

Mounting Aperture of 16 mm

- Modular construction, easy installation
- Positive opening mechanism with minimum contact separation of 3 mm in accordance with EN60947-5-1, ⊕
- Conforms to EN418 tamper resistance
- Includes a safety lock to prevent malfunction
- UL and CSA approved, VDE (pending)
- High reliability, IP65
- Short mounting depth, less than 28.5 mm below panel
- Quick and easy assembly, snap-in switch unit







## Ordering Information

Illumination	Rated voltage	Button type	Terminal	Contact type	Part number
LED	24 VDC	30 dia. red head	Solder terminal	SPST-NC	<b>A165E-LS-24D-01</b>
				DPST-NC	<b>A165E-LS-24D-02</b>
None	---	30 dia. red head		SPST-NC	<b>A165E-S-01</b>
				DPST-NC	<b>A165E-S-02</b>

Note: The above models have a surface indication of "RESET." Models with "STOP" indication are also available. For further information, contact your OMRON representative.

## Accessories (Order Separately)

### ■ ACCESSORIES

Item	Appearance	Description	Type	Part number
Yellow plate		Emergency stop nameplate.	Yellow, 45 dia.	<b>A3BE-5070</b>
Panel plug		Used for covering the panel cutouts for future panel expansion.	Round	<b>A3BT-3003</b>
Tightening tool		Useful for repetitive mounting. Do not tighten excessively.	---	<b>A3B-3004</b>
Extractor		Extraction tool for the switch unit and lamps.	---	<b>A16Z-5080</b>

### ■ MODEL NUMBER LEGEND

A165E-□□-□-□

1 2 3 4

**1. Lighted/Non-lighted**

None: Non-lighted

L: Lighted

**2. Head Size**

S: 30 mm dia.

**3. Contacts**

01: SPDT

02: DPDT

**4. Illumination (Operation Voltage/Rated Voltage)**

None: Non-lighted

24D: LED (24 VDC/24 VDC)

## Specifications

### ■ SWITCH RATINGS

Rated voltage	Resistive load
125 VAC	5 A
250 VAC	3 A
30 VDC	3 A

### ■ LED RATINGS (LIGHTED MODELS ONLY)

Item	Rated voltage $V_F$
Rated voltage $V_F$	24 V $\pm$ 5%
Forward voltage $V_D$	25.2 V
Reverse voltage $V_R$	30 V
Permissible loss $P_D$	330 mW
Forward current	12 mA max. 10 mA typ. 8 mA min.

## ■ APPROVALS

### Approved Standards

Recognized organization	Standards	File No.
UL, cUL	UL508, CSA C22 No.14	E41515
ASTA	EN60947-5-1	---

### Approved Ratings (UL, CUL)

Rated voltage	Resistive load
125 VAC	5 A
250 VAC	3 A
30 VDC	3 A

## ■ CHARACTERISTICS

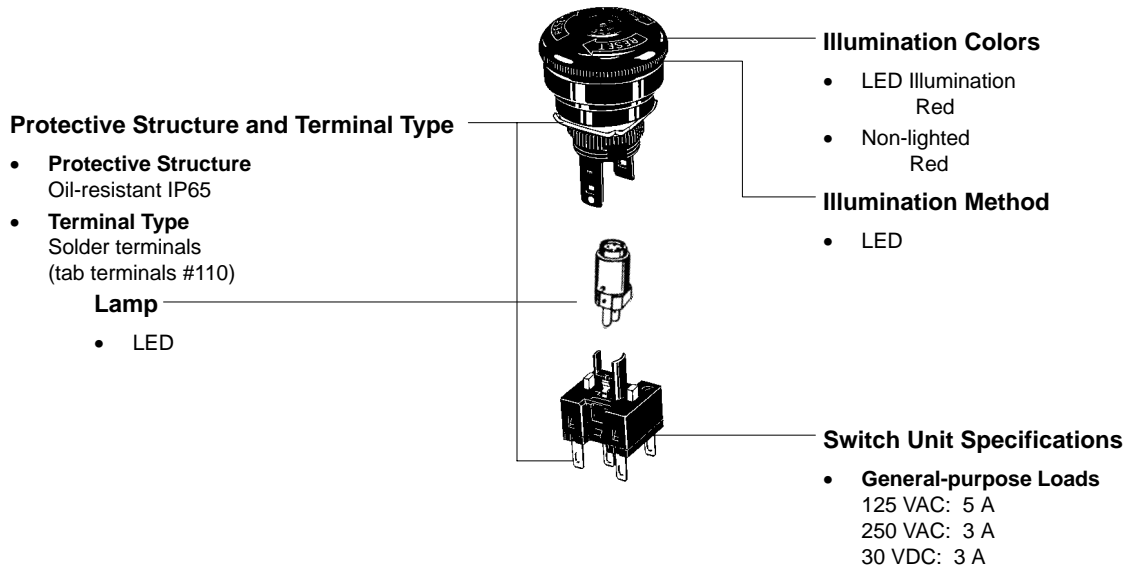
Operating frequency	Mechanical	20 operations/min max.
	Electrical	10 operations/min max.
Insulation resistance		100 M $\Omega$ min. at 500 VDC
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min between terminals of same polarity 2,000 VAC, 50/60 Hz for 1 min between terminals of different polarity and also between each terminal and ground 1,000 VAC, 50/60 Hz for 1 min between lamp terminals (See Note.)
Vibration resistance	Electrical	10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms)
Shock resistance	Mechanical	500 m/s <sup>2</sup> (1640 ft/s <sup>2</sup> ) 50G
	Electrical	300 m/s <sup>2</sup> (984 ft/s <sup>2</sup> ) 30G max. (malfunction within 1 ms)
Life expectancy	Mechanical	100,000 operations min.
	Electrical	100,000 operations min.
Ambient temperature	Operating	-10°C to 55°C (14°F to 131°F) with no icing or condensation
	Storage	-25°C to 65°C (-13°C to 149°F) with no icing or condensation
Relative humidity		35% to 85%
Electric shock protection class		Class II
PTI (tracking characteristic)		175
Pollution degree		3 (IEC947-5-1)
Weight		Approx. 16 g (0.56 oz) in the case of DPDT switches

Note: LED not mounted. Test them with the LED removed.

## ■ OPERATING CHARACTERISTICS

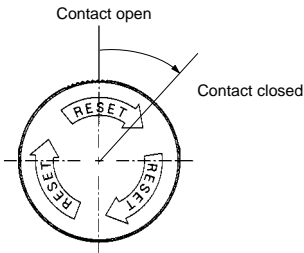
Features	Characteristics
Operating force (OF) max.	14.7 N (3.3 lbf) (1,500 gf)
Releasing force (RF) min.	0.1 N • m (0.86 lb • in) (1,000 gf • cm)
Pretravel (PT)	3.5±0.5 mm (0.14±0.02 in)

# Construction



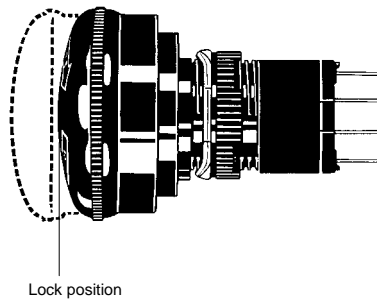
Note: A165E Emergency Stop Switch must be ordered as a set.  
No LED is installed for the non-lighted model.

## Push-lock, Turn-reset System Prevents Misuse



## Safety Lock Prevents Malfunction

The Switch will stop immediately if operated incorrectly. If the pushbutton is touched by a person or object, the contact will not open, provided that the button is not pressed past the lock position.

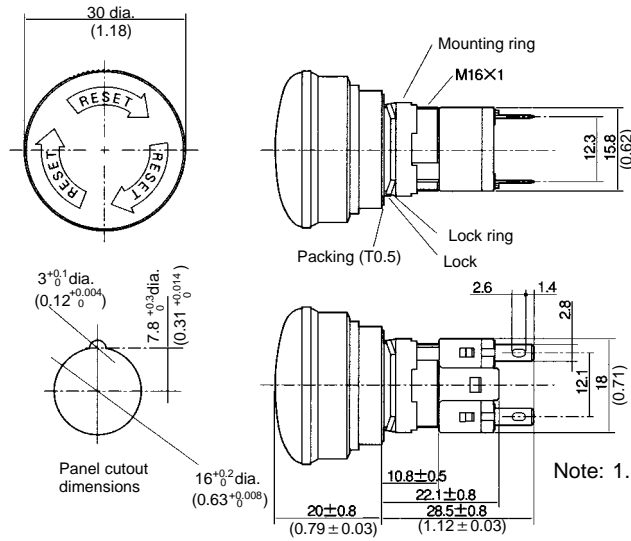
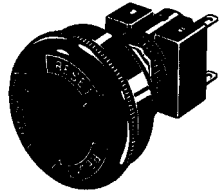


# Dimensions

Unit: mm (inch)

## ■ NON-LIGHTED TYPE

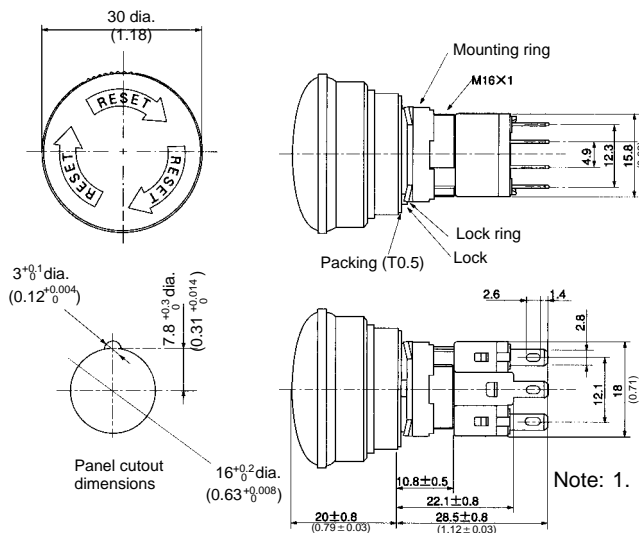
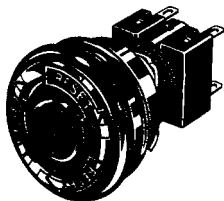
A165E



- Note: 1. When applying a coating such as paint to the panel, dimensions after the coating must satisfy the specified dimensions.
2. Recommended panel thickness is 0.5 to 3.2 mm.

## ■ LIGHTED TYPE

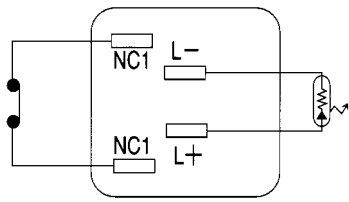
A165E



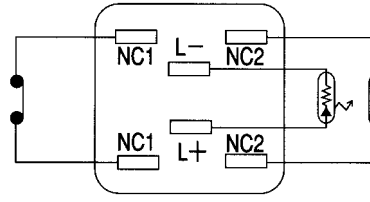
- Note: 1. When applying a coating such as paint to the panel, dimensions after the coating must satisfy the specified dimensions.
2. Recommended panel thickness is 0.5 to 3.2 mm.

■ TERMINAL ARRANGEMENT

SPST Switches



DPST Switches

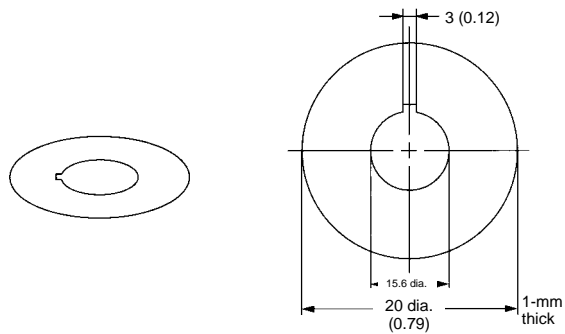


Note: The L+ and L- terminals are not available with the non-lighted models.

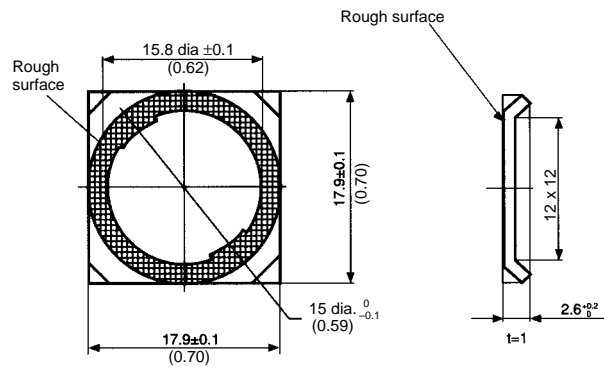
■ ACCESSORIES

Yellow Plate (Vinyl Chloride)

A3BE-5070

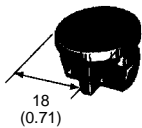


Lock Ring



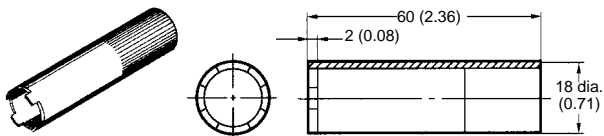
Panel Plugs

Mount the Panel Plug from the front side of the panel. Panel cutout dimensions are the same as those for the Switch.



Screw Fitting

A3B-3004



# Installation

## ■ MOUNTING THE PANEL

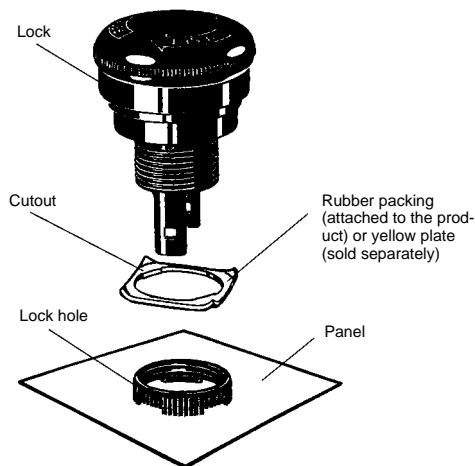
After installing the switch, snap in the socket from the back of the panel.

### 1. Installing the Switch

Attach rubber packing or the yellow plate onto the switch from its terminal side. Insert the switch into the panel from the front. Install the lock ring and mounting nut from the terminal side and tighten.

Adjust the slits on the hole of rubber packing and yellow plate to the protruding part of the unit.

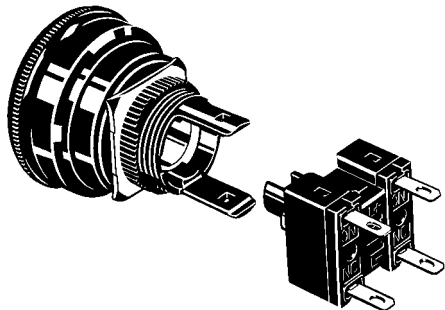
Rubber packing is not necessary when the yellow plate is used.



### 2. Mounting the Socket

Snap the socket onto the switch.

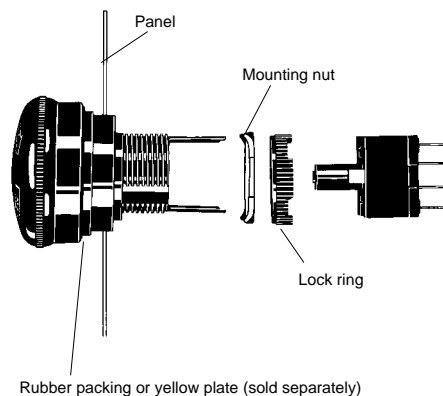
Make sure the switch and the socket are in the proper orientation. Align the thin indentations on the case with the white pushbutton markings on the socket and press the parts together.



Tighten the nut to the torque of 0.49 to 0.78 N • m (0.36 to 0.57 ft • lbf) (5 to 8 kgf • cm).

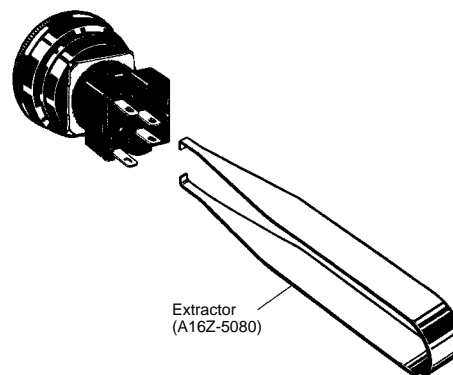
Case should be installed with its protruding part adjusted to the slit of the panel hole.

Align the lock ring to the groove of the case so that the edge is drawn to the panel side.



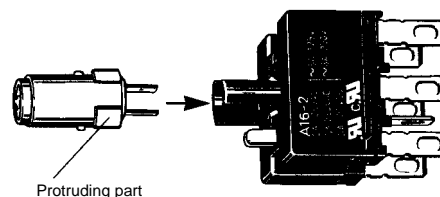
### 3. Removing the Switch

Grip the part between the switch holder of the case and the switch using the A16Z-5090 Extractor, and pull to remove the switch.



### 4. Installing the LED Lamp

When mounting the LED lamp, make sure it is facing the direction shown in the following diagram. Insert the lamp while matching the protruding part of the lamp and the small guides on the outer surface of the case.



## Precautions

### ■ MOUNTING

Always make sure that the power is turned OFF before mounting, removing, or wiring the Switch, or performing maintenance. Otherwise electric shock or fire may result.

Tighten the mounting nut to the torque of 0.29 to 0.49 N • m (0.21 to 0.36 ft • lbf) (3 to 5 kgf • cm).

### ■ WIRING

Select an appropriate cable size depending on applied voltage and current. Solder properly according to the following conditions. Improper soldering may generate abnormal heat and cause a fire. Wait for one minute after soldering before exerting any external force on the solder.

1. Manual Soldering: 30 W, within 5 s
2. Automatic Soldering: 240°C (464°F), within 3 s

Use non-corrosive rosin liquid as flux.

Make sure that the electric cord is wired so that it does not touch the Unit. If the electric cord will touch the Unit, then electric wires with a heat resistance of 100°C (212°F) min. must be used.

After wiring the switch, maintain an appropriate insulation distance.

### ■ OPERATING ENVIRONMENT

The structure with the IP65 enclosure rating will not be affected by direct water splashing onto the front side of the panel at any angle.

### ■ LED

No external resistors are required because the switch has a built-in LED current-limiting resistor.

Rated voltage	Built-in limiting resistor
24 VDC	1,600 Ω

### ■ OPERATING TORQUE

Operating torque of the Emergency Stop Switch should be no more than 0.49 N • m (0.36 ft • lbf) (5 kgf • cm).

**NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.**

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