

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.

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.

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



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

Dual Pushbutton Switches

Key features:

- Two pushbuttons and a pilot light are integrated into one space-saving ø22 mm control unit.
- Momentary and interlock types are available for pushbuttons. Interlock type prevents both buttons from being pressed at the same time.
- Pilot lights are available in full voltage and transformer with LED or incandescent lamps.
- IP40 protection, IP65 when using silicon cover.
- UL Listed, CSA approved, and EN compliant



Applications:

- Ideal for use as power switches and start/stop switches (available with I/ON and O/OFF markings on the buttons and a pilot light in the center).
- Interlock type prevents two pushbuttons from being pressed at the same time.



Dual Pushbutton Switches (Assembled) Part Numbers

Without Center Pilot Light

Operation Type	Button Style	Image	Contact Arrangement		Part Number	Ⓔ Button Color Code	Ⓕ Legend Code	
			Top Button	Bottom Button				
Momentary	Flush (top) Flush (bottom)		1NO	1NC	HW7D-B11F1001-ⒺⒻ	GR: Green (top) Red (bottom)	Blank: Without legend	
			1NO	1NO	HW7D-B11F1010-ⒺⒻ			
			1NO-1NC	1NO-1NC	HW7D-B11F1111-ⒺⒻ			
			2NO	2NC	HW7D-B11F2002-ⒺⒻ			
			2NO	2NO	HW7D-B11F2020-ⒺⒻ			
Momentary	Flush (top) Extended (bottom)		1NO	1NC	HW7D-B12F1001-ⒺⒻ			
			1NO	1NO	HW7D-B12F1010-ⒺⒻ			
			1NO-1NC	1NO-1NC	HW7D-B12F1111-ⒺⒻ			
			2NO	2NC	HW7D-B12F2002-ⒺⒻ			
			2NO	2NO	HW7D-B12F2020-ⒺⒻ			
Interlock*	Flush (top) Flush (bottom)		1NO	1NC	HW7D-B21F1001-ⒺⒻ	WB: White (top) Black (bottom)	1: I/ON (top) O/OFF (bottom)	
			1NO	1NO	HW7D-B21F1010-ⒺⒻ			
			1NO-1NC	1NO-1NC	HW7D-B21F1111-ⒺⒻ			
			2NO	2NC	HW7D-B21F2002-ⒺⒻ			
			2NO	2NO	HW7D-B21F2020-ⒺⒻ			
	Interlock*	Flush (top) Extended (bottom)		1NO	1NC			HW7D-B22F1001-ⒺⒻ
				1NO	1NO			HW7D-B22F1010-ⒺⒻ
				1NO-1NC	1NO-1NC			HW7D-B22F1111-ⒺⒻ
				2NO	2NC			HW7D-B22F2002-ⒺⒻ
				2NO	2NO			HW7D-B22F2020-ⒺⒻ

1. *Interlock type prevents both top and bottom buttons from being pressed simultaneously.
 2. Clear silicon rubber cover part number HW9Z-D7D.
 3. Additional contact configurations available (up to 6 total contacts).

With Center Pilot Light


Operation Type	Button Style		Top Button	Bottom Button	Part Number
Momentary	Flush (Top) Flush (Bottom)	Flush (top) Flush (bottom)	1NO	1NC	HW7D-L11F1001②③-④⑤
			1NO	1NO	HW7D-L11F1010②③-④⑤
			1NO-1NC	1NO-1NC	HW7D-L11F1111②③-④⑤
			2NO	2NC	HW7D-L11F2002②③-④⑤
			2NO	2NO	HW7D-L11F2020②③-④⑤
	Flush (Top) Extended (Bottom)		1NO	1NC	HW7D-L12F1001②③-④⑤
			1NO	1NO	HW7D-L12F1010②③-④⑤
			1NO-1NC	1NO-1NC	HW7D-L12F1111②③-④⑤
			2NO	2NC	HW7D-L12F2002②③-④⑤
			2NO	2NO	HW7D-L12F2020②③-④⑤
Interlock*	Flush (Top) Flush (Bottom)	Flush (top) Extended (bottom)	1NO	1NC	HW7D-L21F1001②③-④⑤
			1NO	1NO	HW7D-L21F1010②③-④⑤
			1NO-1NC	1NO-1NC	HW7D-L21F1111②③-④⑤
			2NO	2NC	HW7D-L21F2002②③-④⑤
			2NO	2NO	HW7D-L21F2020②③-④⑤
	Flush (Top) Extended (Bottom)		1NO	1NC	HW7D-L22F1001②③-④⑤
			1NO	1NO	HW7D-L22F1010②③-④⑤
			1NO-1NC	1NO-1NC	HW7D-L22F1111②③-④⑤
			2NO	2NC	HW7D-L22F2002②③-④⑤
			2NO	2NO	HW7D-L22F2020②③-④⑤

- 1. *Interlock type prevents both top and bottom buttons from being pressed simultaneously.
- 2. Clear silicon rubber cover part number HW9Z-D7D.
- 3. All assembled part numbers in catalog include standard (HW-F...) contacts.
- 4. 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).
- 5. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.

② Pilot Light Illumination & Voltage Code


Full Voltage	
Voltage	Code
6V AC/DC, LED	Q2
12V AC/DC, LED	Q3
24V AC/DC, LED	Q4
120V AC, LED	Q8
6V AC/DC, Incandescent	Q5*
12V AC/DC, Incandescent	Q6*
24V AC/DC, Incandescent	Q7*

Step-Down Transformer (6V Secondary Lamp Voltage)	
Voltage	Code
120V AC, LED	H22
240V AC, LED	M42
480V AC, LED	T82
120V AC, Incandescent	H25*
240V AC, Incandescent	M45*
480V AC, Incandescent	T85*

 *Only available for White Lens Pilot Lamp.

③ Pilot Lamp Color Code

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

 *Only available in LED illumination.

④ Pushbutton Color Code

Color	Code	
Top	Green	GR
Bottom	Red	
Top	White	WB
Bottom	Black	

⑤ Engraving Codes

Engraving		Code
No Engraving		Blank
I/ON	Top	1
O/OFF	Bottom	

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

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Part Number Structure

H W 7 D - L 21 F 20 20 H22 R - GR 1

Pilot Light

B: Without Center Pilot Light
L: With Center Pilot Light

Button Arrangement

11: Momentary (Flush/Flush)
12: Momentary (Flush/Extended)
21: Interlock (Flush/Flush)
22: Interlock (Flush/Extended)

Contact Arrangement

Top Button

01: 1NC 02: 2NC
10: 1NO 20: 2NO

Bottom Button

01: 1NC 02: 2NC
10: 1NO 20: 2NO

Voltage Code

blank: without center pilot light

Full Voltage*

Q2: 6V LED

Transformer*

H22: 120V AC LED

*For additional voltage codes, please see previous page

Pilot Lamp Color

A: Amber* Y: Yellow*
G: Green* blank: without center pilot light
R: Red* S: Blue* W: White
*Only available in LED illumination.

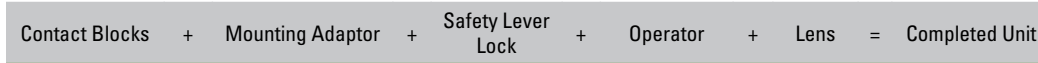
Engraving Code

blank: No Engraving
1: Top: I/ON
Bottom: O/OFF

Pushbutton Color

GR: Top: Green
Bottom: Red
WB: Top: White
Bottom: Black

Dual Pushbutton Switches (Sub-assembled) Part Numbers



Lamp Circuit Components with Fingersafe Terminals

Style	Description	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.	HW-DA1FB
Full Voltage Adaptor	For use with even number of contacts.	TW-DA1FB
Transformer Unit (6V secondary voltage)	120VAC 240VAC 480VAC	TW-F126B TW-F246B TW-F486B

Exposed and spring up terminals also available.

Operators

Style	Button	Part Number
Momentary	Flush (top)	HW7D-*11④-⑤
	Flush (bottom)	
	Flush (top)	HW7D-*12④-⑤
	Extended (bottom)	
Interlock	Flush (top)	HW7D-*21④-⑤
	Flush (bottom)	
	Flush (top)	HW7D-*22④-⑤
	Extended (bottom)	

Instead of * insert:
B: Non-illuminated
L: Illuminated

④ Pushbutton Color Code

Color	Code	Color	Code
Top Green	GR	Top White	WB
Bottom Red		Bottom Black	

Contact Blocks

Style	Contacts	1NO	1NC
Standard Fingersafe (IP20)		HW-F10 HW-F10R (early make)	HW-F01 HW-F01R (late break)
Dummy Block		TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
Non-illuminated	HW-CB2C
Illuminated (with Pilot Light)	HW-CBL

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

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL

Use with notched panel cutout to prevent unit rotation.

⑤ Engraving Codes

Engraving	Code
No Engraving	Blank
I/ON	Top
O/OFF	Bottom
	1

Style	Contacts	1NO	1NC
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)

Lamps/Lens

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②
Incandescent	6V AC/DC	IS-6
	12V AC/DC	IS-12
	24V AC/DC	IS-24
Non-illuminated		HW9Z-B7B
Illuminated		HW9Z-L7W

- In place of ②, specify the LED Color Code.
- The LED contains a current-limiting resistor and reverse polarity protection diodes.

② LED Color Code

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

Only for LED illumination.