








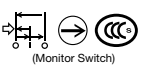

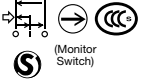



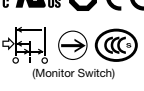



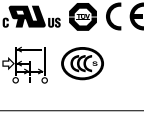




Enabling Switch and Grip Style Enabling Switch Selection Chart

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

HE3B ø16mm Rectangular Three-position Enabling Switches

**Rectangular operator part with ø16 mm mounting for easy installation.
2-contact 3-position enabling switches ideal for installing in small 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 position 3.
- Low pressure is required to maintain in 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).
- Two contacts are provided in a 3-position enabling switch so that even one contact fails due to welding or short-circuit, the other contact can disable machine operation.
- The waterproof rubber boot provides IP65 protection.



HE3B

Style	Contact Configuration	Part No.	Ordering No.	Package Quantity	
Without Rubber Boot	2 contacts (3-position switch)	HE3B-M2	HE3B-M2	1	
			HE3B-M2PN10	10	
With Rubber Boot		Rubber Boot Material: Silicon Rubber Color: Y: yellow, B: black	HE3B-M2P*	HE3B-M2P*	1
				HE3B-M2P*PN10	10
With Rubber Boot		Rubber Boot Material: NBR/PVC Polyblend Color: gray	HE3B-M2PN1	HE3B-M2PN1	1
				HE3B-M2PN1PN10	10

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

Contact Ratings

Rated Insulation Voltage (Ui)			125V	
Rated Thermal Current (Ith)			3A	
Rated Voltage (Ue)			30V	125V
Rated Current (Ie)	AC	Resistive Load (AC-12)	—	1A
		Inductive Load (AC-15)	—	0.7A
	DC	Resistive Load (DC-12)	1A	0.2A
		Inductive Load (DC-13)	0.7A	0.1A
Contact Configuration (3-position switch)			2 contacts	

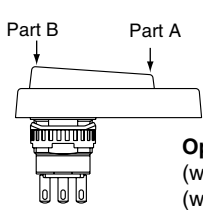
Minimum applicable load (reference value): 5V AC/DC, 1 mA
(Applicable range is subject to the operating conditions and load.)

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% (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	1.5 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: 500 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
Locking Ring Recommended Tightening Torque	0.68 to 0.88 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.)
Operator Strength	500N minimum (pressing the entire operator surface)
Weight (approx.)	14g (without rubber boot) 18g (with rubber boot)

HE3B ø16mm Rectangular Three-position Enabling Switches

Operation Characteristics



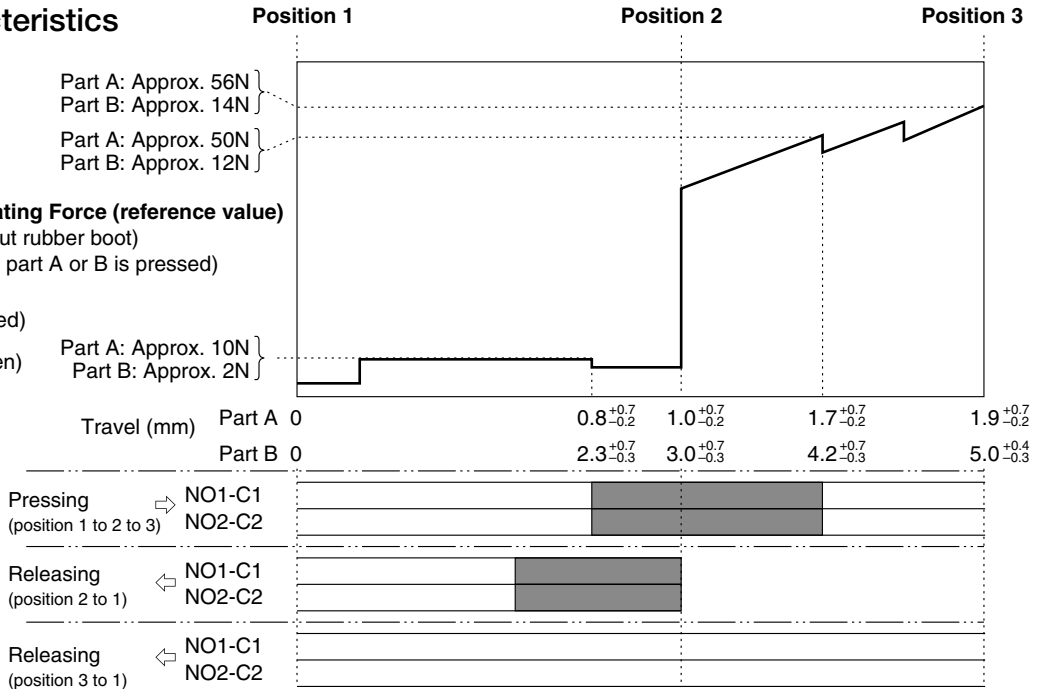
Part A: Approx. 56N
Part B: Approx. 14N

Part A: Approx. 50N
Part B: Approx. 12N

Operating Force (reference value)
(without rubber boot)
(when part A or B is pressed)

■ : ON (closed)
□ : OFF (open)

Part A: Approx. 10N
Part B: Approx. 2N



Pressing (position 1 to 2 to 3)	NO1-C1	NO2-C2
Releasing (position 2 to 1)	NO1-C1	NO2-C2
Releasing (position 3 to 1)	NO1-C1	NO2-C2

Notes:

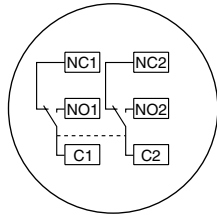
- When rubber boot is used, operating force depends on the operating temperature.
- The operating force to shift the switch from position 2 to position 3 can be changed. For details, contact IDEC.

Terminal Arrangement (Bottom View)

- 3-position switch (Note)
- 2 contacts

Terminal No.: between NO1 and C1, between NO2 and C2

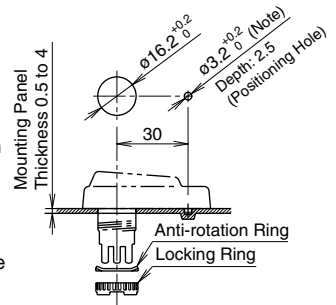
Note: Use NO and C terminals for the 3-position switch of OFF → ON → OFF operation (NC terminal is not used).



Mounting Hole Layout

- Recommended tightening torque for locking ring: 0.68 to 0.88 N·m
- Use the locking ring wrench MT-001 for tightening.

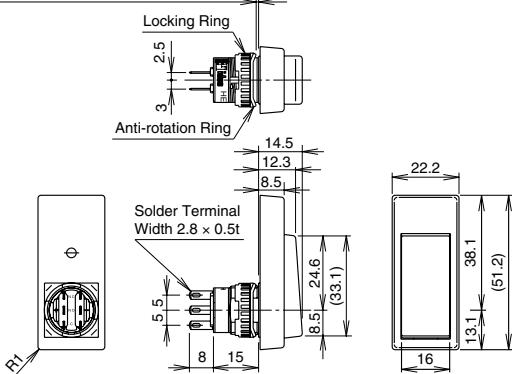
Note: To maintain waterproof property of the switch, do not drill through the anti-rotation hole in the mounting panel. When not providing a hole, cut off the anti-rotation projection from the rubber boot. When cutting off the projection, ensure not to make a hole in the rubber boot.



Dimensions

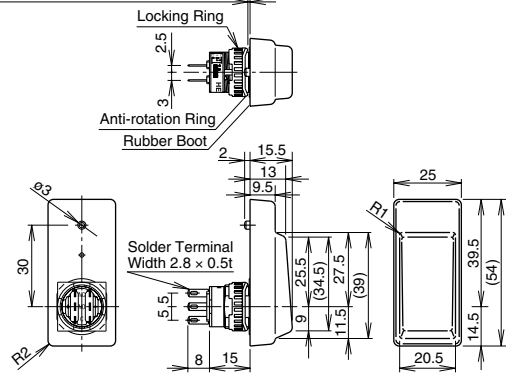
Without Rubber Boot

Mounting Panel Thickness: 0.5 to 4



With Rubber Boot

Mounting Panel Thickness: 0.5 to 4



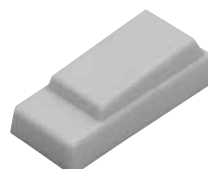
All dimensions in mm.

Accessories

Replacement Rubber Boot

Material	Color	Part No.	Ordering No.	Package Quantity
Silicon Rubber	Y: yellow B: black	HE9Z-D3*	HE9Z-D3*PN10	10
NBR/PVC Polyblend	Gray	HE9Z-D3N1	HE9Z-D3N1PN10	

- Specify a rubber boot color code in place of * in the Ordering No.
- Can be installed on HE3B-M2 (without rubber boot).



Locking Ring Wrench

Part No: MT-001
Material: Metal

