# HE5B ø16mm Redundant Contact Pushbutton Enabling Switch

## Key features:

- Ergonomically-designed OFF-ON-OFF 3-position operation
- Easy recognition of position 1 → 2 transition, made possible by snap action switch
- Sufficient load difference is provided for shifting from position 2 → 3
- Light force needed to maintain position 2, so that operators can easily use the enabling switch
- The switch does not turn ON when being released from position 3 (OFF when pressed) to position 1 (OFF when released) (IEC60204-1, 9.2.5.8)
- Two contacts are provided for safety
- IP65 (using the waterproof rubber cover)
- Mounts in a 16mm (5/8") round hole

## Part Numbers

| Style | | Color | Part Number |
|---|---|---|---|
|  | Silicon Rubber | Yellow | HE5B-M2PY |
|  | Silicon Rubber | Black | HE5B-M2PB |
|  | NBR/PVC | Gray | HE5B-M2PN1 |

NBR/PVC cover comes in gray only.

## Accessories

### Replacement Rubber Cover

| Appearance | Part Number | Material | |
|---|---|---|---|
|  | Silicon Rubber | Yellow | HE9Z-D5Y |
| | | Black | HE9Z-D5B |
| | NBR/PVC Polyblend | Gray | HE9Z-D5N1 |

### Lock Nut Tool

| Appearance | Part Number | Material |
|---|---|---|
|  | MT-001 | Metal |

### Grip Housing

| Appearance | Part Number |
|---|---|
|  | HE9Z-GSH51 |

See page 391 for more information.

## Specifications

| | |
|---|---|
| Conforming to Standards | UL508 (UL recognized), CSA C22.2, No. 14 (c-UL recognized)<br>IEC/EN 60947-5-1, IEC/EN 60947-5-8 (TÜV approval) |
| Application Standards | ISO 12100-1, -2, EN 12100-1, 2 / EN292, IEC 60204-1 / EN 60204-1,<br>ISO 11161 / prEN 11161, ISO 10218 / EN 775, ANSI/RIA R15.06, ANSI B11.19 |
| Operating Temperature | Silicon rubber boot: –25 to 60°C (no freezing)<br>NBR/PVC Polyblend rubber boot: –10 to 60°C (no freezing) |
| Relative Humidity | 45 to 85% RH (no condensation) |
| Storage Temperature | –40 to +80°C (no freezing) |
| Operating Environment | Degree of pollution: 2 (panel inside/terminal side)<br>Degree of pollution: 3 (panel outside/operator side) |
| Contact Resistance | 50 mΩ maximum (initial value) |
| Insulation Resistance (DC megger) | Between live and dead metal parts: 100 MΩ minimum<br>Between terminals of different pole: 100 MΩ minimum |
| Impulse Withstand Voltage | 1.5 kV |

## Specifications con't

| | |
|---|---|
| Operating Frequency | 1200 operations per hour |
| Mechanical Life | Position 1→ 2→ 1: 1,000,000 operations minimum<br>Position 1→ 2→ 3→ 1: 100,000 operations minimum |
| Electrical Life | 100,000 operations minimum |
| Shock Resistance | Operating extremes: 150 m/s² (15 G)<br>Damage limits: 500 m/s² (50 G) |
| Vibration Resistance | Operating extremes: 5 to 55 Hz, amplitude 0.5 mm minimum<br>Damage limits: 5 to 55 Hz, amplitude 0.5 mm minimum |
| Terminal Style | Solder Terminal |
| Recommended Wire Size | 0.5 mm² maximum per line (20AWG) |
| Solder Heat Resistance | 310 ~ 350°C, 3 seconds maximum |
| Terminal Pulling Strength | 20 N minimum |
| Recommended Tightening Torque of Locking Ring | 0.29 to 0.49 N·m |
| Degree of Protection | IP65 |
| Conditional Short-circuit Current | 50A (250V) (Use 250V/10A fast acting type fuse for short circuit protection.) |
| Operator Strength | 250N minimum (when pressing the entire surface of the operator) |
| Weight (approx.) | 9 g |

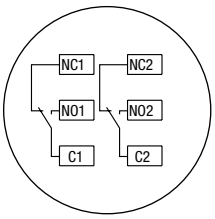
## Current Ratings

| | | | | |
|---|---|---|---|---|
| Rated Insulation Voltage (Ui) | | | 125V | |
| Thermal Current (Ith) | | | 3A | |
| Rated Operating Voltage (Ue) | | | 30V | 125V |
| Rated Operating Current (Ie) | AC | Resistive Load (AC-12) | – | 0.5A |
| | | Inductive Load (AC-15) | – | 0.3A |
| | DC | Resistive Load (DC-12) | 1A | – |
| | | Inductive Load (DC-13) | 0.7A | – |
| Contact Configuration | | | 2 contacts (DPDT) | |

Minimum applicable load (reference): 5V AC/DC, 5mA.

## Circuit Diagrams

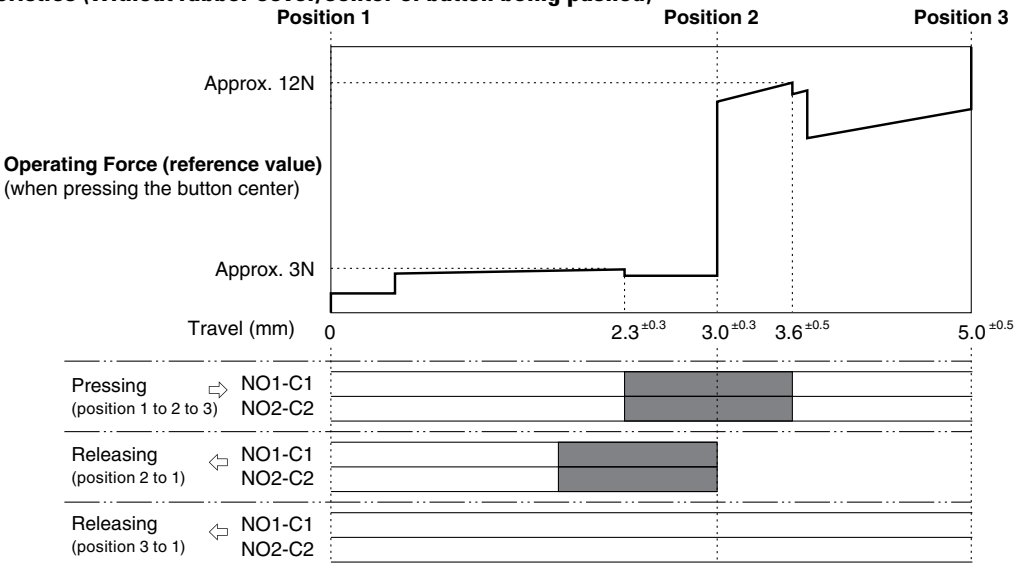
### Terminal Arrangement (Bottom View)




1. 3 position switch: 2 contacts, terminal no. = between NO1-C1, between NO2-C2
2. Use between NO-C for OFF→ On→ OFF 3 position switch (NC is not used).

## Operating Characteristics

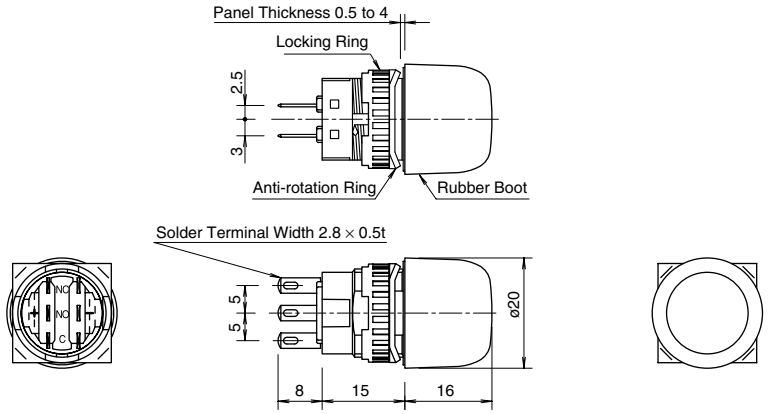
### Operating Characteristics (without rubber cover/center of button being pushed)



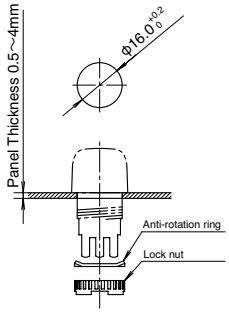

Operating load depends on ambient temperature.

## Dimensions (mm)

### With Rubber Cover




## Mounting Hole Layout




1. Recommended tightening torque for Locking Ring: 0.29 to 0.49 N·mm.
2. Use a lock nut tool to screw on the lock nut (see page 374).