

HW Series Emergency Stop Switches

Emergency Stop Switches (with Removable Contact Block) Specifications

- Direct opening action mechanism.
IEC60947-5-5, 5.2, IEC60947-5-1, Annex K
- Safety lock mechanism(IEC60947-5-5, 6.2)
- Degree of protection: IP65 (IEC60529)



Contact Ratings

Contact Block	Rated Insulation Voltage	600V
	Rated Thermal Current	10A
	Contact Ratings by Utilization Category IEC60947-5-1	AC-15 (A600) DC-13

Operating Voltage and Current by Utilization Category

Operating Voltage			24V	48V	50V	110V	220V	440V
Operating Current	AC 50/60 Hz	AC-12 Control of resistive loads and solid state loads	10A	-	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72 VA)	10A	-	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads and solid state loads	10A	5A	-	2.2A	1.1A	-
		DC-13 Control of electromagnets	5A	2A	-	1.1A	0.6A	-

Specifications

Operating Temperature	-25 to +60°C (no freezing)
Storage Temperature	-40 to +80°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Minimum Force Required for Direct Opening Action	50N
Minimum Operator Stroke Required for Direct Opening Action	5.5 mm
Maximum Operator Stroke	10 mm
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead metal parts Between terminals of different poles Between terminals of the same pole 2,500V AC, 1 minute
Shock Resistance	Operating extremes: 100 m/s ² Damage limits: 1,000 m/s ²
Vibration Resistance	Operating extremes: 5 to 55Hz, amplitude 0.5 mm Damage limits: 30 Hz, amplitude 1.5 mm
Operating Frequency	900 operations/h
Life	Mechanical: 500,000 operations minimum (push-pull: 250,000 operations)
	Electrical: 500,000 operations minimum (push-pull: 250,000 operations) (at 900 operations/h, duty ratio 40%)
Protection	IP65 (IEC 60529)
Short-circuit protection	250V/10A fuse (Type aM IEC60269-1/IEC60269-2)
Terminal Style	M3.5 screw
Weight (approx.)	76g (HW1B-V322) 99g (HW1B-X422R) 54g (HW1B-Y202) 79g (HW1B-V422R-EMO)

Pushlock Turn Reset Switches

Shape	Contact	Part No.	Button Color
ø29mm Mushroom Pushlock Turn Reset HW1B-V3 	1NC	HW1B-V301①	Specify a button color code in place of ① in the Part No. R: red Y: yellow
	1NO-1NC	HW1B-V311①	
	2NC	HW1B-V302①	
	2NO-2NC	HW1B-V322①	
ø40mm Mushroom Pushlock Turn Reset HW1B-V4 	1NC	HW1B-V401①	
	1NO-1NC	HW1B-V411①	
	2NC	HW1B-V402①	
	2NO-2NC	HW1B-V422①	
ø60mm Mushroom Pushlock Turn Reset HW1B-V5 	1NC	HW1B-V501①	
	1NO-1NC	HW1B-V511①	
	2NC	HW1B-V502①	
	2NO-2NC	HW1B-V522①	

- Yellow buttons cannot be used as emergency stop switches in compliance with EN standards.
- For pushlock turn reset, when pressed, the button is held depressed. The button is released by turning clockwise.
- Other contact arrangements and gold-plated silver contacts are also available. See page 2.

Pushlock Key Reset Switches

Shape	Contact	Part No.	Button Color
 <p>ø40mm Mushroom Pushlock Key Reset HW1B-X4</p>	1NC	HW1B-X401R	Red only
	1NO-1NC	HW1B-X411R	
	2NC	HW1B-X402R	
	2NO-2NC	HW1B-X422R	

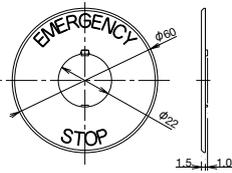
- For pushlock key reset switches, when pressed, the button is held depressed. The button is released by turning the key clockwise.
- Two identical keys are supplied. (HW9Z-SK-231)
- Other contact arrangements and gold-plated silver contacts are also available. See Part No. Development.

Push-Pull Switches

Shape	Contact	Part No.	Button Color
 <p>ø40mm Mushroom Push-Pull (2-position) HW1B-Y2</p>	1NC	HW1B-Y201①	Specify a button color code in place of ① in the Part No. R: red Y: yellow
	1NO-1NC	HW1B-Y211①	
	2NC	HW1B-Y202①	

- Yellow buttons cannot be used as emergency stop switches in compliance with EN standards.
- For push-pull switches, the button is maintained at either pulled or depressed position.
- Push-pull switches are available with one or two contact blocks.

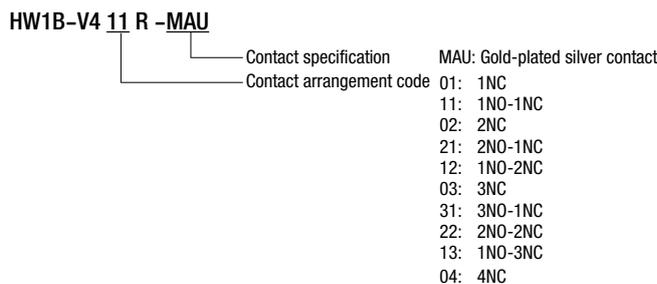
Nameplate (for ø22 Emergency Stop Switches)

Shape	Name	Part No.	Ordering No.	Remarks
	Blank	HWAV-0-Y	HWAV-0-Y	 <p>HWAV-27-Y Background: Yellow Legend: Black Applicable panel thickness: 0.8 to 4.5mm Material: Polyamide Plastic</p> <p>ø44 from the bottom of the EMERGENCY text to top of the STOP text. (Panel cut-out: page 3)</p> <p>Note) For ø60 jumbo mushroom pushlock return reset switches, see HWAV nameplate for HW series estop switches.</p>
	EMERGENCY STOP	HWAV-27-Y	HWAV-27-Y	

- EMERGENCY OFF and white nameplates (blank) also available. For SEMI Emergency Off (EMO) Switches and Stop Switches, see website.
- Note: For machinery subject to ISO/IEC standards such as machine tools and food machinery, in compliance with the revised ISO13850, it is not recommended to display texts or symbols such as EMERGENCY STOP on the actuator or nameplate of an emergency stop device.

Part No. Development

HW series Emergency Stop Switches (page 1, 2)

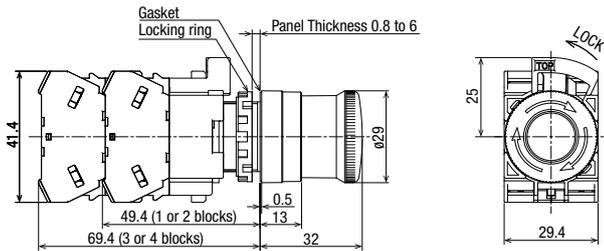


- Note
- Push-pull HW1B-Y2 can have a maximum of two contact blocks.
 - For emergency stop purposes, these switches must contain at least one NC contact block.

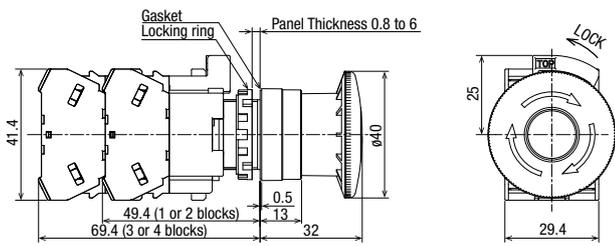
Dimensions

(All dimensions in mm)

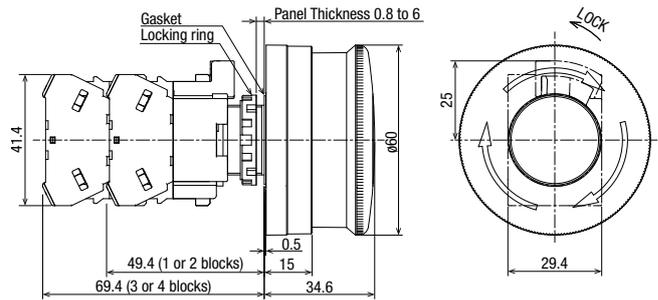
ø29mm Pushlock Turn Reset
HW1B-V3



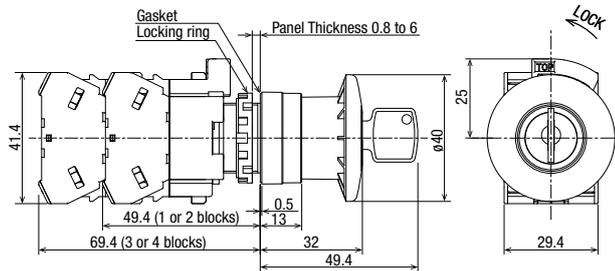
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HW1B-X4



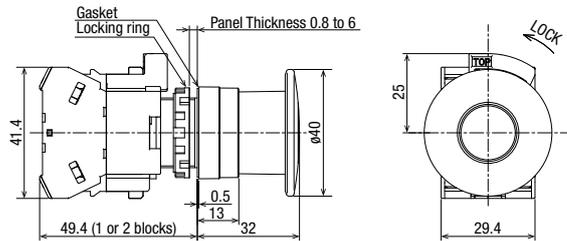
ø60mm Pushlock Turn Reset
HW1B-V5



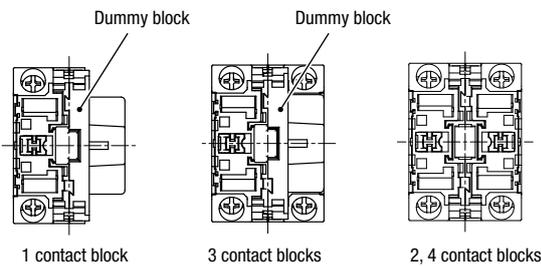
ø40mm Pushlock Turn Reset
HW1B-X4



ø40mm Push-Pull
HW1B-Y2

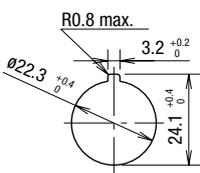


Bottom View



- For wiring, see ø22 HW series Switches & Pilot Lights catalog
- Integrated terminal cover

Panel Cut-Out / Mounting Hole Layout

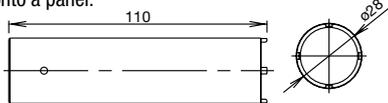
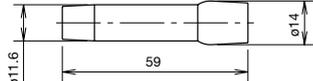
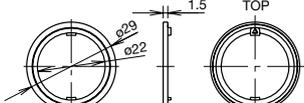
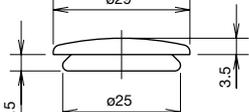
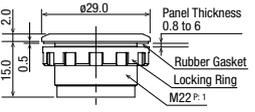
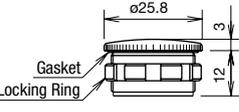
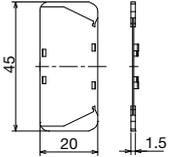


HW1B (Minimum Mounting Centers for Emergency Stop Switches)

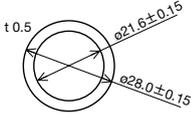
	Vertical Spacing	Horizontal Spacing
HW1B-V3 HW1B-V4 HW1B-X4 HW1B-Y2	50mm minimum	50mm minimum
HW1B-V5	60mm minimum	60mm minimum

- The minimum mounting centers shown below are applicable to emergency stop switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers in consideration of convenience for wiring. (see ø22 HW series Switches & Pilot Lights catalog)

Accessories

Shape	Material	Part No.	Ordering No.	Package Quantity	Remarks
	Metal (brass) (weight: approx. 150g)	MW9Z-T1	MW9Z-T1	1	Used to tighten the locking ring when installing the HW switch onto a panel. 
	Rubber (Black)	OR-55	OR-55	1	Used to install and remove the LED lamps. 
	<Ring> Polyamide <Gasket> Nitrile rubber	HW9Z-RL	HW9Z-RLPN10	10	IP65 protection 
	Rubber (Black) Nitrile	OB-31	OB-31PN05	5	<ul style="list-style-type: none"> Used to plug the unused $\varnothing 22.2$ mm mounting holes. Degree of protection: IP40 
	Polyamide	LW9Z-BP1	LW9Z-BP1	1	<ul style="list-style-type: none"> Used to plug the unused $\varnothing 22.2$mm mounting holes. Tightening torque: 2.0 N·m Degree of protection: IP65 Panel thickness: 0.8 to 6.0mm 
	<Plug> Metal (Diecast) <Locking ring> Polyamide <Gasket> Nitrile rubber	LW9Z-BM	LW9Z-BM	1	<ul style="list-style-type: none"> Used to plug the unused $\varnothing 22.2$ mm mounting holes. Tightening torque : 1.2N·m Degree of protection: IP66 (without $\varnothing 3.2$ anti-rotation ring) Panel thickness: 0.8 to 6.0mm 
	Polyamide	HW-VU1	HW-VU1PN10	10	<ul style="list-style-type: none"> Used to prevent contact between adjacent lead wires when units are mounted closely (Barriers should always be used in close mounting.) 
	Rubber	HW9Z-A25	HW9Z-A25PN05	5	<ul style="list-style-type: none"> Used to install the HW series units into $\varnothing 25$ mm mounting holes. (except for HW1B-V5.) IP65 Cannot be used with anti-rotation, nameplate Mounting panel thickness: 1.2 to 6.0 mm
	Body: Plastic Washer: Metal	HW9Z-A30	HW9Z-A30PN02	2	<ul style="list-style-type: none"> Used to install the HW series units (round type) into $\varnothing 30$ mm mounting holes (except for HW1E.) Degree of protection: IP65 Cannot be used with anti-rotation ring, nameplate fullshroud illuminated pushbuttons, pushbutton selectors, and mono-lever switches. Mounting panel thickness: 1.6 to 4.0 mm

Maintenance Parts

Shape	Material	Part No.	Ordering No.	Package Quantity	Remarks
 <p>Locking Ring</p>	Polyamide (black) ø28.4 H5 M22P1	HW9Z-LN	HW9Z-LNPN05	5	Black
 <p>Gasket</p>	Nitryl rubber (black)	HW9Z-WM	HW9Z-WMPN10	10	Black 
 <p>Spare Key</p>	Metal (nickel-plated brass)	HW9Z-SK-231	HW9Z-SK-231PN02	2	For pushlock key reset switches

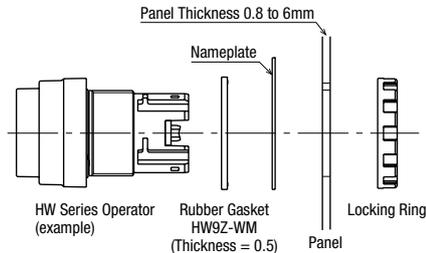
 Safety Precautions

- Turn off the power before starting installation, removal, wiring, maintenance, and starting installation, removing, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.
- For wiring, use wires of a proper size to meet the voltage and current requirements. Tighten the terminal screws to the recommended tightening torque (see page 6). Failure to tighten terminal screws may cause overheat and fire.

Operating Instructions

Panel Mounting

- 1) Remove the contact block from the operator.
- 2) Remove the locking ring from the operator.
- 3) Insert the operator into the panel cut-out from the front.
When installing the nameplate insert between the operator and panel.
- 4) Tighten the locking ring from the back to install the contact block to the operator.



Mounting panel thickness is reduced by 1.5 mm when using a nameplate.

Removing the Contact Block

- 1) Remove the operator from the contact block by pushing in the direction shown in ① and then turn the lever to the left shown in ②. Then the operator can be pulled out.
- 2) To reinstall, place the TOP marking on the operator and the lock lever in the same direction, and insert the operator into the contact block mounting adapter. Then turn the locking lever in the opposite direction.



Notes for Panel Mounting

Locking ring wrench recommended torque

Tighten the bezel to a tightening torque of 2.0 N·m.

Locking ring wrench

Locking ring wrench (MW9Z-T1) can be used to tighten the bezel. Do not use pliers. Excessive tightening will damage the locking ring.

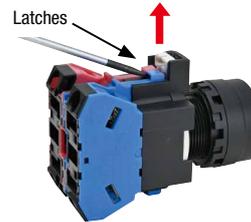


Panel Thickness

HW series can be mounted on a panel with thickness of 0.8 to 6.0 mm. Take the thickness of nameplate and/or switch guard into consideration.

Contact Blocks

Insert a flat screwdriver (4 to 6 mm) into the snap-fit latches of the contact block or full voltage adapter and lift to remove.



- Make sure to lift both latches. Contact blocks cannot be removed by lifting one latch only.
- Do not apply excessive force to the latches, otherwise damage may be caused.

Recommended Tightening Torque Number of Wires

Unit	Wire	Number of Wires	Recommended Tightening Torque	Terminal Screw	
HW-U Contact Block	Crimping Terminal	2	1.0 to 1.3	M3.5	
	Solid Wire	∅0.5 to 1.6 mm (AWG14 to 22)	2		1.0 to 1.3
		∅1.7 to 2.0 mm (AWG12)	1		1.2 to 1.3
	Stranded Wire	0.3 to 2.0 mm ² (AWG14 to 22)	2		1.0 to 1.3
2.1 to 3.5 mm ² (AWG12)		1	1.2 to 1.3		

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 - ii. Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails
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 - ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems
 - iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference
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3. Inspections

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4. Warranty

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The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.
- (2) Warranty scope
Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.
 - i. The product was handled or used deviating from the conditions / environment listed in the Catalogs
 - ii. The failure was caused by reasons other than an IDEC product
 - iii. Modification or repair was performed by a party other than IDEC
 - iv. The failure was caused by a software program of a party other than IDEC
 - v. The product was used outside of its original purpose
 - vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs
 - vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC
 - viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

- (1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)
- (2) Maintenance inspections, adjustments, and repairs
- (3) Technical instructions and technical training
- (4) Product tests or inspections specified by you

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IDEC CORPORATION

Head Office 6-64, Nishi-Miyahara-2-Chome, Yodogawa-ku, Osaka 532-0004, Japan

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