OMRON

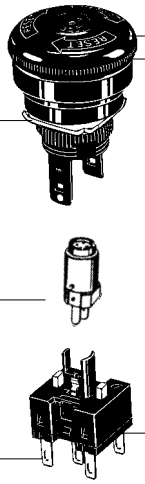
Emergency Stop Switch | A165E

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
- Includes a safety lock to prevent malfunction
- Features the separate construction that allows the Switch Unit to be separated for improving wiring efficiency and the one-piece-like construction that allows easier handling.
- 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.
- A165E is identifiable, clearly visible and will stop a dangerous process, without creating additional hazards.

Ordering Information

Construction



Protective Structure and Terminal Type

- **Protective Structure**
  Oil-resistant IP65
- **Terminal Type**
  Solder terminals
  (tab terminals #110)

Lamp

- LED

Illumination Colors

- LED Illumination
  Red
- Non-lighted
  Red

Illumination Method

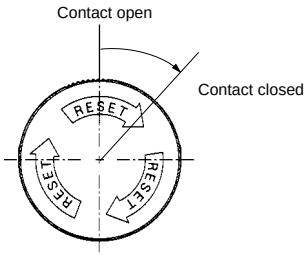
- LED

Switch Unit Specifications

- **General-purpose Loads**
  125 VAC: 5 A
  250 VAC: 3 A
  30 VDC 3 A

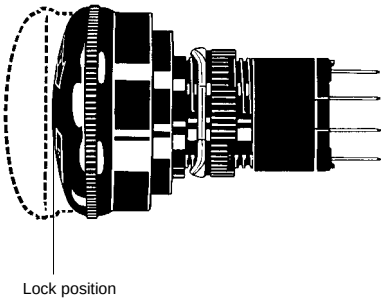
Note: A165E Emergency Stop Switch must be ordered as a set.
No LED is installed for the non-lighted model.

Push-lock, Turn-reset System Prevents Misuse



Safety Lock Prevents Malfunction

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



■ 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. **Illumination (Operation Voltage/Rated Voltage)**
   None: Non-lighted
   24D: LED (24 VDC/24 VDC)
4. **Contacts**
   01: SPDT
   02: DPDT

Illumination	Rated voltage	Operating part color	Operating part size	Terminal	Contact	General-purpose load (125 VAC at 5 A, 250 VAC at 3 A, 30 VDC at 3 A)
LED	24 VDC	Red	30 dia.	Solder terminal	SPST-NC	A165E-LS-24D-01
					DPST-NC	A165E-LS-24D-02
None	---		30 dia.		SPST-NC	A165E-S-01
					DPST-NC	A165E-S-02

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	Shape	Type	Model	Precautions
Yellow Plate		Yellow, 45 dia.	A3BE-5070	Use this as an emergency stop nameplate.
Panel Plug		Rectangular	A3BJ-3003	Used for covering the panel cutouts for future panel expansion.
		Square	A3BA-3003	
		Round	A3BT-3003	
Tightening Tool		---	A3B-3004	Useful for repetitive mounting. Be careful not to tighten excessively.
Extractor		---	A16Z-5080	Convenient for extracting the Switch Unit and Lamps.

Specifications

■ Approved Standards

Recognized Organization	Standards	File No.
UL, cUL (see note)	UL508	E41515
ASTA	EN60947-5-1 (see note 2)	---

Note: 1. UL: CSA C22 No. 14

2. Contact forced separation model approved.

■ Approved Standards Ratings

UL, cUL

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

■ Ratings

Switch Ratings

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

LED Ratings (Lighted Models Only)

Item	Ratings
Rated voltage V_F	24 V±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.

■ Characteristics

Item		Emergency Stop Switch
Allowable operating frequency	**Mechanical**	20 operations/min max.
	Electrical	10 operations/min max.
Insulation resistance		100 MΩ 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	**Malfunction**	10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms)
Shock resistance	**Mechanical**	500 m/s^2 (50G)
	Malfunction	300 m/s^2 (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 (with no icing or condensation) Storage: –25°C to 65°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%
Electric shock protection class		Class II
PTI (tracking characteristic)		175
Degree of contamination		3 (IEC947-5-1)
Weight		Approx. 16 g (in the case of DPDT switches)

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

■ Operating Characteristics

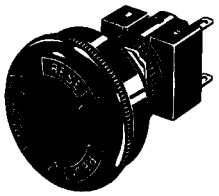
Features	Characteristics
Operating force (OF) max.	14.7 N (1,500 gf)
Releasing force (RF) min.	0.1 N • m (1,000 gf • cm)
Pretravel (PT)	3.5±0.5

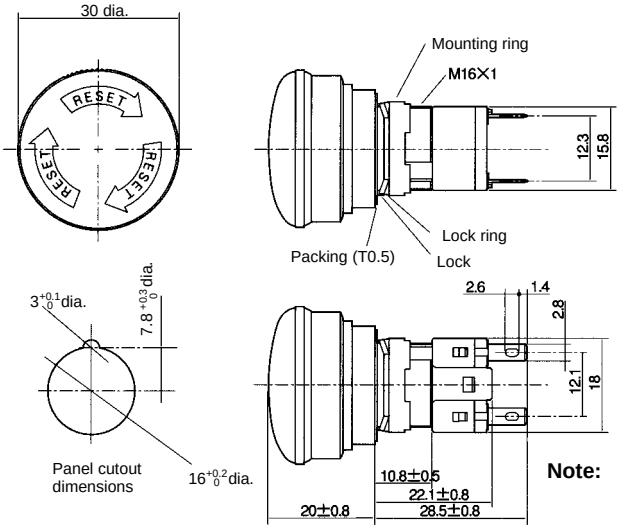
Dimensions

Note: All units are in millimeters unless otherwise indicated.

A165E

Non-lighted type

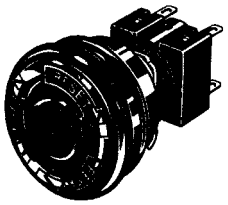


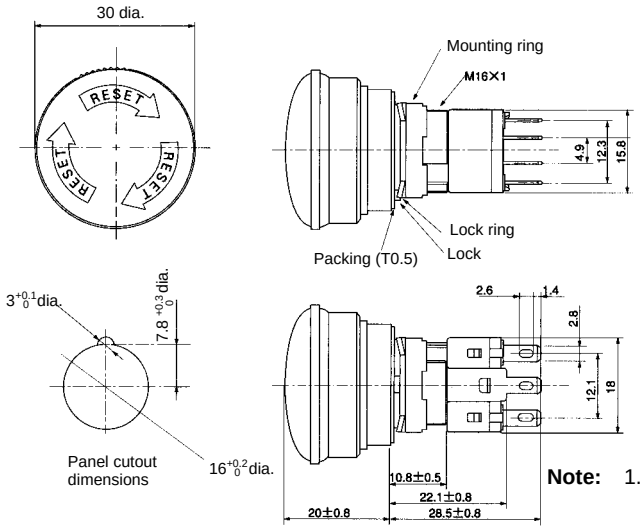


Note:
1. When applying a coating such as paint to the panel, dimensions after the coating must satisfy the specified dimensions.
2. Recommended panel thickness is 0.5 to 3.2 mm.

A165E

Lighted type

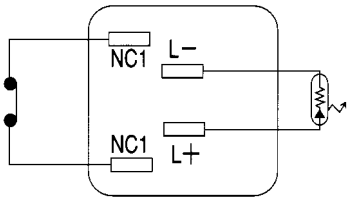




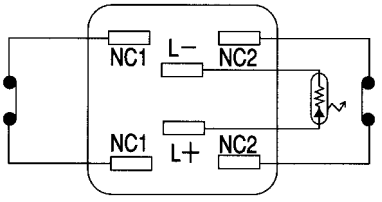
Note:
1. When applying a coating such as paint to the panel, dimensions after the coating must satisfy the specified dimensions.
2. Recommended panel thickness is 0.5 to 3.2 mm.

■ Terminal Arrangement

SPST Switches



DPST Switches

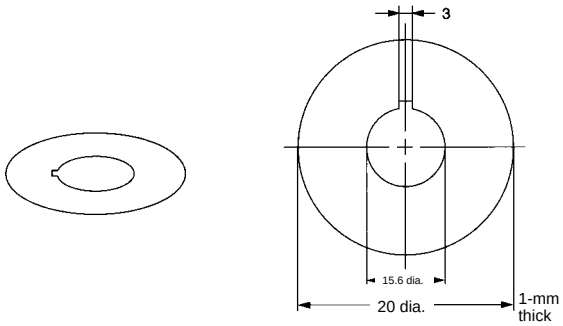


Note: The L+ and L– terminals are not available with the non-lighted models.

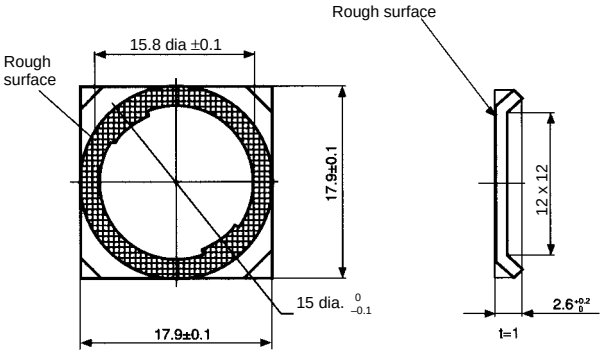
■ Accessories

Yellow Plate (Vinyl Chloride)

A3BE-5070

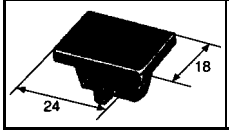
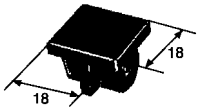
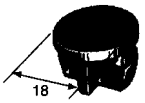


Lock Ring



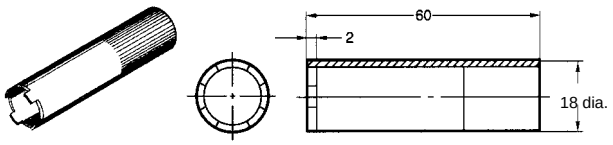
Panel Plugs

Select an appropriate Panel Plug according to the panel design and mount from the front side of the panel. Panel cutout dimensions are the same as those for the Switch.

Rectangular	Square	Round
		

Screw Fitting

A3B-3004



Installation

■ Mounting the Panel

After installing the Switch, snap in the Socket Unit 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.

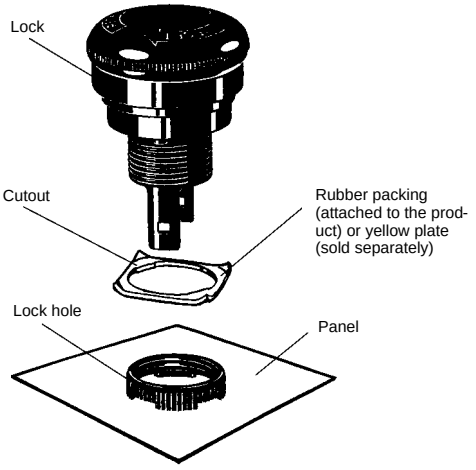
Adjust the slits on the hole of rubber packing and Yellow Plate to the protruding part of the unit.

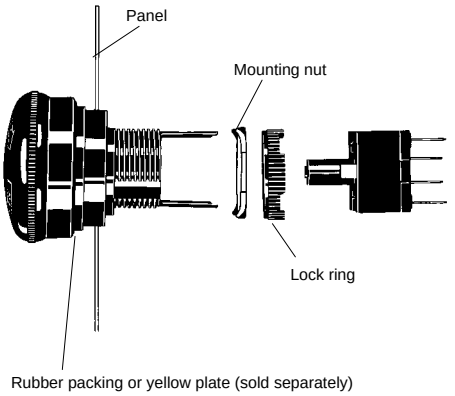
Rubber packing is not necessary when the Yellow Plate is used.

Tighten the nut to the torque of 0.49 to 0.78 N • m (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.

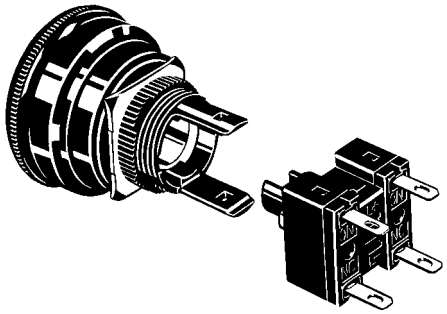




2. Mounting the Socket Unit

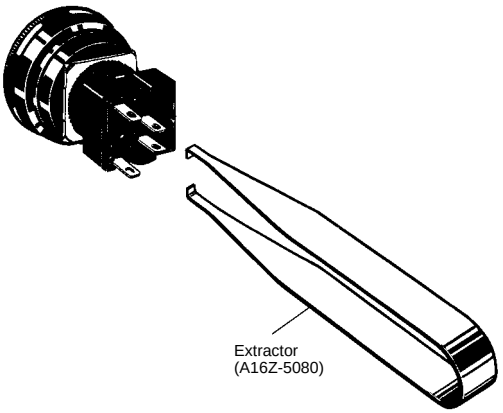
Snap on the Socket Unit to the Switch.

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



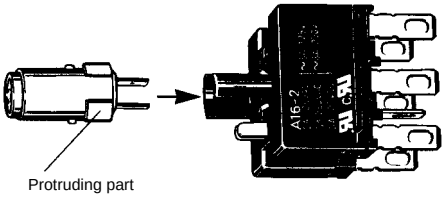
3. Removing the Switch

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



4. Installing the LED Lamp

When mounting the 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

■ Correct Use

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 (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, 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 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 Selector Switch and Emergency Stop Switch should be no more than 0.49 N • m (5 kgf • cm).

Others

The oil-resistant IP65 uses NBR rubber and is resistant to general cutting oil and cooling oil. Some particular oils cannot be used with the oil-resistant IP65, however, so contact your OMRON representative for details.

If the panel is to be finished with coating, etc., make sure that the panel meets the specified dimensions after coating.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat.No. A107-E1-1 (A165E)