

**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>							
   <p>File No. E68961    File No. LR92374    Certificate No. 2005010305145656</p>   <p>TÜV Rheinland Registration No. R9551089 (E-stops) Registration No. J9551458 (all other switches) Registration No. J9650511 (Pilot Lights)</p>									
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.

## Non-Illuminated Pushbuttons (Assembled)

### Part Numbers: Non-Illuminated Pushbuttons

Style	Contact	Plastic Bezel		Metal Bezel	
		Momentary	Maintained	Momentary	Maintained
<b>Round Flush</b> 	1NO	HW1B-M1F10-①	HW1B-A1F10-①	HW4B-M1F10-①	HW4B-A1F10-①
	1NC	HW1B-M1F01-①	HW1B-A1F01-①	HW4B-M1F01-①	HW4B-A1F01-①
	1NO-1NC	HW1B-M1F11-①	HW1B-A1F11-①	HW4B-M1F11-①	HW4B-A1F11-①
	2NO	HW1B-M1F20-①	HW1B-A1F20-①	HW4B-M1F20-①	HW4B-A1F20-①
	2NC	HW1B-M1F02-①	HW1B-A1F02-①	HW4B-M1F02-①	HW4B-A1F02-①
	2NO-2NC	HW1B-M1F22-①	HW1B-A1F22-①	HW4B-M1F22-①	HW4B-A1F22-①
<b>Round Extended</b> 	1NO	HW1B-M2F10-①	HW1B-A2F10-①	HW4B-M2F10-①	HW4B-A2F10-①
	1NC	HW1B-M2F01-①	HW1B-A2F01-①	HW4B-M2F01-①	HW4B-A2F01-①
	1NO-1NC	HW1B-M2F11-①	HW1B-A2F11-①	HW4B-M2F11-①	HW4B-A2F11-①
	2NO	HW1B-M2F20-①	HW1B-A2F20-①	HW4B-M2F20-①	HW4B-A2F20-①
	2NC	HW1B-M2F02-①	HW1B-A2F02-①	HW4B-M2F02-①	HW4B-A2F02-①
	2NO-2NC	HW1B-M2F22-①	HW1B-A2F22-①	HW4B-M2F22-①	HW4B-A2F22-①
<b>29mm Mushroom Head</b> 	1NO	HW1B-M3F10-①	HW1B-A3F10-①	HW4B-M3F10-①	HW4B-A3F10-①
	1NC	HW1B-M3F01-①	HW1B-A3F01-①	HW4B-M3F01-①	HW4B-A3F01-①
	1NO-1NC	HW1B-M3F11-①	HW1B-A3F11-①	HW4B-M3F11-①	HW4B-A3F11-①
	2NO	HW1B-M3F20-①	HW1B-A3F20-①	HW4B-M3F20-①	HW4B-A3F20-①
	2NC	HW1B-M3F02-①	HW1B-A3F02-①	HW4B-M3F02-①	HW4B-A3F02-①
	2NO-2NC	HW1B-M3F22-①	HW1B-A3F22-①	HW4B-M3F22-①	HW4B-A3F22-①
<b>40mm Mushroom Head</b> 	1NO	HW1B-M4F10-①	HW1B-A4F10-①	HW4B-M4F10-①	HW4B-A4F10-①
	1NC	HW1B-M4F01-①	HW1B-A4F01-①	HW4B-M4F01-①	HW4B-A4F01-①
	1NO-1NC	HW1B-M4F11-①	HW1B-A4F11-①	HW4B-M4F11-①	HW4B-A4F11-①
	2NO	HW1B-M4F20-①	HW1B-A4F20-①	HW4B-M4F20-①	HW4B-A4F20-①
	2NC	HW1B-M4F02-①	HW1B-A4F02-①	HW4B-M4F02-①	HW4B-A4F02-①
	2NO-2NC	HW1B-M4F22-①	HW1B-A4F22-①	HW4B-M4F22-①	HW4B-A4F22-①
<b>60mm Jumbo Mushroom Head</b> 	1NO	HW1B-M5F10-①*	—	—	—
	1NC	HW1B-M5F01-①*	—	—	—
	1NO-1NC	HW1B-M5F11-①*	—	—	—
	2NO	HW1B-M5F20-①*	—	—	—
	2NC	HW1B-M5F02-①*	—	—	—
	2NO-2NC	HW1B-M5F22-①*	—	—	—
<b>Square Flush</b> 	1NO	HW2B-M1F10-①	HW2B-A1F10-①	—	—
	1NC	HW2B-M1F01-①	HW2B-A1F01-①	—	—
	1NO-1NC	HW2B-M1F11-①	HW2B-A1F11-①	—	—
	2NO	HW2B-M1F20-①	HW2B-A1F20-①	—	—
	2NC	HW2B-M1F02-①	HW2B-A1F02-①	—	—
	2NO-2NC	HW2B-M1F22-①	HW2B-A1F22-①	—	—
<b>Square Extended</b> 	1NO	HW2B-M2F10-①	HW2B-A2F10-①	—	—
	1NC	HW2B-M2F01-①	HW2B-A2F01-①	—	—
	1NO-1NC	HW2B-M2F11-①	HW2B-A2F11-①	—	—
	2NO	HW2B-M2F20-①	HW2B-A2F20-①	—	—
	2NC	HW2B-M2F02-①	HW2B-A2F02-①	—	—
	2NO-2NC	HW2B-M2F22-①	HW2B-A2F22-①	—	—

#### ① Button Color Code

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y
Grey	N*

\* Grey is available for Round Flush models only.



1. In place of ①, specify the Button Color Code.
2. \*Jumbo mushroom available only in red, green, black, and yellow.
3. For nameplates and accessories, see page A3-96 and A3-98.
4. For dimensions, see page A3-100.
5. For sub-assembly part numbers, see page A3-56.

## Dimensions — HW Series

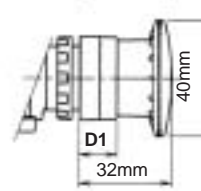
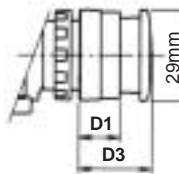
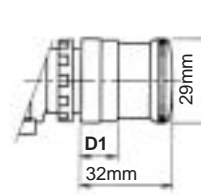
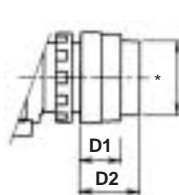
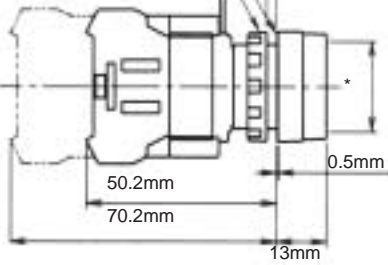
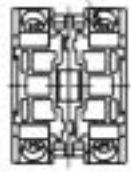
### Non-Illuminated Pushbuttons

Panel Thickness 0.8mm to 6.0mm

M3.5 Terminal Screws

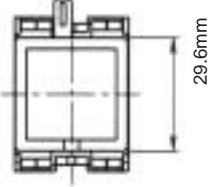
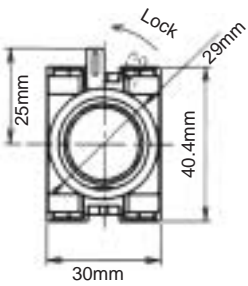
Gasket  
Locking Ring

\* Round: 23.6mm  
\* Square: 24.8mm



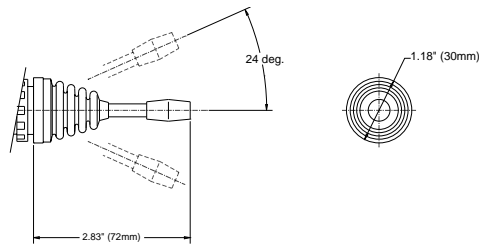
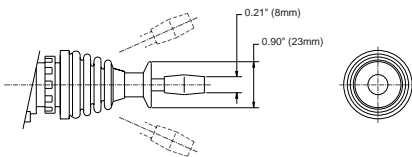
Round

Square



D1 = 13mm    D2 = 19mm    D3 = 23.2mm

### Monolever



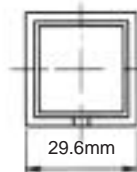
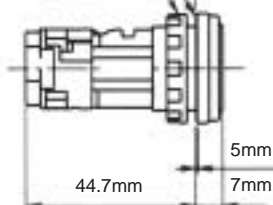
### Pilot Lights

M3.5 Terminal Screws

Panel Thickness 0.8mm to 6.0mm

Gasket  
Locking Ring

29mm



M3.5 Terminal Screws

