

## 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	

<b>Mechanical</b>	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 <sup>2</sup> (10G) conforming to IEC6068-2-6								
Shock Resistance	980m/sec <sup>2</sup> (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								
<b>Standards &amp; Approvals</b>	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								
<b>Contact Ratings</b>	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)						
<b>Characteristics</b>	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"> <li> LED Chip</li> <li> Protection Diode</li> <li> Zener Diode</li> </ul>				

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

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Illuminated Mushroom & Square Pushbuttons (Assembled)



		Contacts	40mm Mushroom Head		Square Flush
			Plastic Bezel	Metal Bezel	Plastic Bezel
Full Voltage	Momentary	<i>Operator Only</i> <sup>1</sup>	<b>HW1L-M4-②</b>	<b>HW4L-M4-②</b>	<b>HW2L-M1-②</b>
		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> <sup>1</sup>	<b>HW1L-A4-②</b>	<b>HW4L-A4-②</b>	<b>HW2L-A1-②</b>
		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



- <sup>1</sup> 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

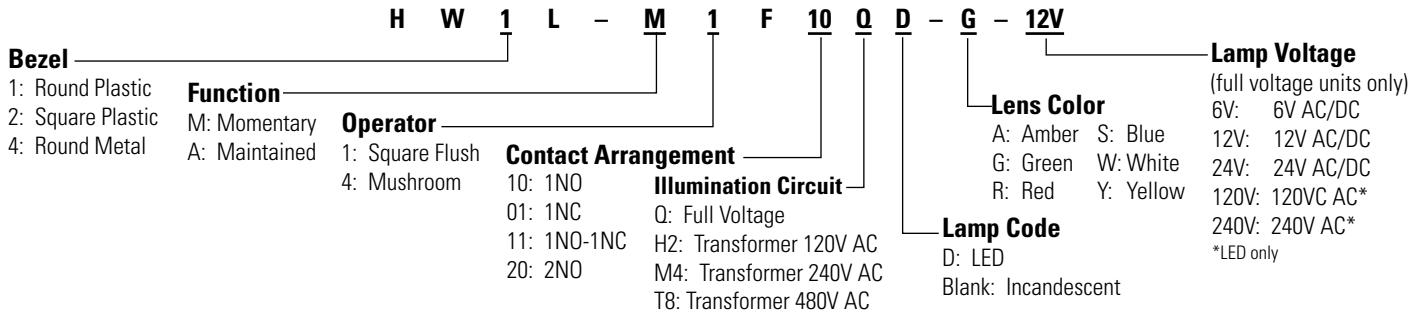
Timers

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
	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
Standard Fingersafe (IP20)	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
HW-CBL	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
HW9Z-LS	HW9Z-LS

### Lenses

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

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

### Anti-Rotation Ring

Appearance	Part Number
HW9Z-RL	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.