


Emergency Stop Pushbutton Switches (22-dia. or 25-dia.) A22E/A22NE-P

Install in 22-dia. or 25-dia.

Panel Cutout (When Using a Ring)

- Direct opening mechanism to open the circuit when the contact welds.
- Safety lock mechanism prevents operating errors.
- Lever for easily mounting and removing the Switch Blocks.
- Finger protection mechanism on Switch Unit provided as a standard feature.
- Use 25-dia. ring to install in 25-dia. panel cutouts.

 Be sure to read the "Safety Precautions" on pages 15, 28, and 37.



NEW

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

Types of Emergency Stop Pushbutton Switches

- A22E Screw Terminal Block Types from page 2
- A22NE-P Push-in Plus Terminal Block Types from page 16

Common Items

- Common Accessories / Tools from page 32
- Safety Precautions from page 37

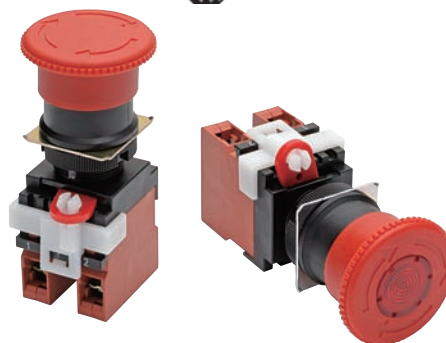
A22E

A22E

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 15 and 37.

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

A22NE-P

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.	Pull-reset
S	30 dia.	Turn-reset
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)

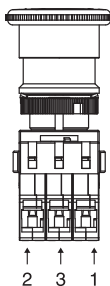
Code	Description	Operating Voltage
T1	Lighted (LED) *	100 VAC
T2	Lighted (LED) *	200 VAC

* 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	---	Lighting unit	NC
11	1	1	NO	---	NC	NO	Lighting unit	NC
02	0	2	NC	---	NC	NC	Lighting unit	NC
12	1	2	NO	NC	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.





Common Accessories and Tools

Common Note

Ordering Information

List of Models (Completely Assembled)



Non-lighted Models (Without EMO/EMS Indication)

Operation		Set Model	Color of cap
Appearance	Contact configuration (Number of switch blocks)		
40-dia. head Medium Pull-reset A22E-MP 	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 *	
	1NC, 1NO (2)	A22E-S-11 *	
	2NC (2)	A22E-S-02 *	
	2NC, 1NO (3)	A22E-S-12 *	
40-dia. head Medium Turn-reset A22E-M 	3NC (3)	A22E-S-03 *	
	1NC (1)	A22E-M-01 *	
	1NC, 1NO (2)	A22E-M-11 *	
	2NC (2)	A22E-M-02 *	
60-dia. Large Turn-reset A22E-L 	2NC, 1NO (3)	A22E-M-12 *	
	3NC (3)	A22E-M-03 *	
	1NC (1)	A22E-L-01 *	
	1NC, 1NO (2)	A22E-L-11 *	
	2NC (2)	A22E-L-02 *	

* 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)

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

* 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.

Lighted Models

Appearance	Operation		Push-lock turn-reset system	Color of cap
	Contacts (Number of switch blocks)	LED Lamp voltage	Set Model	
40-dia. head Push-lock Turn-reset Lighting unit (Direct lighting) A22E 	1NC (1)	6 VAC/VDC	A22EL-M-6A-01 *	Red
		12 VAC/VDC	A22EL-M-12A-01 *	
		24 VAC/VDC	A22EL-M-24A-01 *	
	1NC, 1NO (2)	6 VAC/VDC	A22EL-M-6A-11 *	
		12 VAC/VDC	A22EL-M-12A-11 *	
		24 VAC/VDC	A22EL-M-24A-11 *	
	2NC (2)	6 VAC/VDC	A22EL-M-6A-02 *	
		12 VAC/VDC	A22EL-M-12A-02 *	
		24 VAC/VDC	A22EL-M-24A-02 *	
40-dia. head Push-lock Turn-reset Lighting unit (Voltage-reduction lighting) A22E 	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	

* Models with Korean S-mark certification

Switch with Integrated Control Box

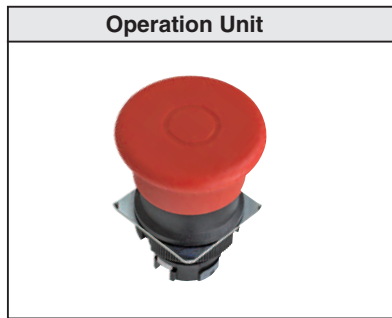
Appearance	Contact configuration (Number of switch blocks)	Model
	1NC (1)	A22E-M-01B *
	1NC, 1NO (2)	A22E-M-11B *
	2NC (2)	A22E-M-02B *

Note: The A22Z-B101Y Control Box is used.

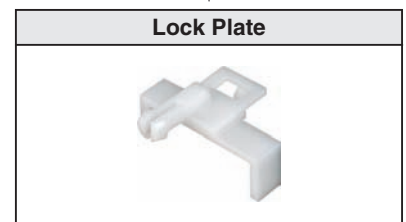
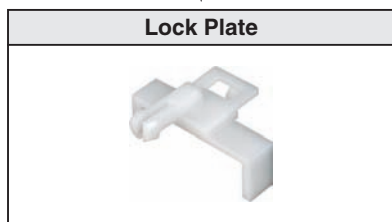
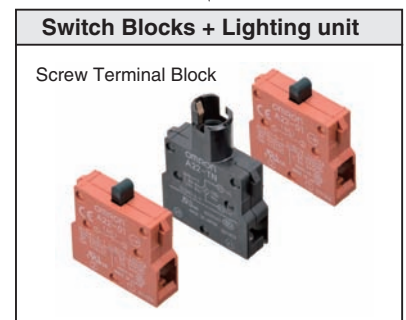
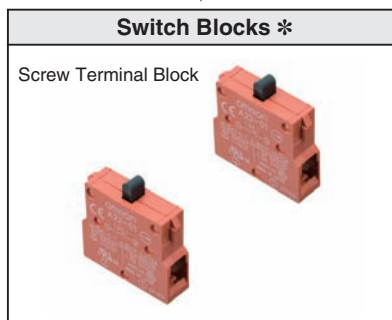
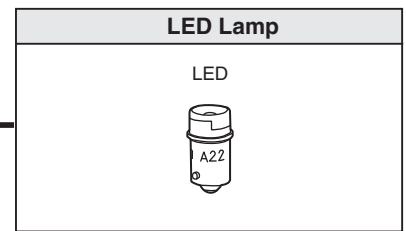
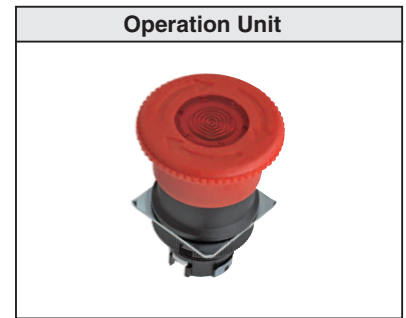
* Models with Korean S-mark certification

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 for multiple contacts.







A22E

A22E


A22NE-P

Common Accessories and Tools


Operation Unit Non-lighted

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

Lighted

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

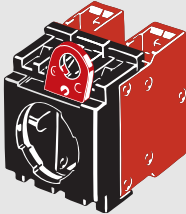
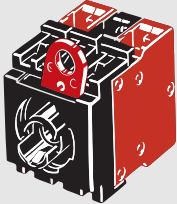
LED lamp

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

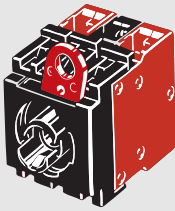
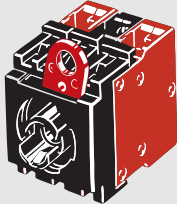
Note: For a model with a Lighting unit (Voltage-reduction lighting), use the A22-24AR.

Common Note

Switch
Non-lighted / Direct lighting

Classification Appearance		Non-lighted	Direct lighting
			
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

Voltage-reduction lighting (100 VAC, 200 VAC)

Classification Appearance		100 VAC, Lighted	200 VAC, Lighted
			
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.







A22E

A22NE-P

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	
			Microload	A22-11S	
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. The A22Z-B101Y does not support 2NO, 2NC, or 1NC + 1NO two-contacts Switch Blocks.
				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 32.

A22E

A22NE-P

Common Accessories and Tools

Common Note

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

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)	GB14048.5	2003010303070635
KOSHA #2	EN60947-5-1	Consult your OMRON representative for details.

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

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	---	---			0.5	2
	110 VDC						
	220 VDC						
	220 VDC						
	380 VDC						
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

LED Lamp

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

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) *2 *3	IP65 *2	IP65 (oil-resistant) *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.

A22E

A22NE-P

Common Accessories and Tools

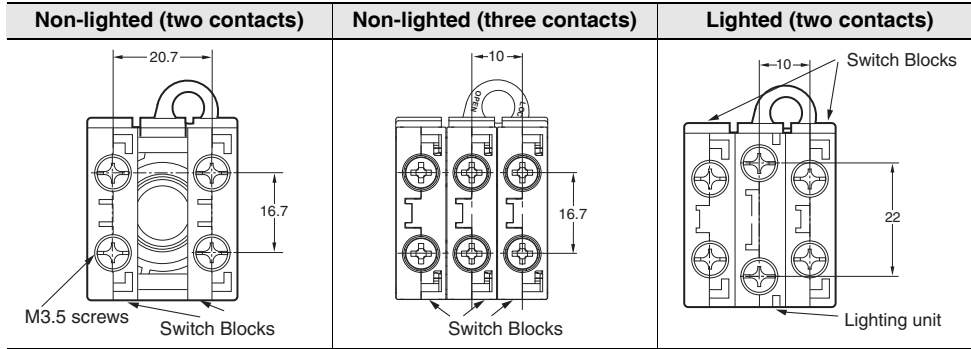
Common Note

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)

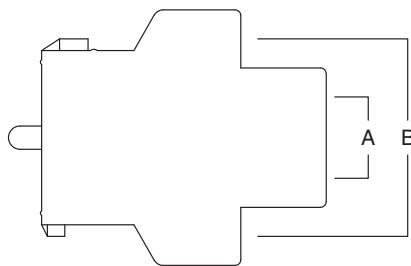


Terminal connection

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

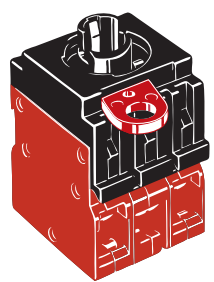
Structure and Nomenclature



Operation Unit
Color: Red
 Non-lighted
 LED lighting



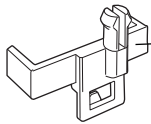
Lamp
Light source
 • LED Lamp



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 15 for use.)

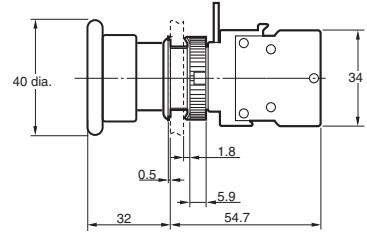
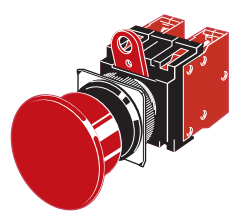
A22E
A22NE-P

Dimensions

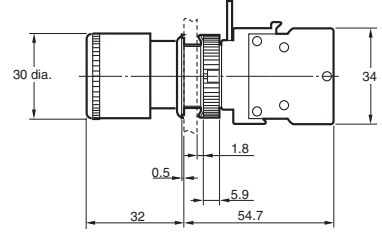
(Unit: mm)

Non-lighted Models

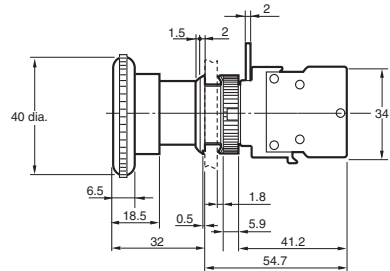
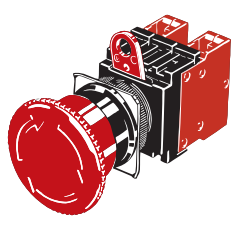
A22E-MP
 Medium Push-pull (40-dia.)



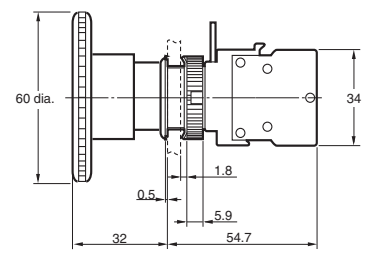
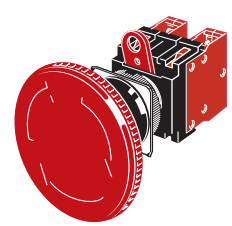
A22E-S
 Small Turn-reset (30-dia.)



A22E-M
 Medium Turn-reset (40-dia.)



A22E-L
 Large Turn-reset (60-dia.)



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

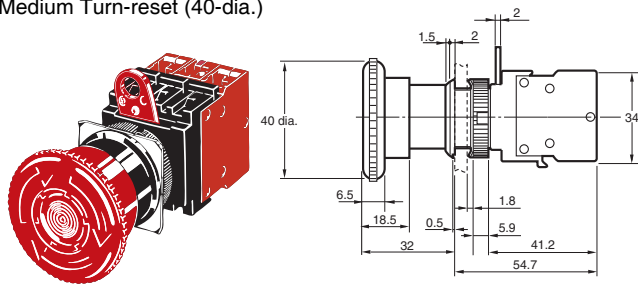
Note: Unless otherwise specified, a tolerance of $\pm 0.8\text{mm}$ applies to all dimensions.

Common Accessories and Tools

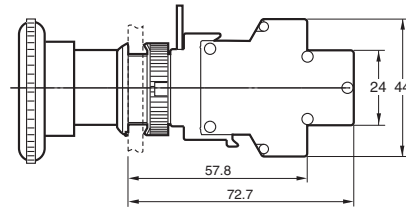
Common Note

Lighted Model

A22EL-M
Medium Turn-reset (40-dia.)



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

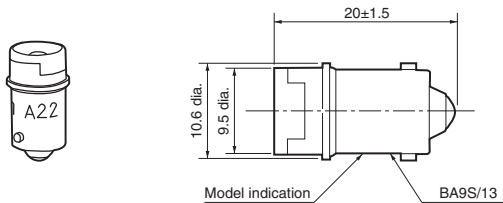


Note: The operation unit is an example for the A22E-M.

Note: Unless otherwise specified, a tolerance of $\pm 0.8\text{mm}$ applies to all dimensions.

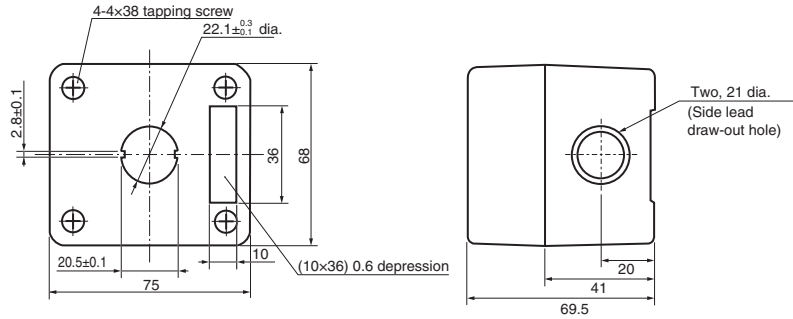
Accessories (Order Separately)

LED Lamp
A22-6□, 12□, 24□

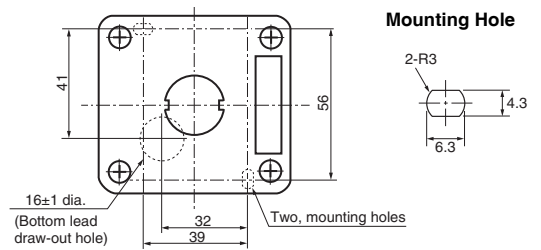


Control Box

A22Z-B101Y (1-hole)

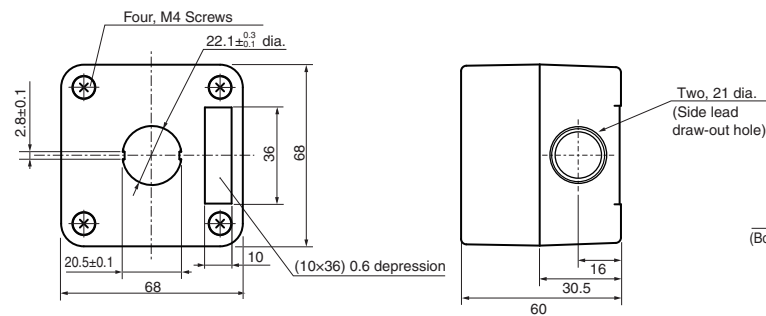


Cable Draw-out Hole (Top View)

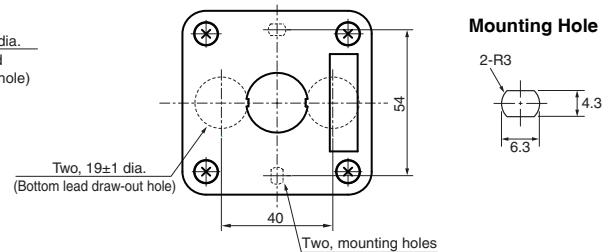


Control Box

A22Z-B201Y (1-hole)



Cable Draw-out Hole (Top View)



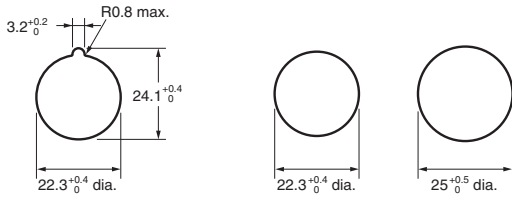
Note: For details on the accessories common to the screw terminal block types and push-in plus terminal block types, refer to "Common Accessories and Tools (Order Separately)" on page 32.

Installation

Mounting to the Panel

(1) Preparing the Panel

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



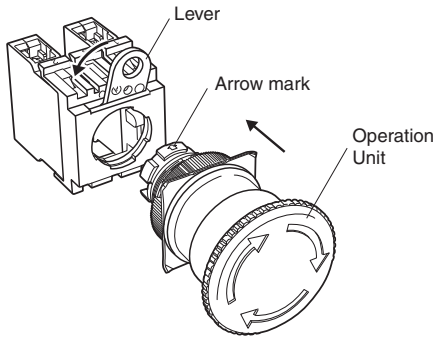
With Lock Ring

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.

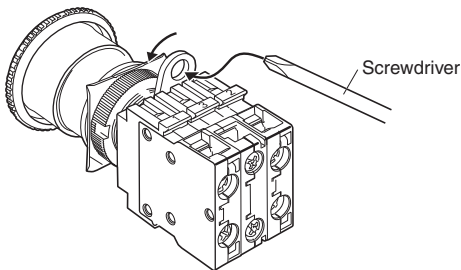
(3) Mounting the Switch on the Operation Unit

- 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.



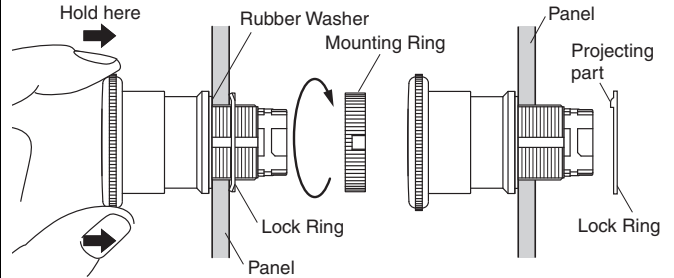
(4) Removing the Switch

- 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.

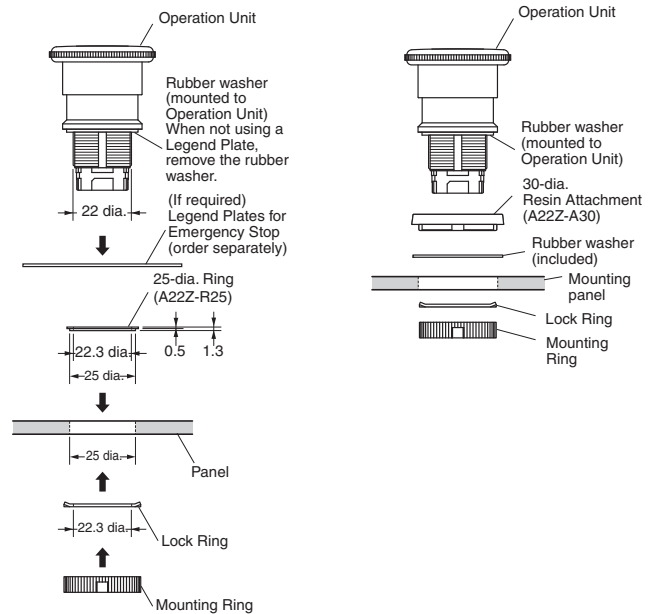


(2) Mounting the Operation Unit on the Panel

- Insert the Operation Unit from the front surface of the panel, insert the Lock Ring and the mounting Ring 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 mounting nut at a torque of 0.98 to 1.96 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 mounting Ring.



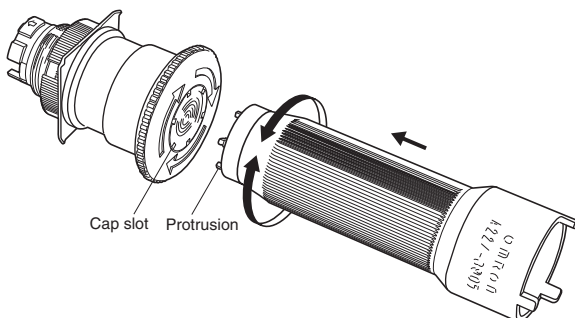
1. When the panel cutout dimension is 25 dia., remove the supplied rubber washer and mount the 25-dia. Ring as shown below. (Since the A22Z-R25 is not attached to the main body, order separately.) When using a Legend Plate (Order Separately), do not remove the rubber washer.
2. When the panel cutout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



Assembling the Cap

Emergency Stop Switch

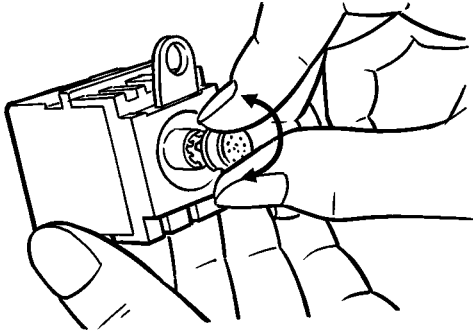
- Insert the protrusion of the Tightening Wrench (A22Z-3905) into the Cap slot and then turn to remove the Cap.



Installing/Replacing the LED Lamp

Installing/Replacing on the Switch

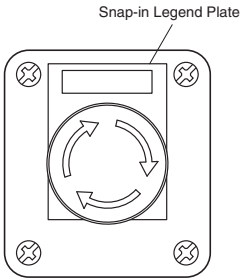
- Grip the lamp with your fingers, then rotate the lamp while pressing it against the Switch.



Control Box (Enclosure)

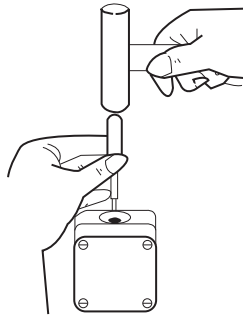
(1) Mounting the Switch

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.



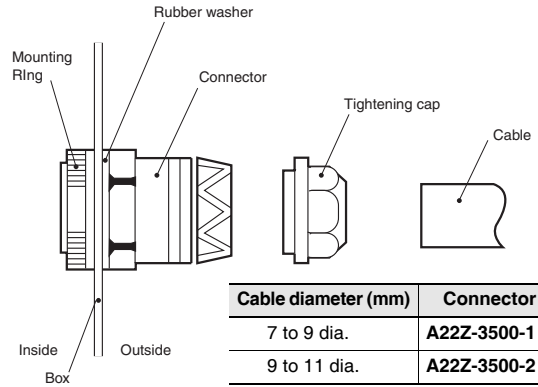
(2) Creating a Cable Port Hole

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.



(3) Securing the Connector Cable

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.

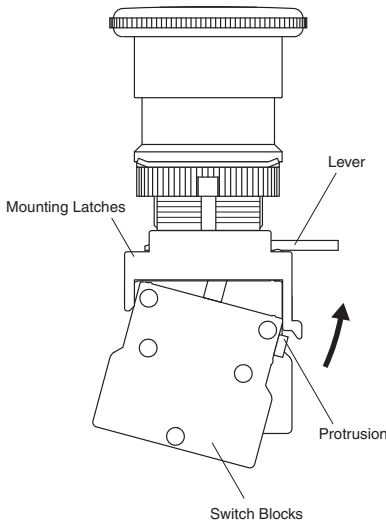


Cable diameter (mm)	Connector
7 to 9 dia.	A22Z-3500-1
9 to 11 dia.	A22Z-3500-2

Installing/Removing the Switch Blocks

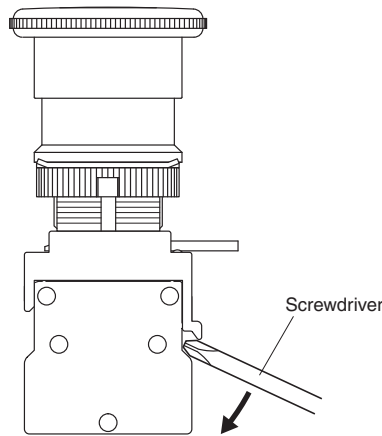
(1) Installing the Switch Blocks

- 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.



(2) Removing the Switch Blocks

- 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.



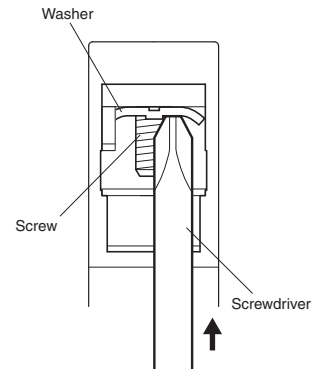
Use either of the following screwdrivers.

- ⊖ Flat-head screwdriver 3 to 6 mm
- ⊕ Phillips screwdriver 3 to 6 mm dia.

Wiring

Wiring Round Crimp Terminals

- 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

⚠ 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.

⚠ Caution

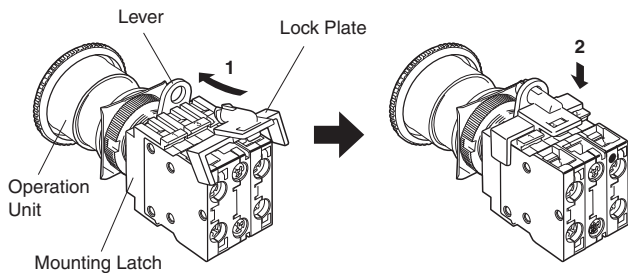
If the Operation Unit is separated from the Socket Unit, the equipment will not stop, creating a hazardous condition. Secure the lever on the Socket Unit by using the A22Z-3380 Lock Plate so that the Operation Unit cannot be easily separated from the Socket Unit. (Refer to "Mounting the Lock Plate" at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



Precautions for Correct Use

Mounting the Lock Plate

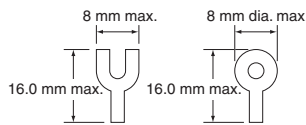
1. Confirm that the lever on the Mounting Latch is on the side where the Operation Unit is secured and then insert the protrusion on the Lock Plate into the hole in the lever on the Mounting Latch.
2. Press the hole on the Lock Plate onto the protrusion on the Mounting Latch until it clicks into place.



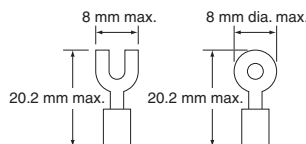
Wiring

- 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



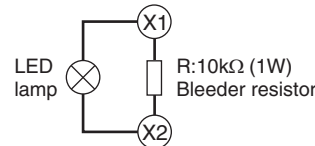
- After wiring the Switch, maintain an appropriate clearance and creepage distance.

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



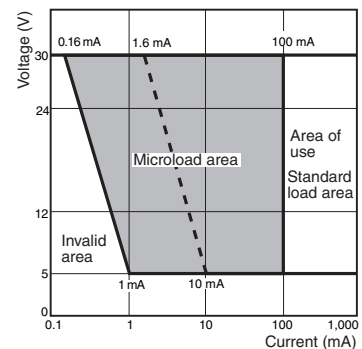
- Do not use a lamp that does not satisfy the rating.

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 37.

A22NE-P

A22E

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

(When Using a Ring)

- The small size of the control panel is realized by conserving space and changing the direction of the wiring.
- Since there is no looseness in the wiring, there is a reduction in the maintenance efforts.
- A lock lever mechanism that can be easily operated is adopted.
- A maximum of up to six contact points can be combined together in the contact-point configuration.
- Oil-resistant to IP65 (non-lighted models) / IP65 (lighted models).



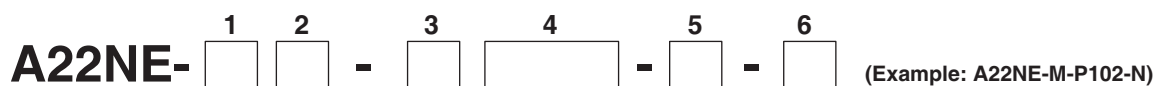
For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Be sure to read the "Safety Precautions" on pages 28 and 37.

A22NE-P

Model Number Structure

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



1. Operation Unit size (diameter)

Code	Description
S	30 dia.
M	40 dia.
L	60 dia.

2. Reset function

Code	Description
None	Turn-reset
P	Pull-reset *

* The pull-reset type is only available on the 40 dia. Operation Unit, non-lighted type. Not available on lighted types.

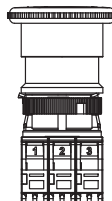
3. Contact specification/Terminal specification

Code	Description
P	Standard load/Push-in plus terminal block

4. Contacts

Code	Number of Switch Blocks		Unit position					
			Non-lighted			Lighted		
	NO	NC	1	2	3	1	2	3
002	0	1	---	---	NC	---	Lighting unit	NC
102	1	1	NO	---	NC	NO	Lighting unit	NC
202	0	2	NC	---	NC	NC	Lighting unit	NC
212	1	2	NC	NO	NC	---		
222	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. LED lamp voltage

Code	Description	LED Lamp Voltage
N	Non-lighted	---
A	Lighted (LED) *	6 VAC/DC
B		12 VAC/DC
C		24 VAC/DC
D		100/110/120 VAC
E		200/220/230/240 VAC

* Lighting color is red.

6. Others

Code	Configuration
None	Standard
B *	Built-in control box





* One-contact unit type.

Common Accessories and Tools






Common Note

Ordering Information


Non-lighted Models

Appearance	Operation		Set Model	Color of cap
		Contact configuration (Number of switch blocks)		
40-dia. head Medium Pull-reset A22NE-MP-P□□2-N 		1NC (1)	A22NE-MP-P002-N	Red
		1NC, 1NO (2)	A22NE-MP-P102-N	
		2NC (2)	A22NE-MP-P202-N	
		2NC, 1NO (3)	A22NE-MP-P212-N	
		3NC (3)	A22NE-MP-P222-N	
30-dia. head Small Turn-reset A22NE-S-P□□2-N 		1NC (1)	A22NE-S-P002-N	
		1NC, 1NO (2)	A22NE-S-P102-N	
		2NC (2)	A22NE-S-P202-N	
		2NC, 1NO (3)	A22NE-S-P212-N	
		3NC (3)	A22NE-S-P222-N	
40-dia. head Medium Turn-reset A22NE-M-P□□2-N 		1NC (1)	A22NE-M-P002-N	
		1NC, 1NO (2)	A22NE-M-P102-N	
		2NC (2)	A22NE-M-P202-N	
		2NC, 1NO (3)	A22NE-M-P212-N	
		3NC (3)	A22NE-M-P222-N	
60-dia. Large Turn-reset A22NE-L-P□□2-N 		1NC (1)	A22NE-L-P002-N	
		1NC, 1NO (2)	A22NE-L-P102-N	
		2NC (2)	A22NE-L-P202-N	
		2NC, 1NO (3)	A22NE-L-P212-N	
		3NC (3)	A22NE-L-P222-N	

Lighted Model

Appearance	Operation			Set Model	Color of cap
		Contacts (Number of switch blocks)	LED lamp voltage		
40-dia. head Medium Turn-reset A22NE-M-P□□2-A 		1NC (1)	6 VAC/VDC	A22NE-M-P002-A	Red
		1NC, 1NO (2)		A22NE-M-P102-A	
		2NC (2)		A22NE-M-P202-A	
40-dia. head Medium Turn-reset A22NE-M-P□□2-B 		1NC (1)	12 VAC/VDC	A22NE-M-P002-B	
		1NC, 1NO (2)		A22NE-M-P102-B	
		2NC (2)		A22NE-M-P202-B	
40-dia. head Medium Turn-reset A22NE-M-P□□2-C 		1NC (1)	24 VAC/VDC	A22NE-M-P002-C	
		1NC, 1NO (2)		A22NE-M-P102-C	
		2NC (2)		A22NE-M-P202-C	
40-dia. head Medium Turn-reset A22NE-M-P□□2-D 		1NC (1)	100, 110, 120 VAC	A22NE-M-P002-D	
		1NC, 1NO (2)		A22NE-M-P102-D	
		2NC (2)		A22NE-M-P202-D	
40-dia. head Medium Turn-reset A22NE-M-P□□2-E 		1NC (1)	220, 230, 240 VAC	A22NE-M-P002-E	
		1NC, 1NO (2)		A22NE-M-P102-E	
		2NC (2)		A22NE-M-P202-E	

Switch with Integrated Control Box

Appearance	Contact configuration (Number of switch blocks)	Model
	1NC (1)	A22NE-M-P002-N-B
	1NC, 1NO (2)	A22NE-M-P102-N-B
	2NC (2)	A22NE-M-P202-N-B

A22E

A22NE-P

Common Accessories and Tools

Common Note

SubassembledThe Operation Unit, LED Lamp, Mounting Latches, Switch Blocks, and Lighting Unit 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.

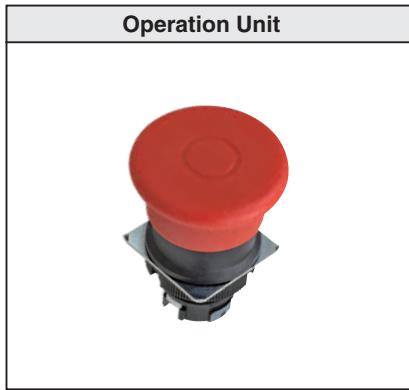
A22E

A22NE-P

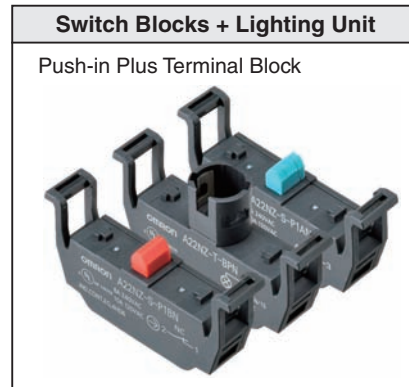
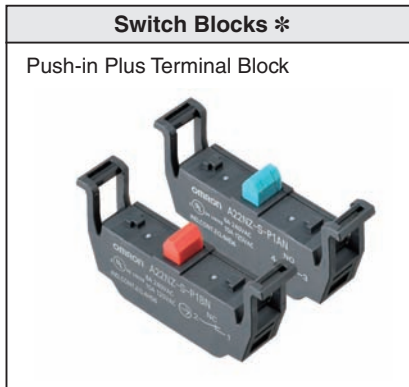
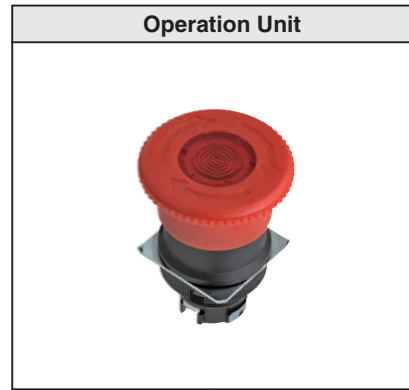
Common Accessories and Tools

Common Note

Non-lighted









Lighted




* Up to three Switch Blocks can be mounted for multiple contacts.


Operation Unit
Non-lighted

Function	Sealing capability Size	IP65 oil-resistant models		
		Small (30 dia.)	Medium (40 dia.)	Large (60-dia.)
Pull-reset		---	A22NE-MP-N 	---
Turn-reset	A22NE-S-N 	A22NE-M-N 		A22NE-L-N 
		A22NE-MRO-N A22NE-MRO-N-RD 		
		A22NE-MRS-N A22NE-MRS-N-RD 		

Lighted

Function	Sealing capability Size	IP65
		Medium (40 dia.)
Turn-reset		A22NE-M-L 

LED lamp

Appearance	LED light	Rated voltage	Model	Remarks
	Red	6 VAC/VDC	A22NZ-L-RA	These LED lamps are for exclusive use with the A22N and the A22NE-P. These are provided with the completely assembled set of lighted models. Order LED lamps only when replacing them.
		12 VAC/VDC	A22NZ-L-RB	
		24 VAC/VDC	A22NZ-L-RC	
		100, 110, 120 VAC	A22NZ-L-RD	
		200, 220, 230, 240 VAC	A22NZ-L-RE	

A22E





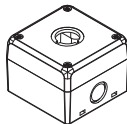
A22NE-P

Common Accessories and Tools

Common Note

A22NE-P

Accessories (Order Separately)

Item	Appearance	Contact specifications		Model	Remarks
Switch Blocks (one contact)		1NO (Blue)	Standard load	A22NZ-S-P1AN	Provided as standard. Order Switch Blocks only when adding or replacing them.
		1NC (Red)	Standard load	A22NZ-S-P1BN	
Switch Blocks (two contacts)		2NC (Red)	Standard load	A22NZ-S-P2BN	Order Switch Blocks only when adding or replacing them.
		1NO/1NC (White)	Standard load	A22NZ-S-P2CN	
Lighting unit		6 VAC/VDC		A22NZ-T-APN	These are provided with the completely assembled set of lighted models. Order Lighting Units only when replacing them.
		12 VAC/VDC		A22NZ-T-BPN	
		24 VAC/VDC		A22NZ-T-CPN	
		100, 110, 120 VAC		A22NZ-T-DPN	
		200, 220, 230, 240 VAC		A22NZ-T-EPN	
Mounting Latches		---		A22NZ-H-02	This Mounting Latch is for exclusive use with the A22NE-P. It is provided with the completely assembled set. Order Mounting Latches only when mounting Switch Blocks or Lighting Units that are purchased individually.
Control Boxes (Enclosures)		One hole, yellow box		A22NZ-A-B01Y	Material: Polycarbonate resin. Can be used only with a one-contact Switch Block.*

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 32.

* The A22NZ-A-B01Y 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.

A22E

A22NE-P

Common Accessories and Tools

Common Note

Specifications

Certified Standard Ratings

- UL508 (File No. E76675), CSA C22.2 No.14
6 A at 240 VAC, 10 A at 120 VAC
- TÜV (EN60947-5-1) - Certified direct opening -
(EN60947-5-5)
AC-15 3 A at 240 VAC
DC-13 4 A at 24 VDC
- CCC (GB14048.5)
AC-15 3 A at 240 VAC
DC-13 4 A at 24 VDC

Applicable Standards

UL1059, UL486E (Push-in Plus Terminal Block Types)

Note: Use a 10 A fuse type gI or gG that conforms to IEC60269 as a short-circuit protection device. This fuse is not provided in the main unit.

Ratings

Contacts (Standard Load)

Rated insulation voltage (V)	Rated carry current (A)	Rated voltage (V)	Rated current (A)					
			AC15 (Inductive load)	AC12 (Resistive load)	DC13 (Inductive load)	DC12 (Resistive load)		
600	10	24 VAC	10	10	---	---		
		120 VAC	6	10				
		240 VAC	3	6				
		380 VAC	1.9	2				
		440 VAC	1.6	2	4	8		
		24 VDC	---	---				
		120 VDC					1.1	2.2
		240 VDC						

- Note:** 1. 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: 30 operations/minute
2. Minimum applicable load: 10 mA at 5 VDC (Resistive load)
 The operating range may vary depending on the usage conditions and type of load.

Certified Standards

Certification body	Standards	File No.
UL *	UL508, C22.2 No.14	E76675
TÜV SÜD	EN60947-5-1 (Certified direct opening), EN60947-5-5	Consult your OMRON representative for details.
CQC (CCC)	GB14048.5	2017010305959182

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

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

LED Lamp

Rated voltage	Operating voltage	Current value
6 VAC/VDC	6 VAC/VDC ± 10%	Approx. 11 mA
12 VAC/VDC	12 VAC/VDC ± 10%	Approx. 12 mA
24 VAC/VDC	24 VAC/VDC ± 10%	Approx. 12 mA
100 VAC	100 VAC ± 10%	Approx. 12 mA
110 VAC	110 VAC ± 10%	
120 VAC	100 VAC to 130 VAC	Approx. 12 mA
200 VAC	200 VAC ± 10%	
220 VAC	220 VAC ± 10%	
230 VAC	230 VAC ± 10%	
240 VAC	220 VAC to 250 VAC	

Characteristics

Item	Type	Turn-reset		Pull-reset
		Non-lighted model	Lighted Model	Non-lighted model
Allowable operating frequency	Mechanical	30 operations/minute or less (One operation consists of set and reset operations.)		
	Electrical	30 operations/minute or less (One operation consists of set and reset operations.)		
Insulation resistance *1		100 MΩ min. (at 500 VDC)		
Contact resistance		100 mΩ max. (initial value)		
Dielectric strength	Between terminals of same polarity *1	2,500 VAC, 50/60 Hz 1 minute (initial value)		
	Between each terminal and ground	2,500 VAC, 50/60 Hz 1 minute (initial value)		
Vibration resistance	Malfunction	10 to 55 Hz, 1.5 mm double amplitude (contact separation within 1 ms)		
Shock resistance	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 *2		-20 to +70°C	-20 to +55°C	-20 to +70°C
Ambient operating humidity		35 to 85% RH		
Ambient storage temperature *2		-40 to +70°C		
Degree of protection*3		IP65 (oil-resistant) *4	IP65	IP65 (oil-resistant) *4
Electric shock protection class		Class II		
PTI (tracking characteristic)		175		
Degree of contamination		3 (EN 60947-5-1)		
Minimum direct opening stroke		11 mm		
Minimum direct opening force		45 N		
Conditional short-circuit current		100 A (EN 60947-5-1)		
Wight (for a 40-dia. head 1NC/1NO Operation Unit)		Approx. 55g	Approx. 60g	Approx. 85 g

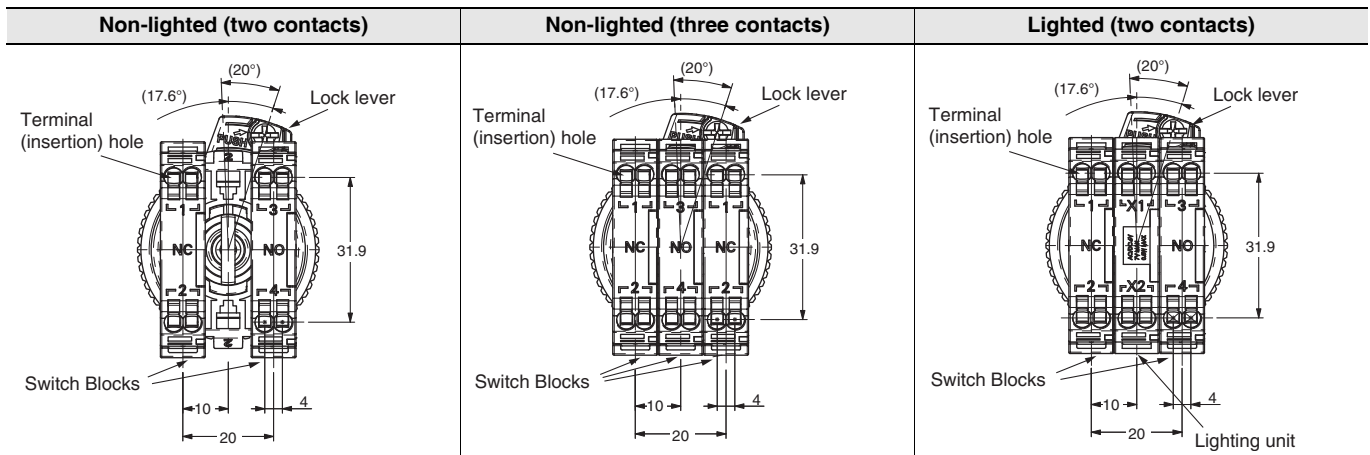
- *1. State when an LED is not added between terminals of the same polarity on a lighting unit. Does not apply to lighted-type 100 to 200 V lighting units.
- *2. With no icing or condensation.
- *3. The degree of protection from the front of the panel.
- *4. The degree of protection is IP65 even with an integrated control box, but the system is not oil resistant.

Operating Characteristics

Item	Turn-reset	Pull-reset
Total travel force (TTF)	45 N max.	60 N max.
Return force (RF)	0.25N·m * max.	60 N max.
Total travel (TT)	10 ±1 mm	5.5 ±1 mm

* Rotation torque value.

Terminal Arrangement (BOTTOM VIEW)

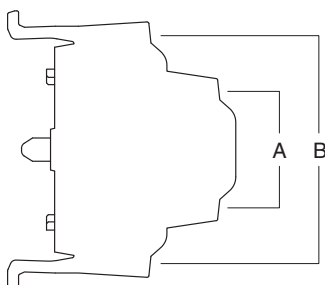


Terminal connection

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	1 2	X1 X X2	3 4	1 2	X1 X X2	1 2				

Note: The above terminal connection diagrams are examples for 1NO, 1NC (two contacts), or 2NC (two contacts).

Terminal wiring drawings of two-contact Switch Units



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

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
6 A at 240 VAC
10 A at 120 VAC

Lighting Method
Non-lighted
Lighted (LED)

A22NE-P

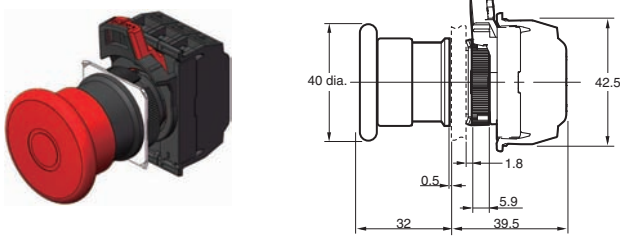
Dimensions

(Unit: mm)

Non-lighted Models

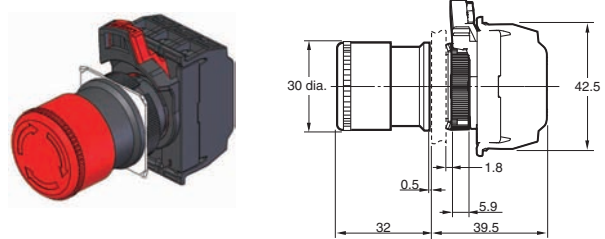
A22NE-MP-P□□2-N

Pull-reset (40-dia.)



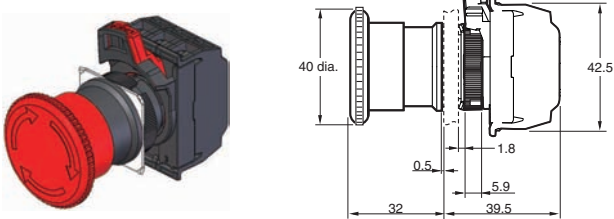
A22NE-S-P□□2-N

Small Turn-reset (30-dia.)



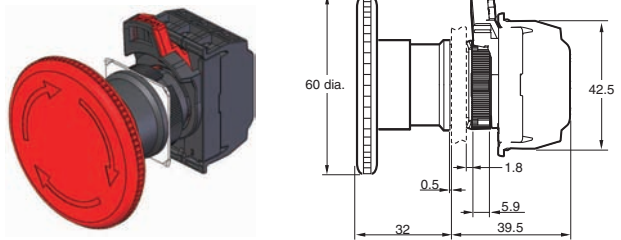
A22NE-M-P□□2-N

Medium Turn-reset (40-dia.)



A22NE-L-P□□2-N

Large Turn-reset (60-dia.)

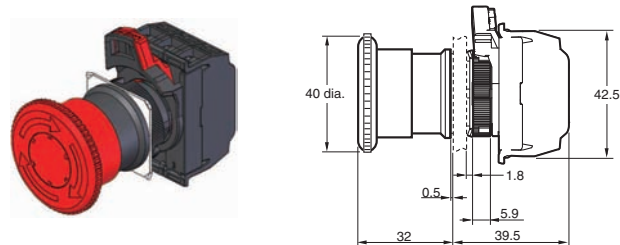


Note: The dimensions the same even if the Operation Unit is replaced with the A22NE-MR□-N or the A22NE-MR□-N-RD.

Lighted Model

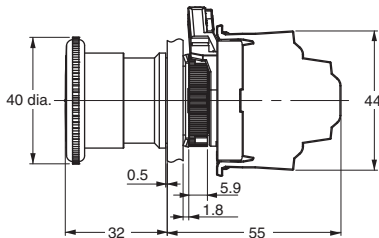
A22NE-M-P□□2-□

Medium Turn-reset (40-dia.)



Note: Unless otherwise specified, a tolerance of $\pm 0.8\text{mm}$ applies to all dimensions.

Dimensions when a two-contact Switch Block is attached



A22E

A22NE-P

Common Accessories and Tools

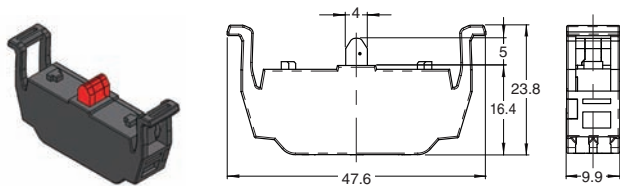
Common Note

Accessories (Order Separately)

Switch Block with Push-In Plus technology

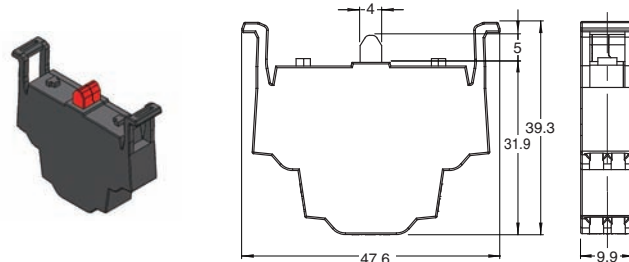
Switch Block (one contact)

A22NZ-S-P1□N



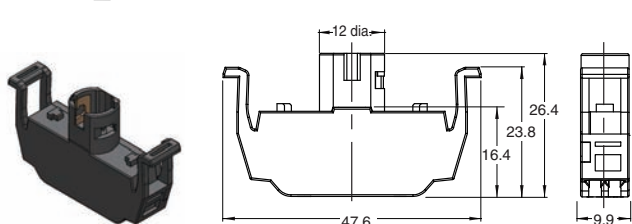
Switch Block (two contacts)

A22NZ-S-P2□N



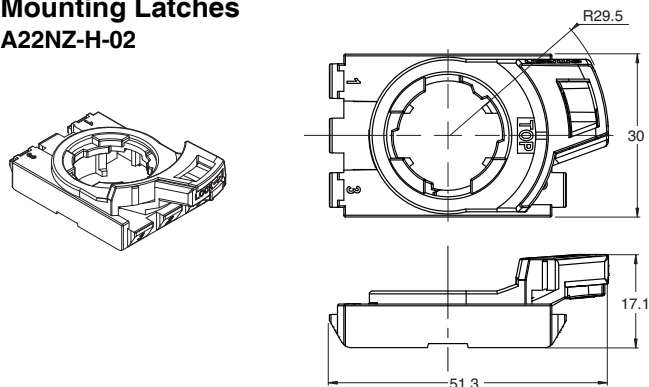
Lighting unit

A22NZ-T-□PN



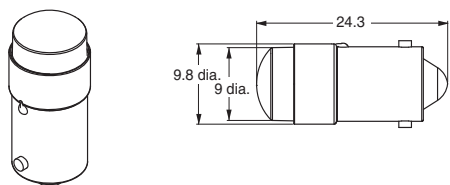
Mounting Latches

A22NZ-H-02



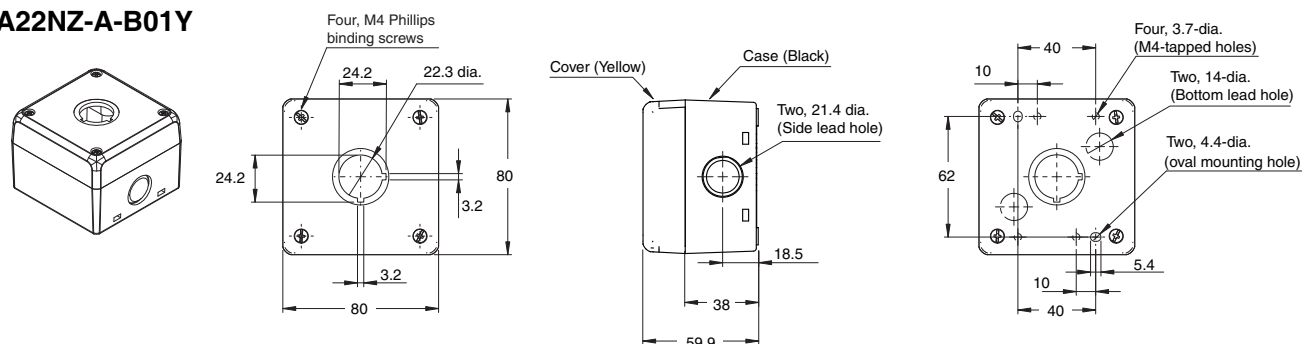
LED Lamp

A22NZ-L-□□



Control Box

A22NZ-A-B01Y



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 32.

A22E

A22NE-P

Common Accessories and Tools

Common Note

Application

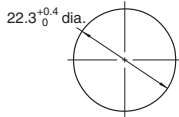
Mounting to the Panel

(1) Preparing the Panel

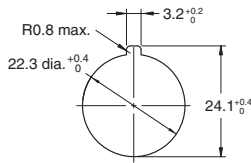
Panel hole dimension and panel thickness

- If outer surface treatment such as coating is performed for the panel, the panel dimensions after outer surface treatment must meet the specified panel dimensions.

Panel hole dimension	Panel thickness
22.3 dia.	1 to 5 mm

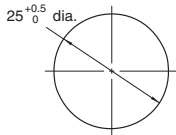


When using a A22Z-3360 (Order Separately) Lock Ring



For 25-dia.

- Use the A22Z-R25 (Order Separately) rubber ring.



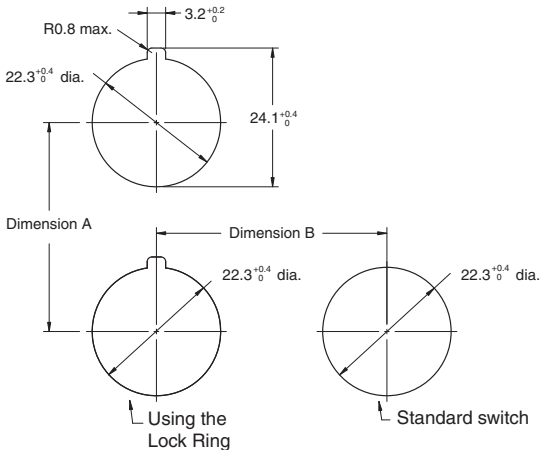
(2) Minimum mounting pitch (Dimension A, Dimension B)

Minimum mounting pitch

Type of operation unit	Dimension A (mm) min.	Dimension B (mm) min.
30-dia., 40-dia. models	50 *1	50
60-dia. model	70	70

- *1. If the Mounting Collar lock levers all face the same direction at the minimum mounting pitch, be sure to note the order the mounting collars are attached to the Operation Unit.
- *2. When using each accessory (Order Separately), set the A and B dimensions in view of the dimensions of the accessories.
- *3. Make sure the mounting pitch does not hinder the operation.

Panel Hole Dimensions for 22.3 Diameter

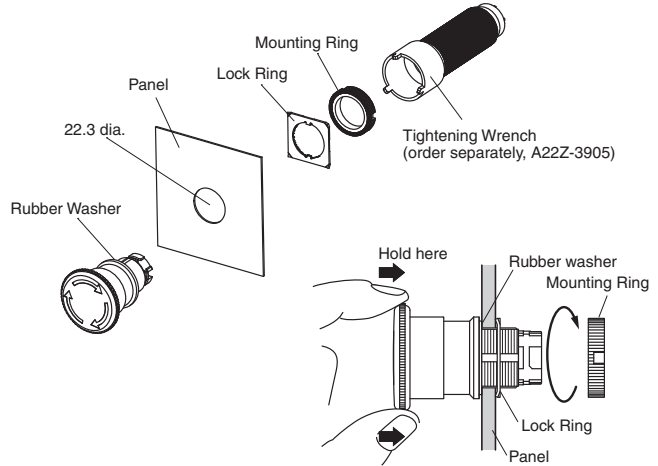


(3) Mounting the Operation Unit on the Panel

- Do not tighten the Mounting Nut more than necessary using tools such as pointed-nose pliers.
- Doing so will damage the Mounting Nut. (The tightening torque of the Mounting Nut is 1.0 to 2.0 N·m.) Tightening Wrench: A22Z-3905

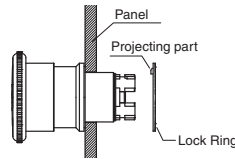
Panel Hole of 22.3-mm Diameter

- Insert the Operation Unit from the front of the panel, insert the Lock Ring and Mounting Nut from the back of the panel, and tighten the Mounting Nut. Before tightening, check that the rubber washer is present between the Operation Unit and the panel.



When the A22Z-3360 Lock Ring (Order Separately) is used

- Take note of the direction when mounting the Lock Ring.

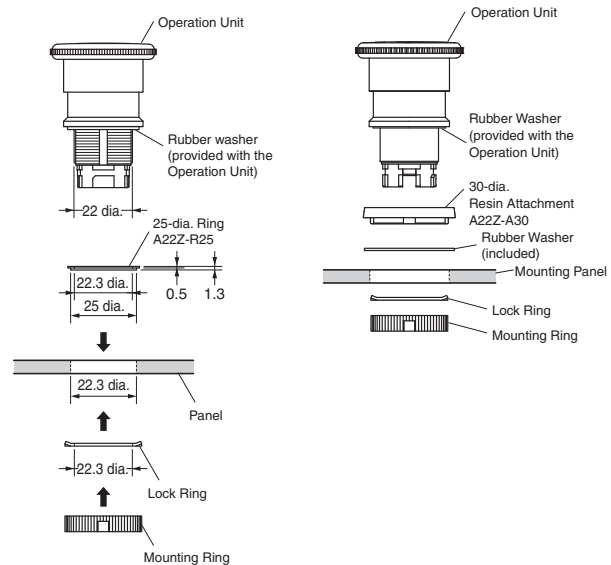


Panel Hole of 25.5-mm Diameter

- Insert the A22Z-R25 (Order Separately) between the Operation Unit and Panel, and tighten the clamping nut to mount. Before tightening, check that the rubber washer supplied with the Operation Unit is present between the Operation Unit and the 25-dia. Ring.

Panel Hole of 30-mm Diameter

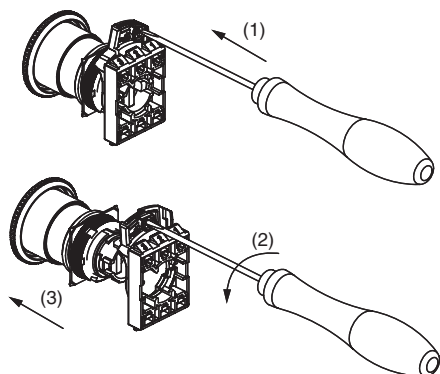
- Insert the A22Z-R30 (Order Separately) between the Operation Unit and Panel, and tighten the clamping nut to mount. Before tightening, check that the supplied rubber washer is present between the Operation Unit and the panel, and between the 30-dia. Resin Attachment and the panel. Recommended panel thickness: 1 to 3 mm



Removing the Mounting Latch

When the Mounting Latch is to be Removed

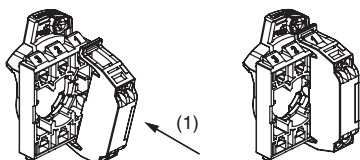
- Press the lock lever in from the back side to release the lock, and then hook the Mounting Collar with a screwdriver, move it in the direction indicated at (2), and remove it. Turn the lever all of the way until it clicks into place.



Switch Blocks and Lighting Unit

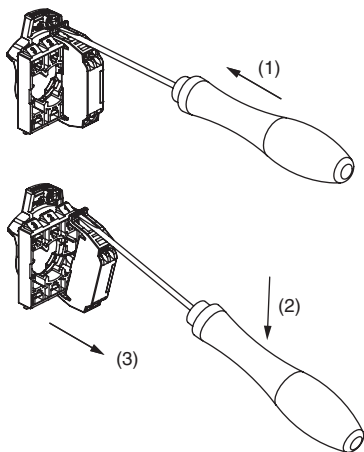
(1) Installing the Switch Blocks and Lighting Unit

- Catch the projection on the opposite side of the Mounting Collar from the lever side and press the Switch Block in the direction indicated at (1).



(2) Removing the Switch Blocks and Lighting Units

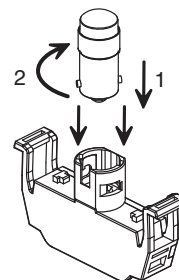
- Insert a screwdriver into the gap between the Mounting Collar and Switch Block and press it inward in the direction shown at (2).



Attaching the LED Lamp to the Lighting Unit

When the LED Lamp is to be Installed

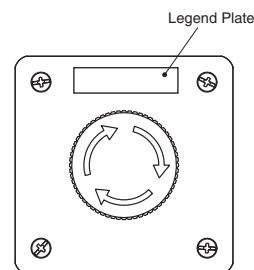
- Insert the protrusions on the LED Lamp into the guides on the Lighting Unit and then turn the LED Lamp in direction (2) to lock it in place.



Control Box

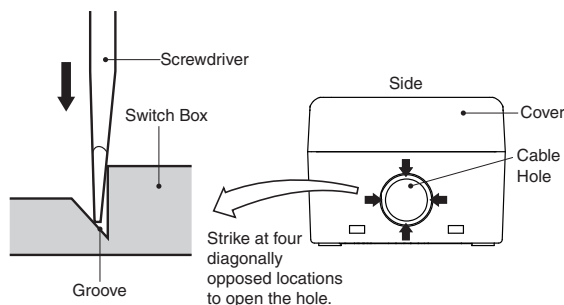
(1) Mounting the Switch

- Mount the Switch in the same way as for a standard panel. The tightening torque of the Box screws is 1.4 to 2.0 N·m.



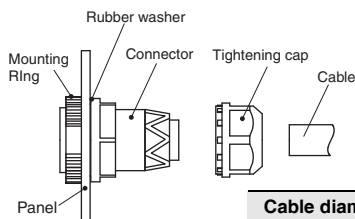
(2) Creating a Cable Hole

- To open a cable hole, leave the cover attached, place the tip of a screwdriver in the grooves at four locations around the cable hole, and strike the screwdriver with a hammer to open the hole.



(3) Securing the Connector Cable

1. Insert the connector into the cable port hole in the Box and secure with the fixing nut inside the box.
2. Open a hole in the thin rubber section of the rubber ring.
3. Pass the tightening cap through the cable, insert the cable into the connector, and tighten the hexagonal nut to secure the cable.



Cable diameter (mm)	Connector
7 to 9 dia.	A22Z-3500-1
9 to 11 dia.	A22Z-3500-2

Safety Precautions

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

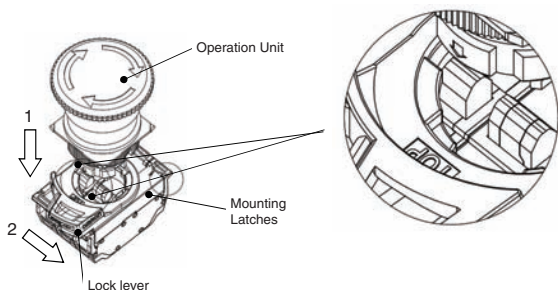
Indication and Meaning for Safe Use

Precautions for Safe Use	Comments on what to do or avoid doing, to use the product safely.
Precautions for Correct Use	Supplementary comments on what to do or avoid doing to use the product safely and prevent its malfunctioning or an adverse effect on its performance or functions.

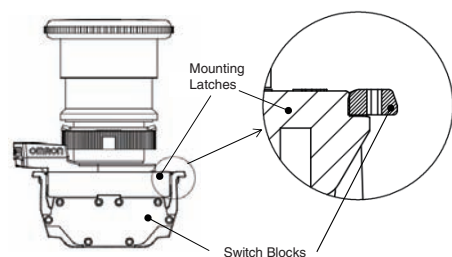
Precautions for Safe Use

- If the Operation Unit is separated from the Switch Units, the equipment will not stop, resulting in a hazardous situation. Make sure the Operation Unit, Mounting Latches, and the Switch Units are properly assembled.

<Assembling the Operation Unit and the Mounting Latches>
Align the TOP indication (the ↓ mark) on the Operation Unit with the TOP indication on the Mounting Latches to fit it properly, and turn the lock lever on the Mounting Latch in the direction shown in the figure below until a clicking sound is heard.



<Assembling the Mounting Latches and Switch Blocks>
Make sure the hooking part (convex part) on the Mounting Latches is perfectly latched into the hooking part (concave part) on the Switch Block.



- When transition wiring is performed, make sure the switching current inside the Switch and the current based on the transition wiring is below the rated current of the Switch. If a current value higher than the rated current flows, it could result in emission of heat, or damage and deformation of the Switch, which could cause fire and locking of the contact, and thus a loss of safety.
- 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.
- Do not disassemble or modify the Switch/Indicator under any circumstances.
- Doing so may prevent the Switch/Indicator from functioning to its full capability. Do not drop the Switch/Indicator. Do not apply pressure that may deform or alter the Switch/Indicator.
- The durability of the Switch varies considerably depending on the switching conditions. Always test the Switch/Indicator under actual working conditions before application and use the Switch/Indicator only for the number of switching operations allowed.
- Do not allow the load voltage and current to exceed the rated value. This may damage or burn out the Switch/Indicator.

- Do not use the Switch/Indicator in locations where explosive or flammable gases or liquid may be present or scattered. The electric arc or the heat caused by switching contacts may cause a fire or explosion.
- Do not use the Switch/Indicator in locations where toxic gases, such as H₂S, SO₂, NH₃, HNO₃, and Cl₂, may be present, or in locations subject to high temperature or humidity. Doing so may damage the Switch/Indicator due to contact failure or corrosion.
- Do not use the Switch/Indicator submersed in oil or water, or in locations continuously subject to splashes of oil or water. Doing so may result in oil or water entering and damaging the Switch/Indicator.
- Do not use or keep the Switch/Indicator under the following conditions:
 - Subject to severe temperature changes.
 - Subject to high humidity or condensation.
 - Subject to severe vibration or shock.
 - Where direct rays of the sun strike.
 - Where sea breeze may be present.
- Make sure that a rubber washer is present between the Operation Unit and the panel. Otherwise, the specifications of the protective structure may not be satisfied.
- Do not apply excessive force to the Switch or wirings. Damage or deformation of the Switch Block could cause an improper contact or a loss of safety.
- Use an appropriate wiring and crimp terminals (hereinafter, called ferrule terminals).
- Exercise caution to avoid wiring errors when connecting the terminals.
- To prevent wiring materials from smoking or ignition, confirm wire ratings and use the wiring materials given in the following table.

Wire Type	Wire material	Recommended Wire	Wire coating peeling amount
Solid wire/ Stranded Wire	Copper	0.25 to 1.5 mm ² AWG 24 to 16	Ferrules used: 10 to 12 mm (Varies depending on the recommended ferrule conductor length) Ferrules not used: 8 mm

Use wiring crimp terminals and ferrule terminals of the specified size.

- After storing the product for a long time exceeding 1 year, perform, at a minimum, inspections of the operating characteristics, contact resistance, insulation resistance, and dielectric strength as well as evaluate the product under the working conditions.
- This Switch/Indicator is intended for indoor use only. Using the Switch/Indicator outdoors may result in failure.

A22E

A22NE-P

Common Accessories and Tools

Common Note

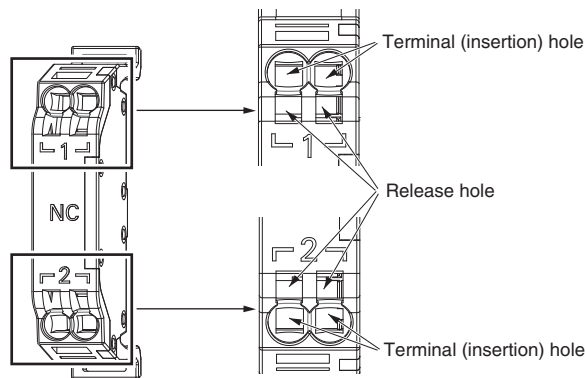
- Do not wire anything to the release holes.
- Do not tilt or twist a flat-blade screwdriver while it is inserted into a release hole on the terminal block. The terminal block may be damaged.
- Insert a flat-blade screwdriver into the release holes at an angle. The terminal block may be damaged if you insert the screwdriver straight in.
- Do not allow the flat-blade screwdriver to fall out while it is inserted into a release hole.
- Do not bend a wire past its natural bending radius or pull on it with excessive force. Doing so may cause the wire disconnection.
- Do not insert more than one wire into each terminal insertion hole.
- Do not mount A22N-P or A22NE-P Push-In Plus terminal switch blocks on A22N screw terminal blocks. Doing so may result in unsatisfactory performance.

Precautions for Correct Use

Wiring

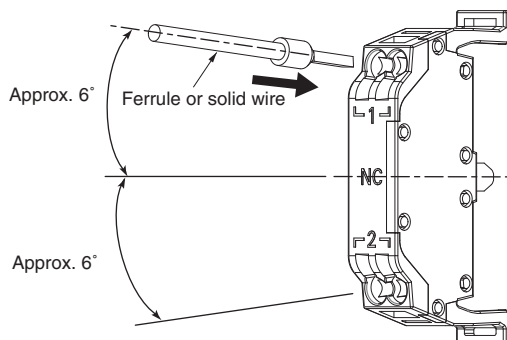
1. Connecting Wires to the Push-In Plus Terminal Block

Part Names of the Terminal Block



Connecting Wires with Ferrules and Solid Wires

- Insert the solid wire or ferrule straight into the terminal block until the end strikes the terminal block. The angle should be approximately 6°.
- If a wire is difficult to connect because it is too thin, use a flat-blade screwdriver in the same way as when connecting stranded wires.



The wiring for the Lighting Unit and Switch Block (2 contacts) are the same as for the Switch Block (1 contact) shown in the above illustration.

A22E

A22NE-P

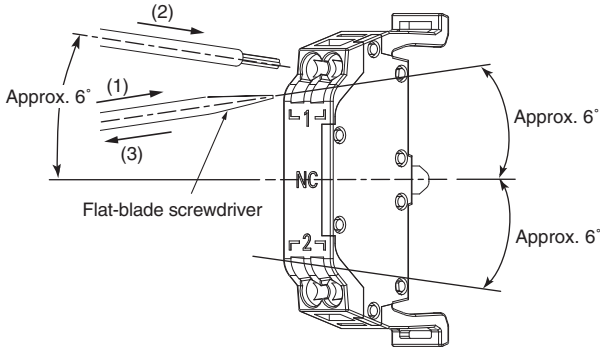
Common Accessories and Tools

Common Note

Connecting Stranded Wires

Use the following procedure to connect the wires to the terminal block.

1. Hold a flat-blade screwdriver at an angle and insert it into the release hole.
The angle should be approximately 6°. If the flat-blade screwdriver is inserted correctly, you will feel the spring in the release hole.
2. With the flat-blade screwdriver still inserted into the release hole, insert the wire into the terminal hole until the end strikes the terminal block.
3. Remove the flat-blade screwdriver from the release hole.



The wiring and screwdriver angles for the Lighting Unit and Switch Block (2 contacts) are the same as for the Switch Block (1 contact) shown in the above illustration.

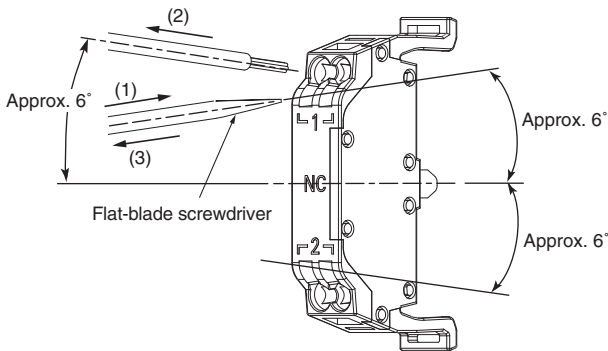
Checking Connections

- After the insertion, pull gently on the wire to make sure that it will not come off and it is securely fastened to the terminal block.
- If you use a ferrule with a conductor length of 10 mm, part of the conductor may be visible after the ferrule is inserted into the terminal block, but the product insulation distance will still be satisfied.

2. Removing Wires from the Push-In Plus Terminal Block

Use the following procedure to remove wires from the terminal block. The same method is used to remove stranded wires, solid wires, and ferrules.

1. Hold a flat-blade screwdriver at an angle and insert it into the release hole. The angle should be approximately 6°.
2. With the flat-blade screwdriver still inserted into the release hole, remove the wire from the terminal insertion hole.
3. Remove the flat-blade screwdriver from the release hole.



The wiring and screwdriver angles for the Lighting Unit and Switch Block (2 contacts) are the same as for the Switch Block (1 contact) shown in the above illustration.

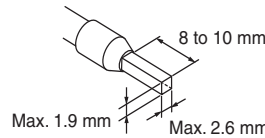
3. Recommended Ferrules and Crimp Tools
Coating peeling amount

Recommend Wire Type	Stripping length (Ferrules not used)
0.25 to 1.5 mm ² /AWG 24 to AWG 16	8 mm

Recommended ferrules

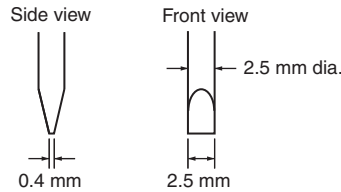
Applicable wire		Ferrule conductor length (mm)	Stripping length (mm) (Ferrules not used)	Recommended ferrules		
(mm ²)	(AWG)			Phoenix Contact product	Weidmuller product	Wago product
0.25	24	8	10	AI 0, 25-8	H0.25/12	216-301
		10	12	AI 0, 25-10	---	---
0.34	22	8	10	AI 0, 34-8	H0.34/12	216-302
		10	12	AI 0, 34-10	---	---
0.5	20	8	10	AI 0, 5-8	H0.5/14	216-201
		10	12	AI 0, 5-10	H0.5/16	216-241
0.75	18	8	10	AI 0, 75-8	H0.75/14	216-202
		10	12	AI 0, 75-10	H0.75/16	216-242
1/1.25	18/17	8	10	AI 1-8	H1.0/14	216-203
		10	12	AI 1-10	H1.0/16	216-243
1.25/1.5	17/16	8	10	AI 1, 5-8	H1.5/14	216-204
		10	12	AI 1, 5-10	H1.5/16	216-244
Recommended Crimp Tools				CRIMPFOX6 CRIMPFOX6T-F CRIMPFOX10S	PZ6 roto	Variocri mp4

- Note:**
1. Make sure that the outer diameter of the wire coating is smaller than the inner diameter of the insulation sleeve of the recommended ferrule.
 2. Make sure that the ferrule processing dimensions conform to the following figures.



Recommended Flat-Blade Screwdrivers

Use a flat-blade screwdriver to connect and remove wires. Use one of the following flat-blade screwdrivers. The following table shows manufacturers and models as of 2015/Dec.



Model	Manufacture
ESD 0,40 × 2,5	Wera
SZS 0,4 × 2,5 SZF 0-0,4 × 2,5 *	Phoenix Contact
0.4 × 2.5 × 75 302	Wiha
AEF.2,5 × 75	Facom
210-719	Wago
SDI 0,4 × 2,5 × 75	Weidmuller

* The SZF 0-0,4 × 2,5 (manufactured by Phoenix Contact) can be procured through an OMRON exclusive purchase form (XW4Z-00B).

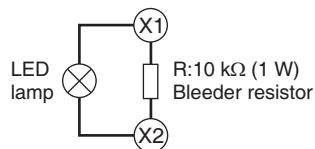
- After wiring the Switch/Indicator, provide a sufficient insulation distance.

LED Lamps

- A current-limiting resistor is built in the LED lamp, so the installation of an external resistance is not required.
- Lighting malfunction of the LED lamp
A micro-current of approximately 0.1 mA or less is sufficient to turn on the LED lamps. Take a countermeasure like adding a resistor to prevent mis-lighting in parallel to the LED lamp.
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.

(Example of lighting malfunction prevention circuit)

When using a 24-VAC/VDC lighted unit













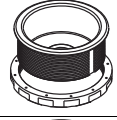




Be sure to read the "Safety Precautions" on page 37.

Common Accessories and Tools (Order Separately)

Ordering Information

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

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 washer rubber when the level of protection is to be met between panels.	
		90-dia. black letters on yellow back-ground	A22Z-3476-1		
		60-dia. black letters on yellow background	A22Z-3466-2	Cannot be used in combination with the Control Boxes. Used in combination with the washer rubber when the level of protection is to be met between panels.	
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 27).
			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 26). 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 26). A rubber washer (A22Z-R) 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 26).	
Tightening Tool		---	A22Z-3905	Used for tightening the mounting ring 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) *1 *2	
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) *2	
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) *1*2	
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) *2	
E-stop Shroud, Yellow		Spacer Unit is not included.	A22Z-EG2	SEMI-S2/SEMATECH APPLICATION GUIDE FOR SEMI S2-compatible Shroud. (for emergency shutoff) *1 *2 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) *1 *2	
Rubber Packing		-	A22Z-R	Used together with accessories. Contains 10 packings.	

*1. 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).

*2. 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)

A22E

A22NE-P

Common Accessories and Tools

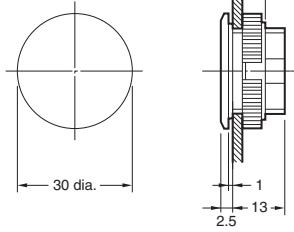
Common Note

Dimensions

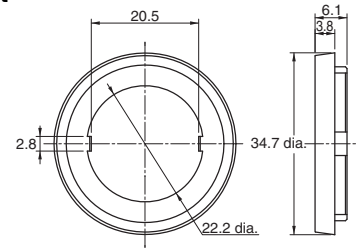
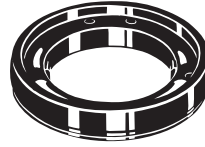
(Unit: mm)

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

Hole Plug
Round A22Z-3530



30-dia. Resin Attachment
A22Z-A30

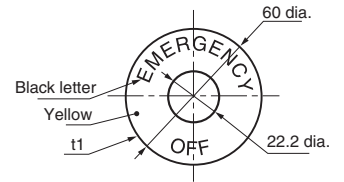
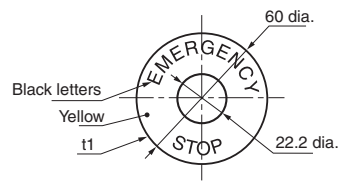
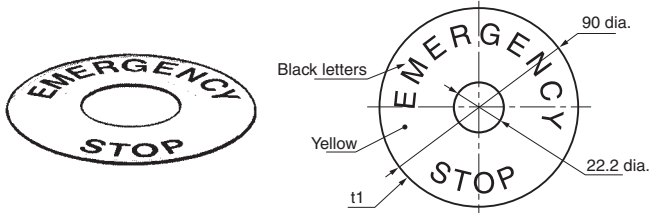


Legend Plates for Emergency Stop

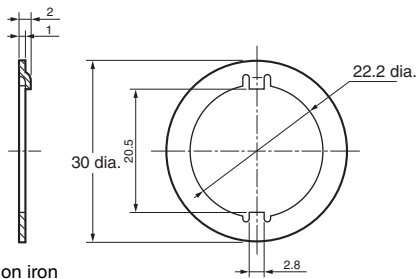
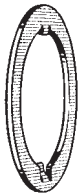
A22Z-3476-1 (90 dia.)

A22Z-3466-1 (60 dia.)

A22Z-3466-2 (60 dia.)

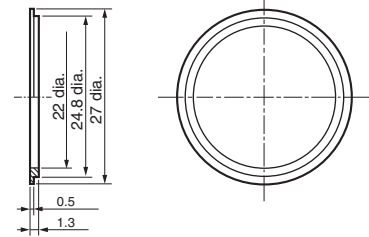


Lock Ring
A22Z-3360



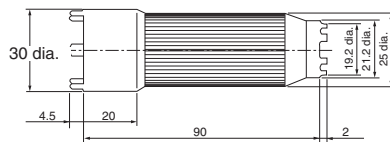
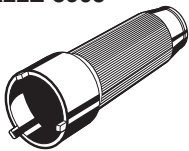
Material: Nickel plated on iron

25-dia. Ring
A22Z-R25

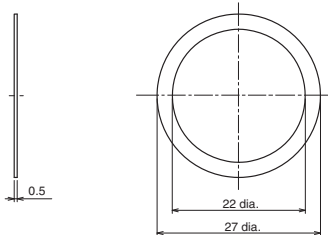
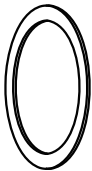


Material: NBR (black)

Tightening Tool
A22Z-3905



Rubber Packing
A22Z-R



A22E

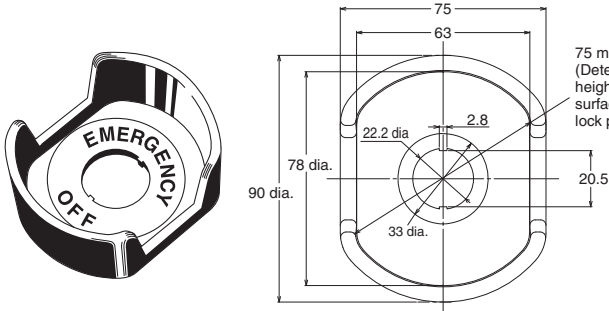
A22NE-P

Common Accessories and Tools

Common Note

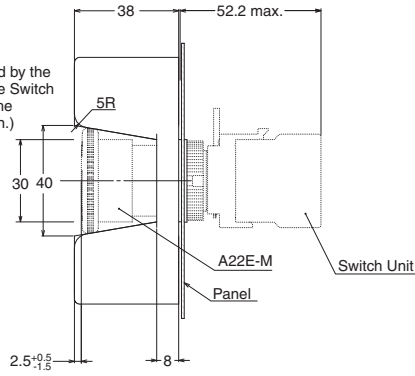
Common E-stop Shrouds

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

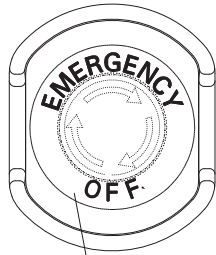


75 min.
(Determined by the height of the Switch surface in the lock position.)

Screw Terminal Block type Mounting a 1-pole Switch Unit

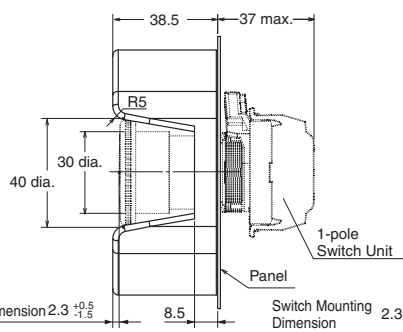


- Note:**
- The dimensions of the Shroud conform to the specifications of the SEMATECH Application Guide for SEMI S2-93.
 - The Shroud is not provided with the Switch.

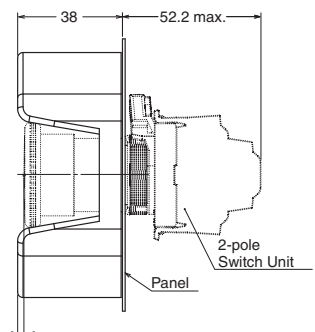


"EMERGENCY STOP" is indicated on A22Z-EG1-W. Legend plate is not provided with A22Z-EG10 and A22Z-EG10-W.

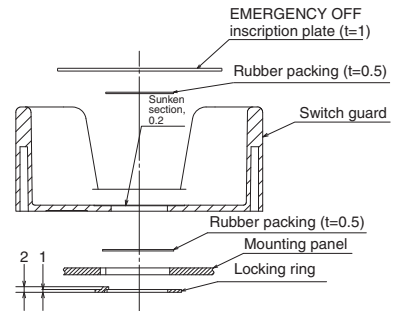
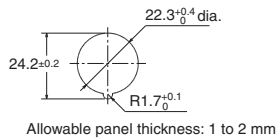
Push-in Plus Terminal Block type Mounting a 1-pole Switch Unit



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

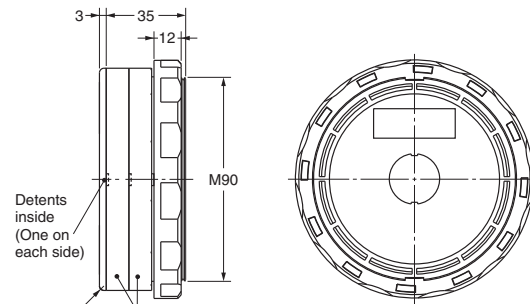
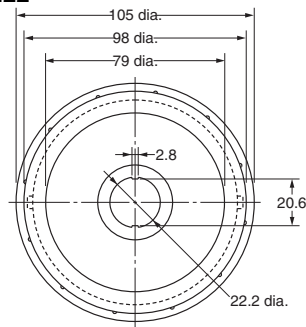
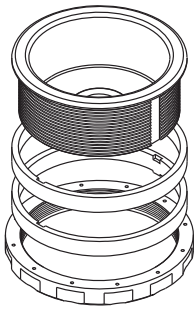


Panel Cutout Dimensions



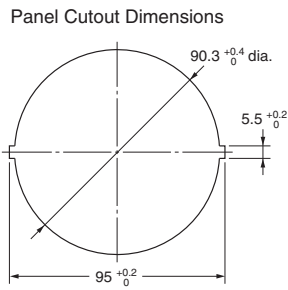
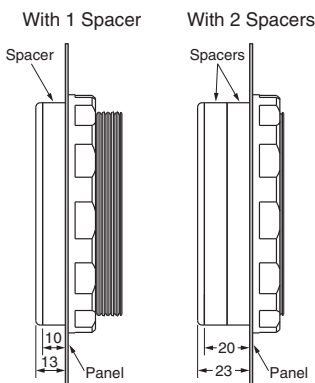
E-stop Shrouds

A22Z-EG2, A22Z-EG21, A22Z-EG22

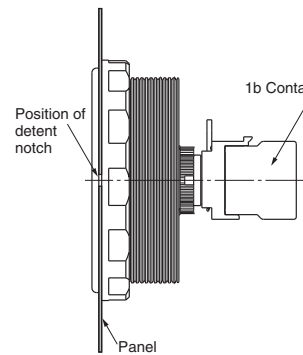


The number of spacers depends on the model
 A22Z-EG2 : No Spacer
 A22Z-EG21 : 1 Spacer
 A22Z-EG22 : 2 Spacers

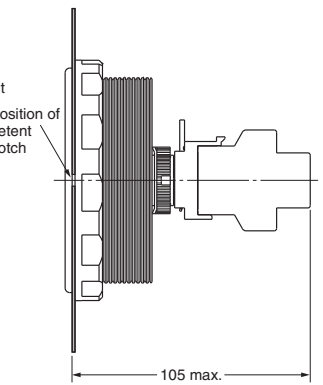
During spacer attachment



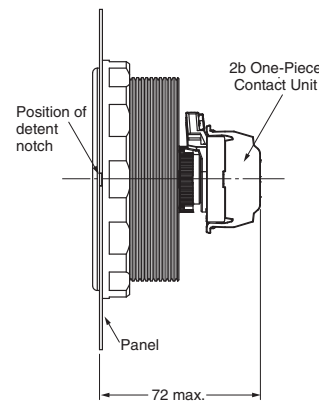
Screw Terminal Block Type Mounting a 1-pole Switch Unit *



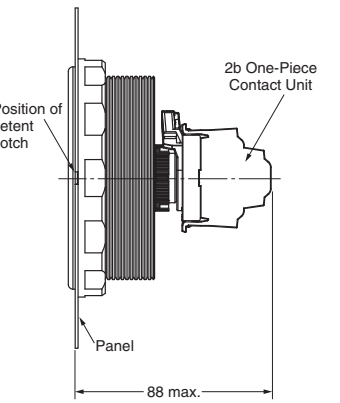
Screw Terminal Block Type Mounting a 2-pole Switch Unit *



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



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



- 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

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

A22E

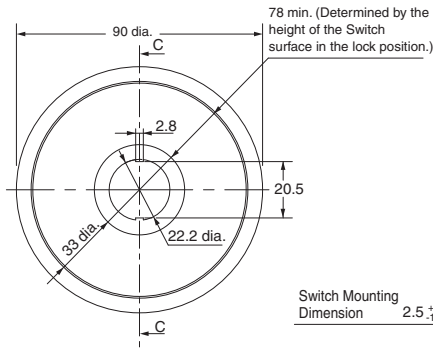
A22NE-P

Common Accessories and Tools

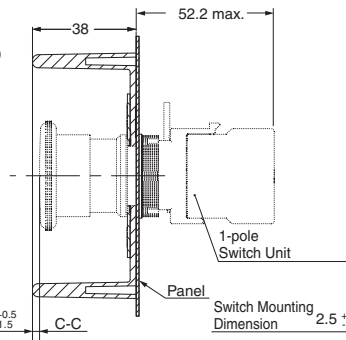
Common Note

A22E

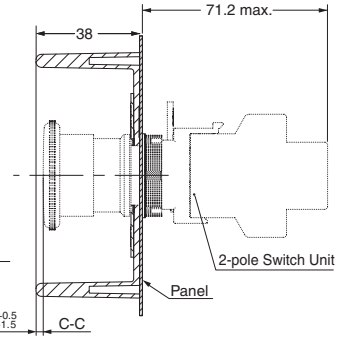
E-stop Shroud
A22Z-EG3



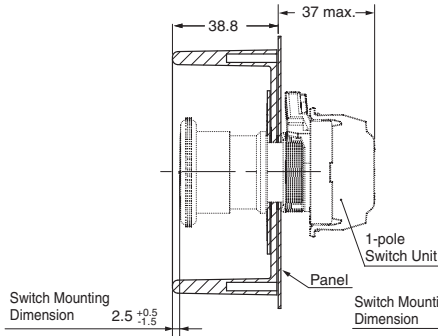
Screw Terminal Block Type
Mounting a 1-pole Switch Unit



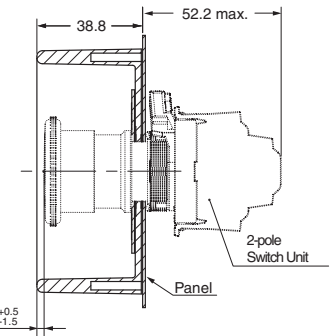
Screw Terminal Block Type
Mounting a 2-pole Switch Unit



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

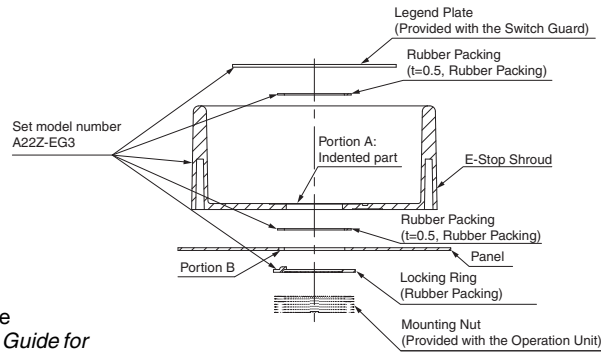
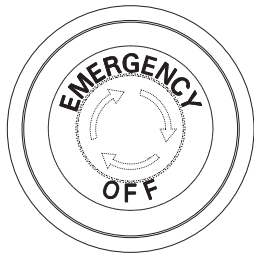


Push-in Plus Terminal Block Type
Mounting a 2-pole Switch Unit

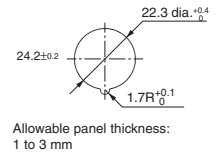


A22NE-P

Common Accessories and Tools



Panel Cutout Dimensions



- 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.

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

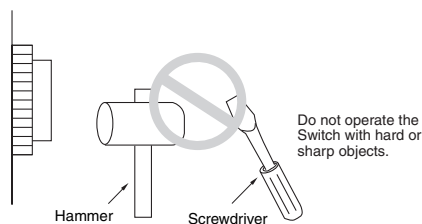
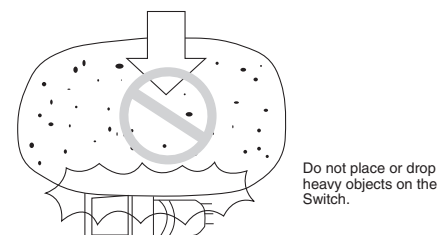
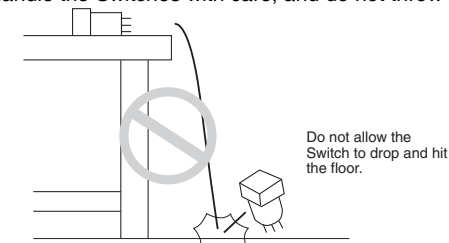
- Always make sure that the power is turned OFF before wiring the Switch. Also, do not touch the terminals or other current-carrying ports while power is being supplied. Electric shock may occur.
- Do not tighten the mounting ring more than necessary using tools such as pointed-nose pliers. Doing so will damage the mounting ring. The tightening torque is 0.98 to 1.96 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

- The IP65 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.



Terms and Conditions Agreement

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

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- (a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.
- (b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

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OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

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Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

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