

A22E

A22NE-PD

A22NE-P

A22E

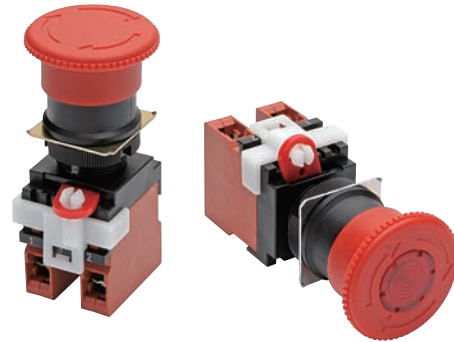
Common Accessories and Tools

Common Note

Install in 22-dia. or 25-dia. Panel Cutout

(When Using a Ring)

- Increase wiring efficiency with three-row mounting of Switch Units. (with non-lighted Switch Blocks, three Units can be mounted for multiple contacts).
- Mounted using either open-type (fork-type) or closed-type (round-type) crimp terminals.
- Oil-resistant to IP65 (non-lighted models) / IP65 (lighted models).
- A lock plate is provided as a standard feature to ensure that the control box and switch are not easily separated.

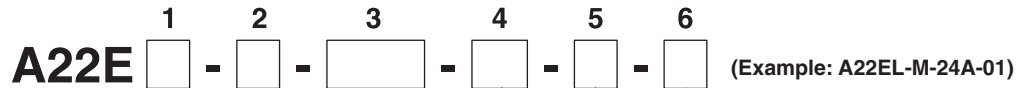


Be sure to read the "Safety Precautions" on pages 50 and 56.

For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Model Number Structure

Model Number Legend (Completely Assembled) Shipped as a set which includes the Operation Unit, LED Lamp (lighted model only), Mounting Latches, Switch Block, and Lock Plate



1. Lighted/Non-lighted

Code	Description
None	Non-lighted
L	Lighted *

* Lighted Emergency Stop Switches are available only for the medium (M). turn-reset models.

2. Operation Unit size (diameter)/Reset function

Code	Size	Description
MP	40 dia.	Turn-reset
S	30 dia.	
M	40 dia.	
L	60 dia.	

3. LED Lamp voltage

Lighting unit (Direct lighting)

Code	Description	Operating Voltage
None	Non-lighted	---
6 A	Lighted (LED) *	6 VAC/DC
12 A		12 VAC/DC
24 A		24 VAC/DC

Lighting unit (Voltage-reduction lighting)

Code	Description	Operating Voltage
T1	Lighted (LED) *	100 VAC
T2	Lighted (LED) *	200 VAC

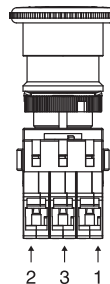
* Equipped with 24-VAC/DC LED.

4. Contacts

Code	Number of Switch Blocks		Unit position							
			Non-lighted			Lighted				
			NO	NC	1	2	3	1	2	3
01	0	1	NC	---	---	NC	---	---	---	Lighting unit
11	1	1	NC	NO	---	NC	NO	---	---	Lighting unit
02	0	2	NC	NC	---	NC	NC	---	---	Lighting unit
12	1	2	NC	NO	NC	---	---	---	---	---
03	0	3	NC	NC	NC	---	---	---	---	---

Note 1. NO: 1a-contact NC: 1b-contact

2. For details on the unit position, refer to the figure below.



5. Configuration

Code	Configuration
None	Switch only
B	Switch with Integrated Control Box

6. Configuration





Code	Configuration
None	Neither "EMO" nor "EMS" printed, arrows engraved in red.
EMO	"EMO" and arrows printed in white.
EMO-RD	"EMO" printed in white, arrows engraved in red.
EMS	"EMS" and arrows printed in white.
EMS-RD	"EMS" printed in white, arrows engraved in red.

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Ordering Information

List of Models (Completely Assembled)

Non-lighted Models (Without EMO/EMS Indication)



Appearance	Operation	Degree of Protection	Contact configuration *1	Set Model	Color of cap
	40-dia. head Medium Pull-reset A22E-MP	IP65 oil-resistant models	1NC (1)	A22E-MP-01	Red
			1NC, 1NO (2)	A22E-MP-11	
			2NC (2)	A22E-MP-02	
	30-dia. head Small Turn-reset A22E-S		1NC (1)	A22E-S-01 *2	
			1NC, 1NO (2)	A22E-S-11 *2	
			2NC (2)	A22E-S-02 *2	
			2NC, 1NO (3)	A22E-S-12 *2	
			3NC (3)	A22E-S-03 *2	
				40-dia. head Medium Turn-reset A22E-M	
1NC, 1NO (2)	A22E-M-11 *2				
2NC (2)	A22E-M-02 *2				
2NC, 1NO (3)	A22E-M-12 *2				
3NC (3)	A22E-M-03 *2				
	60-dia. head Large Turn-reset A22E-L				
			1NC, 1NO (2)	A22E-L-11 *2	
		2NC (2)	A22E-L-02 *2		

*1. The number in parentheses () indicates the number of switch units.

*2. Models with Korean S-mark certification

Note: Yellow cap models are also available (not for emergency stop use). Contact your OMRON representative.

Non-lighted Models (With EMO/EMS Indication)

Appearance	Operation	Degree of Protection	Contact configuration *1	Set Model	Color of cap
	40-dia. head Medium Turn-reset With EMO Indication	IP65 oil-resistant models	1NC (1)	A22E-M-01-EMO *2	Red
				A22E-M-01-EMO-RD	
			1NC, 1NO (2)	A22E-M-11-EMO *2	
				A22E-M-11-EMO-RD	
			2NC (2)	A22E-M-02-EMO *2	
				A22E-M-02-EMO-RD	
			2NC, 1NO (3)	A22E-M-12-EMO *2	
				A22E-M-12-EMO-RD	
			3NC (3)	A22E-M-03-EMO *2	
A22E-M-03-EMO-RD					
	40-dia. head Medium Turn-reset With EMS Indication		1NC (1)	A22E-M-01-EMS *2	
			A22E-M-01-EMS-RD		
			1NC, 1NO (2)	A22E-M-11-EMS *2	
				A22E-M-11-EMS-RD	
			2NC (2)	A22E-M-02-EMS *2	
				A22E-M-02-EMS-RD	
			2NC, 1NO (3)	A22E-M-12-EMS *2	
				A22E-M-12-EMS-RD	
		3NC (3)	A22E-M-03-EMS *2		
			A22E-M-03-EMS-RD		

*1. The number in parentheses () indicates the number of switch units.

*2. Models with Korean S-mark certification

Note: The colors of switch blocks are as follows:

NO (a-contact): Black

NC (b-contact): Red

The above illustration shows the 2NC (2b-contact) configuration.

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Common Accessories and Tools

Common Note


Lighted Models

Appearance	Operation	Degree of Protection	Contact configuration *1	LED Lamp voltage	Set Model	Color of cap
	40-dia. head Push-lock Turn-reset Lighting unit (Direct lighting) A22E	IP65	1NC (1)	6 VAC/VDC	A22EL-M-6A-01 *2	Red
				12 VAC/VDC	A22EL-M-12A-01 *2	
				24 VAC/VDC	A22EL-M-24A-01 *2	
			1NC, 1NO (2)	6 VAC/VDC	A22EL-M-6A-11 *2	
				12 VAC/VDC	A22EL-M-12A-11 *2	
				24 VAC/VDC	A22EL-M-24A-11 *2	
			2NC (2)	6 VAC/VDC	A22EL-M-6A-02 *2	
				12 VAC/VDC	A22EL-M-12A-02 *2	
				24 VAC/VDC	A22EL-M-24A-02 *2	
	40-dia. head Push-lock Turn-reset Lighting unit (Voltage-reduction lighting) A22E	IP65	1NC (1)	100 VAC	A22EL-M-T1-01	
				200 VAC	A22EL-M-T2-01	
			1NC, 1NO (2)	100 VAC	A22EL-M-T1-11	
				200 VAC	A22EL-M-T2-11	
			2NC (2)	100 VAC	A22EL-M-T1-02	
				200 VAC	A22EL-M-T2-02	

*1. The number in parentheses () indicates the number of switch units.

*2. Models with Korean S-mark certification

Switch with Integrated Control Box

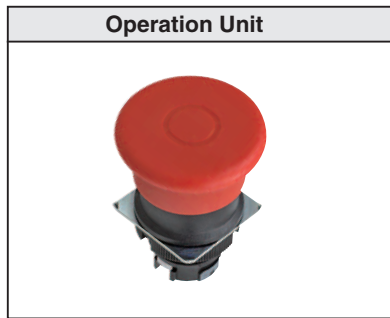
Appearance	Contact configuration (Number of switch blocks)	Model
	1NC (1)	A22E-M-01B *
	1NC, 1NO (2)	A22E-M-11B *
	2NC (2)	A22E-M-02B *

Note: The A22Z-B101Y Control Box is used.

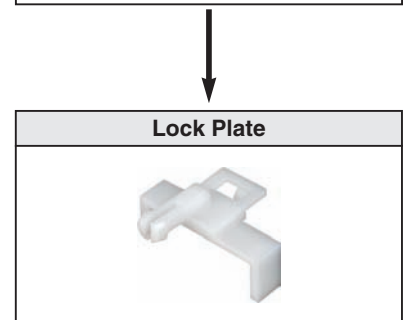
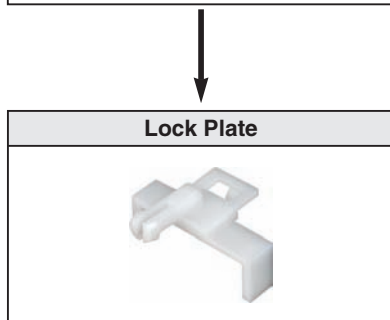
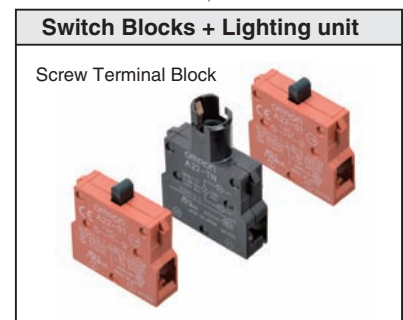
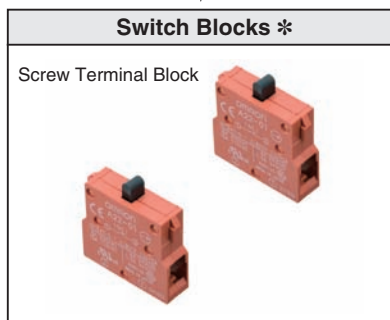
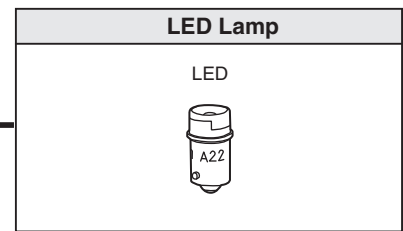
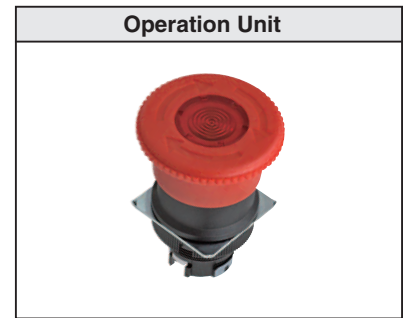
* Models with Korean S-mark certification

Subassembled ... The Operation Unit, LED Lamp, Mounting Latches, and Switch Blocks can be ordered separately. Use them in combination for models that are not available as assembled Units. These can also be used as inventory for maintenance parts.

Non-lighted









Lighted




* Up to three Switch Blocks can be mounted.


**Operation Unit
Non-lighted**

Function	Sealing capability	Size	Small (30 dia.)	Medium (40 dia.)	Large (60 dia.)
		Single item order model			
Pull-reset	IP65 oil-resistant models		---	A22E-MP 	---
Turn-reset		A22E-S 	A22E-M  A22E-M-EMO A22E-M-EMO-RD  A22E-M-EMS A22E-M-EMS-RD 	A22E-L 	

Lighted

Function	Sealing capability	Size
		Medium (40 dia.)
Turn-reset	IP65	A22EL-M 

LED lamp

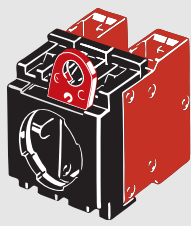
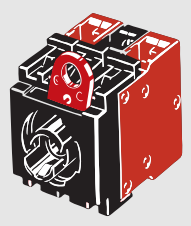
Appearance	LED light		Rated voltage	Model
	Red	Standard	6 VAC/VDC	A22-6AR
			12 VAC/VDC	A22-12AR
			24 VAC/VDC	A22-24AR

Note: For a model with a Lighting unit (Voltage-reduction lighting), use the A22-24AR.

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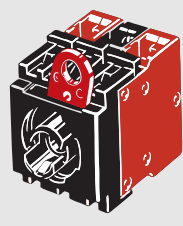
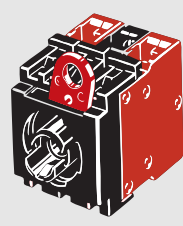
A22NE-PD

Switch
Non-lighted / Direct lighting

Classification		Non-lighted	Direct lighting
Appearance			
Contact specifications/ Configuration (Number of switch blocks)		Model	Model
For Standard loads	1NC (1)	A22-01M	A22L-01M
	1NC, 1NO (2)	A22-11M	A22L-11M
	2NC (2)	A22-02M	A22L-02M

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Voltage-reduction lighting (100 VAC, 200 VAC)

Classification		100 VAC, Lighted	200 VAC, Lighted
Appearance			
Contact specifications/ Configuration (Number of switch blocks)		Model	Model
For Standard loads	1NC (1)	A22L-01M-T1	A22L-01M-T2
	1NC, 1NO (2)	A22L-11M-T1	A22L-11M-T2
	2NC (2)	A22L-02M-T1	A22L-02M-T2







Note: For a model with a Lighting unit (Voltage-reduction lighting), use the A22-24AR.

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Common Accessories and Tools

Common Note

Accessories (Order Separately)

Item	Appearance	Contact specifications		Model	Remarks
Switch Blocks (one contact)		1NO (Black)	Standard load	A22-10	Provided as standard. Order Switch Blocks only when adding or replacing them.
			Microload	A22-10S	
		1NC (Red)	Standard load	A22-01	
			Microload	A22-01S	
Switch Blocks (two contacts)		2NO (Black)	Standard load	A22-20	Order Switch Blocks only when adding or replacing them.
			Microload	A22-20S	
		2NC (Red)	Standard load	A22-02	
			Microload	A22-02S	
		1NC + 1NO Contact (Black/ Red)	Standard load	A22-11	
Lighting unit		Direct lighting		A22-TN	Used when changing the lighting method.
		Voltage-reduction lighting	100 VAC	A22-T1	
			200 VAC	A22-T2	
Mounting Latches		---		A22-3200	Provided as standard. Order Mounting Latches only when mounting Switch Blocks or Lighting Units that are purchased individually.
Lock Plate		---		A22Z-3380	Use to fix the lever on the Switch.
Control Boxes (Enclosures)		One hole, yellow box		A22Z-B101Y	Material: Polycarbonate resin. When using a Control Box, 2NO, 2NC, or 1NC + 1NO two-contact Switch Blocks are not supported. *
				A22Z-B201Y	

Note: For details on the accessories common to the screw terminal block types and push-in plus terminal block types, refer to "Common Accessories and Tools (Order Separately)" on page 51.

* The A22Z-B101Y and A22Z-B201Y Control Box cannot be used in combination with the A22Z-3476-1 90-dia. Legend Plates for Emergency Stop or the A22Z-EG□ E-stop Shrouds.

Specifications

Certified Standard Ratings

- UL, cUL (File No. E41515)
6 A at 220 VAC, 10 A at 110 VAC
- TÜV (EN60947-5-1) (Low Voltage Directive)
3 A at 220 VAC
- CCC (GB14048.5)
3 A at 240 VAC, 1.5 A at 24 VDC

Ratings

Contacts (Standard Load)

Rated carry current (A)	Rated voltage (V)	Rated current (A)					
		AC15 (Inductive load)	AC12 (Resistive load)	DC13 (Inductive load)	DC12 (Resistive load)		
10	24 VAC	10	10	---	---		
	110 VAC	5	10				
	220 VAC	3	6				
	380 VAC	2	3				
	440 VAC	1	2	1.5	10		
	24 VDC	---	---				
	110 VDC					0.5	2
	220 VDC					0.2	0.6
	380 VDC					0.1	0.2

- Note: 1.** Rated current values are determined according to the testing conditions. The above ratings were obtained by conducting tests under the following conditions.
- (1) Ambient temperature: 20°±2°C
 - (2) Ambient humidity: 65±5%
 - (3) Operating frequency: 20 operations/minute
- 2.** Minimum applicable load: 10 mA at 5 VDC

Characteristics

Item	Type	Turn-reset		Pull-reset
		Non-lighted model	Lighted model	Non-lighted model
Allowable operating frequency	Mechanical	30 operations/minute (One operation consists of set and reset operations.)		
	Electrical	30 operations/minute (One operation consists of set and reset operations.)		
Insulation resistance		100 MΩ min. (at 500 VDC)		
Contact resistance		100 mΩ max. (initial value)		
Dielectric strength	Between terminals of same polarity	2,500 VAC, 50/60 Hz for 1 min.		
	Between each terminal and ground	2,500 VAC, 50/60 Hz for 1 min.		
Vibration resistance		10 to 55 Hz, 1.5-mm double amplitude (contact separation within 1 ms)		
Shock resistance	Destruction	1000 m/s ²		
	Malfunction	250 m/s ² max. (contact separation within 1 ms)		
Durability	Mechanical	300,000 operations min. (One operation consists of set and reset operations.)		
	Electrical	300,000 operations min. (One operation consists of set and reset operations.)		
Ambient operating temperature *1		-20 to +70°C	-20 to +55°C	-20 to +70°C
Ambient operating humidity		35 to 85% RH		
Ambient storage temperature		-40 to +70°C		
Degree of protection		IP65 oil-resistant models *2 *3	IP65 *2	IP65 oil-resistant models *2 *3
Electric shock protection class		Class II		
PTI (tracking characteristic)		175		
Degree of contamination		3 (EN60947-5-1)		
Minimum direct opening stroke		11 mm		
Minimum direct opening force		45 N		
Conditional short-circuit current		100 A (EN 60947-5-1)		
Weight (for a 40-dia. head 1NC/1NO Operation Unit)		Approx. 65 g	Approx. 80 g	Approx. 100 g

*1. With no icing or condensation.

*2. The degree of protection from the front of the panel.

*3. The degree of protection is IP65 even with an integrated control box, but the system is not oil resistant.

Certified Standards

Certification body	Standards	File No.
UL *1	UL508, C22.2 No.14	E41515
TÜV SÜD	EN60947-5-1 (Certified direct opening), EN60947-5-5	Consult your OMRON representative for details.
CQC (CCC)	GB/T14048.5	2003010303070635
KOSHA *2	EN60947-5-1	Consult your OMRON representative for details.

Note: 1. Only models with NC contacts have a direct opening mechanism.

2. A fuse is not provided.

*1. UL-certification for CSA C22.2 No. 14 has been obtained.

Certification has been obtained for individual Switch Blocks and Lighting Units.

*2. Some models have been certified.

Contacts (Microload)

Rated applicable load	100 mA at 30 VDC (Resistive load)
Minimum applicable load	1 mA at 5 VDC

LED Lamp

Rated voltage	Operating voltage	Current value
6 VAC/DCC	6 VAC/DCC ± 5%	Approx. 8 mA
12 VAC/DCC	12 VAC/DCC ± 5%	
24 VAC/DCC	24 VAC/DCC ± 5%	

Voltage-reduction lighting

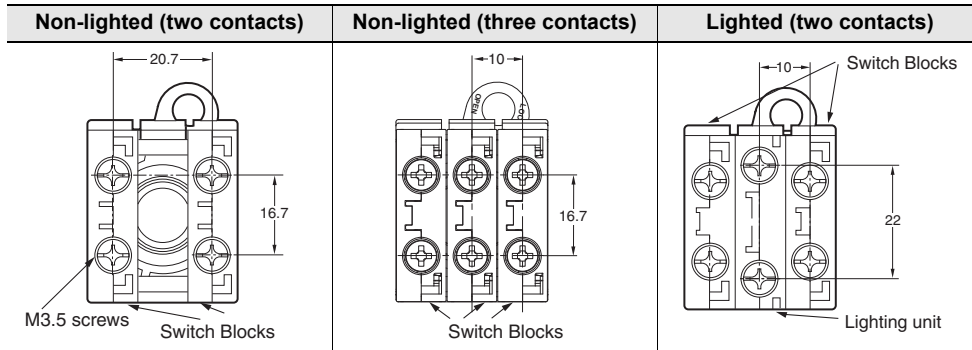
Rated voltage	Operating voltage	Rated current	Applicable lamp (BA9S/Base: 13)
110 VAC	100 VAC (95 to 115 V)	Approx. 8 mA	LED lamp A22-24A□
220 VAC	200 VAC (190 to 230 V)		

Operating Characteristics

Item	Turn-reset	Pull-reset
Total travel force (TTF)	44.1 N max.	58.8 N max.
Return force (RF)	0.25 N·m max. *	58.8 N max.
Total travel (TT)	10 ±1 mm	5.5 ±1 mm

* Rotation torque value.

Terminal Arrangement (BOTTOM VIEW)

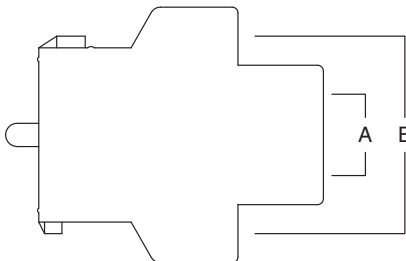


Terminal connection

Type	Terminal Connection (BOTTOM VIEW)									
	1NC, 1NO (two contacts)		2NC (two contacts)		2NC, 1NO (three contacts)			3NC (three contacts)		
Non-lighted	NC 1 2	NO 3 4	NC 1 2	NC 1 2	NC 1 2	NC 1 2	NO 3 4	NC 1 2	NC 1 2	NC 1 2
Lighted with Direct lighting	1 2	X1 X2	3 4	1 2	X1 X2	1 2	X	1 2	1 2	1 2
Lighted with Voltage-reduction lighting	1 2	X1 X2	3 4	1 2	X1 X2	1 2	X	1 2	1 2	1 2

Note: The above terminal connection diagrams are examples of the number of contacts.

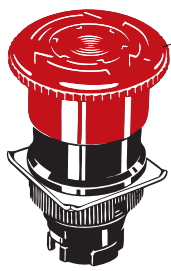
Terminal wiring drawings of two-contact Switch Units



Type	Terminal Connection (BOTTOM VIEW)		
	2NC (two contacts)	2NO (two contacts)	1NC, 1NO (two contacts)
A	21 22	23 24	23 24
B	11 12	13 14	11 12

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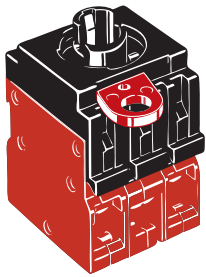
Structure and Nomenclature



Operation Unit
Color: Red
 Non-lighted
 LED lighting



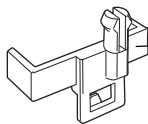
Lamp
Light source
 • LED Lamp



Switch
 Mounting Latches
 Switch Blocks
 Lighting unit

Contact Ratings
 10 A at 100 VAC (resistive load)
 10 A at 24 VDC (resistive load)

Lighting Method
 Non-lighted
 Lighted (Direct lighting)
 Lighted (Voltage-reduction lighting)



Lock Plate (Attached with the Operation Unit)
 (Refer to the "Mounting the Lock Plate" on page 50 for use.)

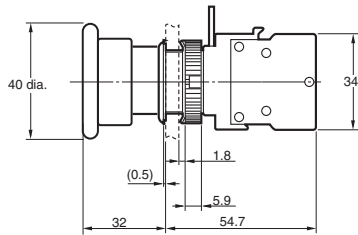
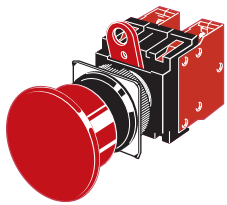
Dimensions

(Unit: mm)

Non-lighted Models

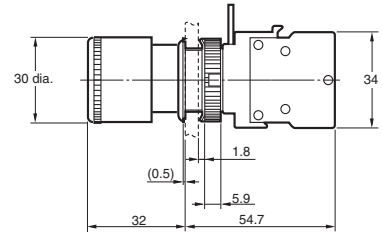
A22E-MP

Medium Pull-reset (40-dia.) Degree of Protection: IP65 oil-resistant models



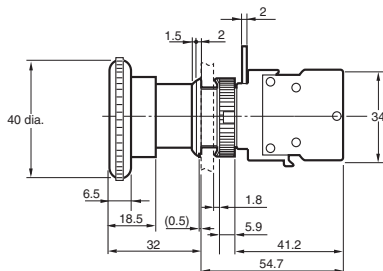
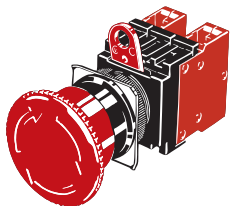
A22E-S

Small Turn-reset (30-dia.) Degree of Protection: IP65 oil-resistant models



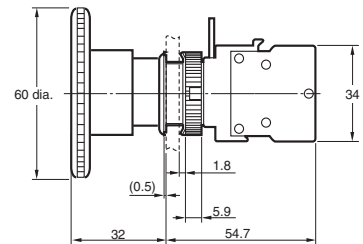
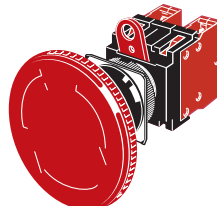
A22E-M

Medium Turn-reset (40-dia.) Degree of Protection: IP65 oil-resistant models



A22E-L

Large Turn-reset (60-dia.) Degree of Protection: IP65 oil-resistant models



Note: The dimensions are the same as for EMO/EMS indication models.

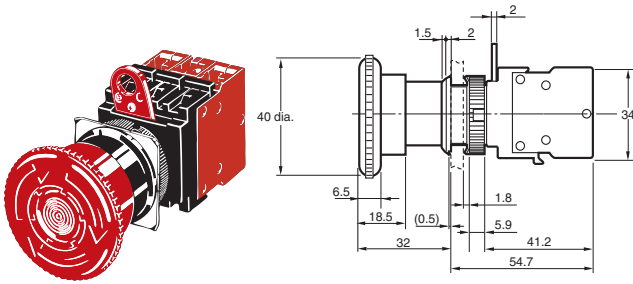
Note: Unless otherwise specified, a tolerance of ± 0.8 mm applies to all dimensions.

Common Accessories and Tools

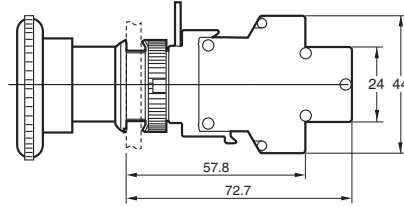
Common Note

Lighted Model

A22EL-M
Medium Turn-reset (40-dia.) Degree of Protection:
IP65 oil-resistant models



Switch dimensions when mounted to a 2NO (2NC) one-piece switch block



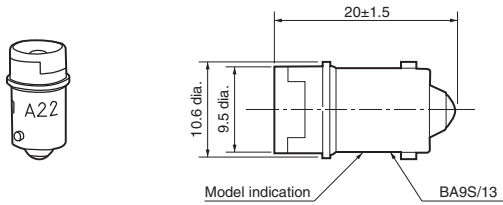
Note: The operation unit is an example for the A22E-M.

Note: Unless otherwise specified, a tolerance of ± 0.8 mm applies to all dimensions.

Accessories (Order Separately)

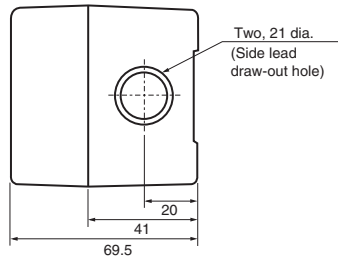
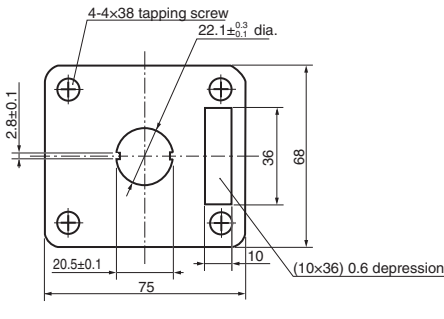
LED Lamp

A22-6□, 12□, 24□

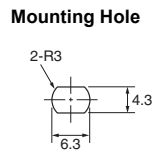
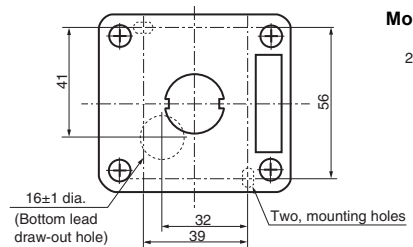


Control Box

A22Z-B101Y (1-hole)

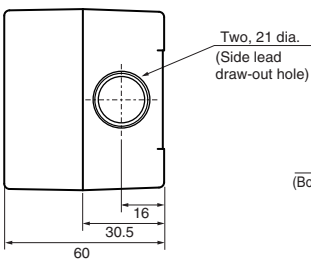
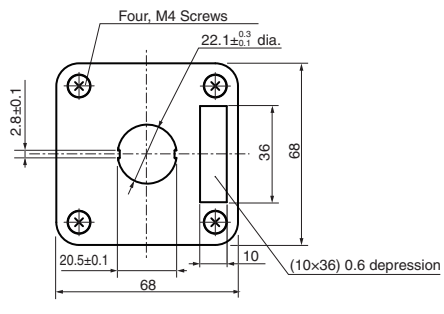


Cable Draw-out Hole (Top View)

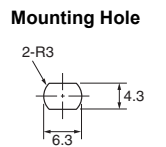
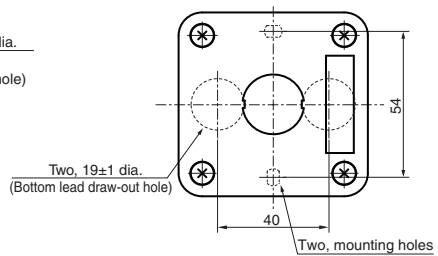


Control Box

A22Z-B201Y (1-hole)



Cable Draw-out Hole (Top View)



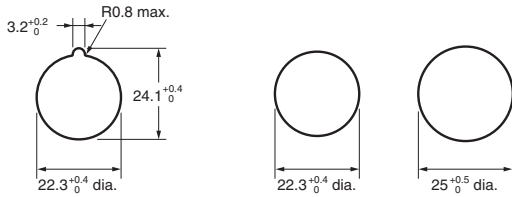
Note: For details on the accessories common to the screw terminal block types and push-in plus terminal block types, refer to "Common Accessories and Tools (Order Separately)" on page 51.

Installation

Mounting to the Panel

(1) Preparing the Panel

- The panel dimensions are shown below.
- The panel thickness must be 1 to 5 mm.



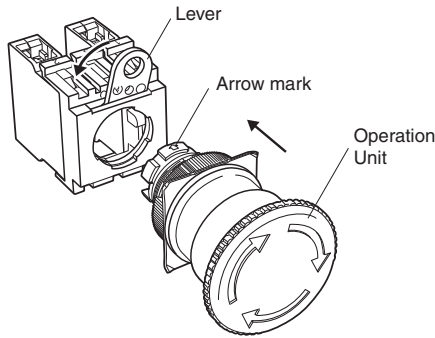
With Lock Ring

Without Lock Ring

- Always use a 25-mm-dia. A22Z-R25 Lock Ring for a 25-mm-dia. hole. IP65 degree of protection will be lost if the 25-mm-dia. Lock Ring is not used because of the larger size of a 25-mm-dia. hole.
- When painting or coating the panel, make sure that the specified panel dimensions apply to the panel after painting or coating.

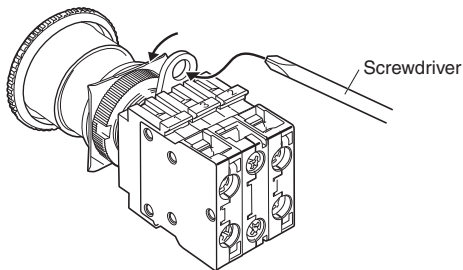
(3) Mounting the Switch on the Operation Unit

- Insert the Operation Unit into the Switch Unit, aligning the arrow mark inscribed on the Case with the lever on the Switch Blocks, then move the lever in the direction indicated by the arrow in the following figure.



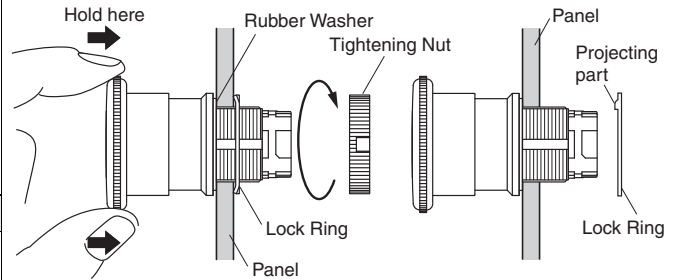
(4) Removing the Switch

- Move the lever in the direction indicated by the arrow in the following figure, then pull the Operation Unit or the Switch Blocks. Since the lever has a hole with an inside diameter of 6.5 mm, the lever can be moved in the specified direction by inserting a screwdriver into the hole and then moving the screwdriver.

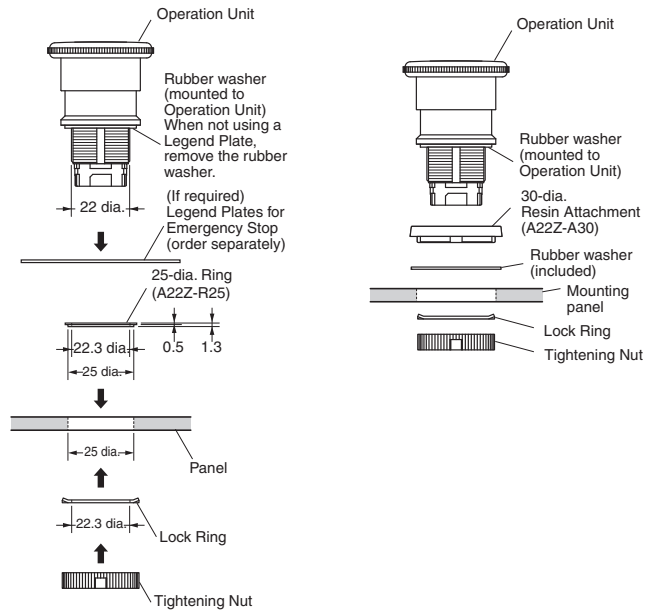


(2) Mounting the Operation Unit on the Panel

- Insert the Operation Unit from the front surface of the panel, insert the Lock Ring and the Tightening Nut from the terminal side, then tighten the Ring. Before tightening, check that the rubber washer is present between the Operation Unit and the panel.
- Align the Lock Ring with the groove in the casing, then insert the Lock Ring so that its edge is located on the panel side.
- Tighten the Tightening Nut at a torque of 1.0 to 2.0 N·m.
- When using a Lock Ring, replace with the supplied Lock Ring, insert the projecting part into the lock slot, and then tighten the Tightening Nut.



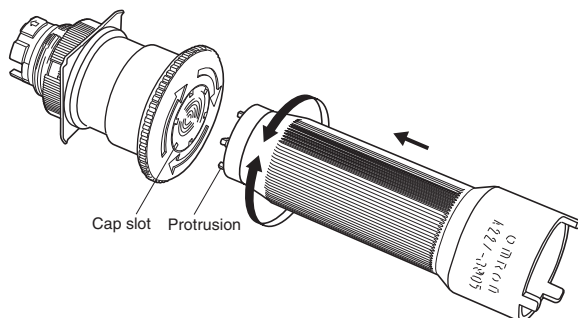
- When the panel cutout dimension is 25 dia., remove the supplied rubber washer and mount the 25-dia. Ring as shown below. (Since the A22Z-R25 is not attached to the main body, order separately.) When using a Legend Plate (Order Separately), do not remove the rubber washer.
- When the panel cutout dimension is 30 dia., use resin attachment A22Z-A30. Since it is not attached to the main body, order separately.



Assembling the Cap

Emergency Stop Switch

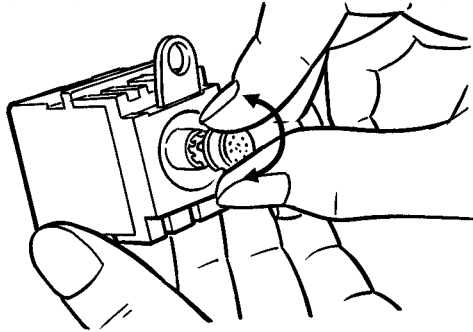
- Insert the protrusion of the Tightening Wrench (A22Z-3905) into the Cap slot and then turn to remove the Cap.



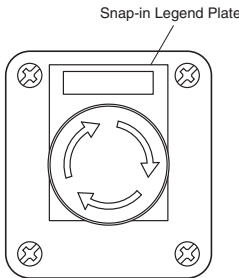
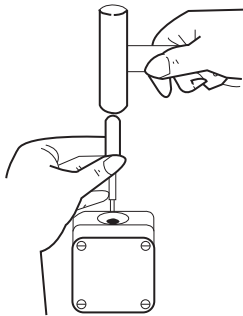
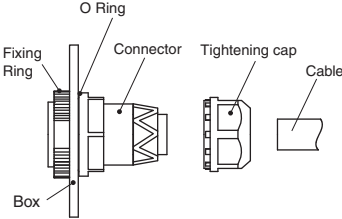
Installing/Replacing the LED Lamp

Installing/Replacing on the Switch

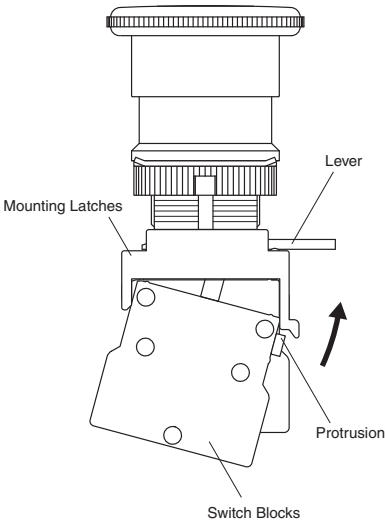
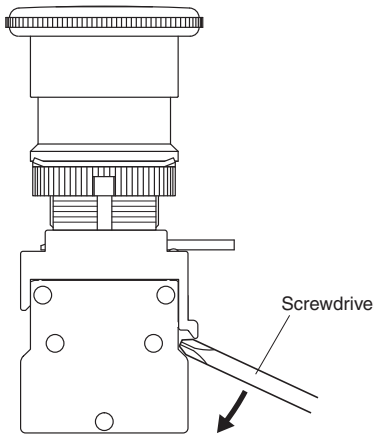

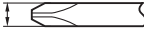
- Grip the lamp with your fingers, then rotate the lamp while pressing it against the Switch.



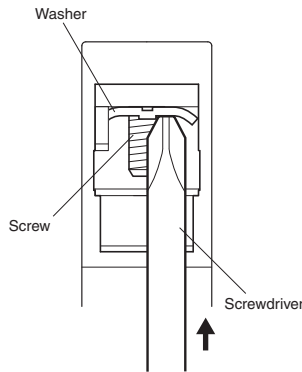
Control Box (Enclosure)

(1) Mounting the Switch	(2) Creating a Cable Port Hole	(3) Securing the Connector Cable						
<p>The Standard-size Legend Plate Frame can be mounted. Mount the Frame as shown in the following diagram. Mount the Switch in the same way as for an ordinary panel.</p> 	<p>Place the tip of a screwdriver on the surface where the cable port hole is to be created with the cover attached and strike the screwdriver to punch a hole. Attempts to punch a hole on the other side of the case will damage the Box.</p> 	<p>1. Insert the connector into the cable port hole in the Box and secure with the Mounting Ring inside the box. 2. Pass the tightening cap through the cable, insert the cable into the connector, and tighten the tightening cap to secure the cable.</p>  <table border="1" data-bbox="1149 1102 1484 1205"> <thead> <tr> <th>Cable diameter (mm)</th> <th>Connector</th> </tr> </thead> <tbody> <tr> <td>7 to 9 dia.</td> <td>A22Z-3500-1</td> </tr> <tr> <td>9 to 11 dia.</td> <td>A22Z-3500-2</td> </tr> </tbody> </table>	Cable diameter (mm)	Connector	7 to 9 dia.	A22Z-3500-1	9 to 11 dia.	A22Z-3500-2
Cable diameter (mm)	Connector							
7 to 9 dia.	A22Z-3500-1							
9 to 11 dia.	A22Z-3500-2							

Installing/Removing the Switch Blocks

(1) Installing the Switch Blocks	(2) Removing the Switch Blocks
<ul style="list-style-type: none"> • Hook the small protrusion on the Mounting Latch into the groove on the other side of the lever, then push up the Switch Block in the direction indicated by the arrow in the figure below. 	<ul style="list-style-type: none"> • Insert a screwdriver between the Mounting Latch and the Switch Block, then push down the screwdriver in the direction indicated by the arrow in the following figure.  <p>Use either of the following screwdrivers.</p> <ul style="list-style-type: none"> ⊖ Flat-head screwdriver 3 to 6 mm  ⊕ Phillips screwdriver 3 to 6 mm dia. 



Wiring

Wiring Round Crimp Terminals
<ul style="list-style-type: none"> • Loosen the terminal screw from the Switch Unit until it completely comes off the groove, insert a screwdriver as shown in the following figure, then push up the washer in the direction indicated by the arrow to temporarily secure it. Now, a round crimp terminal can be connected. After inserting the terminal, tighten the screws to complete wiring. 

Safety Precautions

Be sure to read the precautions for **All PushButton Switches** in the website at: <http://www.ia.omron.com/>.

Indication and Meaning for Safe Use

 Warning	Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Additionally there may be significant property damage.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.
Precautions for Safe Use	Supplementary comments on what to do or avoid doing, to use the product safely.

WARNING

Do not perform wiring with power supplied to the Switch/Indicator. Do not touch the terminals or other charged parts while power is being supplied. Doing so may result in electric shock.



Caution

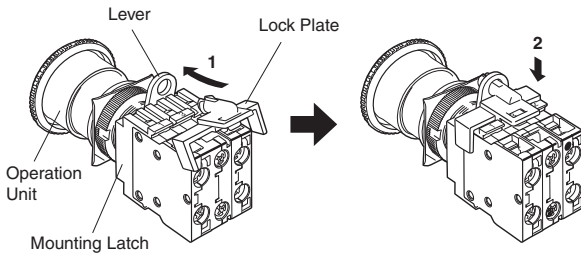
If the Operation Unit is separated from the Socket Unit, the equipment will not stop, creating a hazardous condition. Secure the lever on the Socket Unit by using the A22Z-3380 Lock Plate so that the Operation Unit cannot be easily separated from the Socket Unit. (Refer to "Mounting the Lock Plate" at the below.)



Precautions for Correct Use

Mounting the Lock Plate

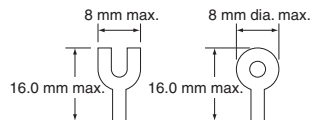
1. Confirm that the lever on the Mounting Latch is on the side where the Operation Unit is secured and then insert the protrusion on the Lock Plate into the hole in the lever on the Mounting Latch.
2. Press the hole on the Lock Plate onto the protrusion on the Mounting Latch until it clicks into place.



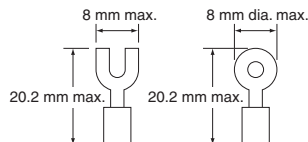
Wiring

- Terminal screws must be Phillips or slotted M3.5 screws with a square washer.
- The tightening torque is 1.08 to 1.27 N·m.
- Single wires, stranded wires, and crimp terminals can be connected to the Switch.
- Applicable Wiring Materials:
Twisted strands: 2 mm² max.
Solid wire: 1.6 mm dia. max.

Naked Crimp Terminals



Crimp Terminals with Insulating Sheaths



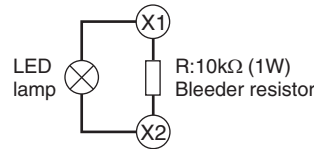
- After wiring the Switch, maintain an appropriate clearance and creepage distance.

LED Lamps

- The LED current-limiting resistor is built-in, so internal resistance is not required.
- If commercially available LEDs are used, select the ones that meet the following conditions:
Base: BA9S/13
Overall length: 26 mm max.
Power consumption: 2.6 W max.
When DC-specific LEDs are used, wire the Switch so that the X1 terminal is positive.
- Mis-lighting of the LED
The LED lights with approx. 0.1 mA or less of micro-current. Take a countermeasure like adding a resistor to prevent mis-lighting in parallel to the LED.
The micro-current varies with the machine (leak current or stray capacity between cables, etc.). Select resistance value and allowable power consumption that meet the actual current.

(Circuit example)

In case of using 24 VAC/VDC, Direct lighting

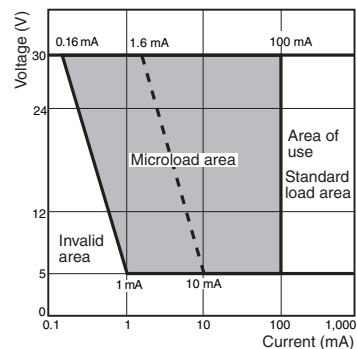


- Do not use a lamp that does not satisfy the rating.

Using the Microload

Contact failure may occur if a Switch designed for a standard load is used to switch a microload. Use Switches within the application ranges shown in the following graph. Even within the application range, insert a contact protection circuit, if necessary, to prevent the reduction of life expectancy due to extreme wear on the contacts caused by loads where inrush current occurs when the contact is opened and closed.

The minimum applicable load is the N-level reference value. This value indicates the malfunction reference level for the reliability level of 60% (λ_{60}) (conforming to JIS C5003). The equation, $\lambda_{60} = 0.5 \times 10^{-6}/\text{time}$ indicates that the estimated malfunction rate is less than 1/2,000,000 with a reliability level of 60%.













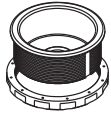




Be sure to read the "Safety Precautions" on page 56.

Common Accessories and Tools (Order Separately)

Ordering Information

Common to Push-in Plus Terminal Block types (A22NE-PD/A22NE-P)/Screw Terminal Block types (A22E)

Item	Appearance	Classification	Model	Remarks	
Legend Plates for Emergency Stop		60-dia. black letters on yellow back-ground	A22Z-3466-1	Used in combination with the rubber packing when the level of protection is to be met between panels. *1	
		90-dia. black letters on yellow back-ground	A22Z-3476-1	Used in combination with the rubber packing when the level of protection is to be met between panels. *1 *3	
		60-dia. black letters on yellow background	A22Z-3466-2	Used in combination with the rubber packing when the level of protection is to be met between panels. *1	
Hole Plug		Round	A22Z-3530	Used for covering the panel cutouts for future panel expansion. Black color.	
Connectors		Applicable cable diameter	7 to 9 dia.	A22Z-3500-1	Plastic connector used to extend a cable from the Switch Box. (Refer to page 16, 32, and 49).
			9 to 11 dia.	A22Z-3500-2	
25-dia. Ring		---	A22Z-R25	Use when mounting to a panel with a 25-dia. hole. (Refer to page 16, 31, and 48). Material: Rubber, Level of protection: IP65	
30-dia. Resin Attachment		---	A22Z-A30	Use when mounting to a panel with a 30-dia. hole. (Refer to page 16, 31, and 48). A rubber packing is provided with the product.	
Lock Ring		---	A22Z-3360	The body is equipped with a Lock Ring. This Lock Ring is used when a more secure lock feature is required. (Refer to page 16 and 31).	
Tightening Tool		---	A22Z-3905	Used for tightening the tightening nut from the back side of the panel, and for removing the cap in lighted models.	
E-stop Shroud for EMO, Yellow		---	A22Z-EG1	Provides SEMI-S2/SEMATECH APPLICATION GUIDE FOR SEMI-S2 compatibility. The SEMI-S2-compatible Shroud and legend plate for EMERGENCY OFF come as a set. Use with an A22E Emergency Stop Switch (for emergency shutoff) *2 *3	
E-stop Shroud for EMO, Yellow		Legend plate for EMERGENCY OFF is not included.	A22Z-EG10	Provides SEMI-S2/SEMATECH APPLICATION GUIDE FOR SEMI S2 compatibility. Use with an A22E with EMO indication. (for emergency off) *3	
E-stop Shroud for EMS, White		---	A22Z-EG1-W	Provides SEMI-S2/SEMATECH APPLICATION GUIDE FOR SEMI-S2 compatibility. The SEMI-S2-compatible Shroud and legend plate for EMERGENCY STOP come as a set. Use with an A22E Emergency Stop Switch. (for emergency stop) *2 *3	
E-stop Shroud for EMS, White		Legend plate for EMERGENCY STOP is not included.	A22Z-EG10-W	Provides SEMI-S2/SEMATECH APPLICATION GUIDE FOR SEMI S2 compatibility. Use with an A22E with EMS indication. (for emergency stop) *3	
E-stop Shroud, Yellow		Spacer Unit is not included.	A22Z-EG2	SEMI-S2/SEMATECH APPLICATION GUIDE FOR SEMI S2-compatible Shroud. (for emergency shutoff) *2 *3 Use together with an A22E Emergency Stop Switch.	
		One Spacer Unit is included.	A22Z-EG21		
		Two Spacer Units are included.	A22Z-EG22		
E-stop Shroud for EMO, Yellow		---	A22Z-EG3	Provides SEMI-S2/SEMATECH APPLICATION GUIDE FOR SEMI-S2 compatibility. The SEMI-S2-compatible Shroud and legend plate for EMERGENCY OFF come as a set. Use with an A22E Emergency Stop Switch. (for emergency shutoff) *2 *3	
Rubber Packing		-	A22Z-R	Used together with accessories. Contains 10 packings.	

*1. If you use Legend Plates for Emergency Stop, set the thickness of the panels between 1 to 4 mm.
 *2. These Shrouds are for use with the equipment only that conforms to SEMI standards. Do not use them for any other applications (e.g. emergency stop switches for machines or devices such as Machine tools, Printing presses, Industrial machinery, etc).
 *3. The Control Boxes cannot be used in combination with the A22Z-3476-1 Legend Plates for Emergency Stop or the A22Z-EG□ E-stop Shrouds.
Note: 1. Accessories for A22Z-EG1: one "EMERGENCY OFF" label, two rubber packings, and one lock ring
 2. Accessories for A22Z-EG10: one rubber packing and one lock ring (without label)

A22NE-PD

A22NE-P

A22E

Common Accessories and Tools

Common Note

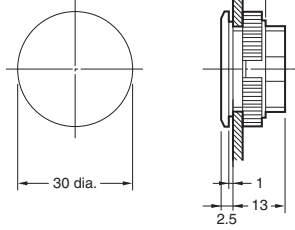
A22NE-PD/A22NE-P/A22E

Dimensions

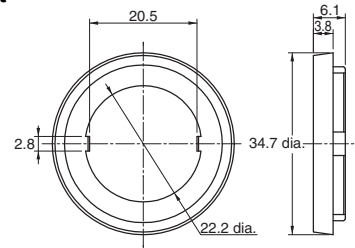
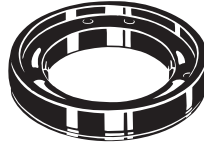
(Unit: mm)

Screw Terminal Block Type/Push-in Plus Terminal Block Type

**Hole Plug
Round A22Z-3530**

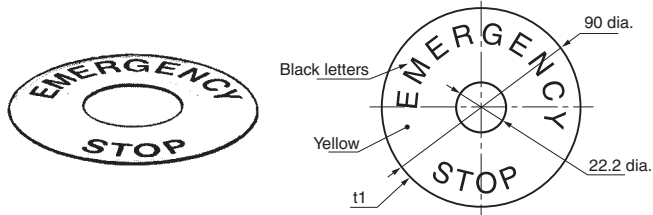


**30-dia. Resin Attachment
A22Z-A30**

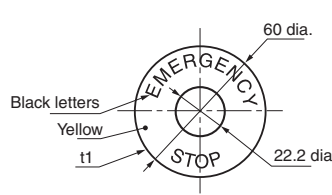


Legend Plates for Emergency Stop

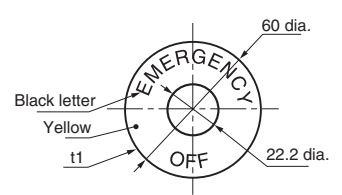
A22Z-3476-1 (90 dia.)



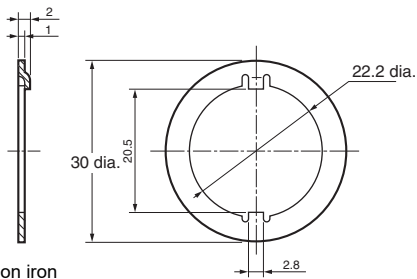
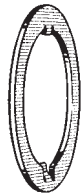
A22Z-3466-1 (60 dia.)



A22Z-3466-2 (60 dia.)



**Lock Ring
A22Z-3360**

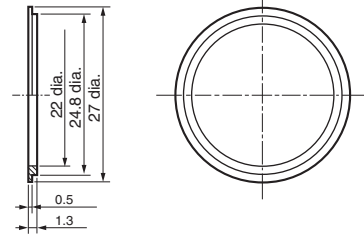


Material: Nickel plated on iron

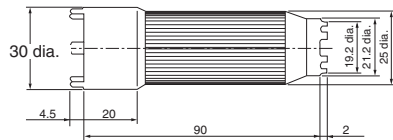
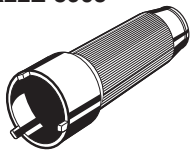
**25-dia. Ring
A22Z-R25**



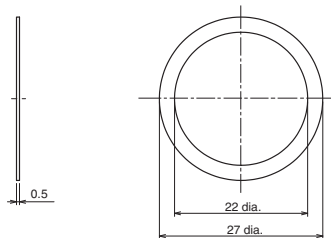
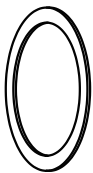
Material: NBR (black)



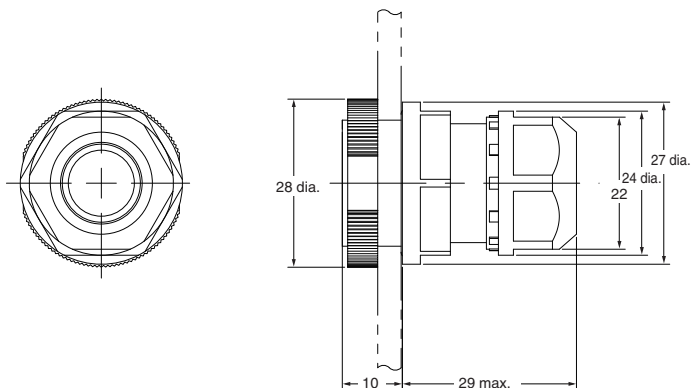
**Tightening Tool
A22Z-3905**



**Rubber Packing
A22Z-R**



**Connector
A22Z-3500**



A22NE-PD

A22NE-P

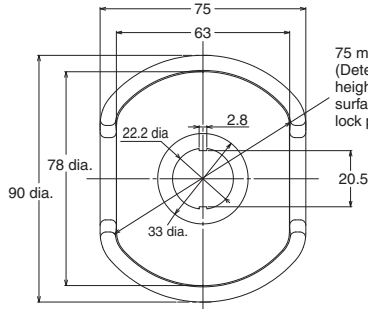
A22E

Common Accessories and Tools

Common Note

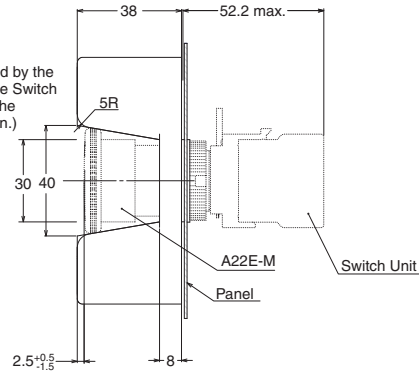
Common E-stop Shrouds

A22Z-EG1, A22Z-EG1-W, A22Z-EG10, A22Z-EG10-W

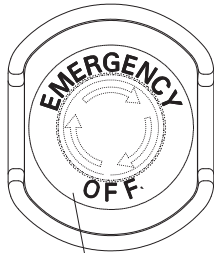


75 min.
(Determined by the height of the Switch surface in the lock position.)

Screw Terminal Block type Mounting a 1-pole Switch Unit

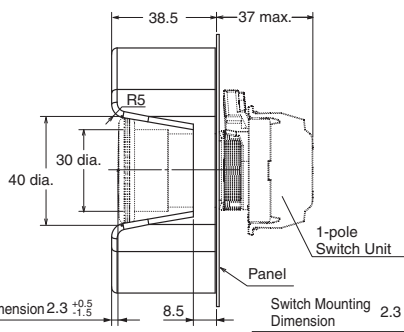


- Note:**
1. The dimensions of the Shroud conform to the specifications of the SEMATECH Application Guide for SEMI S2-93.
 2. The Shroud is not provided with the Switch.

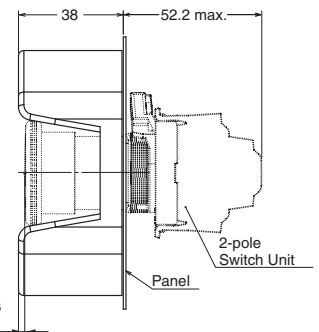


"EMERGENCY STOP" is indicated on A22Z-EG1-W. Legend plate is not provided with A22Z-EG10 and A22Z-EG10-W.

Push-in Plus Terminal Block type Mounting a 1-pole Switch Unit



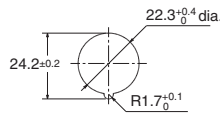
Push-in Plus Terminal Block type Mounting a 2-pole Switch Unit



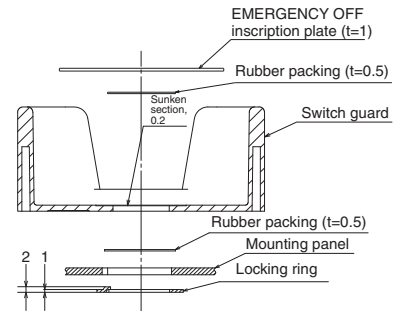
Switch Mounting Dimension $2.3^{+0.5}_{-1.5}$

Switch Mounting Dimension $2.3^{+0.5}_{-1.5}$

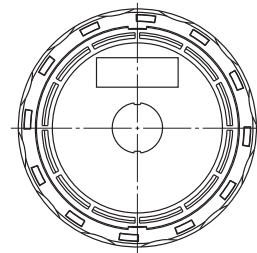
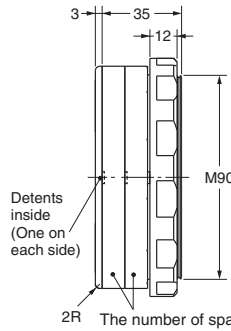
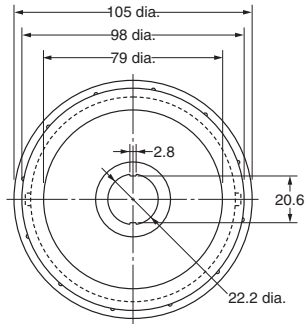
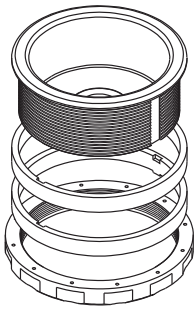
Panel Cutout Dimensions



Model	Allowable panel thickness [mm]
A22NE-PD series	1 to 1.8
A22NE-P series	1 to 2.0
A22E series	

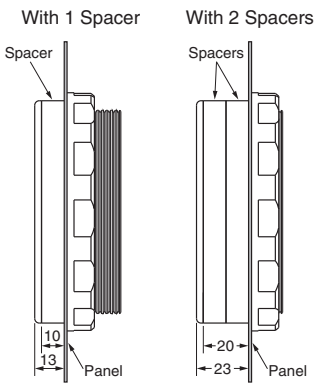


E-stop Shrouds
A22Z-EG2, A22Z-EG21, A22Z-EG22



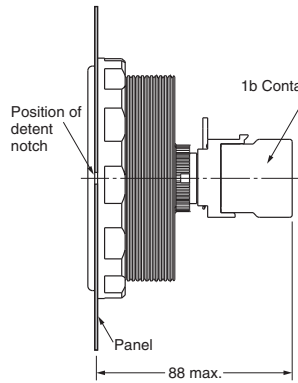
The number of spacers depends on the model
 A22Z-EG2 : No Spacer
 A22Z-EG21 : 1 Spacer
 A22Z-EG22 : 2 Spacers

During spacer attachment

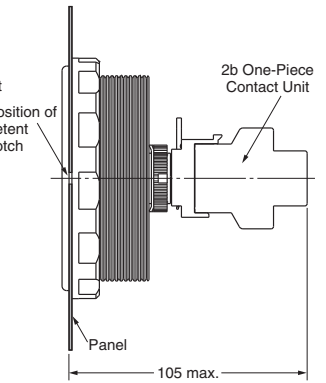


- Note:**
1. The dimensions of the Shroud conform to the specifications of the SEMATECH *Application Guide for SEMI S2-93*.
 2. The Shroud is not provided with the Switch.
 3. Tighten to a torque of 1.96 to 2.94 N·m.
 4. The allowable panel thicknesses are as follows:
 Without Spacers: $t=1.3$ to 22.5 mm
 With 1 Spacer: $t=1.3$ to 12.5 mm
 With 2 Spacers: $t=1.3$ to 2.5 mm

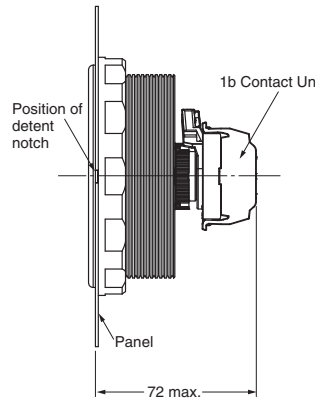
Screw Terminal Block Type Mounting a 1-pole Switch Unit *



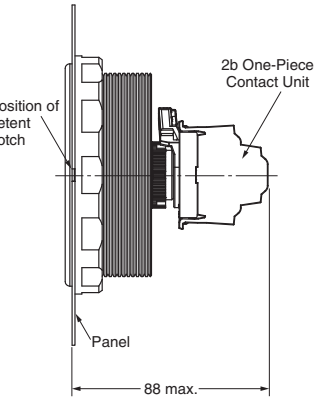
Screw Terminal Block Type Mounting a 2-pole Switch Unit *



Push-in Plus Terminal Block Type Mounting a 1-pole Switch Unit *

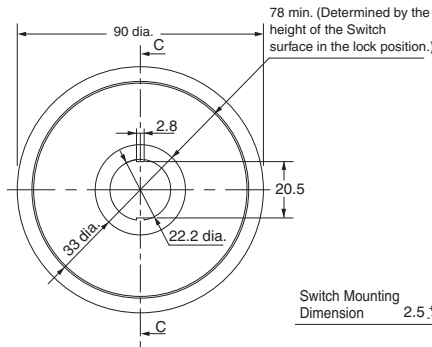


Push-in Plus Terminal Block Type Mounting a 2-pole Switch Unit *

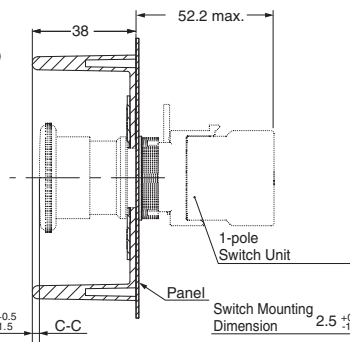


* These are the dimension from the front of the panel when the Switch Unit is attached.

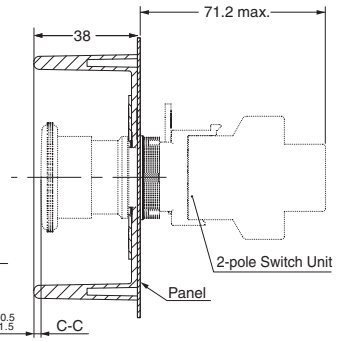
**E-stop Shroud
A22Z-EG3**



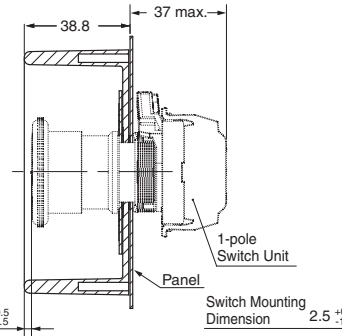
**Screw Terminal Block Type
Mounting a 1-pole Switch Unit**



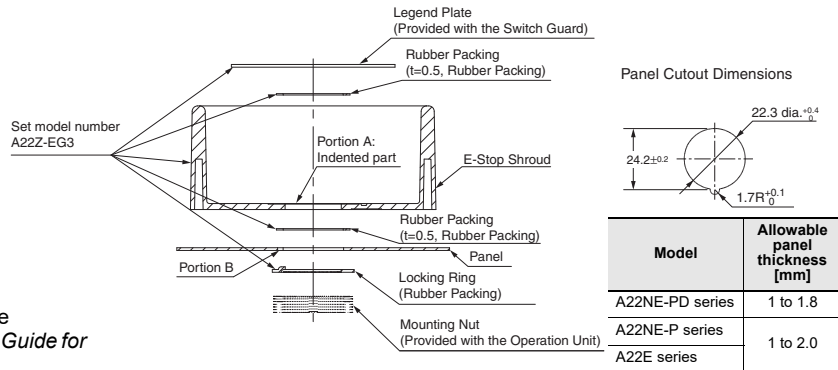
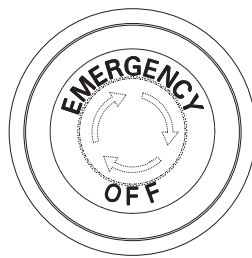
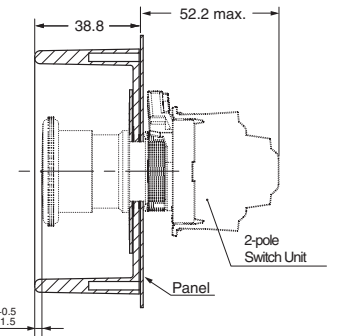
**Screw Terminal Block Type
Mounting a 2-pole Switch Unit**



**Push-in Plus Terminal Block Type
Mounting a 1-pole Switch Unit**



**Push-in Plus Terminal Block Type
Mounting a 2-pole Switch Unit**



Panel Cutout Dimensions

Model	Allowable panel thickness [mm]
A22NE-PD series	1 to 1.8
A22NE-P series	1 to 2.0
A22E series	1 to 2.0

- Note:**
1. The dimensions of the Shroud conform to the specifications of the SEMATECH *Application Guide for SEMI S2-93*.
 2. The Shroud is not provided with the Switch.

A22NE-PD

A22NE-P

A22E

Common Accessories and Tools

Common Note

Safety Precautions

Be sure to read the precautions for **All PushButton Switches** in the website at: <http://www.ia.omron.com/>.

Indication and Meaning for Safe Use

Precautions for Safe Use	Supplementary comments on what to do or avoid doing, to use the product safely.
Precautions for Correct Use	

Mounting

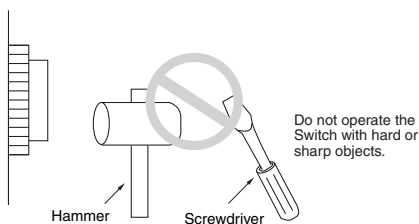
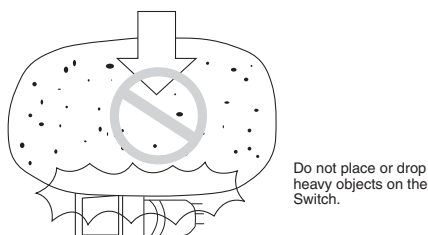
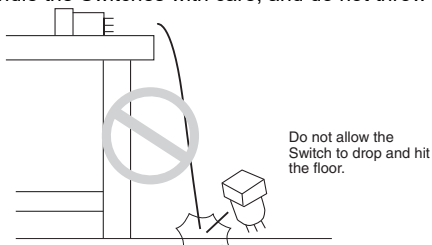
- Always make sure that the power is turned OFF before wiring the Switch. Also, do not touch the terminals or other current-carrying ports while power is being supplied. Electric shock may occur.
- Do not tighten the tightening nut more than necessary by using tools such as pointed-nose pliers. Doing so could damage the tightening nut. (The tightening torque is 1.0 to 2.0 N·m.)
- Recommended panel thickness: 1 to 5 mm.
- When mounting the caps after changing the LED or the caps, tighten the caps at a tightening torque of 0.49 to 0.78 N·m.

Operating Environment

- This model is designed with a protective structure so that it will not sustain damage if it is subjected to water from any direction to the front of the panel.
- The Switch is intended for indoor use only. Using the Switch outdoor may cause it to fail.

Others

- If the panel is to be coated, make sure that the panel meets the specified dimensions after coating.
- Due to the structure of the Switch, severe shock or vibration may cause malfunctions or damage to the Switch. Also, most Switches are made from resin and will be damaged if they come into contact with sharp objects. Particularly scratches on the Operation Unit may create visual and operational obtrusions. Handle the Switches with care, and do not throw or drop them.



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Note: Do not use this document to operate the Unit.

OMRON Corporation Industrial Automation Company

Kyoto, JAPAN

Contact : www.ia.omron.com

Regional Headquarters

OMRON EUROPE B.V.

Wegalaan 67-69, 2132 JD Hoofddorp
The Netherlands
Tel: (31) 2356-81-300 Fax: (31) 2356-81-388

OMRON ELECTRONICS LLC

2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900 Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.

438B Alexandra Road, #08-01/02 Alexandra
Technopark, Singapore 119968
Tel: (65) 6835-3011 Fax: (65) 6835-3011

OMRON (CHINA) CO., LTD.

Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-6023-0333 Fax: (86) 21-5037-2388

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Cat. No. A263-E1-14 1125 (0917)