

HE1B Series Basic Enabling Switch

HE1B

Key features include:

- 3 position functionality (OFF – ON –OFF) as required for manual robotic control
- Ideally suited for use as enabling (aka "deadman") switch on teach pendants
- Provides a high level of safety based on human behavioral studies that determine personnel may squeeze OR let go when presented with a panic situation
- Positive action contacts "On" (pos. 2) to "Off" (pos. 3) ensure no contact welding (per EN60947-5-1 / IEC60947-5-1)
- Contacts will not close when released from "Off" (pos. 3) to "Off" (pos. 1) (per IEC60204-1; 9.2.5.8)
- Small, lightweight and highly reliable




Direct Opening

Specifications	Conforming to Standards		IEC60947-5-1, EN60947-5-1, JIS C8201-5-1, UL508, CSA C22.2 No 14
	Operating Temperature		-25 to +60°C (no freezing)
	Operating Humidity		45 to 85% RH maximum (no condensation)
	Storage Temperature		-40 to +80°C (no freezing)
	Pollution Degree		2
	Initial Contact Resistance		50mΩ maximum (beginning stage)
	Insulation Resistance		100MΩ minimum
	Impulse Withstand Voltage		2.5kV
	Operating Frequency		1200 operations/hour
	Mechanical Life		Position 1→2→1 million minimum Position 1→2→3→1: 100 thousand minimum
	Electrical Life		100,000 operations minimum at rated load
	Shock Resistance	Operating Extremes	100m/s ²
		Damage Limits	1000m/s ²
	Vibration Resistance	Operating Extremes	5 to 55Hz, amplitude 0.5mm minimum
		Damage Limits	16.7Hz, amplitude 1.5mm minimum
	Terminal Shape		Solder Terminal
	Recommended Wire		0.5mm ² maximum / 1 line
	Solder Heat Resistance		260°C / 3 seconds maximum
	Terminal Pulling Strength		20N minimum
	Recommended Screw Torque		HE1B-M1: M3 screw / 0.5 to 0.8N • m
Degree of Protection		IP40 (IEC 60529) excluding terminal part	
Conditional Short-Circuit Current		50A (250V)	
Recommended Short Circuit Protection		250V, 10A fast blow fuse (IEC 60127-1)	
Weight		Approx. 6g	
Circuit Opening Force		30N minimum (position 2→3)	
Control Resistance (Operating)		250N minimum	

Part Numbers

Part Numbers

Item	Installation	Part Number
	Side	HE1B-M1
	Front	HE1B-M1N

Ratings

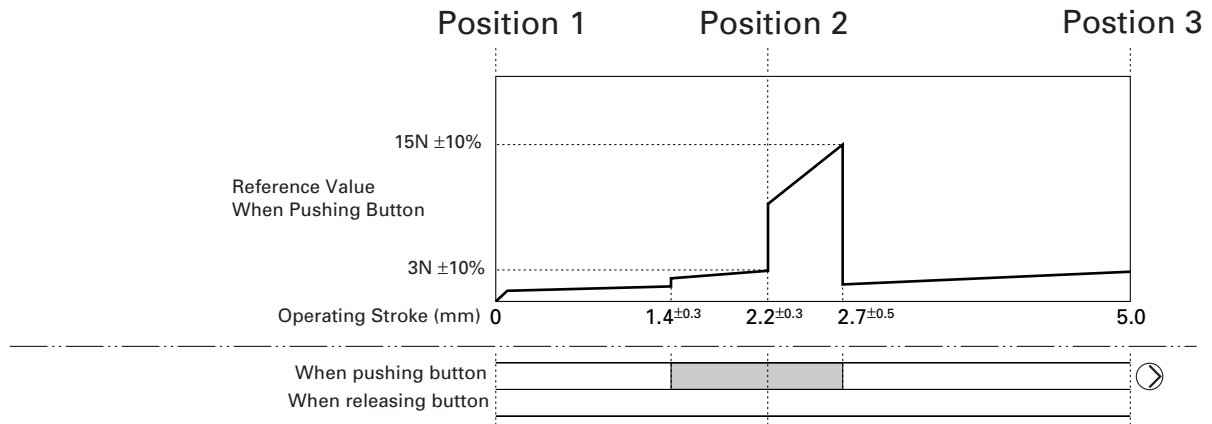
Current Ratings

Rated Insulation Voltage (Ui)		AC / DC250V			
Thermal Current (Ith)		5A			
Rated Operating Voltage (Ue)		30V	125V	250V	
Rated Operating Current (Ie)	AC 50/60Hz	Resistive Load (AC-12)	–	3A	1.5A
		Inductive Load (AC-15)	–	1.5A	0.75A
	DC	Resistive Load (DC-12)	2A	0.4A	0.2A
		Inductive Load (DC-13)	1A	0.22A	0.1A
Contact Structure		SPST-NO three position (OFF-ON-OFF)			

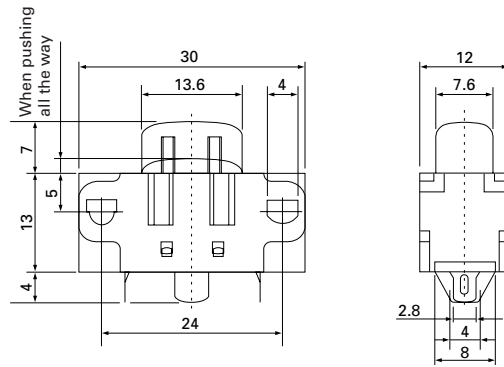


Minimum applicable load: AC/DC3V • 5mA (For reference only. Varies depending upon operating conditions).

Operating Characteristics



Dimensions

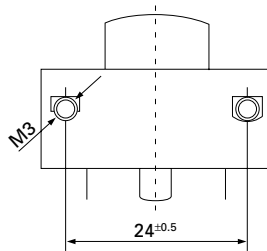


B2

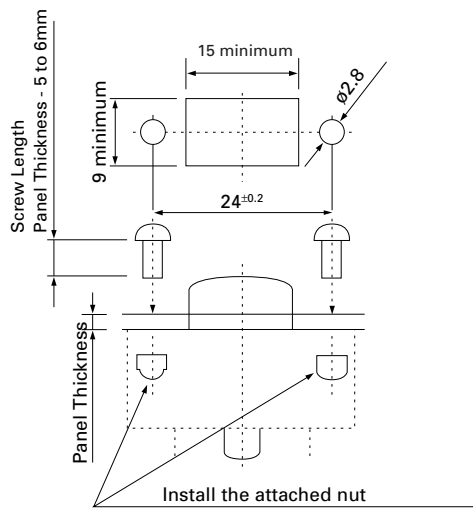
Safety Products

Installation Dimensions

HE1B-M1 (Side Mounting)
Screw: M3



HE1B-M1N (Front Mounting)
Screw: M3



When using a panel thicker than 2mm, the button will be lower than the surface of the panel

All dimensions in mm.

General Information for Enabling Switches

Safety Precautions

- In order to avoid electric shock or fire, turn power off before installation, removal, wire connection, maintenance or inspection of switch.
- Follow specification when installing. Improper electrical load may damage switch, cause electric shock, or fire.
- Use proper wire diameter to meet voltage and current requirements. Using improper wires or incomplete soldering may cause fire due to abnormal heat generation.

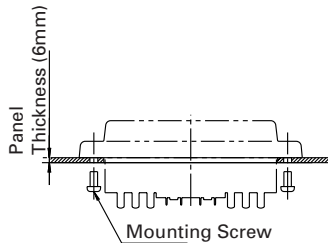
B2

Safety Products

Installation Precautions

HE2B

- M3 nut is inside the rubber cover.



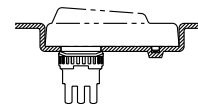
HE2B/HE3B

- A change in internal air pressure may cause the rubber boot to expand and shrink on an enabling switch that has the rubber boot sealed. This may affect the performance of the switch. Periodically check to ensure that the enabling switch is operating correctly.

- If the panel is not level when mounting an enabling switch, the waterproof feature cannot be guaranteed.

HE3B

- The rubber boot has a tab to be used for orientation. When making a positioning hole in a panel, do not make a hole in the rubber boot, or the waterproof feature cannot be guaranteed. When the positioning hole is not on the panel, remove the tab, but do not make a hole in the rubber boot.
- When tightening the locking ring, secure the flange to prevent the enabling switch from rotating. In applications where the enabling switch is to be rotated, mount the switch in a recess on the panel as shown.



Wiring Precautions

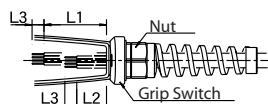
HE1B/HE2B/HE3B

- Applicable wire size is 0.5mm (maximum) / 1 line.
- When soldering the terminal, solder at a temperature of 260°C within 3 seconds. Use non-corrosive liquid rosin as soldering flux.

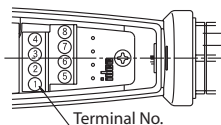
HE1G

- Wire Stripping Information

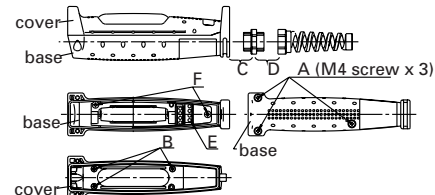
Wire Length	Terminal No. 1-4	Terminal No. 5-8
L1, L2 (mm)	L1=40mm	L2=27mm
L3 (mm)	L3=6mm	



- Applicable Wire Size: 0.14 to 1.5mm² (one wire per terminal)



- Recommended Torque (wire diameter range .276 - .512")



	See Drawing Above	Recommended Torque
Case Installation	A	1.2±0.1N • m
Rubber Installation	B	.09±0.1N • m
Connector	C	3.0±0.3N • m
Strain Relief	D	6.0±0.3N • m
Wire terminals	E	0.3±0.2N • m
Do Not Remove	F	-



The above values apply when using IDEC strain relief. If using other, contact manufacturer.

Use Precautions

HE2B/HE3B/HE1G

- To ensure the highest level of reliability connect both contacts to a monitoring device such as a safety relay.

HE1B/HE2B/HE3B

- When installing the enabling switch ensure that it cannot be accidentally activated. For example, a protrusion from a teaching pendant could cause the enabling switch to be activated by the weight of the teaching pendant.

IDEC Oiltight Emergency Stop Pushbuttons

Pushlock Turn Resets

L6 Series

(see page A2-33 for more information)

B2

Safety Products



HA1B ø25 mm

- ø25 mm red button
- Mounting hole: ø16.2 mm
- Solder or PC board terminal
- 1NC or 2NC contacts
- Contact rating: 250V AC/1.5A
- Positive action contacts
- Degree of protection: IP65

HW Series

(see page A3-57 for more information)

HW1B ø29 mm

- ø29 mm red button
- Mounting hole: ø22.3 mm
- 1NO-1NC, 1NC, 1NO-1NC, or 2NC contacts
- Contact rating: 220V AC/3A
- EN418 compliance
- Degree of protection: IP65



HW1E ø40 mm Unibody

- ø40 mm red button
- Mounting hole ø22.3 mm
- 1NO-1NC, 1NC, 1NO-1NC, or 2NC contacts
- Contact rating: 220V AC/3A
- EN418 compliance
- Degree of protection: IP65



HW1X E-stop Station

- ø40 mm red button
- 1NO-1NC, 1NC, 1NO-1NC, or 2NC contacts
- Contact rating: 220V AC/3A
- Box color: Yellow (top), Black (bottom)
- EN418 compliance
- Degree of protection: IP65

