








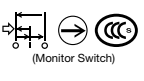

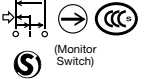












Enabling Switch and Grip Style Enabling Switch Selection Chart

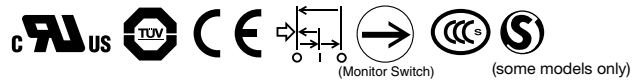
Enabling Switch Selection Chart According to ISO/IEC Standards

			Model	Standards	Marks	Page
<p>ISO 12100-2: 2003 Control mode for setting, teaching, process changeover, fault-finding, cleaning or maintenance 4.11.9 permits operation of the hazardous elements only by continuous actuation of an enabling device, a hold-to-run control device or a two-hand control device;</p>	<p>For Installation in Equipment</p>	<p>3-position Switch with 1 Contact (2 switches are used for duplication)</p>	<p>Panel Top Installation</p> <p>IP40</p>	<p>HE1B-M1N</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14</p>		7
			<p>Panel Side Installation</p> <p>IP40</p>	<p>HE1B-M1</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14</p>		
<p>IEC 60204-1: 1997 9.2.5.8 When an enabling device is provided as a part of a system, it shall be designed to allow motion when actuated in one position only. In any other position motion shall be stopped.</p>	<p>For Direct Operation with Hand</p>	<p>3-position Switch with 2 Contacts</p>	<p>Installed in Rectangular Panel Cut-out (4-finger operation)</p> <p>w/o Monitor Switch for Position Detection</p> <p>IP40</p>	<p>HE2B-M200</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14 GB14048.5</p>		9
			<p>IP65</p>	<p>HE2B-M200P*</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14 GB14048.5 KS C IEC60947-5-8/S1-G-1/S2-W-5</p>		
<p>ANSI/ RIA R15.06 4.7.3 Enabling device The pendant or teaching control device shall have an enabling device using a three position switch, which continuously held in a detented position, permits motion.</p>	<p>For Direct Operation with Hand</p>	<p>3-position Switch with 2 Contacts</p>	<p>Installed in Rectangular Panel Cut-out (4-finger operation)</p> <p>w/ Monitor Switch for Position Detection</p> <p>IP40</p>	<p>HE2B-M211 HE2B-M222</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14 GB14048.5</p>	 <p>(Monitor Switch)</p>	9
			<p>IP65</p>	<p>HE2B-M211P* HE2B-M222P*</p>  <p>IEC/EN60947-5-8 UL508 GS-ET-22 CSA C22.2 No. 14 GB14048.5 KS C IEC60947-5-8/S1-G-1/S2-W-5</p>	 <p>(Monitor Switch)</p>	
<p>ANSI B11.19 12.3.1.1 Enabling devices shall be designed and constructed to permit limited and supervised machine motion while personnel are inside a hazard area.</p>	<p>For Direct Operation with Hand</p>	<p>3-position Switch with 2 Contacts</p>	<p>Installed in Rectangular Panel Cut-out (1- or 2-finger operation)</p> <p>w/o Monitor Switch for Position Detection</p> <p>IP65</p>	<p>HE6B-M200</p>  <p>IEC/EN60947-5-1 IEC/EN60947-5-8 GS-ET-22 UL508 CSA C22.2 No.14 GB14048.5</p>		17
			<p>IP65</p>	<p>HE6B-M211</p>  <p>IEC/EN60947-5-1 IEC/EN60947-5-8 GS-ET-22 UL508 CSA C22.2 No.14 GB14048.5</p>	 <p>(Monitor Switch)</p>	
<p>SEMI S2-0703 20.4 Industrial robots and industrial robot systems should meet the requirements of appropriate national or international standards, e.g., ANSI/RIA R15.06, ISO standards 10218, EN 775.</p>	<p>For Direct Operation with Hand</p>	<p>3-position Switch with 2 Contacts</p>	<p>Installed in ø16mm Round Hole (thumb or 3-finger operation)</p> <p>IP40</p>	<p>HE3B-M2</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14 GB14048.5</p>		12
			<p>IP65</p>	<p>HE3B-M2P*</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14 GB14048.5</p>		
			<p>IP65</p>	<p>HE5B-M2P*</p>  <p>IEC/EN60947-5-8 UL508 CSA C22.2 No. 14 GB14048.5</p>		14

HE2B Double Three-position Enabling Switches

Multi-contact 3-position enabling switches Ideal for installing in large teach pendants

- Ergonomically-designed OFF-ON-OFF operation.
- Easy recognition of position 1 to 2 transition is made possible by a snap action switch.
- Sufficient difference in operating force is provided for shifting from position 2 to 3.
- Low pressure is required to maintain position 2, allowing for longtime operation.
- Reliable operation is assured even when the edge of the operator button is pressed.
- The switch does not turn ON while being released from position 3 (OFF) to position 1 (OFF) (IEC60204-1, 9.2.5.8).
- Some teach pendants are equipped with two 3-position enabling switches, and when one switch is pressed to position 3 (OFF), the other switch must not enable machine operation even when pressed to position 2. Enabling of machine operation must resume after both switches are released. For this purpose, also available are 3-position enabling switches with monitoring switches for button returned to position 1 and button pressed to position 3 (monitor switches have direct opening action mechanism).
- Two contacts are provided in a 3-position enabling switch so that even if one contact fails due to welding or short-circuit, the other contact can disable machine operation.
- The waterproof rubber boot provides IP65 protection.

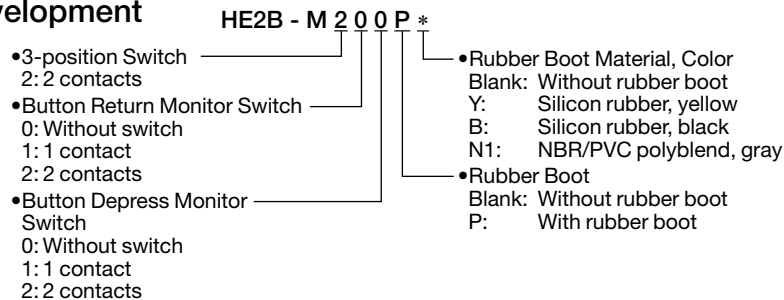


HE2B

Style		Contact Configuration			Part No.	Ordering No.	Package Quantity
		3-position Switch	Return Monitor Switch →	Depress Monitor Switch →			
Without Rubber Boot		2	0	0	HE2B-M200	HE2B-M200 HE2B-M200PN10	1 10
		2	1	1	HE2B-M211	HE2B-M211 HE2B-M211PN10	1 10
		2	2	2	HE2B-M222	HE2B-M222 HE2B-M222PN10	1 10
With Rubber Boot	Rubber Boot Material: Silicon Rubber Color: B: black Y: yellow	2	0	0	HE2B-M200P*	HE2B-M200P* HE2B-M200P*PN10	1 10
		2	1	1	HE2B-M211P*	HE2B-M211P* HE2B-M211P*PN10	1 10
		2	2	2	HE2B-M222P*	HE2B-M222P* HE2B-M222P*PN10	1 10
	Rubber Boot Material: NBR/PVC Polyblend Color: gray	2	0	0	HE2B-M200PN1	HE2B-M200PN1 HE2B-M200PN1PN10	1 10
		2	1	1	HE2B-M211PN1	HE2B-M211PN1 HE2B-M211PN1PN10	1 10
		2	2	2	HE2B-M222PN1	HE2B-M222PN1 HE2B-M222PN1PN10	1 10

Note: Specify a rubber boot color code in place of * in the Ordering No.

Part No. Development



Ratings

Contact Ratings

Rated Insulation Voltage (Ui)				250V		
Rated Thermal Current (Ith)				3A		
Rated Voltage (Ue)				30V	125V	250V
Rated Current (Ie)	3-position Switch	AC	Resistive Load (AC-12)	—	1A	0.5A
			Inductive Load (AC-15)	—	0.7A	0.5A
		DC	Resistive Load (DC-12)	1A	0.2A	—
	Inductive Load (DC-13)		0.7A	0.1A	—	
	Button Return Monitor Switch Button Depress Monitor Switch	AC	Resistive Load (AC-12)	—	2.5A	1.5A
			Inductive Load (AC-15)	—	1.5A	0.75A
DC		Resistive Load (DC-12)	2.5A	1.1A	0.55A	
	Inductive Load (DC-13)	2.3A	0.55A	0.27A		
Contact Configuration			3-position Switch	2 contacts		
			Return Monitor Switch	0 to 2 contacts		
			Depress Monitor Switch	0 to 2 contacts		

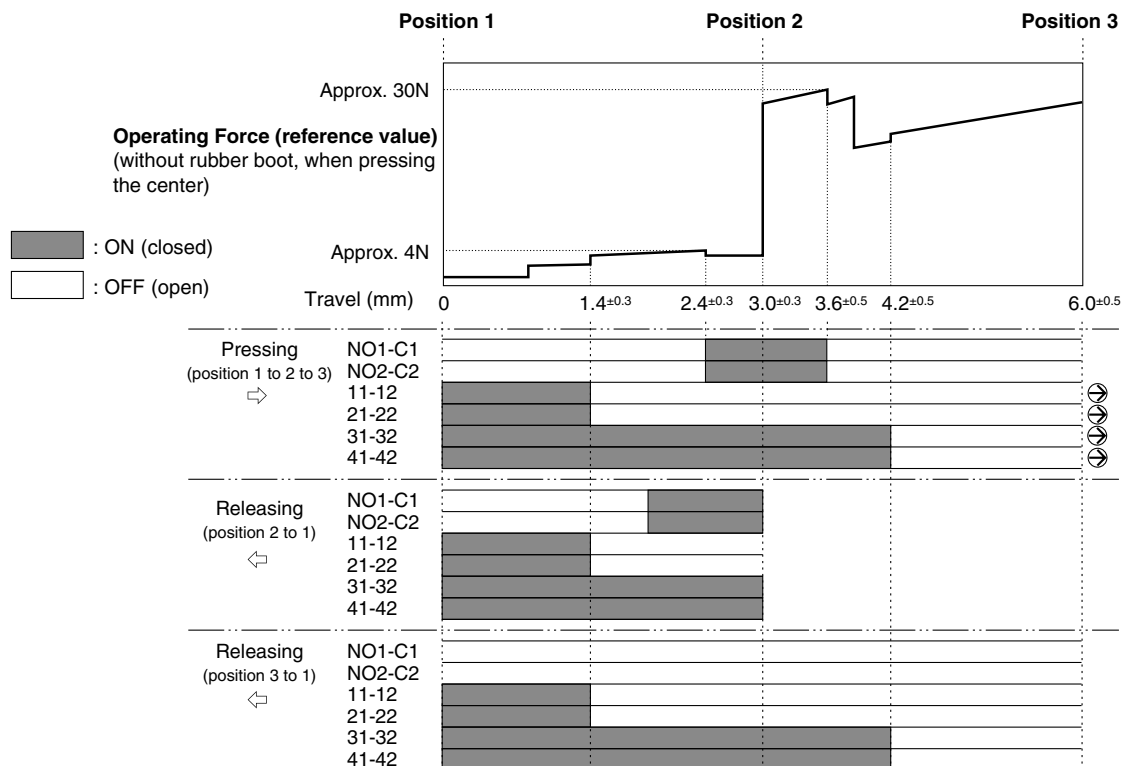
- Minimum applicable load (reference value): 3V AC/DC, 5 mA (monitor switch), 5V AC/DC, 1 mA (3-position switch) (Applicable range is subject to the operation conditions and load.)

HE2B Double Three-position Enabling Switches

Specifications

Applicable Standards	IEC/EN60947-5-8 (TÜV approval), IEC/EN60947-5-1 UL508 (UL recognized), CSA C22.2 No. 14 (c-UL recognized), GB14048.5 (CCC approval)
Applicable Standards for Use	ISO12100-1, -2/EN12100-1, -2, IEC60204-1/EN60204-1, ISO11161/prEN11161 ISO10218/EN775, ANSI/RIA R15.06, ANSI B11.19
Operating Temperature	-25 to +60°C (no freezing) (without rubber boot, with silicon rubber boot) -10 to +60°C (no freezing) (with NBR/PVC polyblend rubber boot)
Relative Humidity	45 to 85% RH (no condensation)
Storage Temperature	-40 to +80°C (no freezing)
Pollution Degree	2 (inside panel, terminal side) 3 (outside panel, operator side)
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	Between live and dead metal parts: 100 MΩ minimum (500V DC megger) Between terminals of different poles: 100 MΩ minimum (500V DC megger)
Impulse Withstand Voltage	2.5 kV
Operating Frequency	1,200 operations per hour
Mechanical Durability	Position 1 → 2 → 1: 1,000,000 operations minimum Position 1 → 2 → 3 → 1: 100,000 operations minimum
Electrical Durability	100,000 operations minimum
Shock Resistance	Operating extremes: 150 m/s ² Damage limits: 1,000 m/s ²
Vibration Resistance	Operating extremes: 5 to 55 Hz, amplitude 0.5 mm Damage limits: 16.7 Hz, amplitude 1.5 mm
Terminal Style	Solder terminal
Applicable Wire	1 cable, 0.5 mm ² maximum
Terminal Soldering Heat Resistance	310 to 350 °C, 3 seconds maximum
Terminal Tensile Strength	20N minimum
Mounting Screw Recommended Tightening Torque	0.5 to 0.8 N·m
Degree of Protection	IP40 (without rubber boot) IP65 (with rubber boot) (IEC 60529)
Conditional Short-circuit Current	50A (250V) (Use 250V/10A fast-blow fuse for short-circuit protection.)
Direct Opening Force	60N minimum (monitor switch)
Direct Opening Action Stroke	1.7mm minimum (return monitor switch), 4.7mm minimum (depress monitor switch)
Operator Strength	500N minimum (when pressing the entire button surface)
Weight (approx.)	26g (without rubber boot) 30g (with rubber boot)

Operation Characteristics

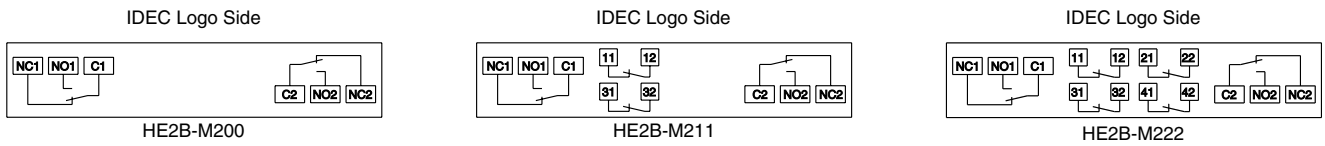


Notes:

- When a rubber boot is used, the operating force depends on the operating temperature.
- The operating force to shift the switch from position 2 to position 3 can be changed. For details, contact IDEC.

HE2B Double Three-position Enabling Switches

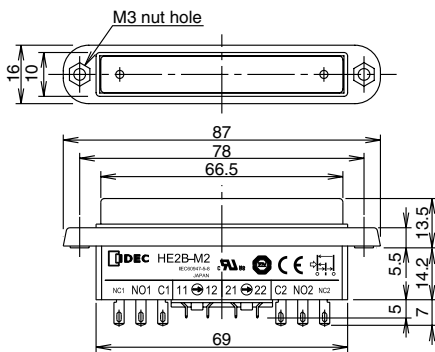
Terminal Arrangement (Bottom View)



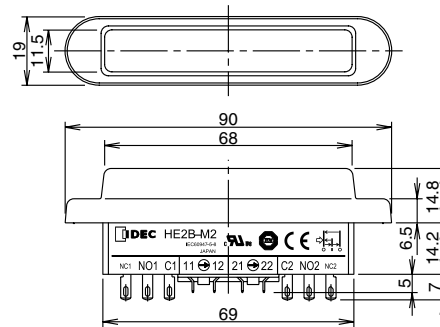
- 3-position switch (note): 2 contacts, terminal nos. between NO1 – C1, NO2 – C2
 - Button return monitor switch: 0 to 2 contacts, terminal nos. between 11 – 12, 21 – 22
 - Button depress monitor switch: 0 to 2 contacts, terminal nos. between 31 – 32, 41 – 42
- Note: Use NO and C terminals for OFF → ON → OFF 3-position switch (NC terminal is not used).

Dimensions

Without Rubber Boot



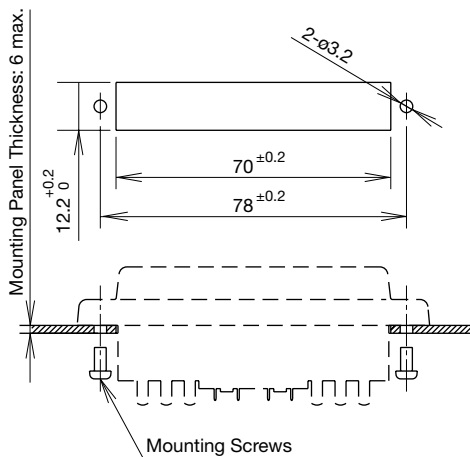
With Rubber Boot



- M3 nuts are supplied with the HE2B enabling switch.

- M3 nuts are installed in the rubber boot.

Mounting Hole Layout



- Mounting screw: Two M3 screws
- Length of mounting screw: Mounting panel thickness + 4 to 5 mm

All dimensions in mm.

Accessories

Replacement Rubber Boot

Material	Color	Part No.	Ordering No.	Package Quantity
Silicon Rubber	Y: yellow	HE9Z-D2*	HE9Z-D2*PN10	10
	B: black			
NBR/PVC Polyblend	Gray	HE9Z-D2N1	HE9Z-D2N1PN10	

Note: Specify a rubber boot color code in place of * in the Ordering No.

- Can be installed on HE2B-M200/M211/M222 (without rubber boot)

