Switches & Pilot Devices

ø22mm - HW Series

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

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

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

Standards & Approvals		
	Conforming to Standards	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14
	Approvals UL File No. E68961 CSA File No. LR92374 CCC S CE 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	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)
	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 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				24V	48V	50V	110V	220V	440V
	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	—

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
Current Draw — 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

LED Chip, Protection Diode, Zener Diode

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

Signaling Lights / Relays & Sockets / Timers / Contactors / Terminal Blocks / Circuit Breakers

Switches & Pilot Devices

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Non-Illuminated Round Pushbuttons (Assembled)

Function	Contacts	Round Flush		Round Extended	
		Plastic Bezel	Metal Bezel	Plastic Bezel	Metal Bezel
Momentary	*Operator Only*	*HW1B-M1-*①	*HW4B-M1-*①	*HW1B-M2-*①	*HW4B-M2-*①
	1NO	HW1B-M1F10-①	HW4B-M1F10-①	HW1B-M2F10-①	HW4B-M2F10-①
	1NC	HW1B-M1F01-①	HW4B-M1F01-①	HW1B-M2F01-①	HW4B-M2F01-①
	1NO-1NC	HW1B-M1F11-①	HW4B-M1F11-①	HW1B-M2F11-①	HW4B-M2F11-①
	2NO	HW1B-M1F20-①	HW4B-M1F20-①	HW1B-M2F20-①	HW4B-M2F20-①
	2NC	HW1B-M1F02-①	HW4B-M1F02-①	HW1B-M2F02-①	HW4B-M2F02-①
	2NO-2NC	HW1B-M1F22-①	HW4B-M1F22-①	HW1B-M2F22-①	HW4B-M2F22-①
Maintained	*Operator Only*	*HW1B-A1-*①	*HW4B-A1-*①	*HW1B-A2-*①	*HW4B-A2-*①
	1NO	HW1B-A1F10-①	HW4B-A1F10-①	HW1B-A2F10-①	HW4B-A2F10-①
	1NC	HW1B-A1F01-①	HW4B-A1F01-①	HW1B-A2F01-①	HW4B-A2F01-①
	1NO-1NC	HW1B-A1F11-①	HW4B-A1F11-①	HW1B-A2F11-①	HW4B-A2F11-①
	2NO	HW1B-A1F20-①	HW4B-A1F20-①	HW1B-A2F20-①	HW4B-A2F20-①
	2NC	HW1B-A1F02-①	HW4B-A1F02-①	HW1B-A2F02-①	HW4B-A2F02-①
	2NO-2NC	HW1B-A1F22-①	HW4B-A1F22-①	HW1B-A2F22-①	HW4B-A2F22-①

① Button Color Code

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

*Gray available for round flush only.

1. In place of ①, specify the Button Color Code from table below.
2. For nameplates and accessories, see page 596 and 599.
3. For dimensions, see page 601.
4. For contact assembly part numbers, see page 600.
5. All assembled part numbers in catalog include standard, fingersafe (HW-F...) contacts.
6. 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).
7. Operator only models include operator plus button.
8. Additional contact configurations available (up to 6 total contacts).

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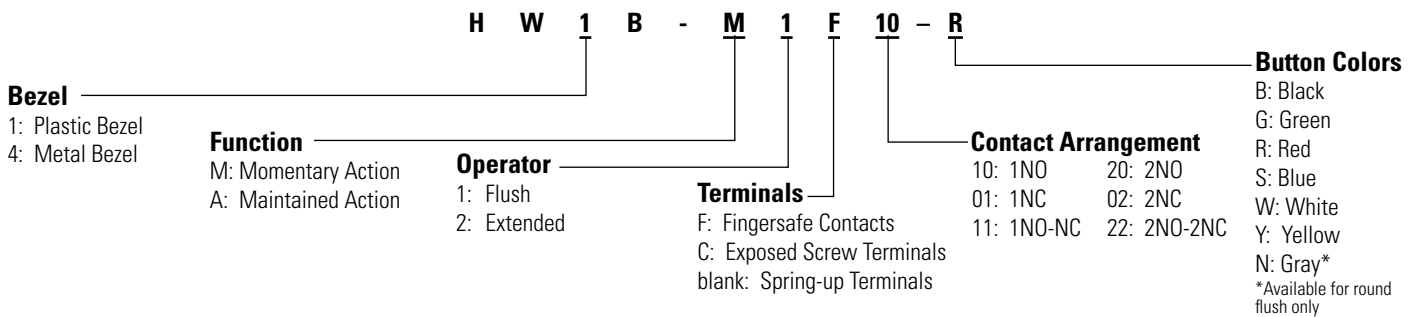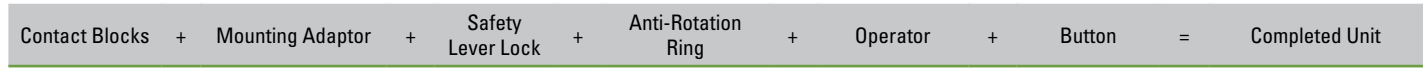
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Part Number Structure

H W 1 B – M 1 F 10 – R

Bezel
1: Plastic Bezel
4: Metal Bezel

Function
M: Momentary Action
A: Maintained Action

Operator
1: Flush
2: Extended

Terminals
F: Fingersafe Contacts
C: Exposed Screw Terminals
blank: Spring-up Terminals

Contact Arrangement
10: 1NO   20: 2NO
01: 1NC   02: 2NC
11: 1NO-NC   22: 2NO-2NC

Button Colors
B: Black
G: Green
R: Red
S: Blue
W: White
Y: Yellow
N: Gray*
*Available for round flush only

Non-Illuminated Round Pushbuttons (Replacement Parts)

Contact Blocks	+	Mounting Adaptor	+	Safety Lever Lock	+	Anti-Rotation Ring	+	Operator	+	Button	=	Completed Unit

Contact Blocks

Style	Contacts	1NO	1NC
	Standard Fingersafe (IP20)	HW-F10	HW-F01
		HW-F10R (early make)	HW-F01R (late break)
	Spring-Up Terminal	HW-G10	HW-G01
		HW-G10R (early make)	HW-G01R (late break)
	Exposed Screw Terminal	HW-C10	HW-C01
		HW-C10R (early make)	HW-C01R (late break)
	Dummy Block	TW-DB	

Contact Block Mounting Adaptor

Style	Part Number
	HW-CB2C

i
1. Used to mount contact blocks to operator.
2. IDEC strongly recommends using the safety lever lock to prevent heavy vibration or maintenance personnel from inadvertently unlocking contacts.

Anti-Rotation Ring

Style	Part Number
	HW9Z-RL

i Use with notched panel cutout to prevent unit rotation.

Operators

Style		Plastic Bezel	Metal Bezel
Round Flush/ Extended	Momentary	HW1B-M0	HW4B-M0
	Maintained	HW1B-A0	HW4B-A0

Safety Lever Lock

Style	Part Number
	HW9Z-LS

Buttons

Style	Part Number
Round Flush	HW1A-B1-①
Round Extended	HW1A-B2-①

i
1. In place of ①, specify the Button Color Code from table.

① Button Color Code

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

i *Gray available for round flush only.