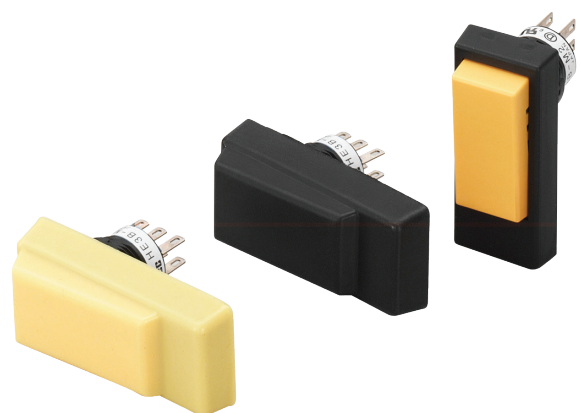


## HE3B ø16mm Redundant Contact Switch

### Key features:

- 3-position functionality (OFF – ON – OFF) as required for manual robotic control
- 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
- Contacts will not re-close when released from Off→On (3→1) (per IEC60204-1; 9.2.5.8)
- Multiple contacts for enhanced reliability
- Snap acting contacts from position 1 to 2
- Available with or without rubber cover



### Part Numbers

Style	Part Numbers
 Without Rubber Cover	HE3B-M2
 With Rubber Cover	Yellow HE3B-M2PY
	Black HE3B-M2PB
	Gray HE3B-M2PN1

### Accessories

#### Replacement Rubber Cover

Appearance	Color	Part Number	Material
	Yellow	HE9Z-D3Y	Silicon Rubber
	Black	HE9Z-D3B	
	Gray	HE9Z-D3N1	NBR/PVC polyblend

#### Lock Nut Tool

Appearance	Part Number	Material
	MT-001	Metal

### Specifications

Conforming to Standards	UL508 (UL recognized), CSA C22.2, No. 14 (c-UL recognized) IEC/EN 60947-5-1, IEC/EN 60947-5-8 (TÜV approval)
Application Standards	ISO 12100-1, -2, EN 12100-1, 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)
Operating Humidity	45 to 85% RH maximum (no condensation)
Storage Temperature	-40 to +80°C (no freezing)
Pollution Degree	2 (inside panel, terminal side) 3 (outside panel, operator side)
Contact Resistance	50mΩ maximum
Insulation Resistance	Between live & dead metal parts: 100MΩ maximum
	Between positive & negative live parts: 100MΩ minimum
Impulse Withstand Voltage	1.5kV
Operating Frequency	1200 operations/hour
Mechanical Life	Position 1→2→1: 1,000,000 operations minimum
	Position 1→2→3→1: 100,000 operations minimum

Overview

XW Series E-Stops

Interlock Switches

Enabling Switches

Safety Control Relays

Light Curtains

AS-Interface Safety at Work

## Specifications con't

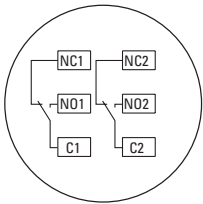
Electrical Life	100,000 operations minimum at rated load	
Shock Resistance	Operating Extremes	150m/s <sup>2</sup> (15 G)
	Damage Limits	500m/s <sup>2</sup> (50 G)
Vibration Resistance	Operating Extremes	5 to 55Hz, amplitude 0.5mm minimum
	Damage Limits	16.7Hz, amplitude 1.5mm minimum
Terminal	0.110" quick connect / solder terminal	
Recommended Wire Size	0.5mm <sup>2</sup> maximum / 1 line (20AWG)	
Solder Heat Resistance	310 ~ 350°C / 3 seconds maximum	
Terminal Pulling Strength	20N minimum	
Recommended Screw Torque	0.68 to 0.88Nm	
Degree of Protection	with rubber cover: IP65, without rubber cover: IP40 (IEC 60529)	
Conditional Short-Circuit Current	50A (125V)	
Recommended Short Circuit Protection	125V/10A fast blow fuse (IEC 60127-1)	
Circuit Opening Force	500N minimum	
Weight	without rubber cover - Approx. 14g with rubber cover - Approx. 18g	

## Contact 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)	1A
		Inductive Load (AC-15)	0.7A
	DC	Resistive Load (DC-12)	0.2A
		Inductive Load (DC-13)	0.1A
Contact Configuration		2 contacts (DPDT)	
Minimum Applicable Load		AC/DC5V 1mA reference	

## Circuit Diagrams

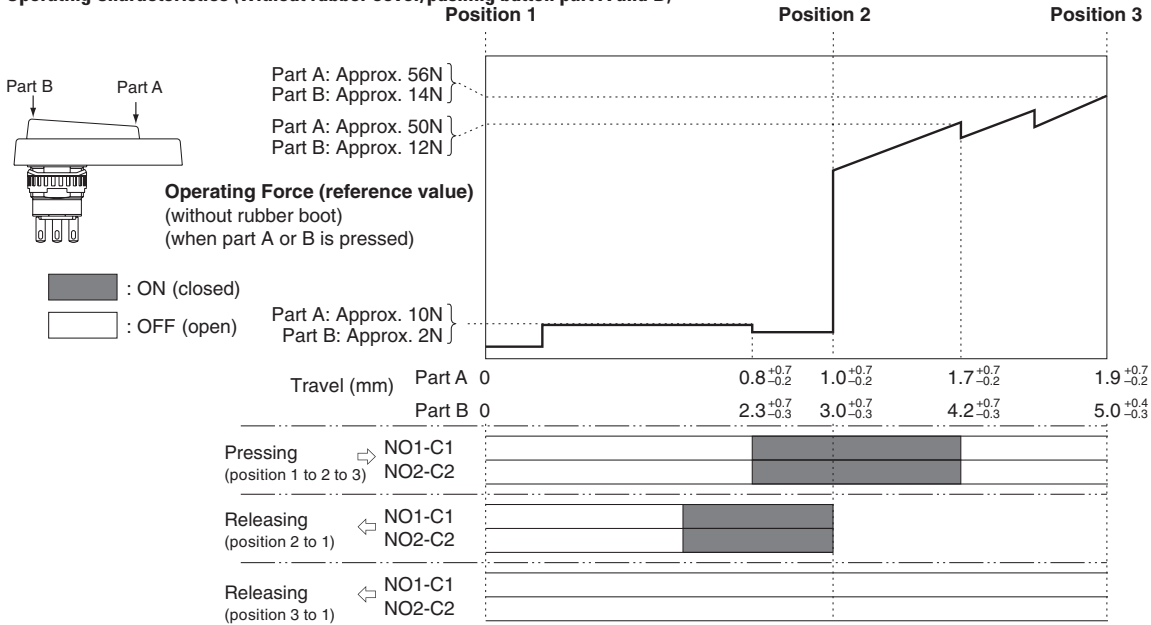
## Terminal Circuit Diagrams (bottom view)



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/pushing button part A and B)

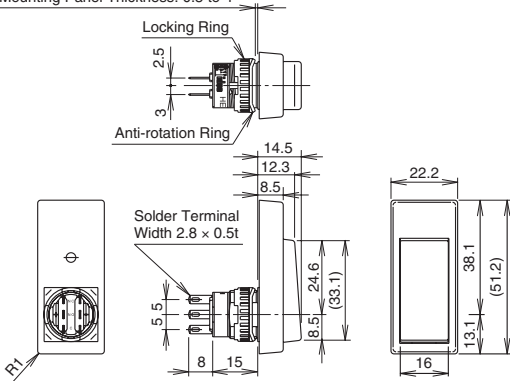


Using rubber boot will change the operating force depending on the operating temperature.

## Dimensions (mm)

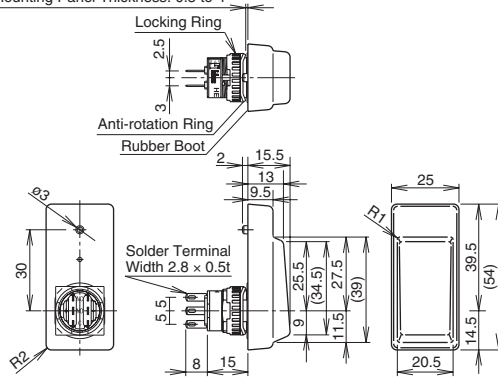
### Without Rubber Cover

Mounting Panel Thickness: 0.5 to 4



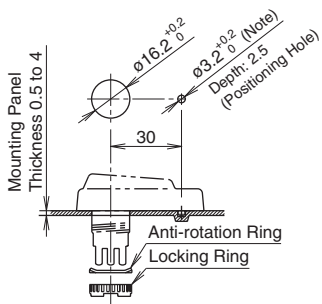
### With Rubber Cover

Mounting Panel Thickness: 0.5 to 4



All dimensions in mm.

## Mounting Hole Layout



1. Recommended Lock Nut Torque: 0.68 to 0.88Nm.
2. Use a lock nut tool to screw on the lock nut (see page 397).
3. To retain the switches waterproof performance, do not penetrate the rubber cover.
4. Remove the rubber cover projection if you do not want a positioning hole. (Do not penetrate the rubber cover).