

**A3**

**Switches & Pilot Devices**



**HW: The Best Engineered Switch in the World**

**Key features include:**

- *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*
- *Available assembled or as sub-components*
- *Choice of black plastic or metallic front bezels*
- *Incandescent or LED illumination*
- *Transformer or full voltage*
- *Slow make double break self cleaning contacts*

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



TÜV Rheinland

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



Certificate No.  
 2005010305145656

Conforming to Standards		EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14							
Approvals		<p><b>CSA:</b> pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)</p> <p><b>UL:</b> pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)</p> <p><b>TÜV:</b> pushbuttons and selector switches: A600=P600 (NO, NC)/Q600 (NO-EM, NC-LB) pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)</p>							
 File No. E68961  File No. LR92374  Certificate No. 2005010305145656  TÜV Rheinland Registration No. R9551089 (E-stops) Registration No. J9551458 (all other switches) Registration No. J9650511 (Pilot Lights)									
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							
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)							
Mechanical Life		Momentary pushbuttons: 5,000,000 (900 operations per hour), All other switches: 500,000							
Pollution Degree (conforming to IEC60947-1)		3 for switches not using a transformer, 2 for switches using a transformer							
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)							
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							
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)							
Terminal Referencing		Conforming to CENELEC EN50005							
Recommended Terminal Torque		0.8 N m (7.1 in lb.)							
External Short-Circuit Protection		10A 250V fuse conforming to IEC60269-1							
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)							
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							
Maximum Inrush Current		40 A (40 ms)							
Contact Material		Silver (gold plated contacts available - contact IDEC)							
Contact Ratings	Pushbuttons Illuminated Pushbuttons Selector Switches Illuminated Selector Switches Pushbutton Selectors		Contact Block			Type HW-C/HW-F /HW-G			
			Rated Insulation Voltage			600V			
			Rated Continuous Current			10A			
			Contact Ratings by Utilization Category IEC 60947-5-1			AC-15 (A600) DC-13 (P600)			
Characteristics	Operational Voltage		24V	48V	50V	110V	220V	440V	
	Operational Current	AC 50/60 Hz	AC-12 Control of resistive loads & solid state loads	10A	—	10A	10A	6A	2A
			AC-15 Control of electromagnetic loads (> 72VA)	10A	—	7A	5A	3A	1A
		DC	DC-12 Control of resistive loads & solid state loads	8A	5A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—	



1. For dimensions, see page A3-100.
2. For life expectancy derating curves, see page A3-105.

## Illuminated Pushbuttons (Assembled)

### Part Numbers: Illuminated Pushbuttons

A3

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Style	Description	Contacts	Plastic Bezel		Metal Bezel	
			Momentary	Maintained	Momentary	Maintained
Flush 	Full Voltage	1NO 1NC 1NO-1NC 2NO	HW1L-M1F10Q④-②-③ HW1L-M1F01Q④-②-③ HW1L-M1F11Q④-②-③ HW1L-M1F20Q④-②-③	HW1L-A1F10Q④-②-③ HW1L-A1F01Q④-②-③ HW1L-A1F11Q④-②-③ HW1L-A1F20Q④-②-③	HW4L-M1F10Q④-②-③ HW4L-M1F01Q④-②-③ HW4L-M1F11Q④-②-③ HW4L-M1F20Q④-②-③	HW4L-A1F10Q④-②-③ HW4L-A1F01Q④-②-③ HW4L-A1F11Q④-②-③ HW4L-A1F20Q④-②-③
	Transformer	120V AC 120V AC 240V AC 240V AC	1NO-1NC 2NO 1NO-1NC 2NO	HW1L-M1F11H2④-② HW1L-M1F20H2④-② HW1L-M1F11M4④-② HW1L-M1F20M4④-②	HW1L-A1F11H2④-② HW1L-A1F20H2④-② HW1L-A1F11M4④-② HW1L-A1F20M4④-②	HW4L-M1F11H2④-② HW4L-M1F20H2④-② HW4L-M1F11M4④-② HW4L-M1F20M4④-②
Extended 	Full Voltage	1NO 1NC 1NO-1NC 2NO	HW1L-M2F10Q④-②-③ HW1L-M2F01Q④-②-③ HW1L-M2F11Q④-②-③ HW1L-M2F20Q④-②-③	HW1L-A2F10Q④-②-③ HW1L-A2F01Q④-②-③ HW1L-A2F11Q④-②-③ HW1L-A2F20Q④-②-③	HW4L-M2F10Q④-②-③ HW4L-M2F01Q④-②-③ HW4L-M2F11Q④-②-③ HW4L-M2F20Q④-②-③	HW4L-A2F10Q④-②-③ HW4L-A2F01Q④-②-③ HW4L-A2F11Q④-②-③ HW4L-A2F20Q④-②-③
	Transformer	120V AC 120V AC 240V AC 240V AC	1NO-1NC 2NO 1NO-1NC 2NO	HW1L-M2F11H2④-② HW1L-M2F20H2④-② HW1L-M2F11M4④-② HW1L-M2F20M4④-②	HW1L-A2F11H2④-② HW1L-A2F20H2④-② HW1L-A2F11M4④-② HW1L-A2F20M4④-②	HW4L-M2F11H2④-② HW4L-M2F20H2④-② HW4L-M2F11M4④-② HW4L-M2F20M4④-②
Extended with Full Shroud 	Full Voltage	1NO 1NC 1NO-1NC 2NO	HW1L-MF2F10Q④-②-③ HW1L-MF2F01Q④-②-③ HW1L-MF2F11Q④-②-③ HW1L-MF2F20Q④-②-③	HW1L-AF2F10Q④-①-③ HW1L-AF2F01Q④-①-③ HW1L-AF2F11Q④-①-③ HW1L-AF2F20Q④-①-③	HW4L-MF2F10Q④-②-③ HW4L-MF2F01Q④-②-③ HW4L-MF2F11Q④-②-③ HW4L-MF2F20Q④-②-③	HW4L-AF2F10Q④-①-③ HW4L-AF2F01Q④-①-③ HW4L-AF2F11Q④-①-③ HW4L-AF2F20Q④-①-③
	Transformer	120V AC 120V AC 240V AC 240V AC	1NO-1NC 2NO 1NO-1NC 2NO	HW1L-MF2F11H2④-② HW1L-MF2F20H2④-② HW1L-MF2F11M4④-② HW1L-MF2F20M4④-②	HW1L-AF2F11H2④-② HW1L-AF2F20H2④-② HW1L-AF2F11M4④-② HW1L-AF2F20M4④-②	HW4L-MF2F11H2④-② HW4L-MF2F20H2④-② HW4L-MF2F11M4④-② HW4L-MF2F20M4④-②
40mm Mushroom Head 	Full Voltage	1NO 1NC 1NO-1NC 2NO	HW1L-M4F10Q④-②-③ HW1L-M4F01Q④-②-③ HW1L-M4F11Q④-②-③ HW1L-M4F20Q④-②-③	HW1L-A4F10Q④-②-③ HW1L-A4F01Q④-②-③ HW1L-A4F11Q④-②-③ HW1L-A4F20Q④-②-③	HW4L-M4F10Q④-②-③ HW4L-M4F01Q④-②-③ HW4L-M4F11Q④-②-③ HW4L-M4F20Q④-②-③	HW4L-A4F10Q④-②-③ HW4L-A4F01Q④-②-③ HW4L-A4F11Q④-②-③ HW4L-A4F20Q④-②-③
	Transformer	120V AC 120V AC 240V AC 240V AC	1NO-1NC 2NO 1NO-1NC 2NO	HW1L-M4F11H2④-② HW1L-M4F20H2④-② HW1L-M4F11M4④-② HW1L-M4F20M4④-②	HW1L-A4F11H2④-② HW1L-A4F20H2④-② HW1L-A4F11M4④-② HW1L-A4F20M4④-②	HW4L-M4F11H2④-② HW4L-M4F20H2④-② HW4L-M4F11M4④-② HW4L-M4F20M4④-②
Square Flush 	Full Voltage	1NO 1NC 1NO-1NC 2NO	HW2L-M1F10Q④-②-③ HW2L-M1F01Q④-②-③ HW2L-M1F11Q④-②-③ HW2L-M1F20Q④-②-③	HW2L-A1F10Q④-②-③ HW2L-A1F01Q④-②-③ HW2L-A1F11Q④-②-③ HW2L-A1F20Q④-②-③	-	-
	Transformer	120V AC 120V AC 240V AC 240V AC	1NO-1NC 2NO 1NO-1NC 2NO	HW2L-M1F11H2④-② HW2L-M1F20H2④-② HW2L-M1F11M4④-② HW2L-M1F20M4④-②	HW2L-A1F11H2④-② HW2L-A1F20H2④-② HW2L-A1F11M4④-② HW2L-A1F20M4④-②	-



1. In place of ② specify the Lens Color Code, in place of ③ specify the Full Voltage Code and in place of ④ specify Lamp Type Code.

2. For partial and sub-assembly part numbers, see pages A3-65 and A3-66.

3. For nameplates and accessories, see page A3-96.

4. For dimensions, see page A3-100.

#### ④ Lamp Type Code

Lamp	Code
Incandescent	Blank
LED	D

#### ② Lens Color Code

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



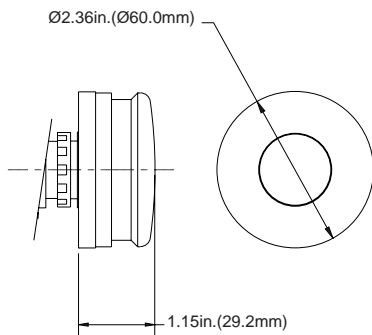
\*40mm mushroom lenses not available in yellow

#### ③ Full Voltage Codes

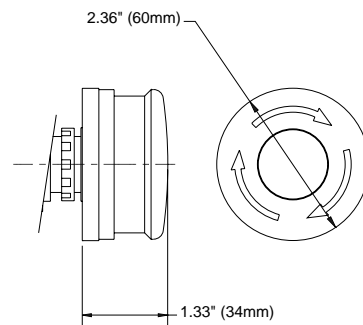
Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC (LED only)	120V
240VAC (LED only)	240V

## Dimensions con't

### Jumbo Mushroom Pushbutton HW1B-M5

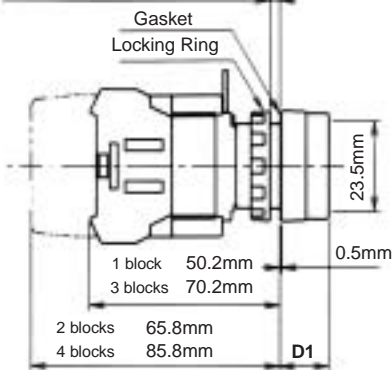


### HW1B-V5

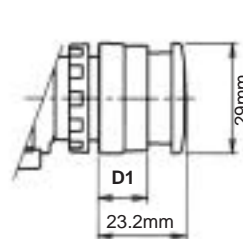


### Illuminated Pushbuttons

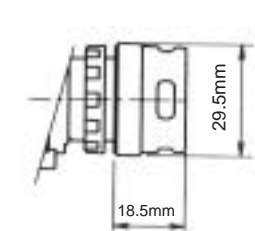
Panel Thickness: 0.8mm to 6.0mm



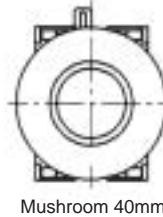
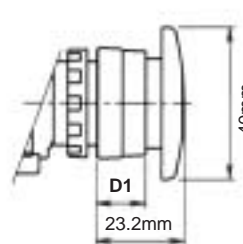
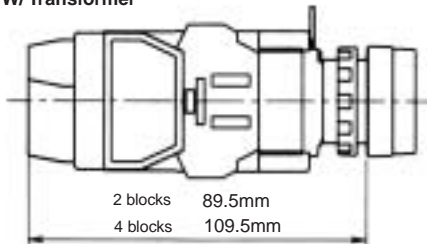
#### Mushroom



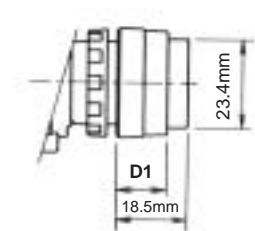
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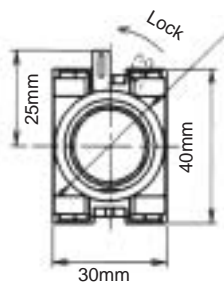
#### W/ Transformer



#### Extended

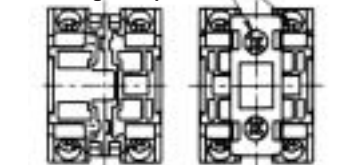


#### Round

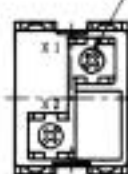


#### 24V AC/DC

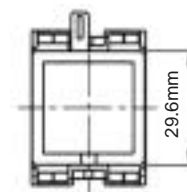
M3.5 Terminal Screws  
W/ Dummy Block & Full Voltage Adaptor    W/ Full Voltage Adaptor



W/ Transformer    M3.5 Terminal Screws



#### Square



D1 = 0.51" 13mm