shape	Button Style	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Flush LW1B-M1 LW1B-A1 	Button	Momentary	Gold	SPDT	LW1B-M1C1①	LW1B-M1C1V①	—
				DPDT	LW1B-M1C2①	LW1B-M1C2V①	LW1B-M1C2M①
				3PDT	LW1B-M1C3①	LW1B-M1C3V①	—
			Silver	SPDT	LW1B-M1C5①	—	—
				DPDT	LW1B-M1C6①	—	LW1B-M1C6M①
				3PDT	LW1B-M1C7①	—	—
		Maintained	Gold	SPDT	LW1B-A1C1①	LW1B-A1C1V①	—
				DPDT	LW1B-A1C2①	LW1B-A1C2V①	LW1B-A1C2M①
				3PDT	LW1B-A1C3①	LW1B-A1C3V①	—
			Silver	SPDT	LW1B-A1C5①	—	—
				DPDT	LW1B-A1C6①	—	LW1B-A1C6M①
				3PDT	LW1B-A1C7①	—	—
	Lens	Momentary	Gold	SPDT	LW1B-M1C1L②	LW1B-M1C1VL②	—
				DPDT	LW1B-M1C2L②	LW1B-M1C2VL②	LW1B-M1C2ML②
				3PDT	LW1B-M1C3L②	LW1B-M1C3VL②	—
			Silver	SPDT	LW1B-M1C5L②	—	—
				DPDT	LW1B-M1C6L②	—	LW1B-M1C6ML②
				3PDT	LW1B-M1C7L②	—	—
		Maintained	Gold	SPDT	LW1B-A1C1L②	LW1B-A1C1VL②	—
				DPDT	LW1B-A1C2L②	LW1B-A1C2VL②	LW1B-A1C2ML②
				3PDT	LW1B-A1C3L②	LW1B-A1C3VL②	—
			Silver	SPDT	LW1B-A1C5L②	—	—
				DPDT	LW1B-A1C6L②	—	LW1B-A1C6ML②
				3PDT	LW1B-A1C7L②	—	—

- Specify button color code in place of ①. B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Specify lens color code in place of ②. A: amber, B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Lens style buttons can be used with legend markings. For details on marking plate and film, see page 27.

Square Flush Pushbuttons

Quantity: 1

Shape	Button Style	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Square Flush LW2B-M1 LW2B-A1 	Button	Momentary	Gold	SPDT	LW2B-M1C1①	LW2B-M1C1V①	—
				DPDT	LW2B-M1C2①	LW2B-M1C2V①	LW2B-M1C2M①
				3PDT	LW2B-M1C3①	LW2B-M1C3V①	—
			Silver	SPDT	LW2B-M1C5①	—	—
				DPDT	LW2B-M1C6①	—	LW2B-M1C6M①
				3PDT	LW2B-M1C7①	—	—
		Maintained	Gold	SPDT	LW2B-A1C1①	LW2B-A1C1V①	—
				DPDT	LW2B-A1C2①	LW2B-A1C2V①	LW2B-A1C2M①
				3PDT	LW2B-A1C3①	LW2B-A1C3V①	—
			Silver	SPDT	LW2B-A1C5①	—	—
				DPDT	LW2B-A1C6①	—	LW2B-A1C6M①
				3PDT	LW2B-A1C7①	—	—
	Lens	Momentary	Gold	SPDT	LW2B-M1C1L②	LW2B-M1C1VL②	—
				DPDT	LW2B-M1C2L②	LW2B-M1C2VL②	LW2B-M1C2ML②
				3PDT	LW2B-M1C3L②	LW2B-M1C3VL②	—
			Silver	SPDT	LW2B-M1C5L②	—	—
				DPDT	LW2B-M1C6L②	—	LW2B-M1C6ML②
				3PDT	LW2B-M1C7L②	—	—
		Maintained	Gold	SPDT	LW2B-A1C1L②	LW2B-A1C1VL②	—
				DPDT	LW2B-A1C2L②	LW2B-A1C2VL②	LW2B-A1C2ML②
				3PDT	LW2B-A1C3L②	LW2B-A1C3VL②	—
			Silver	SPDT	LW2B-A1C5L②	—	—
				DPDT	LW2B-A1C6L②	—	LW2B-A1C6ML②
				3PDT	LW2B-A1C7L②	—	—

- Specify button color code in place of ①. B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Specify lens color code in place of ②. A: amber, B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Lens style buttons can be used with legend markings. For details on marking plate and film, see page 27.

Round Flush with Square Bezel Pushbuttons

Quantity: 1

Shape	Button Style	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Flush with Square Bezel LW3B-M1 LW3B-A1 	Button	Momentary	Gold	SPDT	LW3B-M1C1①	LW3B-M1C1V①	—
				DPDT	LW3B-M1C2①	LW3B-M1C2V①	LW3B-M1C2M①
				3PDT	LW3B-M1C3①	LW3B-M1C3V①	—
			Silver	SPDT	LW3B-M1C5①	—	—
				DPDT	LW3B-M1C6①	—	LW3B-M1C6M①
				3PDT	LW3B-M1C7①	—	—
		Maintained	Gold	SPDT	LW3B-A1C1①	LW3B-A1C1V①	—
				DPDT	LW3B-A1C2①	LW3B-A1C2V①	LW3B-A1C2M①
				3PDT	LW3B-A1C3①	LW3B-A1C3V①	—
			Silver	SPDT	LW3B-A1C5①	—	—
				DPDT	LW3B-A1C6①	—	LW3B-A1C6M①
				3PDT	LW3B-A1C7①	—	—
	Lens	Momentary	Gold	SPDT	LW3B-M1C1L②	LW3B-M1C1VL②	—
				DPDT	LW3B-M1C2L②	LW3B-M1C2VL②	LW3B-M1C2ML②
				3PDT	LW3B-M1C3L②	LW3B-M1C3VL②	—
			Silver	SPDT	LW3B-M1C5L②	—	—
				DPDT	LW3B-M1C6L②	—	LW3B-M1C6ML②
				3PDT	LW3B-M1C7L②	—	—
		Maintained	Gold	SPDT	LW3B-A1C1L②	LW3B-A1C1VL②	—
				DPDT	LW3B-A1C2L②	LW3B-A1C2VL②	LW3B-A1C2ML②
				3PDT	LW3B-A1C3L②	LW3B-A1C3VL②	—
			Silver	SPDT	LW3B-A1C5L②	—	—
				DPDT	LW3B-A1C6L②	—	LW3B-A1C6ML②
				3PDT	LW3B-A1C7L②	—	—

- Specify button color code in place of ①. B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Specify lens color code in place of ②. A: amber, B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Lens style buttons can be used with legend markings. For details on marking plate and film, see page 27.

Round Extended Pushbuttons

Quantity: 1

Shape	Button Style	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Extended LW1B-M2 LW1B-A2 	Button	Momentary	Gold	SPDT	LW1B-M2C1①	LW1B-M2C1V①	—
				DPDT	LW1B-M2C2①	LW1B-M2C2V①	LW1B-M2C2M①
				3PDT	LW1B-M2C3①	LW1B-M2C3V①	—
			Silver	SPDT	LW1B-M2C5①	—	—
				DPDT	LW1B-M2C6①	—	LW1B-M2C6M①
				3PDT	LW1B-M2C7①	—	—
		Maintained	Gold	SPDT	LW1B-A2C1①	LW1B-A2C1V①	—
				DPDT	LW1B-A2C2①	LW1B-A2C2V①	LW1B-A2C2M①
				3PDT	LW1B-A2C3①	LW1B-A2C3V①	—
			Silver	SPDT	LW1B-A2C5①	—	—
				DPDT	LW1B-A2C6①	—	LW1B-A2C6M①
				3PDT	LW1B-A2C7①	—	—
	Lens	Momentary	Gold	SPDT	LW1B-M2C1L②	LW1B-M2C1VL②	—
				DPDT	LW1B-M2C2L②	LW1B-M2C2VL②	LW1B-M2C2ML②
				3PDT	LW1B-M2C3L②	LW1B-M2C3VL②	—
			Silver	SPDT	LW1B-M2C5L②	—	—
				DPDT	LW1B-M2C6L②	—	LW1B-M2C6ML②
				3PDT	LW1B-M2C7L②	—	—
		Maintained	Gold	SPDT	LW1B-A2C1L②	LW1B-A2C1VL②	—
				DPDT	LW1B-A2C2L②	LW1B-A2C2VL②	LW1B-A2C2ML②
				3PDT	LW1B-A2C3L②	LW1B-A2C3VL②	—
			Silver	SPDT	LW1B-A2C5L②	—	—
				DPDT	LW1B-A2C6L②	—	LW1B-A2C6ML②
				3PDT	LW1B-A2C7L②	—	—

- Specify button color code in place of ①. B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Specify lens color code in place of ②. A: amber, B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Lens style buttons can be used with legend markings. For details on marking plate and film, see page 27.

Square Extended / Round Extended with Square Bezel Pushbuttons

Quantity: 1

Shape	Button Style	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Square Extended LW2B-M2 LW2B-A2 	Button	Momentary	Gold	SPDT	LW2B-M2C1①	LW2B-M2C1V①	—
				DPDT	LW2B-M2C2①	LW2B-M2C2V①	LW2B-M2C2M①
				3PDT	LW2B-M2C3①	LW2B-M2C3V①	—
			Silver	SPDT	LW2B-M2C5①	—	—
				DPDT	LW2B-M2C6①	—	LW2B-M2C6M①
				3PDT	LW2B-M2C7①	—	—
		Maintained	Gold	SPDT	LW2B-A2C1①	LW2B-A2C1V①	—
				DPDT	LW2B-A2C2①	LW2B-A2C2V①	LW2B-A2C2M①
				3PDT	LW2B-A2C3①	LW2B-A2C3V①	—
			Silver	SPDT	LW2B-A2C5①	—	—
				DPDT	LW2B-A2C6①	—	LW2B-A2C6M①
				3PDT	LW2B-A2C7①	—	—
Round Extended with Square Bezel LW3B-M2 LW3B-A2 	Button	Momentary	Gold	SPDT	LW3B-M2C1①	LW3B-M2C1V①	—
				DPDT	LW3B-M2C2①	LW3B-M2C2V①	LW3B-M2C2M①
				3PDT	LW3B-M2C3①	LW3B-M2C3V①	—
			Silver	SPDT	LW3B-M2C5①	—	—
				DPDT	LW3B-M2C6①	—	LW3B-M2C6M①
				3PDT	LW3B-M2C7①	—	—
		Maintained	Gold	SPDT	LW3B-A2C1①	LW3B-A2C1V①	—
				DPDT	LW3B-A2C2①	LW3B-A2C2V①	LW3B-A2C2M①
				3PDT	LW3B-A2C3①	LW3B-A2C3V①	—
			Silver	SPDT	LW3B-A2C5①	—	—
				DPDT	LW3B-A2C6①	—	LW3B-A2C6M①
				3PDT	LW3B-A2C7①	—	—

• Specify button color code in place of ①. B: black, G: green, R: red, S: blue, W: white, Y: yellow

Mushroom Pushbuttons

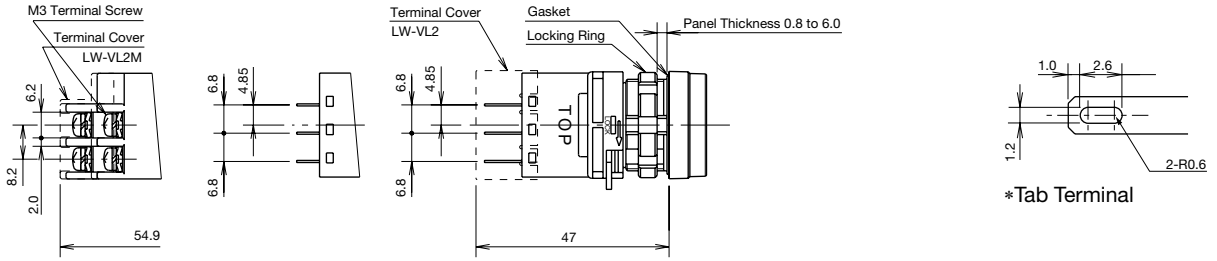
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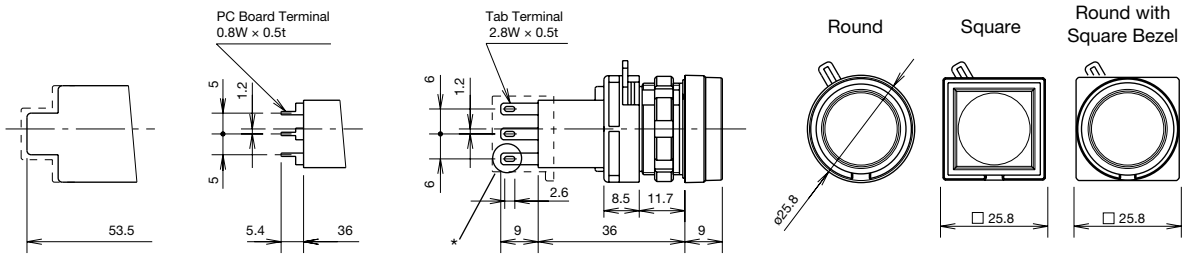
Shape	Button Style	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
ø30mm Mushroom LW1B-M3 LW1B-A3 	Button	Momentary	Gold	SPDT	**LW1B-M3C1**①	**LW1B-M3C1V**①	—
				DPDT	**LW1B-M3C2**①	**LW1B-M3C2V**①	**LW1B-M3C2M**①
				3PDT	**LW1B-M3C3**①	**LW1B-M3C3V**①	—
			Silver	SPDT	**LW1B-M3C5**①	—	—
				DPDT	**LW1B-M3C6**①	—	**LW1B-M3C6M**①
				3PDT	**LW1B-M3C7**①	—	—
		Maintained	Gold	SPDT	**LW1B-A3C1**①	**LW1B-A3C1V**①	—
				DPDT	**LW1B-A3C2**①	**LW1B-A3C2V**①	**LW1B-A3C2M**①
				3PDT	**LW1B-A3C3**①	**LW1B-A3C3V**①	—
			Silver	SPDT	**LW1B-A3C5**①	—	—
				DPDT	**LW1B-A3C6**①	—	**LW1B-A3C6M**①
				3PDT	**LW1B-A3C7**①	—	—
	Lens	Momentary	Gold	SPDT	**LW1B-M3C1L**②	**LW1B-M3C1VL**②	—
				DPDT	**LW1B-M3C2L**②	**LW1B-M3C2VL**②	**LW1B-M3C2ML**②
				3PDT	**LW1B-M3C3L**②	**LW1B-M3C3VL**②	—
			Silver	SPDT	**LW1B-M3C5L**②	—	—
				DPDT	**LW1B-M3C6L**②	—	**LW1B-M3C6ML**②
				3PDT	**LW1B-M3C7L**②	—	—
		Maintained	Gold	SPDT	**LW1B-A3C1L**②	**LW1B-A3C1VL**②	—
				DPDT	**LW1B-A3C2L**②	**LW1B-A3C2VL**②	**LW1B-A3C2ML**②
				3PDT	**LW1B-A3C3L**②	**LW1B-A3C3VL**②	—
			Silver	SPDT	**LW1B-A3C5L**②	—	—
				DPDT	**LW1B-A3C6L**②	—	**LW1B-A3C6ML**②
				3PDT	**LW1B-A3C7L**②	—	—

- Specify button color code in place of ①. B: black, G: green, R: red, S: blue, W: white, Y: yellow
- Specify lens color code in place of ②. A: amber, G: green, R: red, S: blue, W: white, Y: yellow
  Black lens consists of a clear lens and a black marking plate. (Without CCC marking)
- Lens style buttons can be used with legend markings. For details on marking plate and film, see page 27.

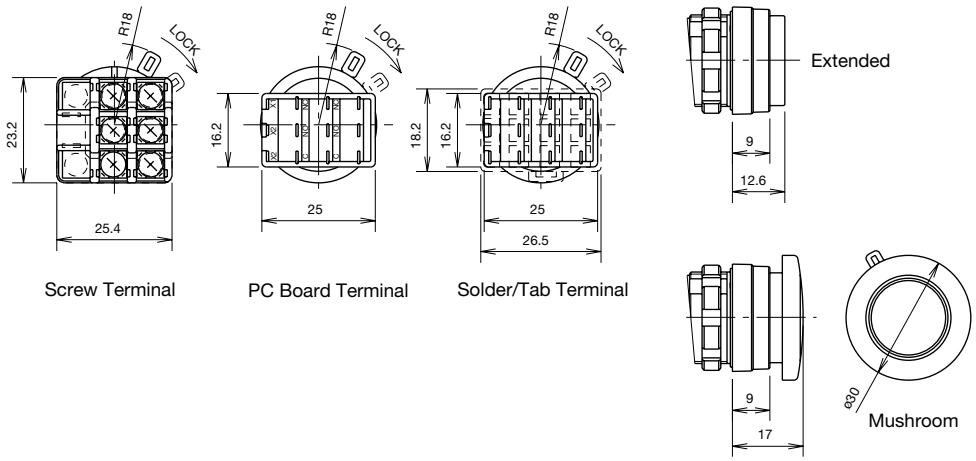
Dimensions

All dimensions in mm.



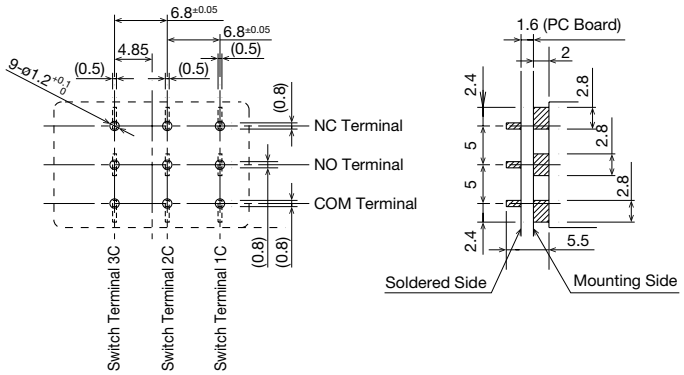


Bottom View



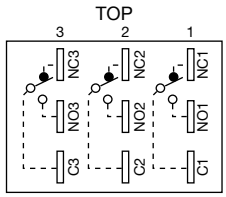
PC Board Drilling Layout (Bottom View)

Pay attention to the pattern of the PC board as the terminals on the mounting surface are 2.8 mm wide.



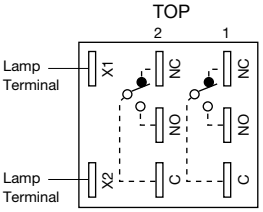
Terminal Arrangement (Bottom View)

Solder/Tab Terminal

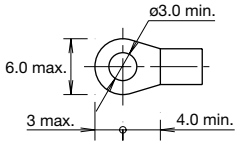


Note: SPDT has C, NO, and NC only in the center.
DPDT has C, NO, and NC only on the right and left.
Screw terminal type is DPDT.

Screw Terminal (DPDT only)



Applicable Crimping Terminal



Pilot Lights

Quantity: 1

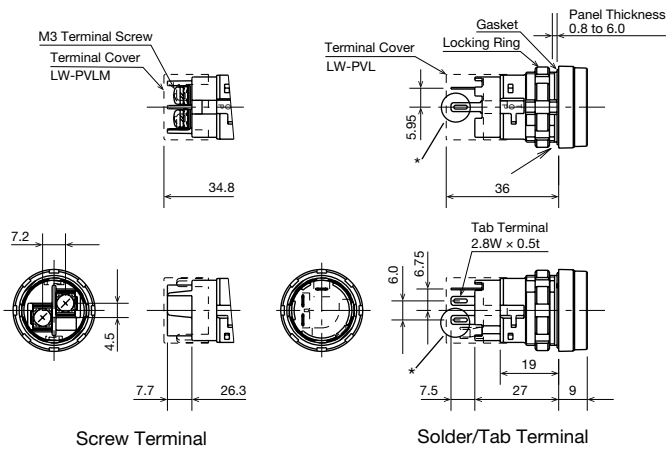
Shape	Operating Voltage	Part No			② Color Code
		Solder/Tab Terminal (Unibody)	PC Board Terminal (Removable Contact Block)	Screw Terminal (Unibody)	
Round Flush LW1P 	6V AC/DC±10%	**LW1P-12**②	**LW1P-1C02V**②	**LW1P-12M**②	Specify a color code in place of ② in the Part No. A: amber G: green PW: pure white R: red S: blue Y: yellow
	12V AC/DC±10%	**LW1P-13**②	**LW1P-1C03V**②	**LW1P-13M**②	
	24V AC/DC±10%	**LW1P-14**②	**LW1P-1C04V**②	**LW1P-14M**②	
Square Flush LW2P 	6V AC/DC±10%	**LW2P-12**②	**LW2P-1C02V**②	**LW2P-12M**②	
	12V AC/DC±10%	**LW2P-13**②	**LW2P-1C03V**②	**LW2P-13M**②	
	24V AC/DC±10%	**LW2P-14**②	**LW2P-1C04V**②	**LW2P-14M**②	
Round Flush with Square Bezel LW3P 	6V AC/DC±10%	**LW3P-12**②	**LW3P-1C02V**②	**LW3P-12M**②	
	12V AC/DC±10%	**LW3P-13**②	**LW3P-1C03V**②	**LW3P-13M**②	
	24V AC/DC±10%	**LW3P-14**②	**LW3P-1C04V**②	**LW3P-14M**②	

- Every pilot light is supplied with an LED lamp (LSTD) of the specified color and voltage.
- A pure white LED lamp is used for yellow illumination.
- For marking plate and film, see page 27.

Dimensions

All dimensions in mm.

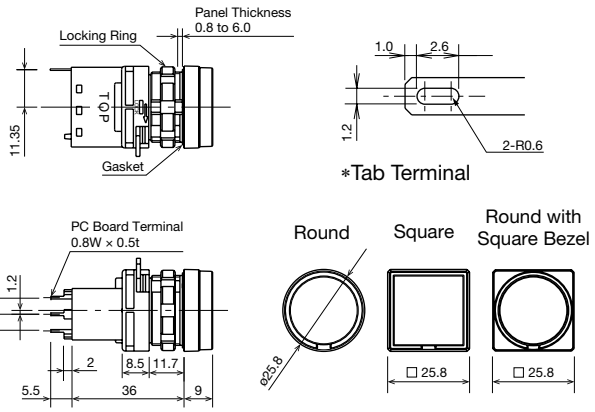
Unibody



Screw Terminal

Solder/Tab Terminal

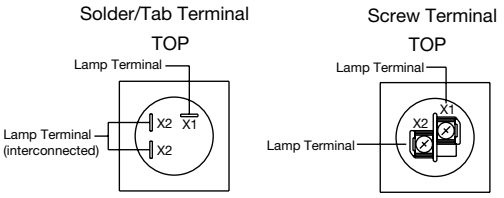
Removable Contact Block



PC Board Terminal

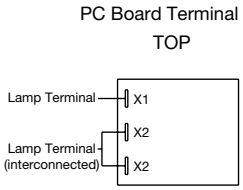
Terminal Arrangement

Unibody



• Lamp terminals do not have any polarity.

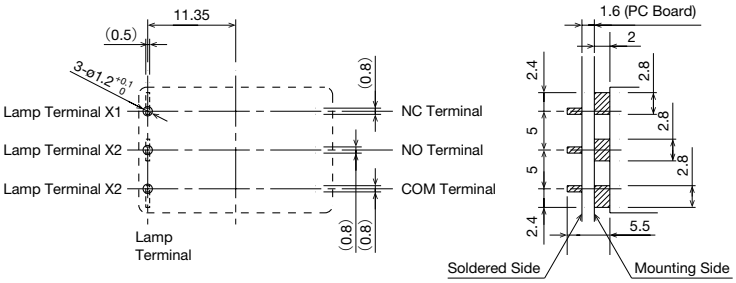
Removable Contact Block



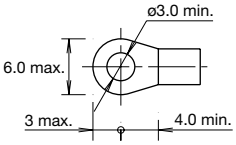
• Lamp terminals do not have any polarity.

PC Board Drilling Layout (Bottom View)

Pay attention to the pattern of the PC board as the terminals on the mounting surface are 2.8 mm wide.



Applicable Crimping Terminal



Flush / Extended Illuminated Pushbuttons

Quantity: 1

Shape	Lamp	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Flush LW1L-M1 LW1L-A1 	LED	Momentary	Gold	SPDT	**LW1L-M1C1③②**	**LW1L-M1C1③V②**	—
				DPDT	**LW1L-M1C2③②**	**LW1L-M1C2③V②**	**LW1L-M1C2③M②**
				3PDT	**LW1L-M1C3③②**	**LW1L-M1C3③V②**	—
			Silver	SPDT	**LW1L-M1C5③②**	—	—
				DPDT	**LW1L-M1C6③②**	—	**LW1L-M1C6③M②**
				3PDT	**LW1L-M1C7③②**	—	—
		Maintained	Gold	SPDT	**LW1L-A1C1③②**	**LW1L-A1C1③V②**	—
				DPDT	**LW1L-A1C2③②**	**LW1L-A1C2③V②**	**LW1L-A1C2③M②**
				3PDT	**LW1L-A1C3③②**	**LW1L-A1C3③V②**	—
			Silver	SPDT	**LW1L-A1C5③②**	—	—
				DPDT	**LW1L-A1C6③②**	—	**LW1L-A1C6③M②**
				3PDT	**LW1L-A1C7③②**	—	—
Round Extended LW1L-M2 LW1L-A2 	LED	Momentary	Gold	SPDT	**LW1L-M2C1③②**	**LW1L-M2C1③V②**	—
				DPDT	**LW1L-M2C2③②**	**LW1L-M2C2③V②**	**LW1L-M2C2③M②**
				3PDT	**LW1L-M2C3③②**	**LW1L-M2C3③V②**	—
			Silver	SPDT	**LW1L-M2C5③②**	—	—
				DPDT	**LW1L-M2C6③②**	—	**LW1L-M2C6③M②**
				3PDT	**LW1L-M2C7③②**	—	—
		Maintained	Gold	SPDT	**LW1L-A2C1③②**	**LW1L-A2C1③V②**	—
				DPDT	**LW1L-A2C2③②**	**LW1L-A2C2③V②**	**LW1L-A2C2③M②**
				3PDT	**LW1L-A2C3③②**	**LW1L-A2C3③V②**	—
			Silver	SPDT	**LW1L-A2C5③②**	—	—
				DPDT	**LW1L-A2C6③②**	—	**LW1L-A2C6③M②**
				3PDT	**LW1L-A2C7③②**	—	—
Square Flush LW2L-M1 LW2L-A1 	LED	Momentary	Gold	SPDT	**LW2L-M1C1③②**	**LW2L-M1C1③V②**	—
				DPDT	**LW2L-M1C2③②**	**LW2L-M1C2③V②**	**LW2L-M1C2③M②**
				3PDT	**LW2L-M1C3③②**	**LW2L-M1C3③V②**	—
			Silver	SPDT	**LW2L-M1C5③②**	—	—
				DPDT	**LW2L-M1C6③②**	—	**LW2L-M1C6③M②**
				3PDT	**LW2L-M1C7③②**	—	—
		Maintained	Gold	SPDT	**LW2L-A1C1③②**	**LW2L-A1C1③V②**	—
				DPDT	**LW2L-A1C2③②**	**LW2L-A1C2③V②**	**LW2L-A1C2③M②**
				3PDT	**LW2L-A1C3③②**	**LW2L-A1C3③V②**	—
			Silver	SPDT	**LW2L-A1C5③②**	—	—
				DPDT	**LW2L-A1C6③②**	—	**LW2L-A1C6③M②**
				3PDT	**LW2L-A1C7③②**	—	—

Color Code and Operating Voltage Code

② Color Code	③ Operating Voltage Code
Specify a color code in place of ②. A: amber G: green PW: pure white R: red S: blue Y: yellow	Specify an operating voltage code in place of ③. 2: 6V AC/DC 3: 12V AC/DC 4: 24V AC/DC

- Every illuminated pushbutton contains an LED lamp (LSTD) of the specified color and voltage.
- A pure white LED lamp is used for yellow illumination.
- For marking plate and film, see page 27.

Flush / Mushroom Illuminated Pushbuttons

Quantity: 1

Shape	Lamp	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round Flush with Square Bezel LW3L-M1 LW3L-A1 	LED	Momentary	Gold	SPDT	**LW3L-M1C1③②**	**LW3L-M1C1③V②**	—
				DPDT	**LW3L-M1C2③②**	**LW3L-M1C2③V②**	**LW3L-M1C2③M②**
				3PDT	**LW3L-M1C3③②**	**LW3L-M1C3③V②**	—
			Silver	SPDT	**LW3L-M1C5③②**	—	—
				DPDT	**LW3L-M1C6③②**	—	**LW3L-M1C6③M②**
				3PDT	**LW3L-M1C7③②**	—	—
		Maintained	Gold	SPDT	**LW3L-A1C1③②**	**LW3L-A1C1③V②**	—
				DPDT	**LW3L-A1C2③②**	**LW3L-A1C2③V②**	**LW3L-A1C2③M②**
				3PDT	**LW3L-A1C3③②**	**LW3L-A1C3③V②**	—
			Silver	SPDT	**LW3L-A1C5③②**	—	—
				DPDT	**LW3L-A1C6③②**	—	**LW3L-A1C6③M②**
				3PDT	**LW3L-A1C7③②**	—	—
ø30mm Mushroom LW1L-M3 LW1L-A3 	LED	Momentary	Gold	SPDT	**LW1L-M3C1③②**	**LW1L-M3C1③V②**	—
				DPDT	**LW1L-M3C2③②**	**LW1L-M3C2③V②**	**LW1L-M3C2③M②**
				3PDT	**LW1L-M3C3③②**	**LW1L-M3C3③V②**	—
			Silver	SPDT	**LW1L-M3C5③②**	—	—
				DPDT	**LW1L-M3C6③②**	—	**LW1L-M3C6③M②**
				3PDT	**LW1L-M3C7③②**	—	—
		Maintained	Gold	SPDT	**LW1L-A3C1③②**	**LW1L-A3C1③V②**	—
				DPDT	**LW1L-A3C2③②**	**LW1L-A3C2③V②**	**LW1L-A3C2③M②**
				3PDT	**LW1L-A3C3③②**	**LW1L-A3C3③V②**	—
			Silver	SPDT	**LW1L-A3C5③②**	—	—
				DPDT	**LW1L-A3C6③②**	—	**LW1L-A3C6③M②**
				3PDT	**LW1L-A3C7③②**	—	—

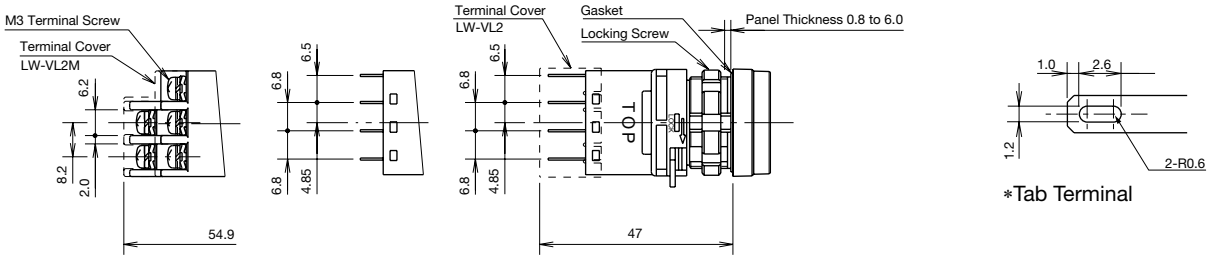
Color Code and Operating Voltage Code

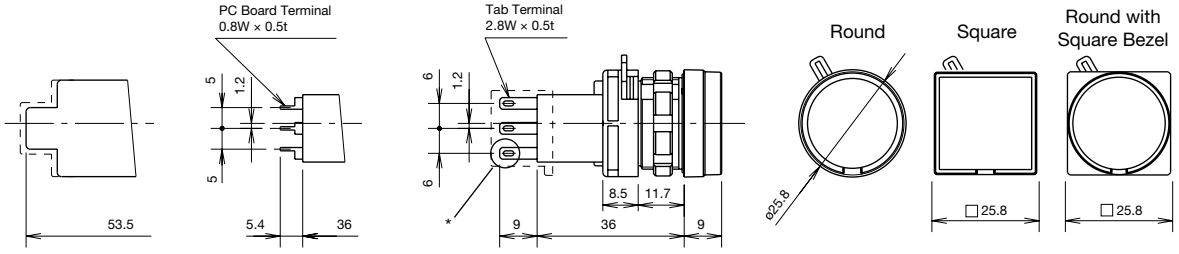
② Color Code	③ Operating Voltage Code
Specify a color code in place of ②. A: amber G: green PW: pure white R: red S: blue Y: yellow	Specify an operating voltage code in place of ③. 2: 6V AC/DC 3: 12V AC/DC 4: 24V AC/DC

- Every illuminated pushbutton contains an LED lamp (LSTD) of the specified color and voltage.
- A pure white LED lamp is used for yellow illumination.
- For marking plate and film, see page 27.

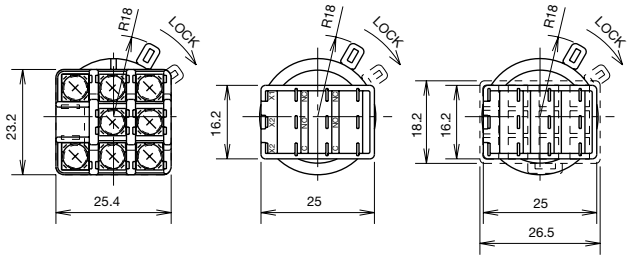
Dimensions

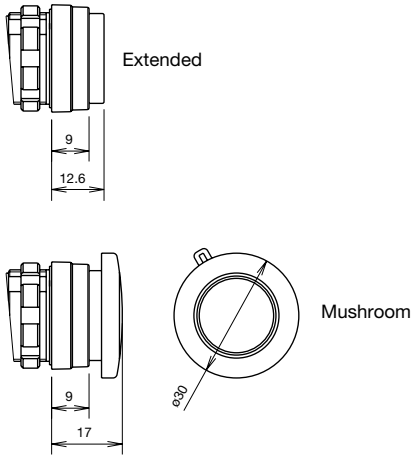
All dimensions in mm.





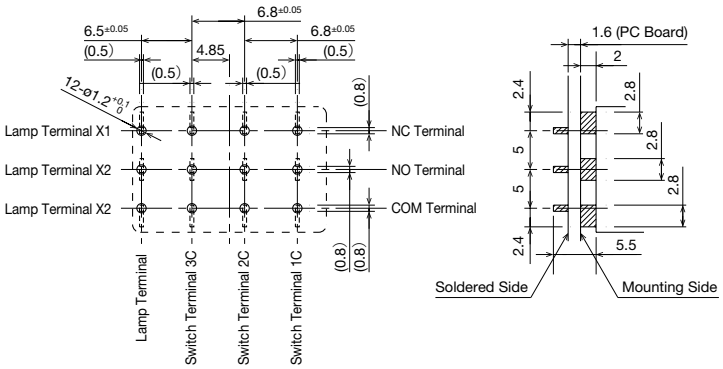
Bottom View





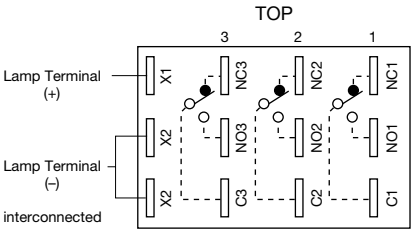
PC Board Drilling Layout (Bottom View)

Pay attention to the pattern of the PC board as the terminals on the mounting surface are 2.8 mm wide.



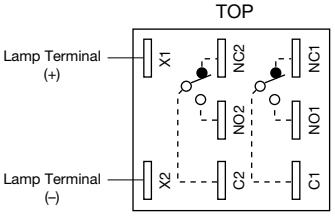
Terminal Arrangement (Bottom View)

Solder/Tab Terminal

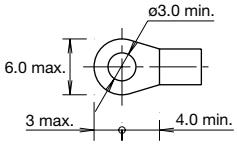


Note: SPDT has C, NO, and NC only in the center.
DPDT has C, NO, and NC only on the right and left.
Lamp terminals do not have any polarities.

Screw Terminal



Applicable Crimping Terminal



Selector Switches

Quantity: 1

Shape	Operation	Position	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round LW1S 	90° 2-position Maintained	L R	Gold	SPDT	**LW1S-2C1**	**LW1S-2C1V**	—
				DPDT	**LW1S-2C2**	**LW1S-2C2V**	**LW1S-2C2M**
				3PDT	**LW1S-2C3**	**LW1S-2C3V**	—
			Silver	SPDT	**LW1S-2C5**	—	—
				DPDT	**LW1S-2C6**	—	**LW1S-2C6M**
				3PDT	**LW1S-2C7**	—	—
	45° 3-position Maintained	L C R	Gold	DPDT	**LW1S-3C2**	**LW1S-3C2V**	**LW1S-3C2M**
				3PDT	**LW1S-3C3**	**LW1S-3C3V**	—
			Silver	DPDT	**LW1S-3C6**	—	**LW1S-3C6M**
				3PDT	**LW1S-3C7**	—	—
Round with Square Bezel LW3S 	90° 2-position Maintained	L R	Gold	SPDT	**LW3S-2C1**	**LW3S-2C1V**	—
				DPDT	**LW3S-2C2**	**LW3S-2C2V**	**LW3S-2C2M**
				3PDT	**LW3S-2C3**	**LW3S-2C3V**	—
			Silver	SPDT	**LW3S-2C5**	—	—
				DPDT	**LW3S-2C6**	—	**LW3S-2C6M**
				3PDT	**LW3S-2C7**	—	—
	45° 3-position Maintained	L C R	Gold	DPDT	**LW3S-3C2**	**LW3S-3C2V**	**LW3S-3C2M**
				3PDT	**LW3S-3C3**	**LW3S-3C3V**	—
			Silver	DPDT	**LW3S-3C6**	—	**LW3S-3C6M**
				3PDT	**LW3S-3C7**	—	—

Contact Operation

Operation	Contact	Operator Position and Contact Position (Top View)		
		Left	Center	Right
L R 90° 2-Position Maintained	SPDT	NO NC C	—	NO NC C
	DPDT	Left Contact NO NC C Right Contact NO NC C	—	Left Contact NO NC C Right Contact NO NC C
	3PDT	Left Contact NO NC C Center Contact NO NC C Right Contact NO NC C	—	Left Contact NO NC C Center Contact NO NC C Right Contact NO NC C
L C R 45° 3-position Maintained	DPDT	Left Contact NO NC C Right Contact NO NC C	Left Contact NO NC C Right Contact NO NC C	Left Contact NO NC C Right Contact NO NC C
	3PDT	Left Contact NO NC C Center Contact NO NC C Right Contact NO NC C	Left Contact NO NC C Center Contact NO NC C Right Contact NO NC C	Left Contact NO NC C Center Contact NO NC C Right Contact NO NC C

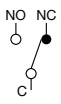
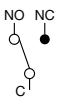
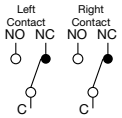
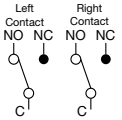
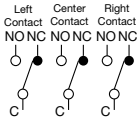
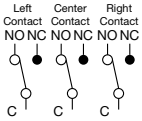
Key Selector Switches (2-Position)

Quantity: 1

Shape	Operation	Key Retained at ●		Contact Material	Contact	Part No.		
						Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round LW1K-2 	90° 2-position Maintained	A		Gold	SPDT	LW1K-2C1A	LW1K-2C1VA	—
					DPDT	LW1K-2C2A	LW1K-2C2VA	LW1K-2C2MA
					3PDT	LW1K-2C3A	LW1K-2C3VA	—
				Silver	SPDT	LW1K-2C5A	—	—
					DPDT	LW1K-2C6A	—	LW1K-2C6MA
					3PDT	LW1K-2C7A	—	—
		B		Gold	SPDT	LW1K-2C1B	LW1K-2C1VB	—
					DPDT	LW1K-2C2B	LW1K-2C2VB	LW1K-2C2MB
					3PDT	LW1K-2C3B	LW1K-2C3VB	—
				Silver	SPDT	LW1K-2C5B	—	—
					DPDT	LW1K-2C6B	—	LW1K-2C6MB
					3PDT	LW1K-2C7B	—	—
		C		Gold	SPDT	LW1K-2C1C	LW1K-2C1VC	—
					DPDT	LW1K-2C2C	LW1K-2C2VC	LW1K-2C2MC
					3PDT	LW1K-2C3C	LW1K-2C3VC	—
				Silver	SPDT	LW1K-2C5C	—	—
					DPDT	LW1K-2C6C	—	LW1K-2C6MC
					3PDT	LW1K-2C7C	—	—
Round with Square Bezel LW3K-2 	90° 2-position Maintained	A		Gold	SPDT	LW3K-2C1A	LW3K-2C1VA	—
					DPDT	LW3K-2C2A	LW3K-2C2VA	LW3K-2C2MA
					3PDT	LW3K-2C3A	LW3K-2C3VA	—
				Silver	SPDT	LW3K-2C5A	—	—
					DPDT	LW3K-2C6A	—	LW3K-2C6MA
					3PDT	LW3K-2C7A	—	—
		B		Gold	SPDT	LW3K-2C1B	LW3K-2C1VB	—
					DPDT	LW3K-2C2B	LW3K-2C2VB	LW3K-2C2MB
					3PDT	LW3K-2C3B	LW3K-2C3VB	—
				Silver	SPDT	LW3K-2C5B	—	—
					DPDT	LW3K-2C6B	—	LW3K-2C6MB
					3PDT	LW3K-2C7B	—	—
		C		Gold	SPDT	LW3K-2C1C	LW3K-2C1VC	—
					DPDT	LW3K-2C2C	LW3K-2C2VC	LW3K-2C2MC
					3PDT	LW3K-2C3C	LW3K-2C3VC	—
				Silver	SPDT	LW3K-2C5C	—	—
					DPDT	LW3K-2C6C	—	LW3K-2C6MC
					3PDT	LW3K-2C7C	—	—

- Key is retained in ● position and removable in ○ position.
- Two keys are supplied.
- Key cylinder face (plastic): Black
- 3 types of key numbers -2, -3, and -5 are available in addition to standard keys. (without CCC marking)
  Example: **LW3K-2C2A-2**

Contact Operation

Operation	Contact	Operator Position and Contact Position (Top View)	
		Left	Right
 90° 2-Position Maintained	SPDT		
	DPDT		
	3PDT		

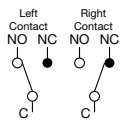
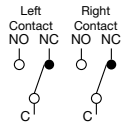
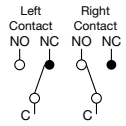
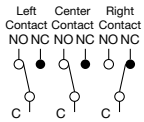
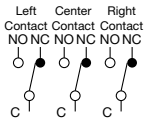
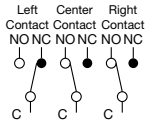
Key Selector Switches (3-Position)

Quantity: 1

Shape	Operation	Key Retained at ●		Contact Material	Contact	Part No.		
						Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round LW1K-3	45° 3-position Maintained	A		Gold	DPDT	LW1K-3C2A	LW1K-3C2VA	LW1K-3C2MA
					3PDT	LW1K-3C3A	LW1K-3C3VA	—
				Silver	DPDT	LW1K-3C6A	—	LW1K-3C6MA
					3PDT	LW1K-3C7A	—	—
		B		Gold	DPDT	LW1K-3C2B	LW1K-3C2VB	LW1K-3C2MB
					3PDT	LW1K-3C3B	LW1K-3C3VB	—
				Silver	DPDT	LW1K-3C6B	—	LW1K-3C6MB
					3PDT	LW1K-3C7B	—	—
		C		Gold	DPDT	LW1K-3C2C	LW1K-3C2VC	LW1K-3C2MC
					3PDT	LW1K-3C3C	LW1K-3C3VC	—
				Silver	DPDT	LW1K-3C6C	—	LW1K-3C6MC
					3PDT	LW1K-3C7C	—	—
		D		Gold	DPDT	LW1K-3C2D	LW1K-3C2VD	LW1K-3C2MD
					3PDT	LW1K-3C3D	LW1K-3C3VD	—
				Silver	DPDT	LW1K-3C6D	—	LW1K-3C6MD
					3PDT	LW1K-3C7D	—	—
		E		Gold	DPDT	LW1K-3C2E	LW1K-3C2VE	LW1K-3C2ME
					3PDT	LW1K-3C3E	LW1K-3C3VE	—
				Silver	DPDT	LW1K-3C6E	—	LW1K-3C6ME
					3PDT	LW1K-3C7E	—	—
		G		Gold	DPDT	LW1K-3C2G	LW1K-3C2VG	LW1K-3C2MG
					3PDT	LW1K-3C3G	LW1K-3C3VG	—
				Silver	DPDT	LW1K-3C6G	—	LW1K-3C6MG
					3PDT	LW1K-3C7G	—	—
		H		Gold	DPDT	LW1K-3C2H	LW1K-3C2VH	LW1K-3C2MH
					3PDT	LW1K-3C3H	LW1K-3C3VH	—
				Silver	DPDT	LW1K-3C6H	—	LW1K-3C6MH
					3PDT	LW1K-3C7H	—	—

- Key is retained in ● position and removable in ○ position.
- Two keys are supplied.
- Key cylinder face (plastic): Black
- 3 types of key numbers -2, -3, and -5 are available in addition to standard keys. (without CCC marking)
  Example: **LW1K-3C2A-2**

Contact Operation

Operation	Contact	Operator Position and Contact Position (Top View)		
		Left	Center	Right
 45° 3-position Maintained	DPDT			
	3PDT			

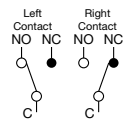
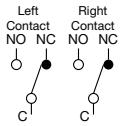
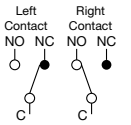
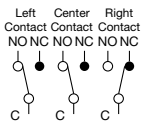
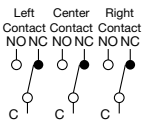
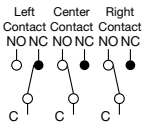
Key Selector Switches (3-Position)

Quantity: 1

Shape	Operation	Key Retained at ●		Contact Material	Contact	Part No.		
						Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round with Square Bezel LW3K-3 	45° 3-position Maintained	A		Gold	DPDT	LW3K-3C2A	LW3K-3C2VA	LW3K-3C2MA
					3PDT	LW3K-3C3A	LW3K-3C3VA	—
				Silver	DPDT	LW3K-3C6A	—	LW3K-3C6MA
					3PDT	LW3K-3C7A	—	—
		B		Gold	DPDT	LW3K-3C2B	LW3K-3C2VB	LW3K-3C2MB
					3PDT	LW3K-3C3B	LW3K-3C3VB	—
				Silver	DPDT	LW3K-3C6B	—	LW3K-3C6MB
					3PDT	LW3K-3C7B	—	—
		C		Gold	DPDT	LW3K-3C2C	LW3K-3C2VC	LW3K-3C2MC
					3PDT	LW3K-3C3C	LW3K-3C3VC	—
				Silver	DPDT	LW3K-3C6C	—	LW3K-3C6MC
					3PDT	LW3K-3C7C	—	—
		D		Gold	DPDT	LW3K-3C2D	LW3K-3C2VD	LW3K-3C2MD
					3PDT	LW3K-3C3D	LW3K-3C3VD	—
				Silver	DPDT	LW3K-3C6D	—	LW3K-3C6MD
					3PDT	LW3K-3C7D	—	—
		E		Gold	DPDT	LW3K-3C2E	LW3K-3C2VE	LW3K-3C2ME
					3PDT	LW3K-3C3E	LW3K-3C3VE	—
				Silver	DPDT	LW3K-3C6E	—	LW3K-3C6ME
					3PDT	LW3K-3C7E	—	—
		G		Gold	DPDT	LW3K-3C2G	LW3K-3C2VG	LW3K-3C2MG
					3PDT	LW3K-3C3G	LW3K-3C3VG	—
				Silver	DPDT	LW3K-3C6G	—	LW3K-3C6MG
					3PDT	LW3K-3C7G	—	—
		H		Gold	DPDT	LW3K-3C2H	LW3K-3C2VH	LW3K-3C2MH
					3PDT	LW3K-3C3H	LW3K-3C3VH	—
				Silver	DPDT	LW3K-3C6H	—	LW3K-3C6MH
					3PDT	LW3K-3C7H	—	—

- Key is retained in ● position and removable in ○ position.
- Two keys are supplied.
- Key cylinder face (plastic): Black
- 3 types of key numbers -2, -3, and -5 are available in addition to standard keys. (without CCC marking)
  Example: **LW3K-3C2A-2**

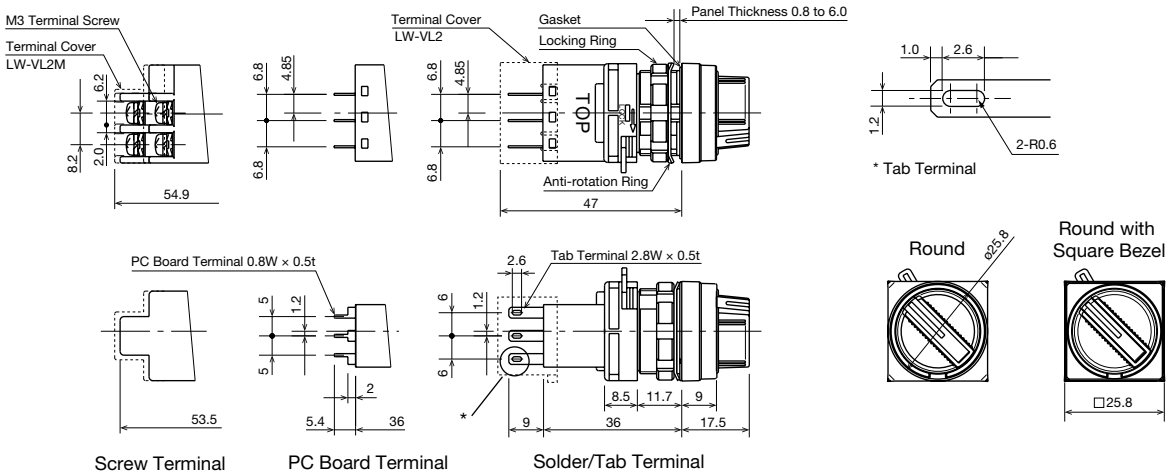
Contact Operation

Operation	Contact	Operator Position and Contact Position (Top View)		
		Left	Center	Right
 45° 3-position Maintained	DPDT			
	3PDT			

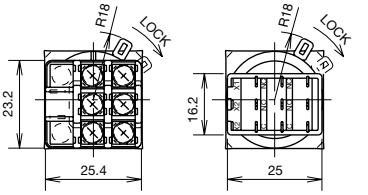
Dimensions

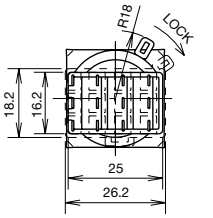
All dimensions in mm.

Selector Switch

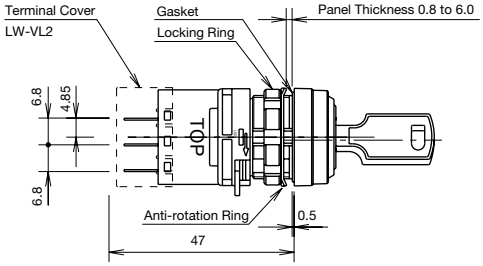


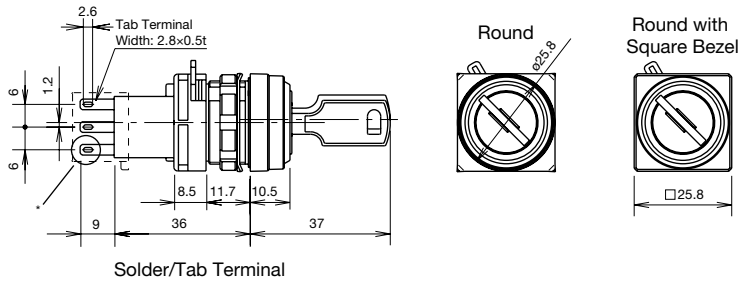
Bottom View





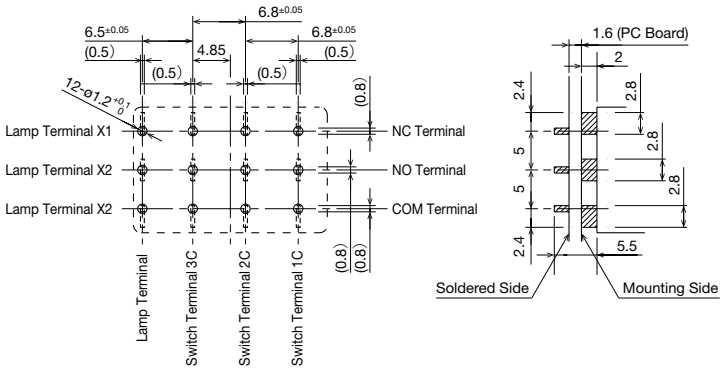
Key Selector Switch





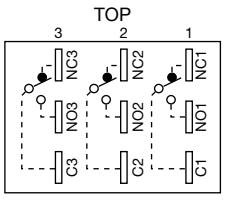
PC Board Drilling Layout (Bottom View)

Pay attention to the pattern of the PC board as the terminals on the mounting surface are 2.8 mm wide.



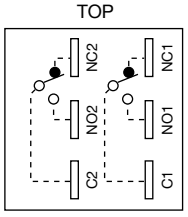
Terminal Arrangement (Bottom View)

Solder/Tab Terminal

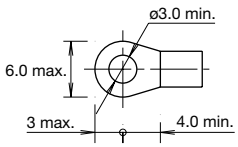


Note: SPDT has C, NO, and NC only in the center. DPDT has C, NO, and NC only on the right and left.
Screw terminal is only available in DPDT configuration.

Screw Terminal (DPDT Only)



Applicable Crimping Terminal



Illuminated Selector Switches

Quantity: 1

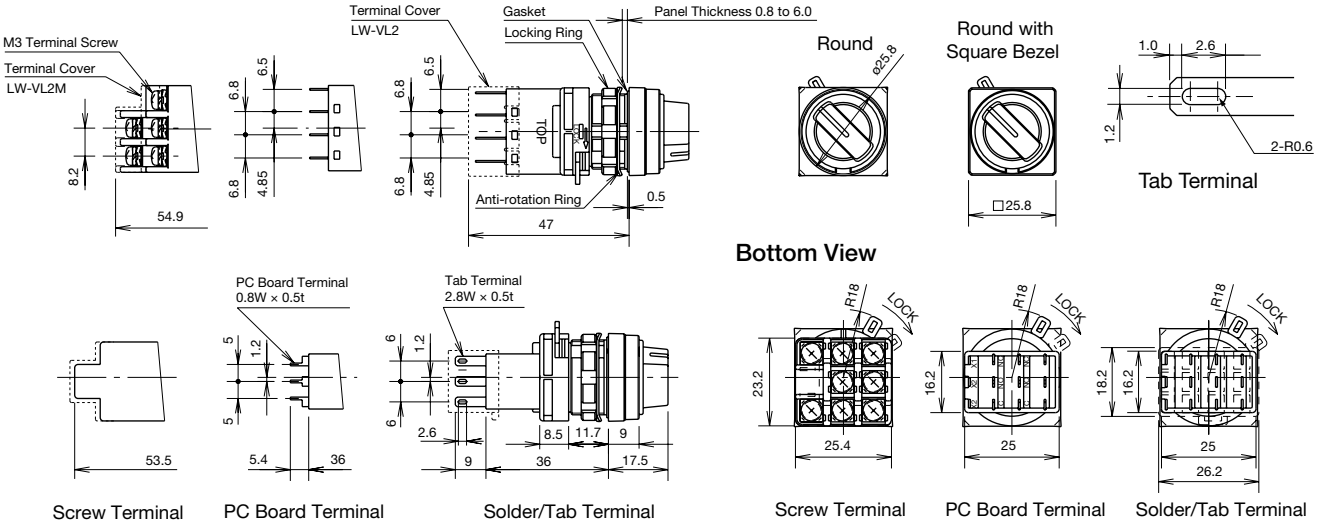
Shape	Lamp	Operation	Contact Material	Contact	Part No.		
					Solder/Tab Terminal	PC Board Terminal	Screw Terminal
Round LW1F-2C LW1F-3C 	LED	90° 2-position Maintained 	Gold	SPDT	**LW1F-2C1③②**	**LW1F-2C1③V②**	—
				DPDT	**LW1F-2C2③②**	**LW1F-2C2③V②**	**LW1F-2C2③M②**
				3PDT	**LW1F-2C3③②**	**LW1F-2C3③V②**	—
			Silver	SPDT	**LW1F-2C5③②**	—	—
				DPDT	**LW1F-2C6③②**	—	**LW1F-2C6③M②**
				3PDT	**LW1F-2C7③②**	—	—
	LED	45° 3-position Maintained 	Gold	DPDT	**LW1F-3C2③②**	**LW1F-3C2③V②**	**LW1F-3C2③M②**
				3PDT	**LW1F-3C3③②**	**LW1F-3C3③V②**	—
			Silver	DPDT	**LW1F-3C6③②**	—	**LW1F-3C6③M②**
				3PDT	**LW1F-3C7③②**	—	—
Round with Square Bezel LW3F-2C LW3F-3C 	LED	90° 2-position Maintained 	Gold	SPDT	**LW3F-2C1③②**	**LW3F-2C1③V②**	—
				DPDT	**LW3F-2C2③②**	**LW3F-2C2③V②**	**LW3F-2C2③M②**
				3PDT	**LW3F-2C3③②**	**LW3F-2C3③V②**	—
			Silver	SPDT	**LW3F-2C5③②**	—	—
				DPDT	**LW3F-2C6③②**	—	**LW3F-2C6③M②**
				3PDT	**LW3F-2C7③②**	—	—
	LED	45° 3-position Maintained 	Gold	DPDT	**LW3F-3C2③②**	**LW3F-3C2③V②**	**LW3F-3C2③M②**
				3PDT	**LW3F-3C3③②**	**LW3F-3C3③V②**	—
			Silver	DPDT	**LW3F-3C6③②**	—	**LW3F-3C6③M②**
				3PDT	**LW3F-3C7③②**	—	—

Color Code and Operating Voltage Code

② Color Code	③ Operating Voltage Code
Specify a color code in place of ②. A: amber G: green PW: pure white R: red S: blue	Specify an operating voltage code in place of ③. 2: 6V AC/DC 3: 12V AC/DC 4: 24V AC/DC

• Every illuminated selector switch contains an LED lamp (LSTD) of the specified color and voltage.

Dimensions



• For terminal arrangement and PC board dimensions, see page 21.

Buzzers

Continuous / intermittent (long) / intermittent (short) sounds can be selected with a built-in slide switch

- Collective mounting possible.
- Separate type with locking lever, easy installation even when mounted collectively.
- Round and square types available.
- Solder/tab and PC board terminal types available.
- Single board mounting possible.
- Equipped with an LED indicator which lights (steady)/ flashes with the buzzer sound.

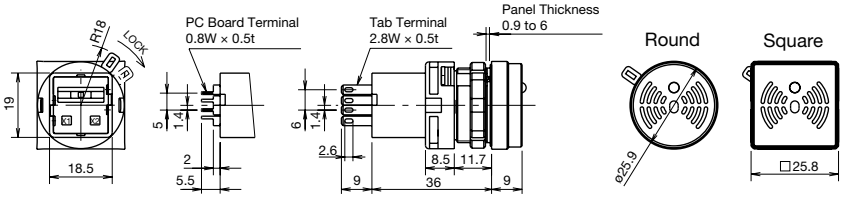
Specifications

Insulation Voltage	60V AC/DC
Operating Voltage	12 to 24V AC/DC ±10%
Current Draw	DC: 7 mA, AC: 20 mA
Sound Pressure (at 0.1m)	Steady sound: 80 dB minimum (at the rated voltage)
Sound Frequency	2 kHz ±500Hz
Flickering Cycle	Slow intermittent sound: 55 cycles per minute ±10% Quick intermittent sound: 600 cycles per minute ±10%
Operating Temperature	–20 to +55°C (no freezing)
Storage Temperature	–25 to +80°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and metal parts: 1,000V AC, 1 minute
Vibration Resistance	Operating extremes, Damage limits: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s^2
Life	1,000 hours minimum
Degree of Protection	IP40
Terminal Style	Solder/tab terminal no. 110 PC board terminal
Weight (approx.)	18g (LW1Z-1X4D)

Quantity: 1

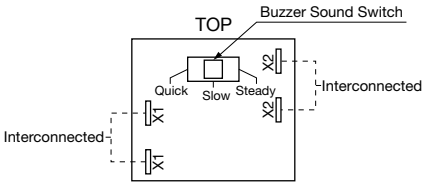
Shape	Operating Voltage	LED	Part No.	
			Solder/Tab Terminal	PC Board Terminal
Round LW1Z 	12 to 24V AC/DC ±10%	Without	LW1Z-1X4	LW1Z-1X4V
		With	LW1Z-1X4D	LW1Z-1X4DV
Square LW2Z 	12 to 24V AC/DC ±10%	Without	LW2Z-1X4	LW2Z-1X4V
		With	LW2Z-1X4D	LW2Z-1X4DV

Dimensions



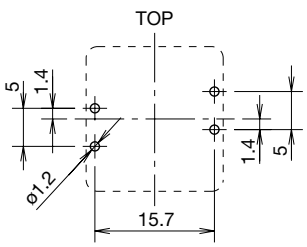
PC Board Terminal Solder/Tab Terminal

Terminal Arrangement (Bottom View)

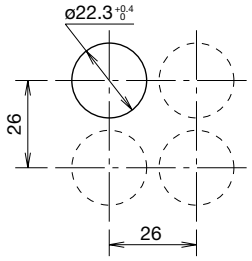


X1 and X2 are input terminals (without polarities)

PC Board Layout (Bottom View)



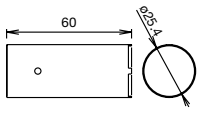
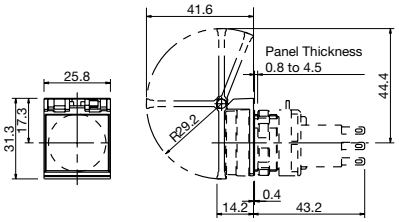
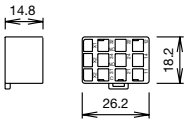
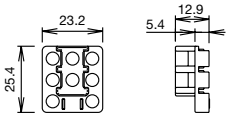
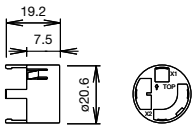
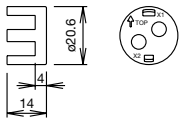
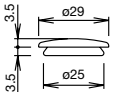
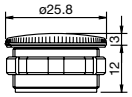
Panel Cut-out



Note: Determine mounting centers to ensure operation.

All dimensions in mm.

Accessories

Shape		Material	Part No.	Quantity	Dimensions (mm)
Locking Ring Wrench 		Brass	LW9Z-T1	1	• Used to tighten the locking ring when installing the LW switch onto a panel. • Tightening torque: 1.2 N·m 
Lamp Holder Tool 		Rubber	OR-55	1	• Used to install and remove LED lamps. 
Switch Guard 	Spring Return	Guard (polyarylate) Base (polyacetal)	LW9Z-K1	1	• Used to protect flush pushbuttons and illuminated pushbuttons from inadvertent operation. • Degree of protection: IP65.  Note: Determine mounting centers to ensure easy operation.
	Maintained		LW9Z-K11	1	
Terminal Cover For solder/tab terminal 		Plastic (translucent)	LW-VL2	1	• For units with removable contacts only. 
Terminal Cover For screw terminal 		Plastic (black)	LW-VL2M	1	• For units with removable contacts only. 
Terminal Cover For solder/tab terminal 		Plastic (translucent)	LW-PVL	1	• For unibody pilot lights only. 
Terminal Cover For screw terminal 		Plastic (translucent)	LW-PVLM	1	• For unibody pilot lights only. 
Rubber Mounting Hole Plug 		Nitryl rubber (black)	OB-31PN05	5	• Degree of protection: IP65 
Metal Mounting Hole Plug 		Metal (diecast) Locking nut (plastic)	LW9Z-BM	1	• Degree of protection: IP66 • Panel thickness: 0.8 to 6 mm 

Maintenance Parts

Shape	For Use On	Material	Part No.	Quantity	Color Code
Lens 	Round Flush / Round Flush with Square Bezel	Polyarylate	LW9Z-L1②-K	5	Specify a lens color code in place of ② in the Part No. A: amber C: clear G: green R: red S: blue Y: yellow • Use a clear lens for pure white illumination or for white (LW), PW (pure white), or black (LB) buttons.
Lens 	Round Extended	Polyarylate	LW9Z-L12②-K	5	
Lens 	Square Flush	Polyarylate	LW9Z-L2②-K	5	
Lens 	ø30mm Mushroom	AS	LW9Z-L13②-K	1	

Maintenance Parts

Shape	For Use On	Material		Part No.	Quantity	Color Code
Button 	Round Flush / Round Flush with Square Bezel	Polyacetal		LW1A-B1①	5	Specify a button color code in place of ① in the Part No. B: black G: green R: red S: blue W: white Y: yellow
Button 	Extended / Round Extended with Square Bezel	Polyacetal		LW1A-B2①	5	
Button 	Square Flush	Polyacetal		LW2A-B1①	5	
Buttor 	Square Extended	Polyacetal		LW2A-B2①	5	
Button 	ø30mm Mushroom	AS		LW1A-B3①	1	
Marking Plate	Round / Round with Square Bezel	Acryl	White	LW9Z-P1W	5	• White Note: Used for black (LB) button only.
			Black (Note)	LW9Z-P1B		
Marking Plate	Square	Acryl	White	LW9Z-P2W	5	
			Black (Note)	LW9Z-P2B		
Marking Plate 	Round Extended	Acryl	White	LW9Z-P12W	5	
			Black (Note)	LW9Z-P12B		
Marking Plate 	Mushroom	Acryl		ALW3B	5	• White
Knob 	Illuminated Selector	Plastic		LW1A-F②-K	1	A (amber), G (green), R (red), S (blue), W (white), Y (yellow)
Locking Ring 	All LW units	Plastic		LW9Z-LN	5	• Black
Anti-rotation Ring 	Selector Switch	Stainless Steel		LW9Z-L	10	
Spare Key 	Key Selector Switch	Metal		KG9Z-SK-231	2	

LED Lamps

Shape/Dimensions	Operating Voltage	Current Draw		Part No.	Quantity	Base
		AC	DC			
LSRD 	6V AC/DC	10 mA	14 mA	LSRD-6	10	BA9S/13
	12V AC/DC	7 mA	8 mA	LSRD-1	10	
	24V AC/DC	7 mA	8 mA	LSRD-2	10	

• Only one color is available for LSRD so there are no codes to specify the color in the Part No.
• When replacing the LED with LSRD, the lens must also be replaced (see page 22).

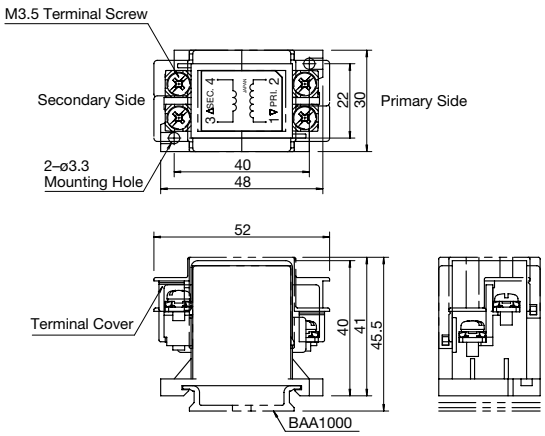
Transformer

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

Specifications

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

Dimensions

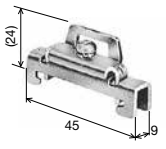


Accessories

DIN Rail

Part No.	Length	Weight (approx.)	Material	Quantity
BAA1000	1000 mm	200g	Aluminum	10

End Clip

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

Safety Precautions

- Turn off the power to the LW series 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. Solder correctly according to the instructions on “Wiring” and “Notes on Terminal Cover” on page 28. Tighten the M3 terminal screws to a torque of 0.6 to 1.0 N·m. Failure to tighten terminal screws may cause overheating and fire.

Instructions

Panel Mounting

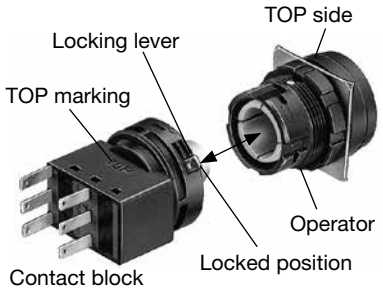
Remove the contact block from the operator. Insert the operator into the panel cut-out from the front, then install the contact block.

Removing the Contact Block

Turn the locking lever on the contact block in the direction opposite to the arrow on the housing. Then the contact can be removed.

Installing the Contact Block

Insert the contact block, with the TOP markings on the contact block and the operator placed in the same direction. Then lock the units, turning the locking lever in the direction of the arrow.

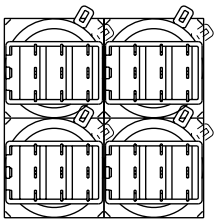


Notes on Mounting

Use the optional ring wrench (LW9Z-T1) to mount the operator onto the panel. Tightening torque should not exceed 1.2 N·m. Do not use pliers. Excessive tightening will damage the locking ring.

Collective Mounting

As the locking lever can be turned easily from the rear of the units using a screwdriver, the contact blocks can be removed even when mounted collectively.

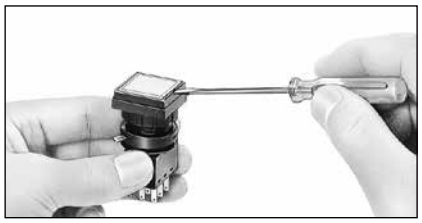


Replacement of Lens and Marking Plate

Removing

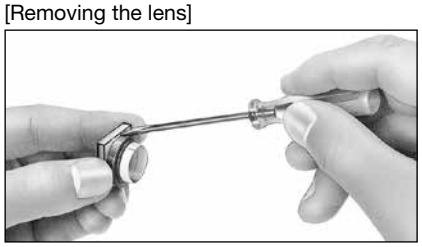
1. Remove the operator (lens, marking plate, and lens holder) by inserting a screwdriver into the recess of the lens through the bezel.

[Removing the Operator]



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

[Removing the lens]



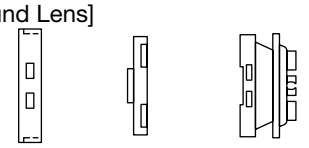
Note: The translucent filter in the lens holder cannot be removed because the filter is sealed to make the unit waterproof.

Installing

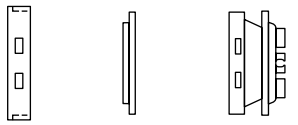
For round lens, place the marking plate on the lens holder with the anti-rotation projection engaged and press the lens onto the lens holder to engage the latches. For square lens, insert the marking plate into the lens, and press the lens onto the holder to engage the latches.

Note: Make sure of correct orientation of the marking plate.

[Round Lens]



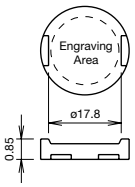
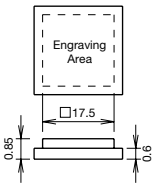
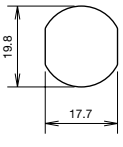
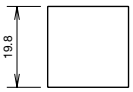
[Square Lens]



Marking Plate and Films

For LW series illuminated pushbuttons and pilot lights, legends and symbols can be engraved on the marking plates, or printed marking film can be inserted under the lens for labelling purposes.

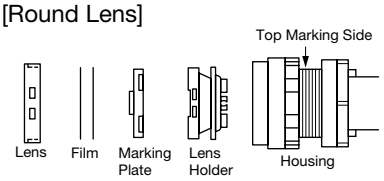
Marking Plate and Marking Film Size

Lens	Round Lens	Square Lens
Built-in Marking Plate		
	• Engraving must be made on the engraving area within 0.5mm deep. • The marking plate is made of white acrylic resin.	
Applicable Marking Film		
	• Two 0.1mm-thick films or one 0.2mm-thick film can be installed in the lens. • Marking film is not included. • Recommended marking film: Polyester film	

Instructions

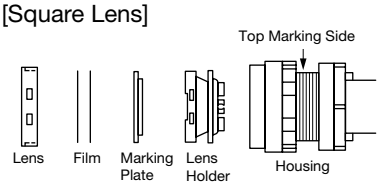
Insertion Order of Marking Plate and Film

[Round Lens]



Note: Film is not included

[Square Lens]



Note: Film is not included
Make sure of correct orientation of the marking plate.

Replacement of 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.

How to Remove

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

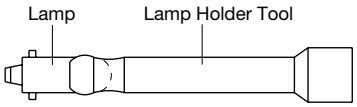


Lamp Holder Tool
OR-55

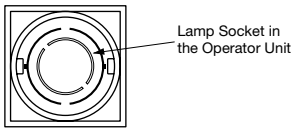


How to Install

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



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



Wiring

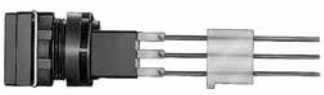
1. Solder the terminals within 20W/5 sec or 260°C/3 sec without exerting external force to the terminals. While soldering, do not touch the soldering iron to the housing. While wiring, prevent tension from being applied to the terminals. Do not bend or raise the terminals, nor exert excessive force to terminals.
2. Use non-corrosive liquid flux.
3. For tab terminals, Positive Lock Connectors and Easy Lock Connectors can be used.
4. Tighten the terminal screw of the screw terminal type to a torque of 0.6 to 1.0 N·m.

Notes on Terminal Cover

[Solder/Tab Terminal]

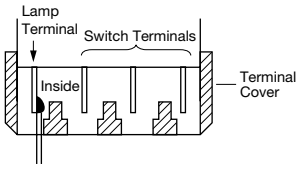
Insert the terminal cover into the contact block with the TOP markings on the contact block and the terminal cover in the same direction.

Note: When wiring, insert the lead wires into the terminal cover holes before soldering.



Notes on Wiring

When installing a terminal cover onto the solder/tab terminal contact block, solder the inside of lamp terminal (toward the switch terminals) and wire.



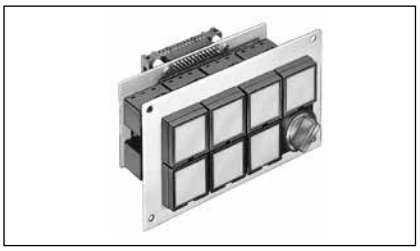
[Screw Terminal]

Terminal cover must be installed on the LW series before wiring.

Note 1: After wiring, terminal covers cannot be installed.

Note 2: When terminal covers are installed, do not use round crimping terminals.
(Wire the terminal by using fork terminals or lead wires directly.

Single Board Mounting



Mounting the LW series unit on a single PC board offers the following features.

1. Reduced installation labor, easy wiring, space saving, and standardization.
2. Since the contact blocks on the PC board can be removed easily using a locking lever, LW series is easy to maintain.
3. Because the LW series requires no studs for fastening the unit to a PC board, special preparation of operation panel is not needed.
4. For details on single board mounting, contact IDEC.

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Also, durability varies depending on the usage environment and usage conditions.

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

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

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

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

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

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

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

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

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

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

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

3. Inspections

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

4. Warranty

(1) Warranty period

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

(2) Warranty scope

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

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

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

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

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

v. The product was used outside of its original purpose

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

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

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

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

5. Limitation of liability

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

6. Service scope

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

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

(2) Maintenance inspections, adjustments, and repairs

(3) Technical instructions and technical training

(4) Product tests or inspections specified by you

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

IDEC CORPORATION

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