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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>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)</p> <p>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)</p> <p>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)</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 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	—	



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

Key Switches (Partial-Assemblies)

Contact Assembly + Operator = 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 + Adaptor & Safety Lever Lock + Anti-Rotation Ring + Operator = 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



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

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

Style	Part Number
	HW-CB2C



- Used to mount contact blocks to operator (first pair only).
- IDEC 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

Description	Part Number	
	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	



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

Part Numbers: Anti-Rotation Ring

Appearance	Part Number
	HW9Z-RL



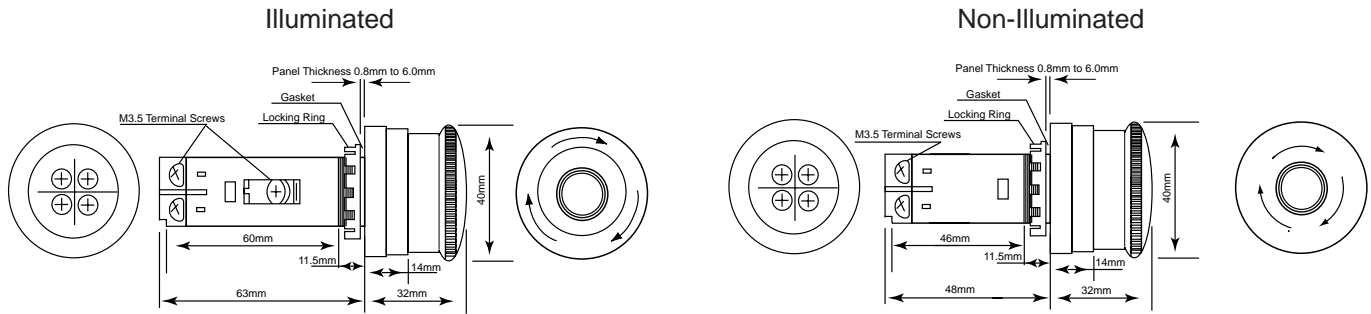
- Use with notched panel cutout to prevent unit rotation (not included with assembled units).
- Not required when using HW series nameplates. See page A3-96.

Dimensions con't

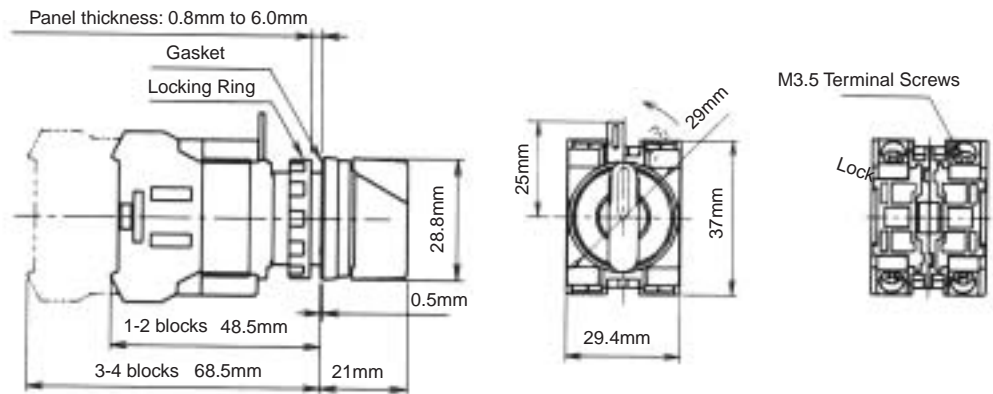
Unibody

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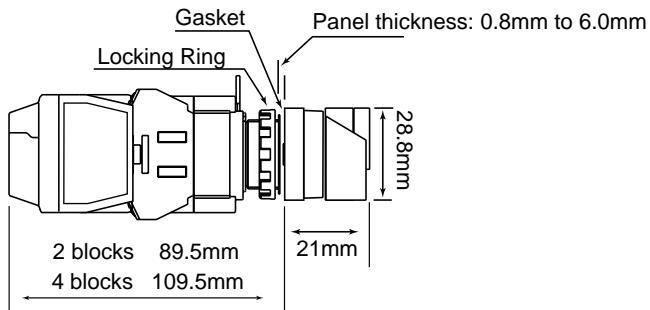
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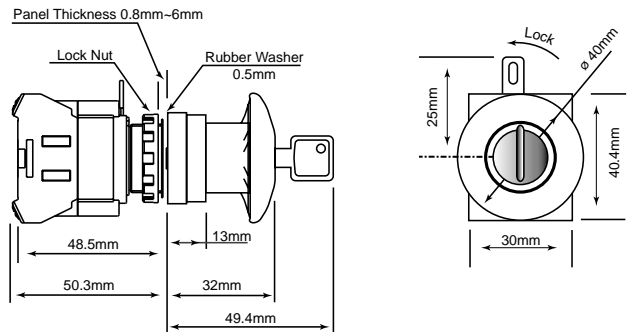
Selector Switches



Illuminated Selector Switches



Pushlock Key Reset



Key Switches

