

# HE1B Basic Three-position Enabling Switches


3-position enabling switch to avoid hazards.

Ideal for installing in teach pendants and other enabling devices.



• See website for details on approvals and standards.

## HE1B

Shape	Mounting Style	Contact Configuration	Part No.	Ordering No.	Package Quantity
	Side Mounting	1 contact (3-position)	HE1B-M1	HE1B-M1PN10	10
	Top Mounting		HE1B-M1N	HE1B-M1NPN10	

• Minimum applicable load (reference value): 3V AC/DC, 5 mA

## Ratings

### Contact Ratings

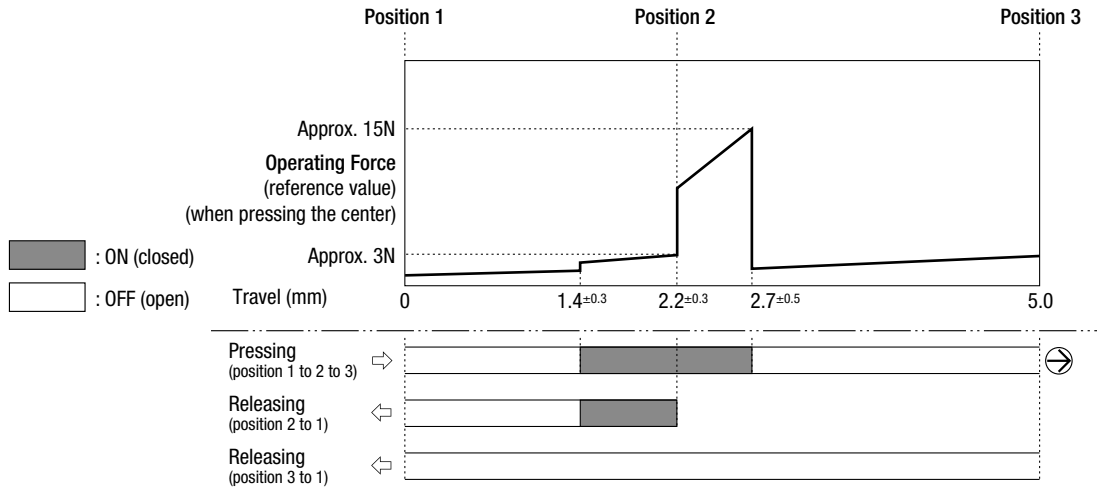
Rated Insulation Voltage (Ui)		250V			
Rated Thermal Current (Ith)		5A			
Rated Voltage (Ue)		30V	125V	250V	
Rated Current (Ie)	AC 50/60 Hz	Resistive Load (AC-12)	—	3A	1.5A
		Inductive Load (AC-15)	—	1.5A	0.75A
	DC	Resistive Load (DC-12)	2A	0.4A	0.2A
		Inductive Load (DC-13)	1A	0.22A	0.1A
Contact Configuration (3-position switch)		1 contact			

• Minimum applicable load (reference value): 3V AC/DC, 5 mA  
(Applicable range is subject to the operating conditions and load.)

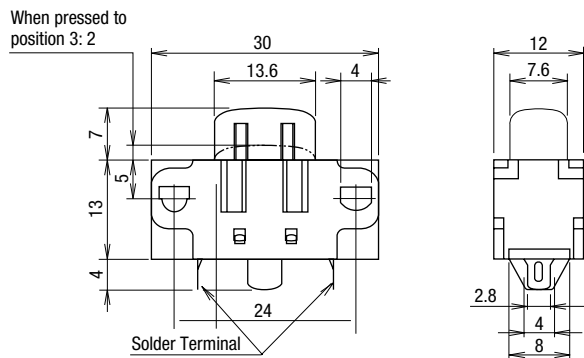
## Specifications

Applicable Standards	UL508 (UL recognized), CSA C22.2, No. 14 (c-UL recognized), IEC/EN 60947-5-1, IEC/EN 60947-5-8 (TUV approval), IEC/EN60947-5-1, UL508 (UL recognized), CSA C22.2 No.14 (c-UL recognized)
Applicable Standards for Use	ISO 12100-1, -2/EN12100-1, -2, IEC 60204-1 / EN 60204-1 ISO 11161 / prEN 11161, ISO 10218 / EN 775, ANSI/RIA R15.06, ANSI B11.19
Operating Temperature	-25 to +60°C (no freezing)
Relative Humidity	45 to 85% (no condensation)
Storage Temperature	-40 to +80°C (no freezing)
Pollution Degree	2
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	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 Position 1 → 2 → 3 → 1: 100,000 operations
Electrical Durability	100,000 operations minimum
Shock Resistance	Operating extremes: 150 m/s <sup>2</sup> Damage limits: 1,000 m/s <sup>2</sup>
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 <sup>2</sup> maximum
Terminal Soldering Heat Resistance	310 to 350°C, 3 seconds maximum
Terminal Tensile Strength	20N minimum
Mounting Screw Recommended Tightening Torque	HE1B-M1: M3 screw / 0.5 to 0.8 N-m HE1B-M1N: M2.6 screw / 0.4 to 0.6 N-m
Degree of Protection	IP40, except terminals (IEC 60529)
Conditional Short-circuit Current	50A (250V) (Use 250V/10A fast-blow fuse for short-circuit protection.)
Direct Opening Force	30N minimum (position 2 → 3)
Operator Strength	250N minimum
Weight (approx.)	6g

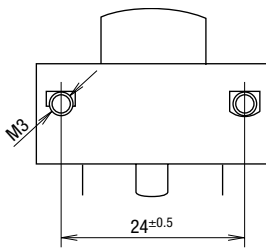
Operation Characteristics



Dimensions

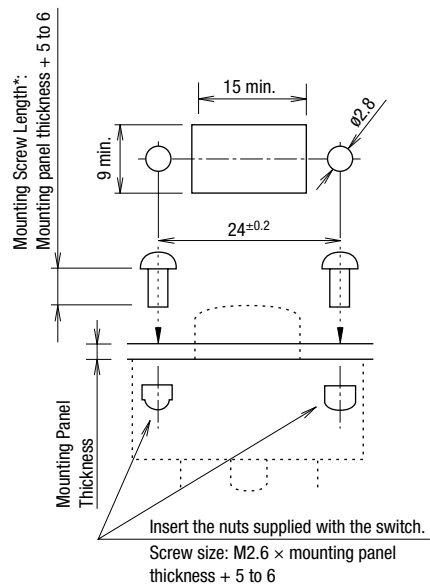


Mounting Hole Layout  
HE1B-M1 (side mounting)



- M3 mounting screws must be supplied by the user.

HE1B-M1N (top mounting)



Note: When installed on a mounting panel thicker than 2 mm, the actuator surface is below the panel when the button is pressed to position 3.

\* Two M2.6 nuts are supplied. Mounting screws (M2.6) must be supplied by the user.

All dimensions in mm.

- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID

- HE1B
- HE2B
- HE3B
- HE5B
- HE6B
- HE2G
- HE1G-L
- Actuator w/ Plastic Holder

## HE1B Basic Three-position Enabling Switches

 Safety Precautions

- The enabling switches have been designed for industrial purposes. Use for residential, commercial, or lighting purposes may cause unwanted electromagnetic disturbances in which case the user may be required to take adequate mitigation measures. (IEC60947-1, Clause 5.3)
- In order to avoid electric shock or fire, turn the power off before installation, removal, wiring, maintenance, or inspection of the enabling switch.
- When using the enabling switch in a safety related part of a control system, use the enabling switch properly in accordance with the safety standards and regulations of the actual machine, system, and application, of the country or region where the enabling switch is used. Also, perform a risk assessment before using the enabling switch.
- Do not disable the safety function of the enabling switch by using tape, elastic band, or by disfiguring the rubber boot, otherwise the loss of enabling switch function may cause serious accidents.
- Perform a risk assessment in actual applications as strong force may be applied to the switch when depressed to position 3.
- Perform a risk assessment for the shape and structure of the part where the enabling switch is installed, to prevent unintended operation of the enabling switch. For example, an enabling switch protruding from the teach pendant may result in an unintended operation of the enabling switch.
- Strong force may be applied to a 3-position enabling switch when pressed to position 3. Provide sufficient strength to the part where 3-position enabling switches will be installed.
- Use wires of the proper size to meet voltage and current requirements, and solder the wires correctly according to the wiring instruction described below. If soldering is incomplete, the wire may heat during operation, causing a fire hazard.
- Do not apply excessive force to the enabling switch.
- Follow the wiring instructions mentioned in the instruction manual.

## Instructions

## Operating Instructions

- The enabling switch permits machine operation only while the enabling switch is manually operated for robot teaching or other purposes in hazardous areas. Make sure that the control system is designed to activate the machine only when the enabling switch is at position 2 (2.2mm) operating travel.
- To prevent malfunction of the button, provision for protection is required.

## Installation Instructions

- Provide sufficient strength to the mounting panel. Insufficient strength of the mounting panel or excessive operating force may damage the enabling switch, resulting in electric shock or fire.

## Wiring Instructions

- Applicable wire size: 0.5 mm<sup>2</sup> maximum × 1 pc.
- Solder the terminal at a temperature of 310 to 350°C within 3 seconds using a soldering iron. Sn-Ag-Cu type is recommended when using lead-free solder. Do not use flow or dip soldering.
- When soldering, take care not to touch the enabling switch with the soldering iron. Also ensure that no tensile force is applied to the terminal. Do not bend the terminal or apply excessive force to the terminal.
- Use non-corrosive liquid rosin as soldering flux.

APEM

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HE1B

HE2B

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Actuator w/  
Plastic Holder

# Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

## 1. Notes on contents of Catalogs

- (1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.  
Also, durability varies depending on the usage environment and usage conditions.
- (2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.
- (3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.
- (4) The content of Catalogs is subject to change without notice.

## 2. Note on applications

- (1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.  
Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.
- (2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.
- (3) When using IDEC products, be cautious when implementing the following.
  - i. Use of IDEC products with sufficient allowance for rating and performance
  - 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
  - iii. Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications
- (4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.
- (5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.
  - i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health
  - 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  
If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

## 3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

## 4. Warranty

- (1) Warranty period  
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

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

# IDEC CORPORATION

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