

# A22NE-P

A22NE-PD

A22NE-P

A22E

Common Accessories and Tools

Common Note

## 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) / Supports IP69K high-temperature, high-pressure cleaning (pull-reset models).

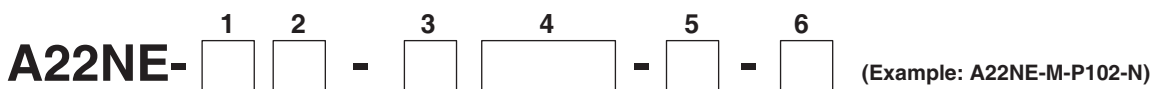


For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Be sure to read the "Safety Precautions" on pages 33 and 56.

## 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.

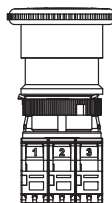
### 3. Contact specification/Terminal specification

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 (Degree of Protection/Control box)

Code	Configuration
None	IP65
69K	IP69K
B *	Built-in control box






\* One-contact unit type.

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## Ordering Information





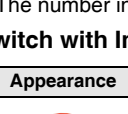
### List of Models (Completely Assembled)

#### Non-lighted Models

Appearance	Operation	Degree of Protection	Contact configuration *	Set Model	Color of cap
	40-dia. head Medium Pull-reset A22NE-MP-P□□2-N	IP65 oil-resistant models	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	
	40-dia. head Medium Pull-reset A22NE-MP-P□□2-N-69K	IP69K	1NC (1)	A22NE-MP-P002-N-69K	
			1NC, 1NO (2)	A22NE-MP-P102-N-69K	
			2NC (2)	A22NE-MP-P202-N-69K	
			2NC, 1NO (3)	A22NE-MP-P212-N-69K	
			3NC (3)	A22NE-MP-P222-N-69K	
	30-dia. head Small Turn-reset A22NE-S-P□□2-N	IP65 oil-resistant models	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	IP65 oil-resistant models	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. head Large Turn-reset A22NE-L-P□□2-N	IP65 oil-resistant models	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	


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

#### Lighted Model

Appearance	Operation	Degree of Protection	Contact configuration *	LED lamp voltage	Set Model	Color of cap	
	40-dia. head Medium Turn-reset A22NE-M-P□□2-A	IP65	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)	1NC, 1NO (2)	12 VAC/VDC		A22NE-M-P002-B
				2NC (2)			A22NE-M-P102-B
				2NC (2)			A22NE-M-P202-B
	40-dia. head Medium Turn-reset A22NE-M-P□□2-C		1NC (1)	1NC, 1NO (2)	24 VAC/VDC		A22NE-M-P002-C
				2NC (2)			A22NE-M-P102-C
				2NC (2)			A22NE-M-P202-C
	40-dia. head Medium Turn-reset A22NE-M-P□□2-D		1NC (1)	1NC, 1NO (2)	100, 110, 120 VAC		A22NE-M-P002-D
				2NC (2)			A22NE-M-P102-D
				2NC (2)			A22NE-M-P202-D
	40-dia. head Medium Turn-reset A22NE-M-P□□2-E		1NC (1)	1NC, 1NO (2)	220, 230, 240 VAC		A22NE-M-P002-E
				2NC (2)			A22NE-M-P102-E
				2NC (2)			A22NE-M-P202-E

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

#### 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

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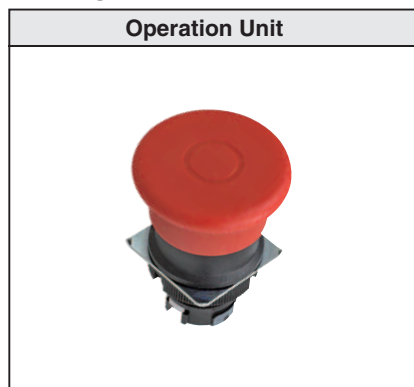
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Common Accessories and Tools

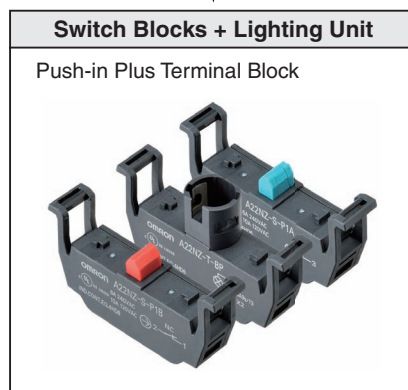
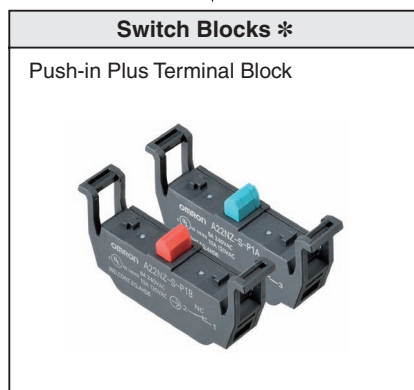
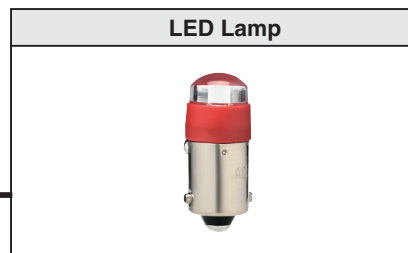
Common Note

**Subassembled** ..... The 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.

**Non-lighted**



**Lighted**



\* Up to three Switch Blocks can be mounted.

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Common Accessories and Tools

Common Note


## Operation Unit Non-lighted

		Size	Small (30 dia.)	Medium (40 dia.)	Large (60-dia.)
Function	Sealing capability	Single item order model			
Pull-reset	IP65 oil-resistant models	---	<b>A22NE-MP-N</b> 		---
	IP69K	---	<b>A22NE-MP-N-69K</b> 		---
Turn-reset	IP65 oil-resistant models	<b>A22NE-S-N</b> 	<b>A22NE-M-N</b> 	<b>A22NE-L-N</b> 	
			<b>A22NE-MRO-N</b> <b>A22NE-MRO-N-RD</b> 		
			<b>A22NE-MRS-N</b> <b>A22NE-MRS-N-RD</b> 		


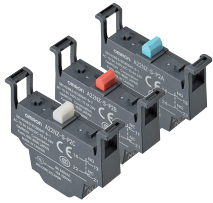

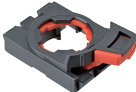
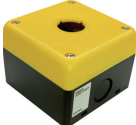
## Lighted

		Size	Medium (40 dia.)
Function	Sealing capability	Single item order model	
Turn-reset	IP65	<b>A22NE-M-L</b> 	

## LED lamp

Appearance	LED light	Rated voltage	Model	Remarks
	Red	6 VAC/VDC	<b>A22NZ-L-RA</b>	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	<b>A22NZ-L-RB</b>	
		24 VAC/VDC	<b>A22NZ-L-RC</b>	
		100, 110, 120 VAC	<b>A22NZ-L-RD</b>	
		200, 220, 230, 240 VAC	<b>A22NZ-L-RE</b>	

## Accessories (Order Separately)

Item	Appearance	Contact specifications		Model	Remarks
Switch Blocks (one contact)		1NO (Blue)	Standard load	<b>A22NZ-S-P1A</b>	Provided as standard. Order Switch Blocks only when adding or replacing them.
		1NC (Red)	Standard load	<b>A22NZ-S-P1B</b>	
Switch Blocks (two contacts)		2NO (Blue)	Standard load	<b>A22NZ-S-P2A</b>	Order Switch Blocks only when adding or replacing them.
		2NC (Red)	Standard load	<b>A22NZ-S-P2B</b>	
		1NO/1NC (White)	Standard load	<b>A22NZ-S-P2C</b>	
Lighting unit		6 VAC/VDC		<b>A22NZ-T-AP</b>	These are provided with the completely assembled set of lighted models. Order Lighting Units only when replacing them.
		12 VAC/VDC		<b>A22NZ-T-BP</b>	
		24 VAC/VDC		<b>A22NZ-T-CP</b>	
		100, 110, 120 VAC		<b>A22NZ-T-DP</b>	
		200, 220, 230, 240 VAC		<b>A22NZ-T-EP</b>	
Mounting Latches		---		<b>A22NZ-H-02</b>	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		<b>A22NZ-A-B101Y</b>	Can be combined with 2-contact Switch Blocks.
				<b>A22NZ-A-B01Y</b>	Cannot be combined with 2-contact Switch Blocks. *

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

\* The 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.

# A22NE-P

## 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 (GB/T14048.5)  
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		
		24 VDC	---	---	4	8
		120 VDC			1.1	2.2
		240 VDC			0.55	1.1

- 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: 20 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)	GB/T14048.5	Consult your OMRON representative for details.

**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	
200 VAC	200 VAC ± 10%	Approx. 12 mA
220 VAC	220 VAC ± 10%	
230 VAC	230 VAC ± 10%	
240 VAC	220 VAC to 250 VAC	

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Common Accessories and Tools

Common Note

## Characteristics

Item		Operation	Turn-reset		Pull-reset	
			Non-lighted model	Lighted Model	Non-lighted model	
			A22NE-□-P□□□-N	A22NE-M-P□□□-□	A22NE-MP-P□□□-N	A22NE-MP-P□□□-N-69K
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 <sup>2</sup> max. (contact separation within 1 ms)				
Durability	Mechanical	300,000 operations min. (One operation consists of set and reset operations.)			100,000 operations min. (One operation consists of set and reset operations.)	
	Electrical	300,000 operations min. (One operation consists of set and reset operations.)			100,000 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	-20 to +70°C *3	
Ambient operating humidity		35 to 85% RH				
Ambient storage temperature *2		-40 to +70°C				
Degree of protection *4		IP65 oil-resistant models *5	IP65	IP65 oil-resistant models *5	IP69K	
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	Approx. 115 g	

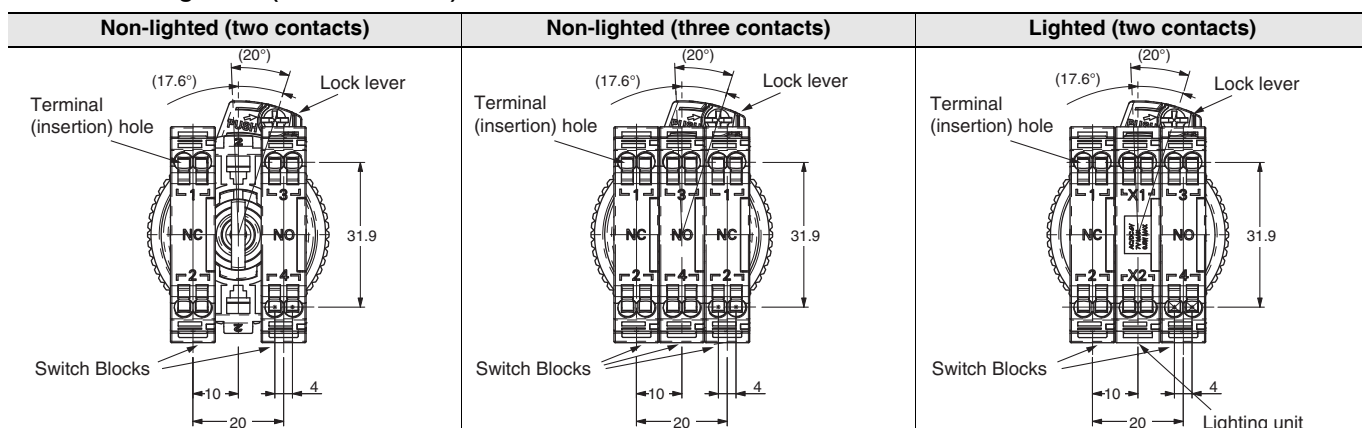
- \*1. State when an LED is not added between terminals of the same polarity on a lighting unit. Does not apply to lighted-type 100 to 200 V lighting units.
- \*2. With no icing or condensation.
- \*3. Capable of operation at up to 80°C under IP□9K testing conditions per JIS D 5020.
- \*4. The degree of protection from the front of the panel.
- \*5. 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	
	Lighted / non-lighted models	Non-lighted model	Non-lighted model (Models with IP69K)
Total travel force (TTF)	45 N max.	60 N max.	70 N max.
Return force (RF)	0.25N·m * max.	60 N max.	70 N max.
Total travel (TT)	10 ±1 mm	5.5 ±1 mm	5.5 ±1 mm

\* Rotation torque value.

## Terminal Arrangement (BOTTOM VIEW)



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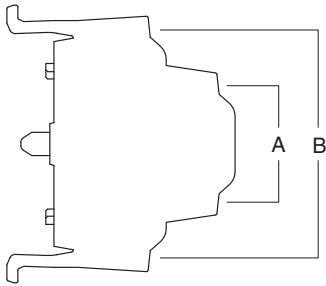
## Terminal connection

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).

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## 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

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## Structure and Nomenclature

Common Accessories and Tools

Common Note

**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

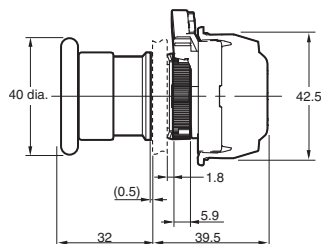
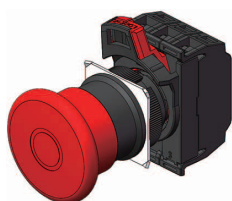
**Lighting Method**  
Non-lighted  
Lighted (LED)

# Dimensions

## Non-lighted Models

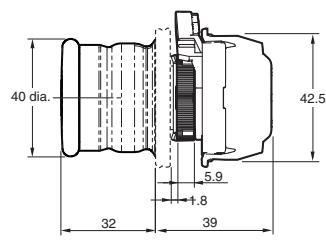
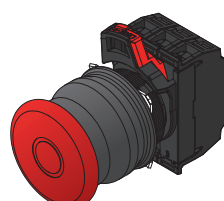
### A22NE-MP-P□□2-N

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



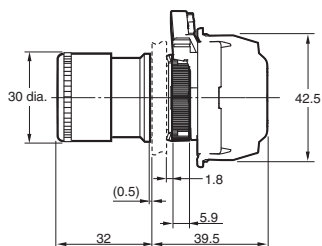
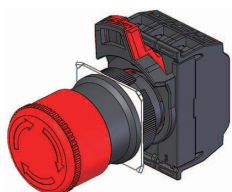
### A22NE-MP-P□□2-N-69K

Pull-reset (40-dia.) Degree of Protection: IP69K



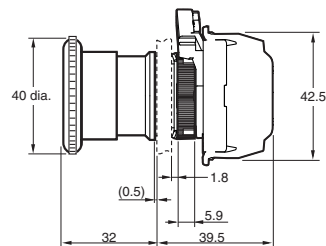
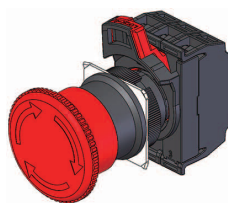
### A22NE-S-P□□2-N

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



### A22NE-M-P□□2-N

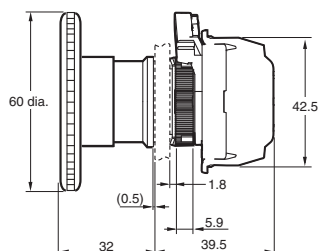
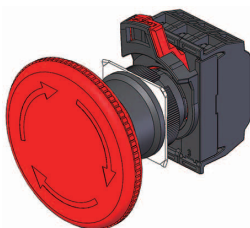
Medium Turn-reset (40-dia.) Degree of Protection: IP65 oil-resistant models



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

### A22NE-L-P□□2-N

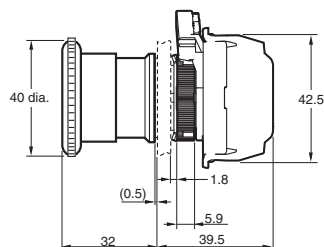
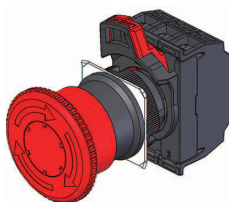
Large Turn-reset (60-dia.) Degree of Protection: IP65 oil-resistant models



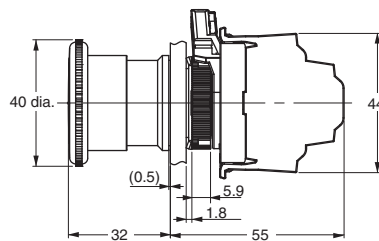
## Lighted Model

### A22NE-M-P□□2-□

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



### Dimensions when a two-contact Switch Block is attached



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

A22NE-PD

A22NE-P

A22E

Common Accessories and Tools

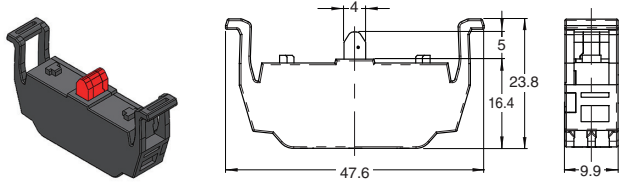
Common Note

# A22NE-P

## Accessories (Order Separately) Switch Block with Push-In Plus technology

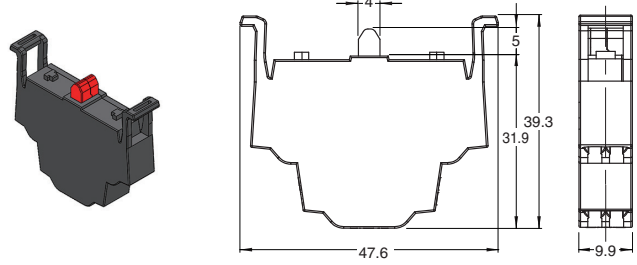
### Switch Block (one contact)

A22NZ-S-P1□



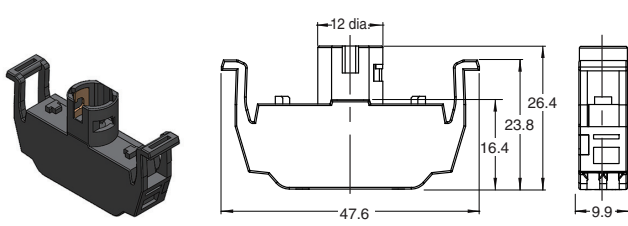
### Switch Block (two contacts)

A22NZ-S-P2□



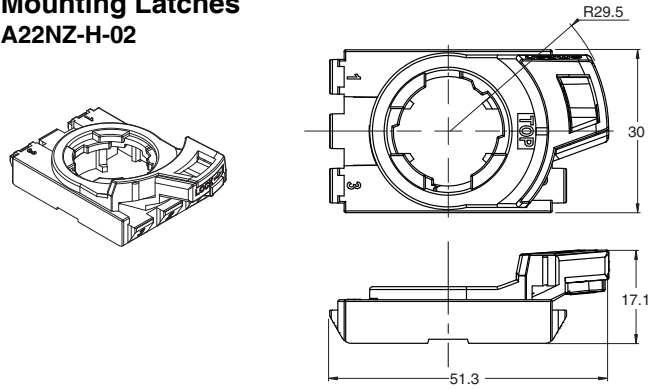
### Lighting unit

A22NZ-T-□□



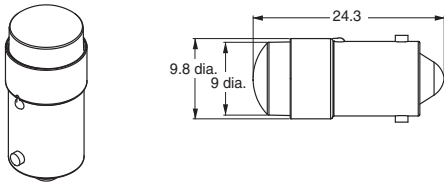
### Mounting Latches

A22NZ-H-02



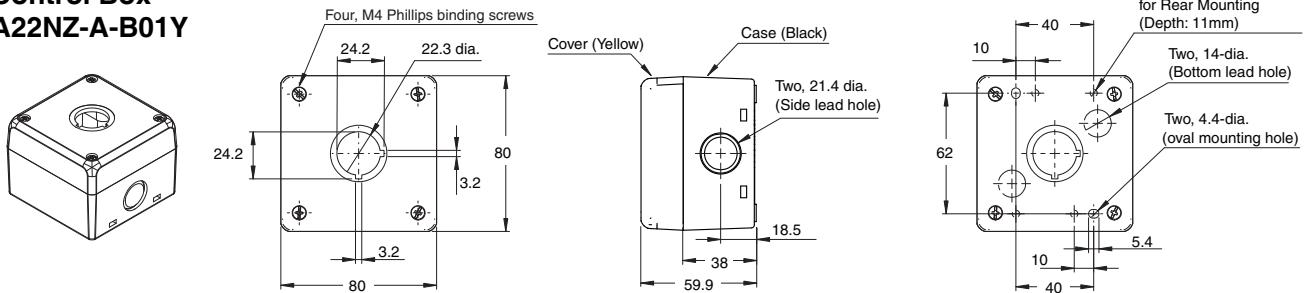
### LED Lamp

A22NZ-L-□□



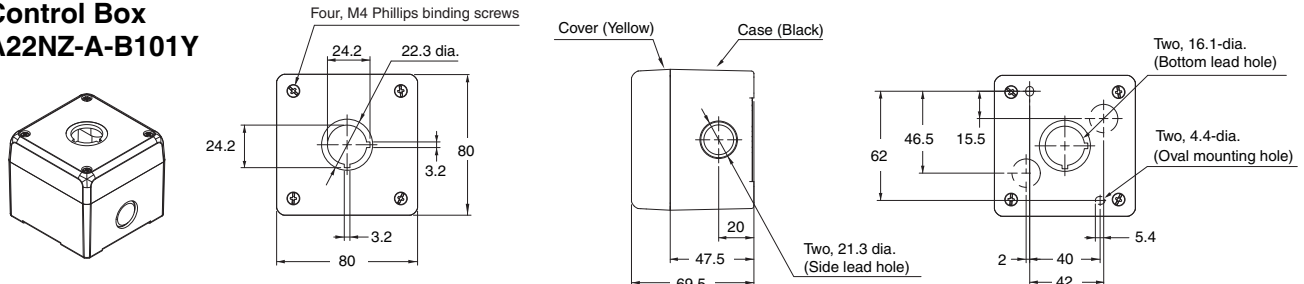
### Control Box

A22NZ-A-B01Y



### Control Box

A22NZ-A-B101Y



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

# Application

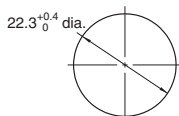
## Mounting to the Panel

### (1) Preparing the Panel

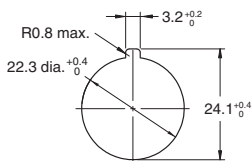
#### Panel hole dimension and panel thickness

- 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

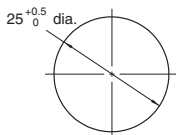


#### When using a A22Z-3360 (Order Separately) Lock Ring



#### For 25-dia.

- Use the A22Z-R25 (Order Separately) rubber ring.
- \* Switches with an IP69K degree of protection do not support the 25-dia.



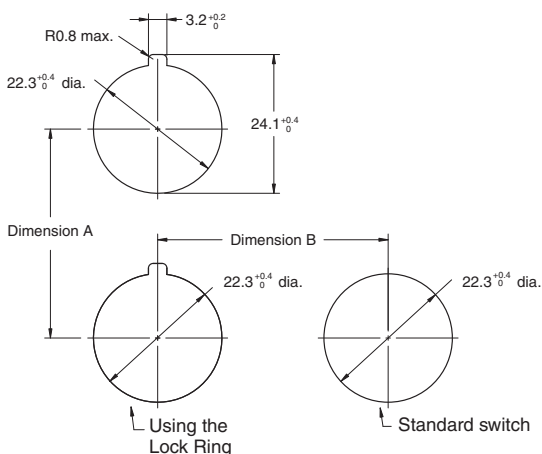
### (2) Minimum mounting pitch (Dimension A, Dimension B)

#### 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

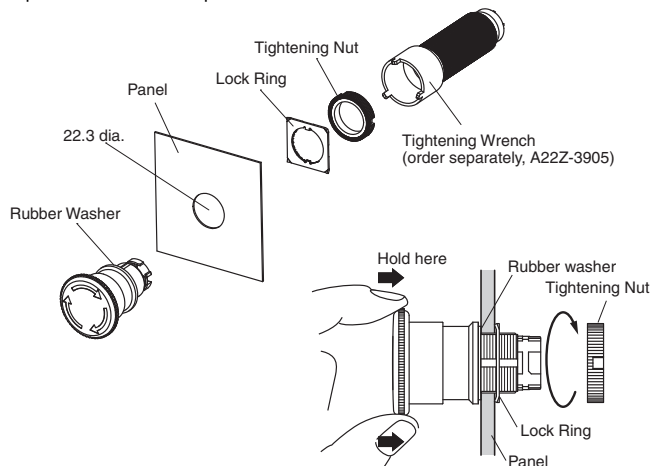


### (3) Mounting the Operation Unit on the Panel

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

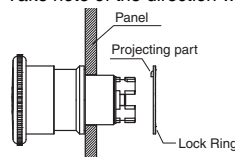
#### Panel Hole of 22.3-mm Diameter

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



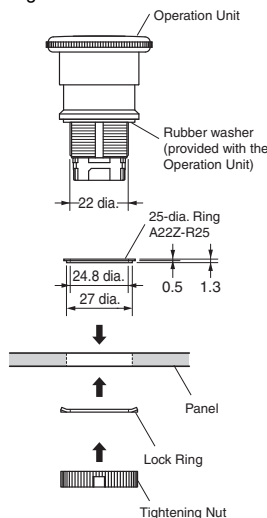
#### When the A22Z-3360 Lock Ring (Order Separately) is used

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



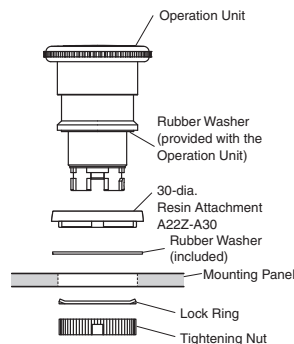
#### Panel Hole of 25-mm Diameter

- Insert the A22Z-R25 (Order Separately) between the Operation Unit and Panel, and tighten the Tightening Nut. 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-A30 (Order Separately) between the Operation Unit and Panel, and tighten the Tightening Nut. 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.
- \* Switches with an IP69K degree of protection do not support the 30-dia.



Panel Cutouts	Panel thickness
25 mm dia.	1 to 5 mm
30 mm dia.	1 to 3 mm

A22NE-PD

A22NE-P

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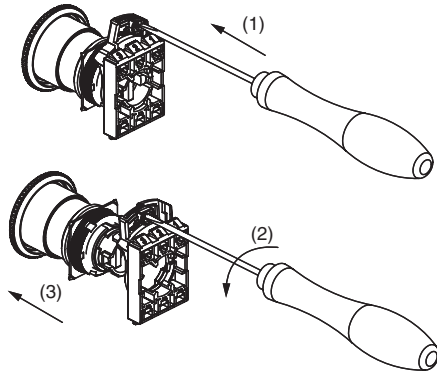
Common Accessories and Tools

Common Note

**Removing the Mounting Latch**

**When the Mounting Latch is to be Removed**

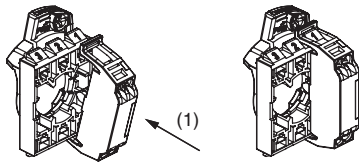
- Press the lock lever in from the back side to release the lock, and then hook the Mounting Collar with a screwdriver, move it in the direction indicated at (2), and remove it. Turn the lever all of the way until it clicks into place.



**Switch Blocks and Lighting Unit**

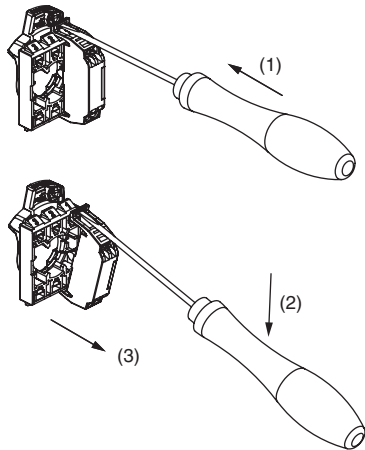
**(1) Installing the Switch Blocks and Lighting Unit**

- 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**

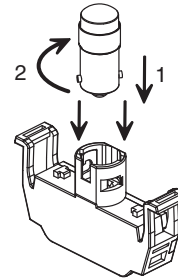
- Insert a screwdriver into the gap between the Mounting Collar and Switch Block and press it inward in the direction shown at (2).



**Attaching the LED Lamp to the Lighting Unit**

**When the LED Lamp is to be Installed**

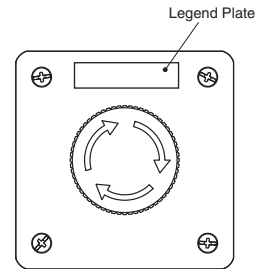
- Insert the protrusions on the LED Lamp into the guides on the Lighting Unit and then turn the LED Lamp in direction (2) to lock it in place.



**Control Box**

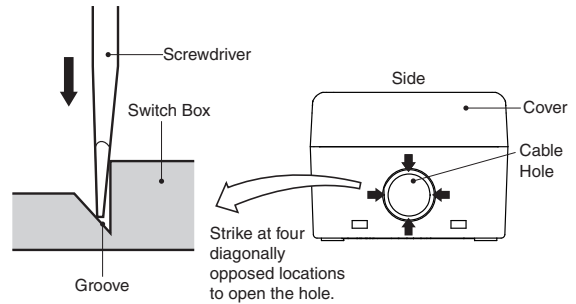
**(1) Mounting the Switch**

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.



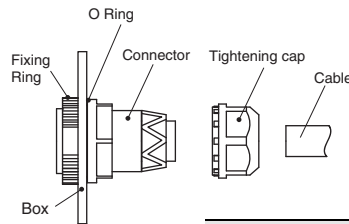
**(2) Creating a Cable Hole**

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 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

# 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

 <b>Warning</b>	<b>Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Additionally there may be significant property damage.</b>
<b>Precautions for Safe Use</b>	<b>Comments on what to do or avoid doing, to use the product safely.</b>
<b>Precautions for Correct Use</b>	<b>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.</b>

 **WARNING**

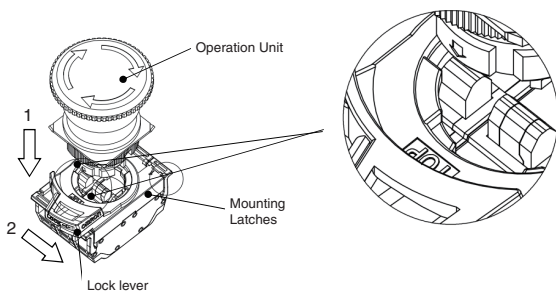
Do not perform wiring with power supplied to the Switch/Indicator. Do not touch the terminals or other charged parts while power is being supplied. Doing so may result in electric shock.



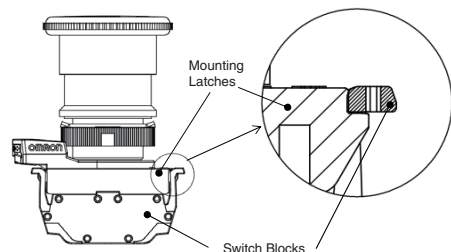
**Precautions for Safe Use**

- 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 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 H<sub>2</sub>S, SO<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub>, and Cl<sub>2</sub>, 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 submerged 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. In models with IP69K, make sure the rubber bush of the Operation Unit is properly attached. 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 <sup>2</sup> 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.
- 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.

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Common Accessories and Tools

Common Note

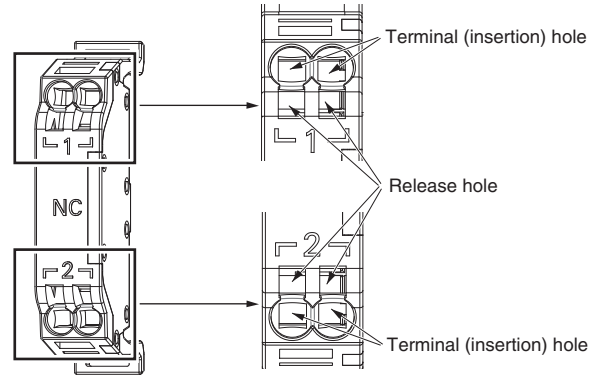
- Do not insert more than one wire into each terminal insertion hole.
- Do not mount A22N-P or A22NE-P Push-In Plus terminal switch blocks on A22N screw terminal blocks. Doing so may result in unsatisfactory performance.
- When mounting on a device with high airtightness, test operation in advance. There is a risk that the negative pressure will prevent the Operation Unit of from returning.
- In the case of loads where an inrush current occurs when the contact is opened or closed, the durability may reduce due to extreme wear on the contacts.  
If necessary, insert a contact protection circuit.

**Precautions for Correct Use**

**Wiring**

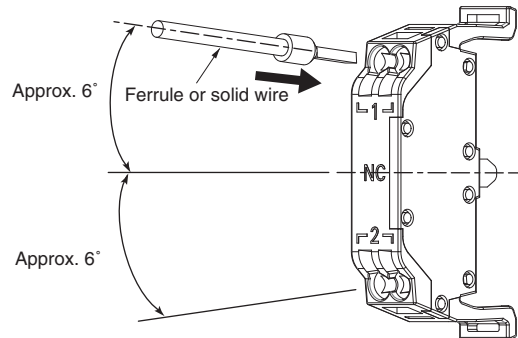
**1. Connecting Wires to the Push-In Plus Terminal Block**

**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.

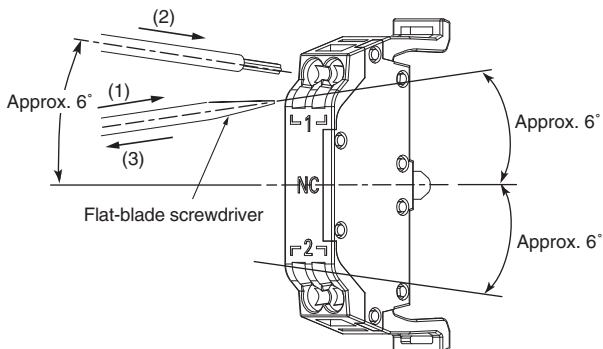


The wiring for the Lighting Unit and Switch Block (2 contacts) are the same as for the Switch Block (1 contact) shown in the above illustration.

**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.

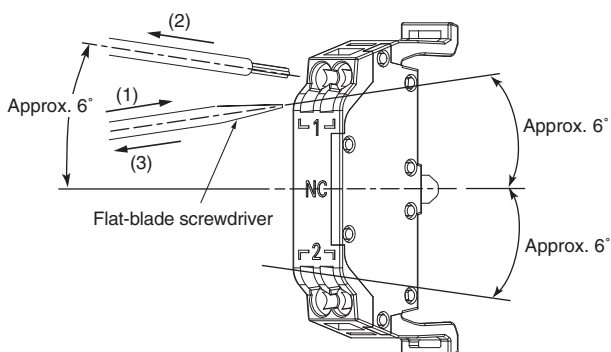
**Checking Connections**

- 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.

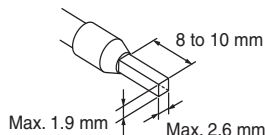
**3. Recommended Ferrules and Crimp Tools**  
**Coating peeling amount**

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

**Recommended ferrules**

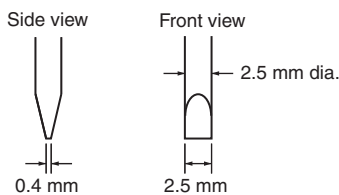
Applicable wire		Ferrule conductor length (mm)	Stripping length (mm) (Ferrules not used)	Recommended ferrules		
(mm <sup>2</sup> )	(AWG)			Phoenix Contact product	Weidmuller product	Wago product
0.25	24	8	10	AI 0, 25-8	H0.25/12	216-301
		10	12	AI 0, 25-10	---	---
0.34	22	8	10	AI 0, 34-8	H0.34/12	216-302
		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 x 2,5	Wera
SZS 0,4 x 2,5 SZF 0-0,4 x 2,5 *	Phoenix Contact
0,4 x 2,5 x 75 302	Wiha
AEF.2,5 x 75	Facom
210-719	Wago
SDI 0,4 x 2,5 x 75	Weidmuller

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

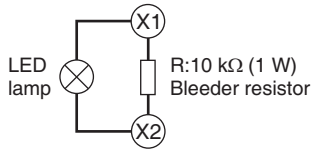
- After wiring the Switch/Indicator, provide a sufficient insulation distance.

## 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 56.