

HW Series – 22mm IEC Style Global Pushbuttons

Key features:

- Locking lever removable contact blocks
- Finger-safe IP20 contacts as standard, other terminal styles available
- Tamperproof construction
- All E-stops meet EN418 and are compliant with SEMI S2 standards
- Worldwide approvals
- Easy to assemble
- Choice of black plastic or metallic front bezels
- Incandescent or LED illumination
- Transformer or full voltage
- Slow make double break self cleaning contacts



HW: The Best Engineered Switch in the World

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

Complete with finger-safe contact blocks offering IP20 protection, these 7/8" (22mm) switches include illuminated and non-illuminated pushbuttons, pilot

lights, selector switches, and emergency stop switches.

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



File No. E68961



File No. LR92374



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









TÜV Rheinland
 Certificate No.
 2005010305145656



Specifications

Electrical	Rated Operational Characteristics	AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB) DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC) DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB)
	Maximum Inrush Current	40 A (40 ms)
	Rated Insulation Voltage	600V
	Rated Switching Over-Voltage	Less than 4kV, conforming to IEC60947-1
	Rated Impulse Withstanding Voltage	4kV for contact circuit, 2.5kV for lamp circuit
	Rated Thermal Current	10 Amp
	Minimum Switching Capacity	5 mA at 3V AC/DC
	Electrical Reliability	MTBF < 1 fault for 10 million operation cycles (3V DC, 5mA)
Lamp Ratings	Incandescent: 1 W LEDs: 6V/17mA max, 12V & 24V/11mA max, 120 & 240V/10mA max	

Mechanical	Contact Operation	Slow break NC or NO, self-cleaning							
	Positive Action Operation (Emergency Stops with NC contacts)	5.5mm to 10mm travel to latch, 45N minimum force to latch 10mm maximum travel, 1,800 operations per hour maximum for a Pushlock Turn Reset 900 operations per hour maximum for a Push-Pull							
	Operating Force	Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 7.0±2N (maintained) Additional contacts—1NO or 1NC: +3.2N (momentary), + 3.3N (maintained)							
	Recommended Terminal Torque	0.8 N m (7.1 in lb.)							
	Applicable Wire Size	Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG							
	Contact Resistance	Initial contact resistance of 50mΩ or less							
	Contact Gap	4mm (NO and NC), 2mm (NO-EM and NC-LB)							
	Horsepower Rating	Reference Value: 1/4 HP @ 120V (1Ø non-reversing), 1HP @ 240V (3Ø non-reversing)							
	Contact Material	Silver (gold plated contacts available - contact IDEC)							
	Operating Temperature	Operation: -25 to +50°C (without freezing), Storage: -40 to +70°C (without freezing)							
Vibration Resistance	10 to 55Hz, 98m/sec ² (10G) conforming to IEC6068-2-6								
Shock Resistance	980m/sec ² (100G) conforming to IEC6068-2-7								
Mechanical Life	Momentary pushbuttons: 5,000,000 (900 operations per hour), All other switches: 500,000								
Conforming to Standards	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14								
Standards & Approvals	Approvals	 File No. E68961  File No. LR92374   Registration No. R9551089 (E-stops) Registration No. R50054316 (Dual Pushbuttons) Registration No. J9650511 (Pilot Lights) Registration No. J9551458 (all other switches)  TÜV Rheinland Certificate No. 2005010305145656							
	Electric Shock Protection	Class 0 conforming to IEC60536							
	Degree of Protection (conforming to IEC60529) (conforming to NEMA ICS6-110)	IP65 (from front of the panel) IP20 (Type HW-F contact block) NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (from front of panel)							
	Pollution Degree (conforming to IEC60947-1)	3 for switches not using a transformer, 2 for switches using a transformer							
	External Short-Circuit Protection	10A 250V fuse conforming to IEC60269-1							
Terminal Referencing	Conforming to CENELEC EN50005								
Contact Ratings	Pushbuttons	Contact Block	Type HW-C/HW-F /HW-G						
	Illuminated Pushbuttons	Rated Insulation Voltage	600V						
	Selector Switches	Rated Continuous Current	10A						
	Illuminated Selector Switches Pushbutton Selectors	Contact Ratings by Utilization Category IEC 60947-5-1	AC-15 (A600) DC-13 (P600)						
Characteristics	Operational Voltage		24V	48V	50V	110V	220V	440V	
	Operational Current	AC 50/60 Hz	AC-12 Control of resistive loads & solid state loads	10A	—	10A	10A	6A	2A
			AC-15 Control of electromagnetic loads (> 72VA)	10A	—	7A	5A	3A	1A
		DC	DC-12 Control of resistive loads & solid state loads	8A	5A	—	2.2A	1.1A	—
			DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—

 For dimensions, see page 601.

LED Lamp Ratings (LSTD Type)

Model			LSTD-6②	LSTD-1②	LSTD-2②	LSTD-H2②	LSTD-M4②
Lamp Base			BA9S/13				
Rated Voltage			6V AC/DC	12V AC/DC	24V AC/DC	120V AC	240V AC
Voltage Range			6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%	120V AC ±5%	240V AC ±5%
Current Draw	AC	A, R, W: G, S:	17mA 8mA	11mA	11mA	10mA	10mA
	DC	A, R, W: G, S:	14mA 5.5mA	10mA	10mA	—	—
Color Code			A (amber), G (green), R (red), S (blue), W (white)				
Lamp Base Color			Same as illumination color				
Voltage Marking			Die stamped on the base				
Life (reference value)			Approx. 50,000 hours (The luminance reduces to 50% the initial intensity when used on complete DC.)				
Internal Circuit	A, R, W						
	A, R, W						
	G, S						
			<ul style="list-style-type: none"> LED Chip Protection Diode Zener Diode 				

In place of ②, specify the Lens/LED Color Code.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Illuminated Round Pushbuttons (Assembled)



Illuminated Full Voltage Pushbuttons



Contacts	Flush		Extended		Extended w/ Full Shroud	
	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Momentary						
<i>Operator Only</i>	<i>HW1L-M1-②</i>	<i>HW4L-M1-②</i>	<i>HW1L-M2-②</i>	<i>HW4L-M2-②</i>	<i>HW1L-MF2-②</i>	<i>HW4L-MF2-②</i>
1NO	HW1L-M1F10Q④-②-③	HW4L-M1F10Q④-②-③	HW1L-M2F10Q④-②-③	HW4L-M2F10Q④-②-③	HW1L-MF2F10Q④-②-③	HW4L-MF2F10Q④-②-③
1NC	HW1L-M1F01Q④-②-③	HW4L-M1F01Q④-②-③	HW1L-M2F01Q④-②-③	HW4L-M2F01Q④-②-③	HW1L-MF2F01Q④-②-③	HW4L-MF2F01Q④-②-③
1NO-1NC	HW1L-M1F11Q④-②-③	HW4L-M1F11Q④-②-③	HW1L-M2F11Q④-②-③	HW4L-M2F11Q④-②-③	HW1L-MF2F11Q④-②-③	HW4L-MF2F11Q④-②-③
2NO	HW1L-M1F20Q④-②-③	HW4L-M1F20Q④-②-③	HW1L-M2F20Q④-②-③	HW4L-M2F20Q④-②-③	HW1L-MF2F20Q④-②-③	HW4L-MF2F20Q④-②-③
Maintained						
<i>Operator Only</i>	<i>HW1L-A1-②</i>	<i>HW4L-A1-②</i>	<i>HW1L-A2-②</i>	<i>HW4L-A2-②</i>	<i>HW1L-AF2-②</i>	<i>HW4L-AF2-②</i>
1NO	HW1L-A1F10Q④-②-③	HW4L-A1F10Q④-②-③	HW1L-A2F10Q④-②-③	HW4L-A2F10Q④-②-③	HW1L-AF2F10Q④-②-③	HW4L-AF2F10Q④-②-③
1NC	HW1L-A1F01Q④-②-③	HW4L-A1F01Q④-②-③	HW1L-A2F01Q④-②-③	HW4L-A2F01Q④-②-③	HW1L-AF2F01Q④-②-③	HW4L-AF2F01Q④-②-③
1NO-1NC	HW1L-A1F11Q④-②-③	HW4L-A1F11Q④-②-③	HW1L-A2F11Q④-②-③	HW4L-A2F11Q④-②-③	HW1L-AF2F11Q④-②-③	HW4L-AF2F11Q④-②-③
2NO	HW1L-A1F20Q④-②-③	HW4L-A1F20Q④-②-③	HW1L-A2F20Q④-②-③	HW4L-A2F20Q④-②-③	HW1L-AF2F20Q④-②-③	HW4L-AF2F20Q④-②-③

Illuminated Transformer Pushbuttons



Contacts	Flush		Extended		Extended w/ Full Shroud	
	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Momentary						
<i>Operator Only</i>	<i>HW1L-M1-②</i>	<i>HW4L-M1-②</i>	<i>HW1L-M2-②</i>	<i>HW4L-M2-②</i>	<i>HW1L-MF2-②</i>	<i>HW4L-MF2-②</i>
1NO-1NC	HW1L-M1F11③④-②	HW4L-M1F11③④-②	HW1L-M2F11③④-②	HW4L-M2F11③④-②	HW1L-MF2F11③④-②	HW4L-MF2F11③④-②
2NO	HW1L-M1F20③④-②	HW4L-M1F20③④-②	HW1L-M2F20③④-②	HW4L-M2F20③④-②	HW1L-MF2F20③④-②	HW4L-MF2F20③④-②
Maintained						
<i>Operator Only</i>	<i>HW1L-A1-②</i>	<i>HW4L-A1-②</i>	<i>HW1L-A2-②</i>	<i>HW4L-A2-②</i>	<i>HW1L-AF2-②</i>	<i>HW4L-AF2-②</i>
1NO-1NC	HW1L-A1F11③④-②	HW4L-A1F11③④-②	HW1L-A2F11③④-②	HW4L-A2F11③④-②	HW1L-AF2F11③④-②	HW4L-AF2F11③④-②
2NO	HW1L-A1F20③④-②	HW4L-A1F20③④-②	HW1L-A2F20③④-②	HW4L-A2F20③④-②	HW1L-AF2F20③④-②	HW4L-AF2F20③④-②



- In place of ②, specify Lens/LED Color Code from table.
- In place of ③ specify Voltage Code from table.
- In place of ④ specify Lamp Code from table.
- Light independent of switch position.
- For replacement part numbers, see page 567.
- For nameplates and accessories, see page 596 and 599.
- For dimensions, see page 601.
- For contact assembly part numbers, see page 600.
- Full voltage and transformer models use the same operator.
- Additional contact configurations available (up to 6 total contacts).
- Yellow pushbutton comes with white LED.**

② Lens/LED Color Code

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



Yellow LED not available. Use white LED for yellow lens.

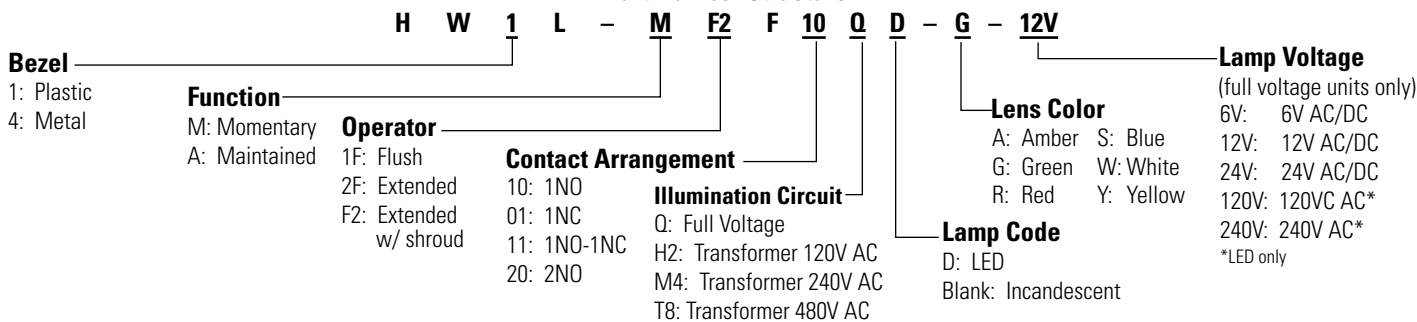
③ Voltage Code

Full Voltage Models		Transformer Models	
Voltage	Code	Voltage	Code
6V AC/DC	6V	120V AC	H2
12V AC/DC	12V	240V AC	M4
24V AC/DC	24V	480V AC	T8
120V AC (LED only)	120V		
240V AC (LED only)	240V		

④ Lamp Code

Lamp	Code
Incandescent	Blank
LED	D

Part Number Structure



Illuminated Round Pushbuttons (Replacement Parts)



*Transformer not needed with full voltage models.

Lamp Circuit Components

Style	Description	Terminals	Part Number	
	For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts.		HW-LH3	
	For use with odd number of contacts.	Fingersafe	HW-DA1FB	
		Exposed	HW-DA1B	
		Spring Up	HW-GA1	
	For use with even number of contacts.	Fingersafe	TW-DA1FB	
		Exposed	TW-DA1B	
	120VAC 240VAC 480VAC	Fingersafe	TW-F126B TW-F246B TW-F486B	
		120V 240V 480V	Spring Up	HW-T126 HW-T246 HW-L486
			120V 240V 480V	Exposed
	DC-DC Converter	110VDC		HW-L16D

HW-GA1 "Dummy Block with full voltage adaptor" does not require the use of HW-LH3.

Operators

Style	Plastic Bezel	Metal Bezel
	Momentary	HW1L-M0 HW4L-M0
	Maintained	HW1L-A0 HW4L-A0
	Momentary	HW1L-MF0 HW4L-MF0
	Maintained	HW1L-AF0 HW4L-AF0

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
	Spring-Up Terminal	HW-G10 HW-G10R (early make)	HW-G01 HW-G01R (late break)
	Exposed Screw Terminal	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)

- All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- Units with exposed screw terminals (HW-C...) must be ordered as sub-components.

Contact Block Mounting Adaptor

Style	Part Number
	HW-CBL

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

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Lenses

Style	Part Number
Round Flush	HW1A-L1-Ⓞ
Round Extended	HW1A-L2-Ⓞ

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

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Use with notched panel cutout to prevent unit rotation.

Lamps

Style	Voltage	Part Number
	6V AC/DC	LSTD-6Ⓞ
	12V AC/DC	LSTD-1Ⓞ
	24V AC/DC	LSTD-2Ⓞ
	120V AC	LSTD-H2Ⓞ
	240V AC	LSTD-M4Ⓞ
	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24

- In place of Ⓞ, specify the LED Color Code.
- The LED contains a current-limiting resistor and reverse polarity protection diodes.
- Yellow LED not available, use white LED when using yellow lens.

Illuminated Mushroom & Square Pushbuttons (Assembled)



		40mm Mushroom Head			Square Flush
		Contacts	Plastic Bezel	Metal Bezel	Plastic Bezel
Full Voltage	Momentary	<i>Operator Only</i> ¹	HW1L-M4-②	HW4L-M4-②	HW2L-M1-②
		1NO	HW1L-M4F10Q④-②-③	HW4L-M4F10Q④-②-③	HW2L-M1F10Q④-②-③
		1NC	HW1L-M4F01Q④-②-③	HW4L-M4F01Q④-②-③	HW2L-M1F01Q④-②-③
		1NO-1NC	HW1L-M4F11Q④-②-③	HW4L-M4F11Q④-②-③	HW2L-M1F11Q④-②-③
		2NO	HW1L-M4F20Q④-②-③	HW4L-M4F20Q④-②-③	HW2L-M1F20Q④-②-③
	Maintained	<i>Operator Only</i> ¹	HW1L-A4-②	HW4L-A4-②	HW2L-A1-②
		1NO	HW1L-A4F10Q④-②-③	HW4L-A4F10Q④-②-③	HW2L-A1F10Q④-②-③
		1NC	HW1L-A4F01Q④-②-③	HW4L-A4F01Q④-②-③	HW2L-A1F01Q④-②-③
		1NO-1NC	HW1L-A4F11Q④-②-③	HW4L-A4F11Q④-②-③	HW2L-A1F11Q④-②-③
		2NO	HW1L-A4F20Q④-②-③	HW4L-A4F20Q④-②-③	HW2L-A1F20Q④-②-③
Transformer	Momentary	1NO-1NC	HW1L-M4F11③④-②	HW4L-M4F11③④-②	HW2L-M1F11③④-②
		2NO	HW1L-M4F20③④-②	HW4L-M4F20③④-②	HW2L-M1F20③④-②
	Maintained	1NO-1NC	HW1L-A4F11③④-②	HW4L-A4F11③④-②	HW2L-A1F11③④-②
		2NO	HW1L-A4F20③④-②	HW4L-A4F20③④-②	HW2L-A1F20③④-②



- ¹ Full voltage and transformer units use the same operator.
- In place of ②, specify the Lens/LED Color Code from table.
- In place of ③ specify the Voltage Code from table.
- In place of ④ specify Lamp Type Code from table.
- Light independent of switch position
- For nameplates and accessories, see page 596 and 599.
- For dimensions, see page 601.
- For contact assembly part numbers, see page 600.
- Additional contact configurations available (up to 6 total contacts).
- 10. Yellow pushbutton comes with white LED.**

② Lens/LED Color Code

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



- *40mm mushroom lenses not available in yellow.
- Yellow LED not available. Use white LED for yellow lens.

③ Voltage Code

Full Voltage Models		Transformer Models	
Voltage	Code	Voltage	Code
6V AC/DC	6V	120V AC	H2
12V AC/DC	12V	240V AC	M4
24V AC/DC	24V	480V AC	T8
120V AC (LED only)	120V		
240V AC (LED only)	240V		

④ Lamp Code

Lamp	Code
Incandescent	Blank
LED	D

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

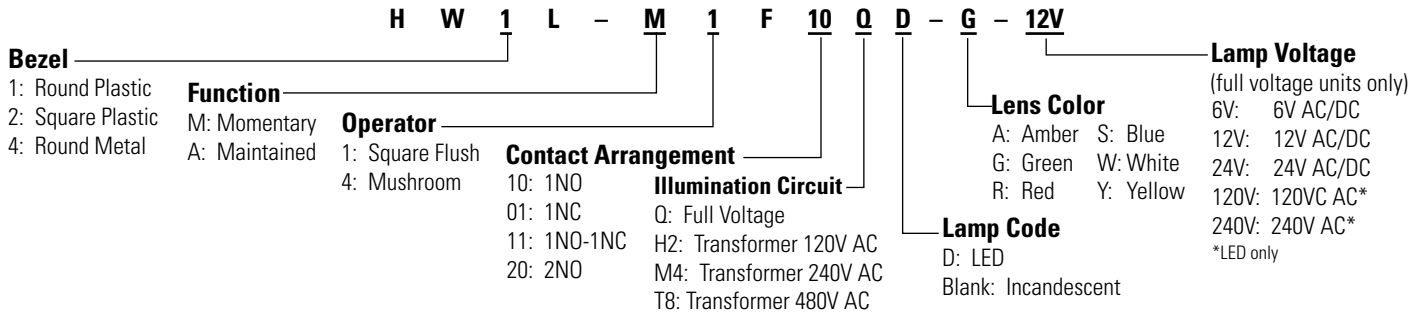
Timers

Contactors

Terminal Blocks

Circuit Breakers

Part Number Structure



Illuminated Mushroom & Square Pushbuttons (Replacement Parts)



*Transformer not needed with full voltage models.

Lamp Circuit Components

Style	Description	Terminals	Part Number
Lead Holder	For use with HW-CBL on all illuminated pushbutton units. One required for each deck (pair) of contacts.		HW-LH3
Dummy Block with Full Voltage Adaptor	For use with odd number of contacts.	Fingersafe	HW-DA1FB
		Exposed	HW-DA1B
		Spring Up	HW-GA1
Full Voltage Adaptor	For use with even number of contacts.	Fingersafe	TW-DA1FB
		Exposed	TW-DA1B
Transformer Unit (6V secondary voltage)	120VAC 240VAC 480VAC	Fingersafe	TW-F126B TW-F246B TW-F486B
	120V 240V 480V	Spring Up	HW-T126 HW-T246 HW-L486
	120V 240V 480V	Exposed	TW-T126B TW-T246B TW-T486B
DC-DC Converter	110VDC		HW-L16D

HW-GA1 "Dummy Block with full voltage adaptor" does not require the use of HW-LH3.

Operators

Style	Plastic Bezel	Metal Bezel
ø40mm Mushroom	Momentary	HW1L-MOL HW4L-MOL
	Maintained	HW1L-AOL HW4L-AOL
Square	Momentary	HW2L-M0 -
	Maintained	HW2L-A0 -

Contact Blocks

Style	Contacts	1NO	1NC
Contact Block	Standard Fingersafe (IP20)	HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
	Spring-Up Terminal	HW-G10 HW-G10R (early make)	HW-G01 HW-G01R (late break)
	Exposed Screw Terminal	HW-C10 HW-C10R (early make)	HW-C01 HW-C01R (late break)

- 1. All assembled part numbers in catalog include standard fingersafe (HW-F...) contacts.
- 2. Assembled units with spring-up terminals (HW-G...) can be ordered by removing an "F" from the part number (Ex. HW1B-M1F11-R becomes HW1B-M111-R).
- 3. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.

Contact Block Mounting Adaptor

Style	Part Number
Contact Block Mounting Adaptor	HW-CBL

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

Safety Lever Lock

Style	Part Number
Safety Lever Lock	HW9Z-LS

Lenses

Style	Part Number
ø40mm Mushroom Lens	ALW4BLU-⊙*
Square Flush Lens	HW2A-L1-⊙

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

Anti-Rotation Ring

Appearance	Part Number
Anti-Rotation Ring	HW9Z-RL

- Use with notched panel cutout to prevent unit rotation.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6⊙
	12V AC/DC	LSTD-1⊙
	24V AC/DC	LSTD-2⊙
	120V AC	LSTD-H2⊙
	240V AC	LSTD-M4⊙
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24

- 1. In place of ⊙, specify the LED Color Code.
- 2. The LED contains a current-limiting resistor and reverse polarity protection diodes.
- 3. Yellow LED not available, use white LED when using yellow lens.