

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

Specifications	Conforming to Standards		EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14													
	Approvals		 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) 							CSA: 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) UL: 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) TÜV: 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)						
	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													
	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 (main- tained) 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	—						



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

Emergency Stop Pushbuttons (Assembled)

Part Numbers: Non-Illuminated Emergency Stop Pushbuttons

Style	Contact	Plastic Bezel	Metal Bezel
ø 40mm Head Push-Pull 	1NO 1NC 1NO-1NC 2NC 2NO	HW1B-Y2F10-①† HW1B-Y2F01-①† HW1B-Y2F11-①† HW1B-Y2F02-①† HW1B-Y2F20-①†	HW4B-Y2F10-①† HW4B-Y2F01-①† HW4B-Y2F11-①† HW4B-Y2F02-①† HW4B-Y2F20-①†
ø 29mm Head Pushlock Turn Reset 	1NO 1NC 1NO-1NC 2NO 2NC	HW1B-V3F10-R* HW1B-V3F01-R* HW1B-V3F11-R* HW1B-V3F20-R* HW1B-V3F02-R*	HW4B-V3F10-R* HW4B-V3F01-R* HW4B-V3F11-R* HW4B-V3F20-R* HW4B-V3F02-R*
ø 40mm Head Pushlock Turn Reset 	1NO 1NC 1NO-1NC 2NO 2NC	HW1B-V4F10-①† HW1B-V4F01-①† HW1B-V4F11-①† HW1B-V4F20-①† HW1B-V4F02-①†	HW4B-V4F10-①† HW4B-V4F01-①† HW4B-V4F11-①† HW4B-V4F20-①† HW4B-V4F02-①†
ø 40mm Head EMO Pushlock Turn Reset 	1NO 1NC 1NO-1NC 2NO 2NC	HW1B-V4F10-R-EMO-2 HW1B-V4F01-R-EMO-2 HW1B-V4F11-R-EMO-2 HW1B-V4F20-R-EMO-2 HW1B-V4F02-R-EMO-2	HW4B-V4F10-R-EMO-2 HW4B-V4F01-R-EMO-2 HW4B-V4F11-R-EMO-2 HW4B-V4F20-R-EMO-2 HW4B-V4F02-R-EMO-2
ø 40mm Head Pushlock Key Reset 	1NO 1NC 1NO-1NC 2NO 2NC	HW1B-X4F10-R* HW1B-X4F01-R* HW1B-X4F11-R* HW1B-X4F20-R* HW1B-X4F02-R*	HW4B-X4F10-R* HW4B-X4F01-R* HW4B-X4F11-R* HW4B-X4F20-R* HW4B-X4F02-R*
ø 60mm Head Pushlock Turn Reset 	1NO 1NC 1NO-1NC 2NO 2NC	HW1B-V5F10-R* HW1B-V5F01-R* HW1B-V5F11-R* HW1B-V5F20-R* HW1B-V5F02-R*	—
ø 40mm Head Unibody Pushlock Turn Reset 	1NO-1NC 2NC 1NO-2NC	HW1E-BV4F11-R* HW1E-BV4F02-R* HW1E-BV412R-TK2093-1**	—

Part Numbers: Illuminated Emergency Stop Pushbuttons

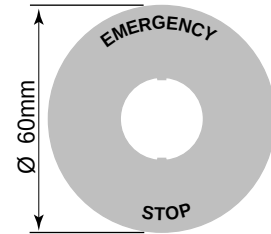
Style	Illumination Type	Contact	Part Number
	LED	1NO-1NC 2NC 2NC (with active lamp circuit) 1NO-1NC (with active lamp circuit)	HW1E-LV4F11QD-R*-③ HW1E-LV4F02QD-R*-③ HW1E-TV4F02QD-R*-③ HW1E-TV4F11QD-R*-③
	Incandescent	1NO-1NC 2NC 1NO-1NC (with active lamp circuit) 2NC (with active lamp circuit)	HW1E-LV4F11Q-R*-③ HW1E-LV4F02Q-R*-③ HW1E-TV4F11Q-R*-③ HW1E-TV4F02Q-R*-③



- * Available in Red only.
- † Available in red or yellow (insert color code in place of ①)
- In place of ③, specify Full Voltage Code.
- With single unit construction, the positive action contacts are integrated in the body of the switch. This provides an extra degree of safety and reliability for critical emergency stop functions.
- In the illuminated version, the light is independent of the switch action (except active lamp circuit model).
- For nameplates and accessories, see page A3-96.
- For dimensions, see page A3-100.
- For sub-assembly part numbers, see next page.
- All HW series E-stops comply with EN418, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.
- "Active Lamp Circuit" consists of a built-in Normally Open contact in series with the lamp. This allows the lamp to illuminate only when the button is pressed and eliminates the need for external jumpering.
- Replacement Lens is HWLV-LENSR.

Part Numbers: Nameplates

HWAV-Yellow Plastic



Style	Part Number
60mm Diameter "Emergency Stop"	HWAV-27†
60mm Diameter Blank	HWAV-0
80mm Diameter "Emergency Stop" (for jumbo mushroom use)	HWAV5-27



† HWAV-27 comes marked "Emergency Stop" as shown in drawing.

Part Numbers: E-Stop Shrouds

Style	Part Number
	HW9Z-KG1-TK2120
	HW9Z-KG2-TK2120



Not applicable for 60mm mushroom.

Terminal Numbering (Unibody only)

Models	Terminal Number
1NO-1NC	NO = .3/.4, NC = .1/.2
2NC	NC = 11/12, NC = 21/22
HW1E-L HW1E-T	Lamp + = X2, Lamp - = X1

③ Full Voltage Code

Voltage	Code
6VAC/DC	6V
12VAC/DC	12V
24VAC/DC	24V

Dimensions — HW Series

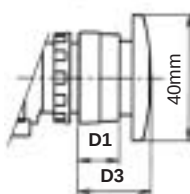
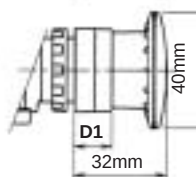
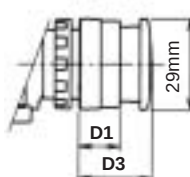
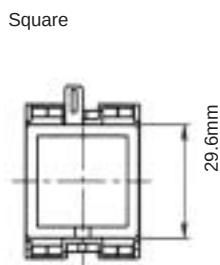
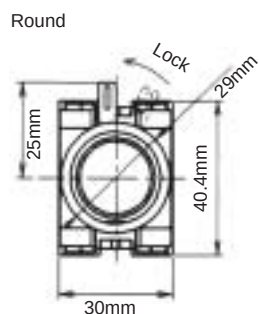
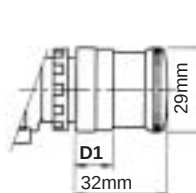
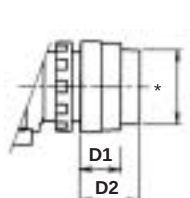
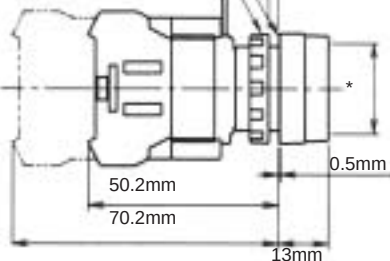
Non-Illuminated Pushbuttons

Panel Thickness 0.8mm to 6.0mm

M3.5 Terminal Screws

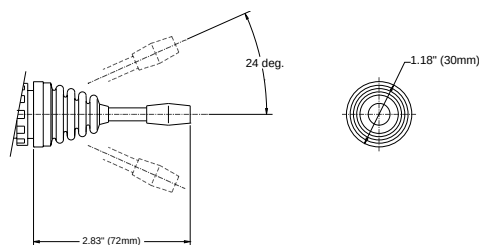
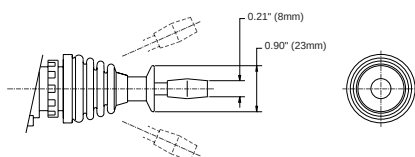
Gasket
Locking Ring

* Round: 23.6mm
* Square: 24.8mm



D1 = 13mm D2 = 19mm D3 = 23.2mm

Monolever



Pilot Lights

M3.5 Terminal Screws

Panel Thickness 0.8mm to 6.0mm

Gasket
Locking Ring

