

## HW Series — 22mm IEC Style Global Pushbuttons

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



## Key Switches (Partial-Assemblies)

Contact Assembly

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Operator

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Complete Part



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### Part Numbers: Operators

	# of Positions	Description	Plastic Bezel	Metal Bezel
	2	Maintained	HW1K-2A	HW4K-2A
		Maintained, key remove left only	HW1K-2B	HW4K-2B
		Spring from Right	HW1K-21B	HW4K-21B
	3	Maintained, Standard Cam	HW1K-3A	HW4K-3A
		Maintained, Cam S	HW1K-3SA	HW4K-3SA
		Maintained, Cam J	HW1K-3JA	HW4K-3JA
		Spring Return from Right	HW1K-31B	HW4K-31B
		Spring Return from Left	HW1K-32C	HW4K-32C
		Two-Way Spring Return	HW1K-33D	HW4K-33D



1. Operator includes two keys.
2. All standard operators are keyed alike (contact IDEC for special keys).
3. Other key removable options available. See "Other Key Removable Option Codes" on next page.

### Part Numbers: Contact Assemblies

Style	Contacts	Part Number
Standard Fingersafe Contacts 	1NO 1NC 1NO/1NC 2NO 2NC 2NO/2NC	HW-CBF10 HW-CBF01 HW-CBF11 HW-CBF20 HW-CBF02 HW-CBF22
Spring Up Terminal Contacts 	1NO 1NC 1NO/1NC 2NO 2NC 2NO/2NC	HW-CB10 HW-CB01 HW-CB11 HW-CB20 HW-CB02 HW-CB22

### Key Removable Option Codes

Code	Description
A	Key retained in NO position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)



1. For more information on these options, contact your IDEC representative.
2. Key retained in all spring-return positions.



### Key Switches (Sub-Assembled)

## Contact Blocks

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### Adaptor & Safety Lever Lock

A

### Anti-Rotation Ring

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Operator

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**Complete Part**


## Part Numbers: Operators

# of Positions	Description	Plastic Bezel	Metal Bezel
2	Maintained	HW1K-2A	HW4K-2A
	Maintained, key remove left only	HW1K-2B	HW4K-2B
	Spring from Right	HW1K-21B	HW4K-21B
3	Maintained, Standard Cam	HW1K-3A	HW4K-3A
	Maintained, Cam S	HW1K-3SA	HW4K-3SA
	Maintained, Cam J	HW1K-3JA	HW4K-3JA
	Spring Return from Right	HW1K-31B	HW4K-31B
	Spring Return from Left	HW1K-32C	HW4K-32C
	Two-Way Spring Return	HW1K-33D	HW4K-33D



1. Operator includes two keys.
2. All standard operators are keyed alike (contact IDEC for special keys).
3. Other key removable options available. See table below.

**Part Numbers: Contact Block Mounting Adaptor**  
(safety lever lock included)

Style	Part Number
	HW-CB2C



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

### Key Removable Option Codes

Code	Description
A	Key retained in NO position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)



*For more information on these options, contact your IDEC representative.*


### Part Numbers: Contact Blocks

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



1. All assembled part numbers in catalog include standard (HW-F...) contacts.
2. 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).
3. Units with exposed screw terminals (HW-C...) must be ordered as sub-components.

### Part Numbers: Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



1. Use with notched panel cutout to prevent unit rotation (not included with assembled units).
  2. Not required when using HW series nameplates
- See page A3-96.



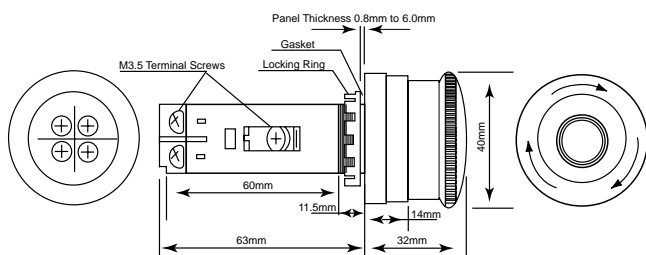
Dimensions can't

## Unibody

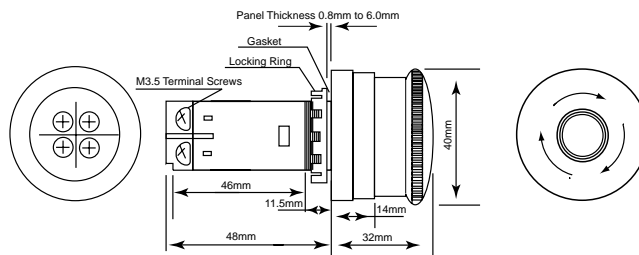
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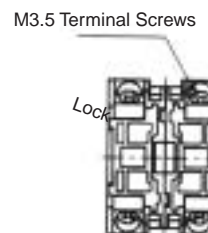
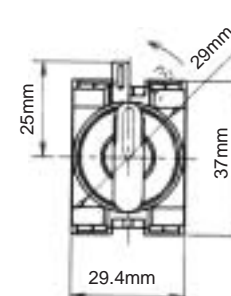
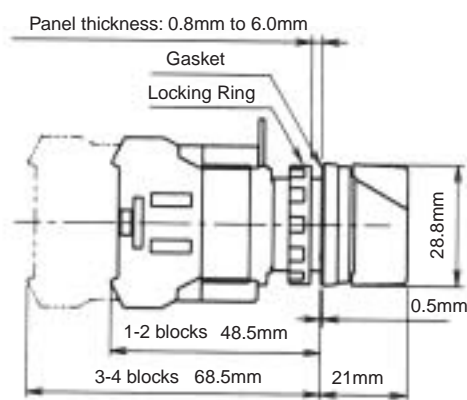
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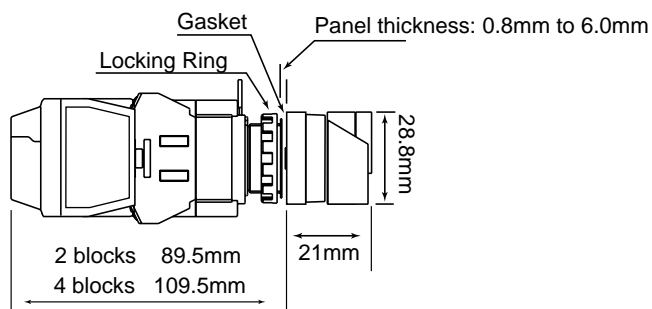
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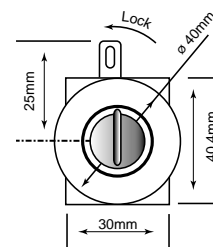
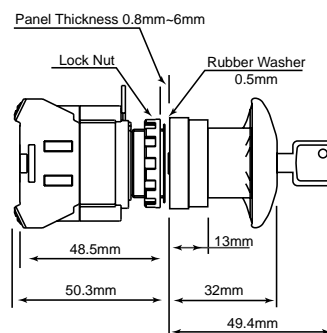
## Selector Switches



## Illuminated Selector Switches



## Pushlock Key Reset



## Key Switches



D1 = 13mm

