

# SG-E1 SERIES

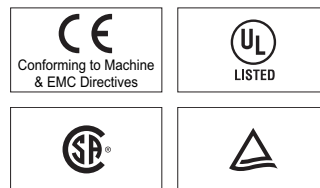
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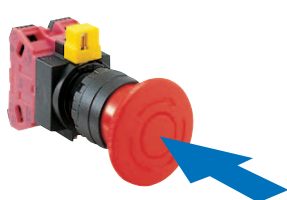
[panasonic.net/id/pidsx/global](http://panasonic.net/id/pidsx/global)



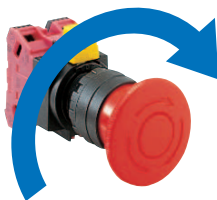
## Safety is assured during maintenance!

### Push to lock, turn to reset

Switches feature simple operation: Push the pushbutton to lock the switch, and turn the switch in the direction shown by the arrow to reset it.



Push to lock



Turn to reset



### The product line includes a SEMI emergency off (EMO) switch.

### SEMI semiconductor industry safety standards

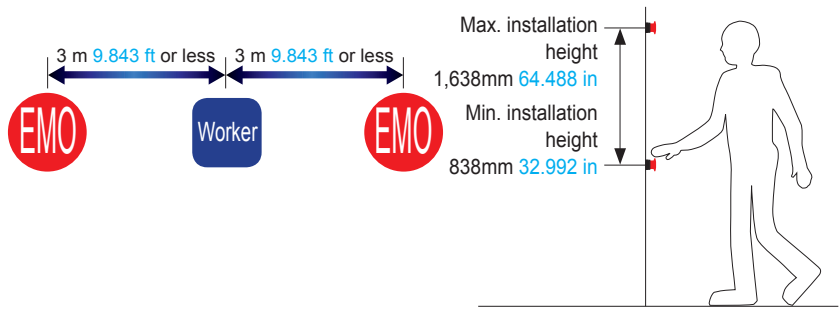
SEMI standards comprise a series of guidelines put together by an industry group consisting of manufacturers of semiconductor manufacturing equipment, flat-panel displays, and associated materials. In the semiconductor industry, this guidelines have achieved the status of de facto international standards.

Section 12.1 of the SEMI standards (S2 0706) states, "Equipment should incorporate an emergency off (EMO) circuit. When the EMO actuator (button) is triggered, the equipment should transition to a safe state in which no new hazard is posed to workers or equipment." This provision likely stems from the need to address the possibility of secondary hazards that could occur when processing power and other inputs are stopped, reflecting the industry's extensive use of materials such as solvents and chemicals, many of which contain hazardous or toxic substances. Consequently, SEMI standards require that normal emergency stop switches, which shut off the supply of energy, including power, be augmented with separate emergency off switches that shut off only the portion of the load that created the hazardous state while maintaining operation of other safety-related equipment (smoke detectors, gas / water leak detectors, pressure measurement equipment, etc.).

When there is the possibility that the emergency off switch could be operated mistakenly, a guard must be installed and the switch must use direct opening operation. The button must be red with a yellow background, and the switch itself must include the letters "EMO."

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- When installing a SEMI emergency off (EMO) switch on semiconductor manufacturing equipment, it should be installed at a height of 838 to 1,638 mm **32.992 to 64.488 in.** (SEMI S8-0705)
- According to SEMI standards, the EMO emergency stop switch must be installed within 3 m **9.843 ft** of the work location. (SEMI S2-0706 12.5.2)



## ORDER GUIDE

### Emergency stop switch

Type	Contact configuration	Button color	Model No.
Pushlock Turn reset	2NC	Red	<b>SG-E1-02</b>
	1NO / 2NC		<b>SG-E1-12</b>

### SEMI emergency off (EMO) switch

Type	Main contacts (NC contacts)	Monitor contacts (NO contacts)	Button color / text color	Model No.
Pushlock Turn reset	2NC	—	Red / White	<b>SG-E1-02-E</b>
	2NC	1NO		<b>SG-E1-12-E</b>

## OPTIONS

### Emergency stop switch

Type	Model No.	Description
Emergency stop nameplate	<b>SG-EP1</b>	(Blank)
	<b>SG-EP2</b>	EMERGENCY STOP
	<b>SG-EP3</b>	非常停止 (Japanese)
Locking ring wrench	<b>SG-ET1</b>	Used to tighten the locking ring when installing the unit onto a panel. Material: Brass, Weight: approx. 150 g * Tighten the locking ring to a torque of 2.0 N·m.
SEMI guard ring	<b>MS-SG-GR1</b>	For SEMI emergency off (EMO) switches. Specifically designed for use with semiconductor manufacturing equipment.

### Emergency stop nameplate

- **SG-EP1** • **SG-EP2** • **SG-EP3**



### Locking ring wrench

- **SG-ET1**



### SEMI guard ring

- **MS-SG-GR1**



#### ● Caution

SEMI guard rings are designed specifically for use with semiconductor manufacturing equipment and should not be used as emergency stop switches for machine tools, food processing machinery, or other equipment.

(The European Machinery Directive, IEC 60204-1, JIS B9960-1, and other standards require that emergency stop switches be easy to approach and operate, and use of SEMI standard-compliant switch guards is not currently approved.)

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## SPECIFICATIONS

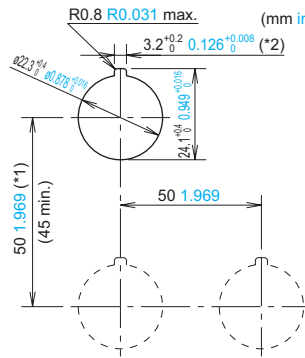
Designation	Pushbutton type emergency stop switch							
Item Series	<b>SG-E1</b> series							
Applicable standards	JIS C 8201-5-1, IEC 60947-5-1, EN 60947-5-1, UL 508 (UL listed Certification), CSA 22.2 No.14 (c-UL listed Certification)							
Operating condition	Ambient temperature	-25 to +60 °C <b>-13 to +140 °F</b> (No dew condensation or icing allowed) Storage: -40 to +80 °C <b>-40 to +176 °F</b>						
	Ambient humidity	45 to 85 % RH						
	Pollution degree	3						
	Altitude	2,000 m <b>6,561.68 ft</b> max.						
Impulse withstand voltage (Uimp)	4 kV							
Rated insulation voltage (Ui)	600 V							
Thermal current (Ith)	10 A							
Rated operational voltage (Ue) / Rated operational current (Ie)	AC	Resistive load (AC-12)	10 A	-	10 A	10 A	6 A	2 A
		Inductive load (AC-15) (A600)	10 A	-	7 A	5 A	3 A	1 A
	DC	Resistive load (DC-12)	8 A	4 A	-	2.2 A	1.1 A	-
		Inductive load (DC-13) (P600)	4 A	2 A	-	1.1 A	0.6 A	-
	Contact resistance	50 mΩ max. (initial value)						
	Insulation resistance	100 MΩ min. (500 V DC megger)						
Electric shock protection class	Class II (IEC 61140)							
Overtoltage category	II (IEC60664-1)							
Reset action	Turn reset							
Protection	Front of the panel: IP65 (IEC 60529)							
Shock resistance	Malfunction: 100 m/s <sup>2</sup> , Destruction: 1,000 m/s <sup>2</sup>							
Vibration resistance	Malfunction: 5 to 55 Hz, half amplitude 0.5 mm <b>0.020 in</b> Destruction: 30 Hz, half amplitude 1.5 mm <b>0.059 in</b>							
B <sub>10d</sub>	100,000 (ISO 13849-1 Annex C Table C.1)							
Mechanical durability	500,000 operations min.							
Electrical durability	500,000 operations min. (900 operations/hour)							
Material	Actuator: PA6, Contact block: PA66							
Connecting method	Terminal screw (M3.5 philips & flathead)							
Applicable wire size	Max. 2 mm <sup>2</sup> (Single core $\phi$ 1.6 <b><math>\phi</math>0.063</b> max.) 2 wires max.							
Tightening torque of the terminal screws	1.0 to 1.3 N·m							
Tightening torque of the locking ring	2.0 N·m							
Weight	<b>SG-E1-02</b> -□: Approx. 60 g, <b>SG-E1-12</b> -□: Approx. 75 g							
Accessory	Lever lock: 1 pc							

## PRECAUTIONS FOR PROPER USE



- In order to avoid electric shock or fire, turn the power off before installation, removal, wire connection, maintenance, or inspection of the safety switch.
- Use wiring that is appropriate for the applied voltage and energized current, and tighten terminal screws (M3.5) to the recommended tightening torque (1.0 to 1.3 N·m). Using the switch when the screws are loose will cause it to become extremely hot, posing the risk of fire.

### Mounting hole layout / minimum mounting center



**Note:**  
When using the safety lever lock, determine the vertical spacing (\*1) in consideration of convenience for installing and removing the safety lever lock. (Recommended vertical spacing: 100 mm **3.937 in** or more)

The 3.2<sup>+0.2</sup>/<sub>0</sub> 0.126<sup>+0.008</sup>/\*2 recess (\*2) is for preventing rotation and not necessary when anti-rotation is not used. When anti-rotation is not required or when the panel cut-out does not have anti-rotation recess, remove the "Projection" using pliers.

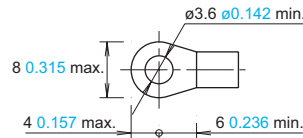
- The minimum mounting centers are applicable to switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers in consideration of convenience for wiring.

### Applicable wiring

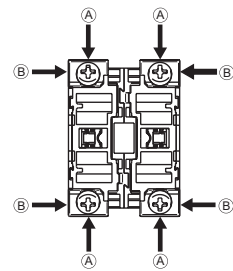
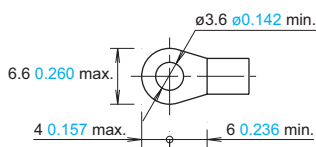
(1) The applicable wire size is 2 mm<sup>2</sup> maximum. (single wire  $\phi$ 1.6 mm  **$\phi$ 0.063 in** maximum) One or two wires can be connected.

#### • Applicable crimping terminal (Unit: mm in)

When using direction (A)

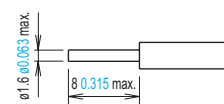


When using direction (B)



Be sure to use an insulation tube or cover on the crimping part of the crimping terminal to prevent electrical shocks.

#### • Single wire (Unit: mm in)



**Note:** When connecting wires to contact blocks or transformers in the direction (B), keep the insulation stripping length 6.6 mm **0.260 in** at the maximum.

(2) Tighten the M3.5 terminal screws to a torque of 1.0 to 1.3 N·m.

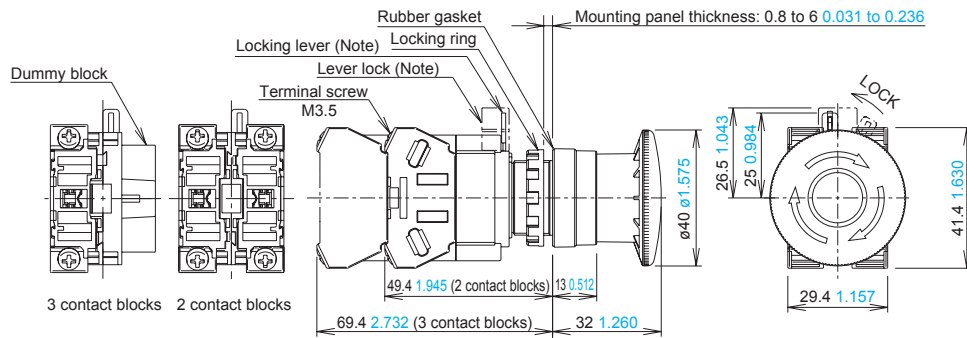
### Using the lever lock

- Panasonic Industrial Devices SUNX strongly recommends using the lever lock (yellow) to prevent heavy vibration or maintenance personnel from unlocking the contact assembly.

**DIMENSIONS (Unit: mm in)**

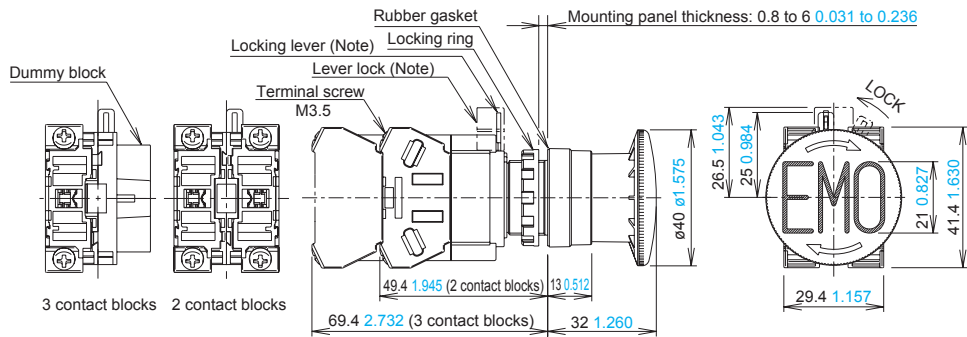
The CAD data in the dimensions can be downloaded from our website.

**SG-E1-□** Emergency stop switch



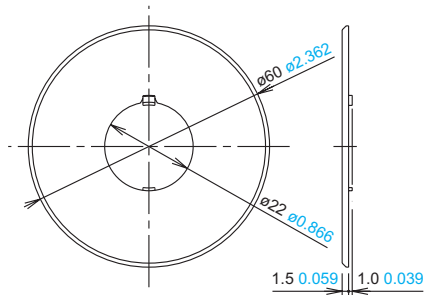
Note: Please attach the lever lock (yellow) after locking to prevent personnel from forgetting to lock the lock lever.

**SG-E1-□-E** SEMI emergency off (EMO) switch

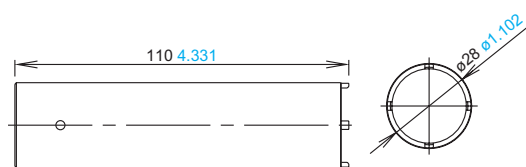


Note: Please attach the lever lock (yellow) after locking to prevent personnel from forgetting to lock the lock lever.

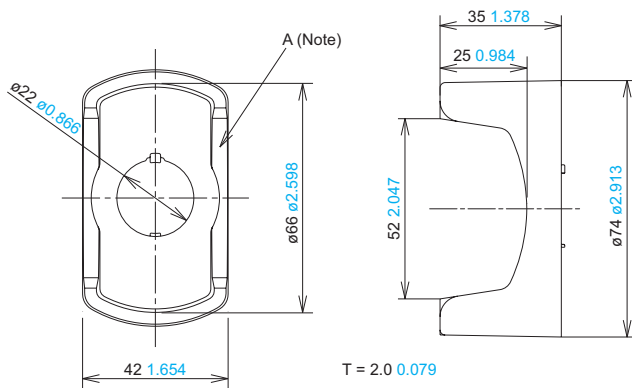
**SG-EP-□** Emergency stop nameplate (Optional)



**SG-ET1** Locking ring wrench (Optional)



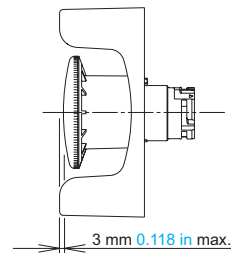
**MS-SG-GR1** SEMI guard ring (Optional)



Note: When anti-rotation is not required or when the panel cut-out does not have an anti-rotation recess, remove part "A" of the SEMI guard ring using pliers.

**Height of SEMI emergency off (EMO) switch and SEMI guard ring**

As illustrated below, the height of the SEMI emergency off (EMO) switch and SEMI guard ring should be 3 mm 0.118 in or less.



**Note**

The EMO switch and the guard ring have been designed for applications in semiconductor manufacturing equipment only. Do not use EMO switch and/or the guard ring which are installed on machine tools or food processing machines. (Machinery Directive of the European Commission and IEC 60204-1 require that emergency stop switches be installed in a readily accessible area and the usage of switch guards is not permitted.)

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