

## Install in 22-dia. or 25-dia. Panel Cutout (When Using a Ring)

- Lever for easily mounting and removing the Switch Unit.
- Increase wiring efficiency with three-row mounting of Switch Blocks.
- Finger protection mechanism on Switch Unit provided as a standard feature.
- Use 25-dia. ring to install in 25-dia. panel cutouts.
- Mounted using either open-type (fork-type) or closed-type (round-type) crimp terminals.
- IP65 oil resistance (non-lighted models)  
IP65 (lighted models)

 Refer to *Safety Precautions for All Pushbutton Switches/Indicators* and *Safety Precautions* on page 21.



A22L-D

A22-S

## List of Models

### Non-lighted Pushbutton Switches

| Appearance |                                                                                                              | Model number |
|------------|--------------------------------------------------------------------------------------------------------------|--------------|
| Round      | Half guard                 | A22-H        |
| Square     | Projected                 | A22-C        |
|            | Guard                     | A22-D        |
| Mushroom   | Mushroom Small (30 dia.)  | A22-S        |

### Lighted Pushbutton Switches

| Appearance |                                                                                                 | Model number |
|------------|-------------------------------------------------------------------------------------------------|--------------|
| Round      | Half guard  | A22L-H       |
| Square     | Projected  | A22L-C       |
|            | Guard      | A22L-D       |

## Model Number Structure

**Model Number Legend** ..... Shipped as a set which includes the Pushbutton, Lamp (lighted type only), and Switch.  
For information on combinations, refer to *Ordering Information* on pages 3 to 4.

(1) (2) (3) (4) (5) (6)  
**A 22 L - C G - 24 A - 10 M**

### (1) Type

| Code      | Description |
|-----------|-------------|
| No symbol | Non-lighted |
| L         | Lighted     |

### (2) Flange Shape

| Non-lighted |             |                          |
|-------------|-------------|--------------------------|
| Code        | Description |                          |
| H           | Round       | Half-guard               |
| C           | Square      | Projected                |
| D           |             | Full-guard               |
| S           | Round       | Mushroom Small (30 dia.) |

### Lighted

| Code | Description |            |
|------|-------------|------------|
| H    | Round       | Half-guard |
| C    | Square      | Projection |
| D    |             | Full-guard |

### (3) Illumination Color

| Code | Description |
|------|-------------|
| R    | Red         |
| G    | Green       |
| Y    | Yellow      |
| W    | White       |
| A    | Blue        |
| B    | Black*      |

\* For non-lighted type only

### (4) Light Source

| Without Voltage Reduction Unit |                   |            |
|--------------------------------|-------------------|------------|
| Code                           | Operating Voltage |            |
| No symbol                      | Non-lighted       |            |
| 6A                             | LED               | 6 VAC/VDC  |
| 12A                            |                   | 12 VAC/VDC |
| 24A                            |                   | 24 VAC/VDC |

### With Voltage Reduction Unit

| Code | Operating Voltage |         |
|------|-------------------|---------|
| T1   | LED               | 100 VAC |
| T2   |                   | 200 VAC |

Note: LED incorporates the 24-VAC/VDC type.

### (5) Contacts

| Code | Description       |
|------|-------------------|
| 10   | SPST-NO           |
| 01   | SPST-NC           |
| 11   | SPST-NO + SPST-NC |
| 20   | DPST-NO           |
| 02   | DPST-NC           |

Note: 1. The contact ratings are for standard loads. For microloads, select from the accessories on page 8.  
2. Refer to page 11 for contact ratings.

### (6) Switch Action

| Code | Description |
|------|-------------|
| M    | Momentary   |
| A    | Alternate   |

Note: 1. Momentary operation:  
Self-resetting  
2. Alternate operation:  
Self-holding  
The Socket Unit holds and the Operation Unit resets.

■ Specifications: See pages 11 to 12.

■ Dimensions: Refer to page 14.

■ Precautions for correct use: Refer to page 21.

■ Accessories and tools: See pages 8 to 10.

## Ordering Information

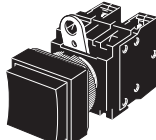
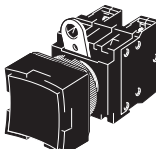
**Completely Assembled**..... Shipped as a set which includes the Pushbutton, LED (lighted type only), and Switch.  
Not all combinations are possible.

### Non-lighted (Round Type)

| Operation                                                                                                                                         |                   | Momentary operation (self-resetting) | Alternate operation (self-holding) | Illumination color                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------|------------------------------------|--------------------------------------------------------------------------|
| Appearance                                                                                                                                        | Output            | Set                                  | Set                                |                                                                          |
| Round/Half-guard type<br>A22-H<br>                               | SPST-NO           | A22-H□-10M                           | A22-H□-10A                         | R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue)<br>B (black) |
|                                                                                                                                                   | SPST-NC           | A22-H□-01M                           | A22-HR-01A                         |                                                                          |
|                                                                                                                                                   | SPST-NO + SPST-NC | A22-H□-11M                           | A22-H□-11A                         |                                                                          |
|                                                                                                                                                   | SPST-NO + SPST-NO | A22-H□-20M                           | A22-H□-20A                         |                                                                          |
|                                                                                                                                                   | SPST-NC + SPST-NC | A22-H□-02M                           | A22-HR-02A                         |                                                                          |
| Round/Small-size<br>Mushroom type<br>(30-dia. head)<br>A22-S<br> | SPST-NO           | A22-S□-10M                           | ---                                |                                                                          |
|                                                                                                                                                   | SPST-NC           | A22-S□-01M                           |                                    |                                                                          |
|                                                                                                                                                   | SPST-NO + SPST-NC | A22-S□-11M                           |                                    |                                                                          |
|                                                                                                                                                   | SPST-NO + SPST-NO | A22-S□-20M                           |                                    |                                                                          |
|                                                                                                                                                   | SPST-NC + SPST-NC | A22-S□-02M                           |                                    |                                                                          |

Note: The contact ratings are for standard loads.

### Non-lighted (Square Type)

| Operation                       |                                                                                     | Momentary operation (self-resetting) | Alternate operation (self-holding) | Illumination color |                                                                          |
|---------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|------------------------------------|--------------------|--------------------------------------------------------------------------|
| Appearance                      | Output                                                                              | Set                                  | Set                                |                    |                                                                          |
| Square/Projection type<br>A22-C |   | SPST-NO                              | A22-C□-10M                         | A22-C□-10A         | R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue)<br>B (black) |
|                                 |                                                                                     | SPST-NC                              | A22-C□-01M                         | A22-CG-01A         |                                                                          |
|                                 |                                                                                     | SPST-NO + SPST-NC                    | A22-C□-11M                         | A22-C□-11A         |                                                                          |
|                                 |                                                                                     | SPST-NO + SPST-NO                    | A22-C□-20M                         | A22-C□-20A         |                                                                          |
|                                 |                                                                                     | SPST-NC + SPST-NC                    | A22-C□-02M                         | A22-CG-02A         |                                                                          |
| Square/Guard type<br>A22-D      |  | SPST-NO                              | A22-D□-10M                         | A22-D□-10A         |                                                                          |
|                                 |                                                                                     | SPST-NC                              | A22-D□-01M                         | A22-DR-01A         |                                                                          |
|                                 |                                                                                     | SPST-NO + SPST-NC                    | A22-D□-11M                         | A22-D□-11A         |                                                                          |
|                                 |                                                                                     | SPST-NO + SPST-NO                    | ---                                | ---                |                                                                          |
|                                 |                                                                                     | SPST-NC + SPST-NC                    | ---                                | ---                |                                                                          |

Note: The contact ratings are for standard loads.

### Lighted (Round Type)

| Operation                                                                                                                                                                                 |                   |          |                      | Momentary operation<br>(self-resetting) | Alternate operation<br>(self-holding) | Illumination<br>color                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|----------------------|-----------------------------------------|---------------------------------------|-------------------------------------------------------------|
| Appearance                                                                                                                                                                                | Output            | Lighting | Operating<br>voltage | Set                                     | Set                                   |                                                             |
| Round/Half-guard type<br>LED lighting<br>(without Voltage Reduction Unit)<br>A22L-H<br>                | SPST-NO           | LED      | 24 VAC/VDC           | A22L-H□-24A-10M                         | A22L-H□-24A-10A                       | R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |
|                                                                                                                                                                                           | SPST-NC           |          |                      | A22L-HR-24A-01M                         | A22L-HW-24A-01A                       |                                                             |
|                                                                                                                                                                                           | SPST-NO + SPST-NC |          |                      | A22L-H□-24A-11M                         | A22L-H□-24A-11A                       |                                                             |
|                                                                                                                                                                                           | SPST-NO + SPST-NO |          |                      | A22L-H□-24A-20M                         | A22L-H□-24A-20A                       |                                                             |
|                                                                                                                                                                                           | SPST-NC + SPST-NC |          |                      | A22L-H□-24A-02M                         | ---                                   |                                                             |
| Round/Half-guard type<br>LED voltage-reduction lighting<br>(with Voltage Reduction Unit)<br>A22L-H<br> | SPST-NO           |          | 100 VAC              | A22L-H□-T1-10M                          | A22L-H□-T1-10A                        |                                                             |
|                                                                                                                                                                                           | SPST-NC           |          | 200 VAC              | A22L-H□-T2-10M                          | A22L-H□-T2-10A                        |                                                             |
|                                                                                                                                                                                           |                   |          | 100 VAC              | A22L-H□-T1-01M                          | ---                                   |                                                             |
|                                                                                                                                                                                           | SPST-NO + SPST-NC |          | 200 VAC              | A22L-H□-T2-01M                          | A22L-HY-T2-01A                        |                                                             |
|                                                                                                                                                                                           |                   |          | 100 VAC              | A22L-H□-T1-11M                          | A22L-HG-T1-11A                        |                                                             |
|                                                                                                                                                                                           | SPST-NO + SPST-NO |          | 200 VAC              | A22L-H□-T2-11M                          | A22L-HR-T2-11A                        |                                                             |
|                                                                                                                                                                                           |                   |          | 100 VAC              | A22L-H□-T1-20M                          | A22L-H□-T1-20A                        |                                                             |
|                                                                                                                                                                                           | SPST-NC + SPST-NC |          | 200 VAC              | A22L-HG-T2-20M                          | A22L-H□-T2-20A                        |                                                             |
|                                                                                                                                                                                           |                   |          | 100 VAC              | A22L-H□-T1-02M                          | ---                                   |                                                             |

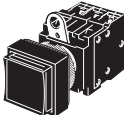
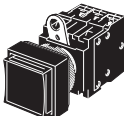
Note: The contact ratings are for standard loads.

Individual models: Refer to pages 5 to 7.  
(The Pushbutton, Lamp, and Switch can be ordered separately.)

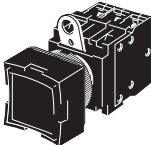
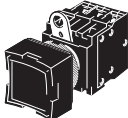
■ Specifications and dimensions: See pages 11 to 14.  
■ Accessories and tools: See pages 8 to 10.

## Ordering Information

**Completely Assembled** ..... Shipped as a set which includes the Pushbutton, LED (lighted type only), and Switch.  
**Lighted (Square Type)**

| Operation                                                                                                                                                                                |                      |          |                   | Momentary operation<br>(self-resetting) | Alternate operation<br>(self-holding) | Illumination<br>color                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------|-------------------|-----------------------------------------|---------------------------------------|-------------------------------------------------------------|
| Appearance                                                                                                                                                                               | Output               | Lighting | Operating voltage | Set                                     | Set                                   |                                                             |
| Square/Projection type<br>LED lighting<br>(without Voltage Reduction Unit)<br>A22L-C<br>                | SPST-NO              | LED      | 24 VAC/VDC        | A22L-C□-24A-10M                         | A22L-C□-24A-10A                       | R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |
|                                                                                                                                                                                          | SPST-NC              |          |                   | A22L-CR-24A-01M                         | ---                                   |                                                             |
|                                                                                                                                                                                          | SPST-NO +<br>SPST-NC |          |                   | A22L-C□-24A-11M                         | A22L-C□-24A-11A                       |                                                             |
|                                                                                                                                                                                          | SPST-NO +<br>SPST-NO |          |                   | A22L-C□-24A-20M                         | A22L-C□-24A-20A                       |                                                             |
| Square/Projection type<br>LED voltage-reduction lighting<br>(with Voltage Reduction Unit)<br>A22L-C<br> | SPST-NO              |          | 100 VAC           | A22L-CW-T1-10M                          | A22L-C□-T1-10A                        |                                                             |
|                                                                                                                                                                                          |                      |          | 200 VAC           | A22L-C□-T2-10M                          | A22L-CG-T2-10A                        |                                                             |
|                                                                                                                                                                                          | SPST-NC              |          | 100 VAC           | ---                                     | A22L-CW-T1-01A                        |                                                             |
|                                                                                                                                                                                          |                      |          | 200 VAC           | A22L-C□-T2-01M                          | ---                                   |                                                             |
|                                                                                                                                                                                          | SPST-NO +<br>SPST-NC |          | 100 VAC           | A22L-C□-T1-11M                          | A22L-C□-T1-11A                        |                                                             |
|                                                                                                                                                                                          |                      |          | 200 VAC           | A22L-C□-T2-11M                          | A22L-C□-T2-11A                        |                                                             |
|                                                                                                                                                                                          | SPST-NO +<br>SPST-NO |          | 100 VAC           | A22L-C□-T1-20M                          | A22L-CG-T1-20A                        |                                                             |
|                                                                                                                                                                                          |                      |          | 200 VAC           | A22L-CG-T2-20M                          | A22L-C□-T2-20A                        |                                                             |

Note: The contact ratings are for standard loads.

| Operation                                                                                                                                                                                  |                      |          |                   | Momentary operation<br>(self-resetting) | Alternate operation<br>(self-holding) | Illumination<br>color                                       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------|-------------------|-----------------------------------------|---------------------------------------|-------------------------------------------------------------|--|
| Appearance                                                                                                                                                                                 | Output               | Lighting | Operating voltage | Set                                     | Set                                   |                                                             |  |
| Square/Full-guard type<br>LED lighting<br>(without Voltage Reduction Unit)<br>A22L-D<br>                | SPST-NO              | LED      | 24 VAC/VDC        | A22L-D□-24A-10M                         | A22L-D□-24A-10A                       | R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |  |
|                                                                                                                                                                                            | SPST-NC              |          |                   | A22L-D□-24A-01M                         | A22L-DY-24A-01A                       |                                                             |  |
|                                                                                                                                                                                            | SPST-NO +<br>SPST-NC |          |                   | A22L-D□-24A-11M                         | A22L-D□-24A-11A                       |                                                             |  |
|                                                                                                                                                                                            | SPST-NO +<br>SPST-NO |          |                   | A22L-D□-24A-20M                         | A22L-D□-24A-20A                       |                                                             |  |
|                                                                                                                                                                                            | SPST-NC +<br>SPST-NC |          |                   | A22L-DA-24A-02M                         | A22L-DR-24A-02A                       |                                                             |  |
| Square/Full-guard type<br>LED voltage-reduction lighting<br>(with Voltage Reduction Unit)<br>A22L-D<br> | SPST-NO              |          | 100 VAC           | A22L-D□-T1-10M                          | A22L-D□-T1-10A                        |                                                             |  |
|                                                                                                                                                                                            |                      |          | 200 VAC           | A22L-D□-T2-10M                          | A22L-D□-T2-10A                        |                                                             |  |
|                                                                                                                                                                                            | SPST-NC              |          | 100 VAC           | A22L-D□-T1-01M                          | ---                                   |                                                             |  |
|                                                                                                                                                                                            |                      |          | 200 VAC           | A22L-DR-T2-01M                          |                                       |                                                             |  |
|                                                                                                                                                                                            | SPST-NO +<br>SPST-NC |          | 100 VAC           | A22L-D□-T1-11M                          | A22L-DW-T1-11A                        |                                                             |  |
|                                                                                                                                                                                            |                      | 200 VAC  | A22L-D□-T2-11M    | A22L-D□-T2-11A                          |                                       |                                                             |  |
|                                                                                                                                                                                            | SPST-NO +<br>SPST-NO | 100 VAC  | A22L-D□-T1-20M    | A22L-D□-T1-20A                          |                                       |                                                             |  |
|                                                                                                                                                                                            |                      | 200 VAC  | A22L-DG-T2-20M    | A22L-D□-T2-20A                          |                                       |                                                             |  |
|                                                                                                                                                                                            | SPST-NC +<br>SPST-NC | 100 VAC  | A22L-DR-T1-02M    | ---                                     |                                       |                                                             |  |

Note: The contact ratings are for standard loads.

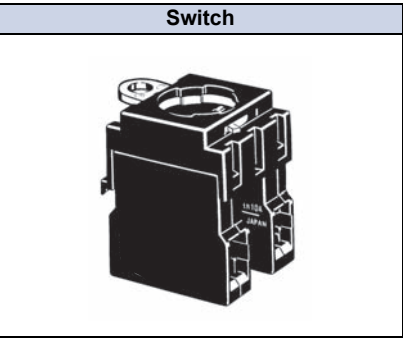
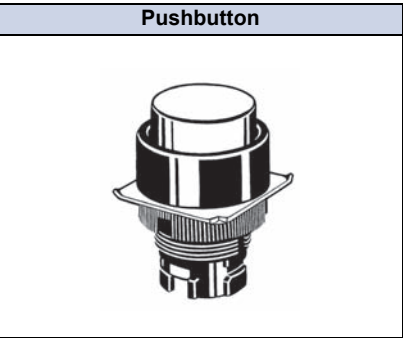
Individual models: Refer to pages 5 to 7.  
(The Pushbutton, Lamp, and Switch can be ordered separately.)

■ Specifications and dimensions: See pages 11 to 14.  
■ Accessories and tools: See pages 8 to 10.

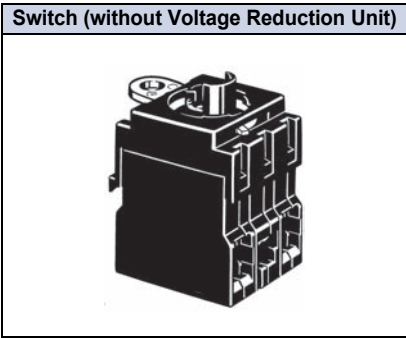
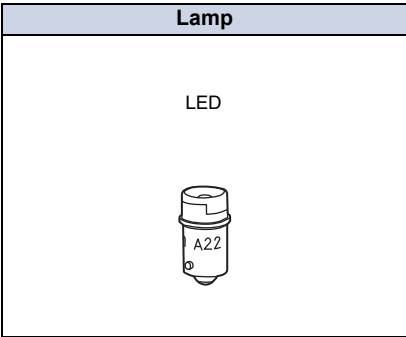
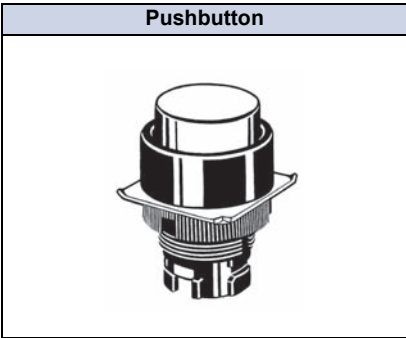
Ordering Information

**Subassembled** ..... The Pushbutton, Lamp, or Switch 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.

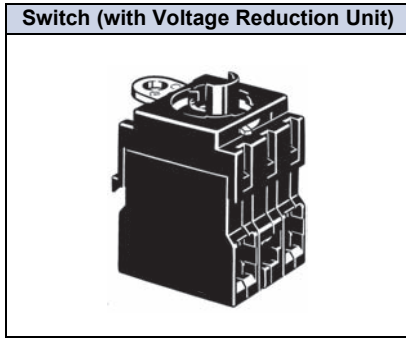
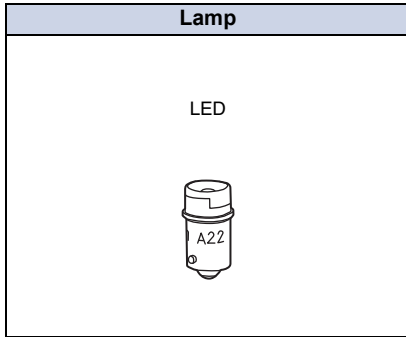
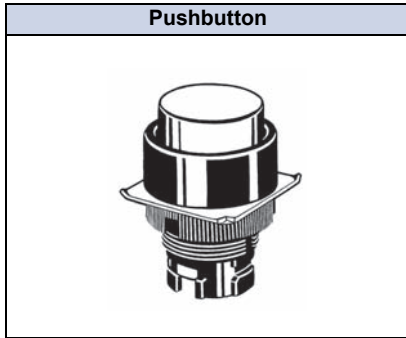
Non-lighted Models



Lighted Models  
(without Voltage Reduction Unit)



Lighted Models  
(with Voltage Reduction Unit)



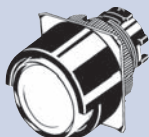
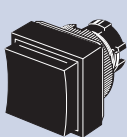
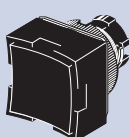
Ordering set combinations: Refer to pages 3 to 4.

- Specifications and dimensions: See pages 11 to 14.
- Accessories and tools: See pages 8 to 10.

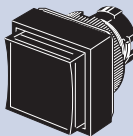
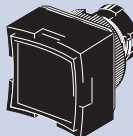
## Ordering Information

**Subassembled** ..... The Pushbutton, Lamp, or Switch 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.

### Pushbutton Non-lighted

| Sealing    | IP65 oil-resistant models                                                         |                                                                                   |                                                                                    |                                                                                     |
|------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|            | Half-guard type                                                                   | Round/Mushroom type<br>(30-dia. head)                                             | Square/Projection type                                                             | Square/Full-guard type                                                              |
| Appearance |  |  |  |  |
| Color      | Model                                                                             | Model                                                                             | Model                                                                              | Model                                                                               |
| Red        | A22-HR                                                                            | A22-SR                                                                            | A22-CR                                                                             | A22-DR                                                                              |
| Green      | A22-HG                                                                            | A22-SG                                                                            | A22-CG                                                                             | A22-DG                                                                              |
| Yellow     | A22-HY                                                                            | A22-SY                                                                            | A22-CY                                                                             | A22-DY                                                                              |
| White      | A22-HW                                                                            | A22-SW                                                                            | ---                                                                                | A22-DW                                                                              |
| Blue       | A22-HA                                                                            | A22-SA                                                                            | A22-CA                                                                             | A22-DA                                                                              |
| Black      | A22-HB                                                                            | A22-SB                                                                            | A22-CB                                                                             | A22-DB                                                                              |

### Lighted

| Sealing    | IP65                                                                              |                                                                                   |                                                                                    |
|------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|            | Half-guard type                                                                   | Square/Projection type                                                            | Square/Full-guard type                                                             |
| Appearance |  |  |  |
| Color      | Model                                                                             | Model                                                                             | Model                                                                              |
| Red        | A22L-HR                                                                           | A22L-CR                                                                           | A22L-DR                                                                            |
| Green      | A22L-HG                                                                           | A22L-CG                                                                           | A22L-DG                                                                            |
| Yellow     | A22L-HY                                                                           | A22L-CY                                                                           | A22L-DY                                                                            |
| White      | A22L-HW                                                                           | A22L-CW                                                                           | A22L-DW                                                                            |
| Blue       | A22L-HA                                                                           | A22L-CA                                                                           | ---                                                                                |

Ordering set combinations: Refer to pages 3 to 4.

- Specifications and dimensions: See pages 11 to 14.
- Accessories and tools: See pages 8 to 10.

## Ordering Information

**Subassembled** ..... The Pushbutton, Lamp, or Switch 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.

### Lamp

#### LED Lamp

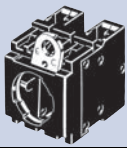
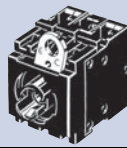
| Appearance                                                                        |           | Operating voltage | 6 VAC/VDC | 12 VAC/VDC | 24 VAC/VDC |
|-----------------------------------------------------------------------------------|-----------|-------------------|-----------|------------|------------|
|                                                                                   |           | LED Color         | Model     | Model      | Model      |
|  | AC and DC | Red               | A22-6AR   | A22-12AR   | A22-24AR   |
|                                                                                   |           | Green             | A22-6AG   | A22-12AG   | A22-24AG   |
|                                                                                   |           | Yellow *2         | A22-6AY   | A22-12AY   | A22-24AY   |
|                                                                                   |           | Blue              | A22-6AA   | A22-12AA   | A22-24AA   |

\*1. For voltage-reduction lighting, use the A22-24A□. Only 24-V LED lamps can be used.

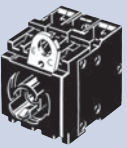
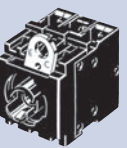
\*2. Used when the Pushbutton color is yellow or white.

### Switch (Standard Load)

#### No Voltage Reduction Unit

| Classification |                   | Non-lighted                                                                       |           | Lighted                                                                             |           |
|----------------|-------------------|-----------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|-----------|
|                |                   |  |           |  |           |
| Appearance     |                   |                                                                                   |           |                                                                                     |           |
| Operation      |                   |                                                                                   |           |                                                                                     |           |
| Contacts       |                   | Momentary                                                                         | Alternate | Momentary                                                                           | Alternate |
|                |                   | Model                                                                             | Model     | Model                                                                               | Model     |
| Standard load  | SPST-NO           | A22-10M                                                                           | A22-10A   | A22L-10M                                                                            | A22L-10A  |
|                | SPST-NC           | A22-01M                                                                           | A22-01A   | A22L-01M                                                                            | A22L-01A  |
|                | SPST-NO + SPST-NC | A22-11M                                                                           | A22-11A   | A22L-11M                                                                            | A22L-11A  |
|                | SPST-NO + SPST-NO | A22-20M                                                                           | A22-20A   | A22L-20M                                                                            | A22L-20A  |
|                | SPST-NC + SPST-NC | A22-02M                                                                           | A22-02A   | A22L-02M                                                                            | A22L-02A  |

#### Voltage Reduction Unit

| Classification |                   | 110 VAC, Lighted                                                                    |             | 220 VAC, Lighted                                                                      |             |
|----------------|-------------------|-------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|-------------|
|                |                   |  |             |  |             |
| Appearance     |                   |                                                                                     |             |                                                                                       |             |
| Operation      |                   |                                                                                     |             |                                                                                       |             |
| Contacts       |                   | Momentary                                                                           | Alternate   | Momentary                                                                             | Alternate   |
|                |                   | Model                                                                               | Model       | Model                                                                                 | Model       |
| Standard load  | SPST-NO           | A22L-10M-T1                                                                         | A22L-10A-T1 | A22L-10M-T2                                                                           | A22L-10A-T2 |
|                | SPST-NC           | A22L-01M-T1                                                                         | A22L-01A-T1 | A22L-01M-T2                                                                           | A22L-01A-T2 |
|                | SPST-NO + SPST-NC | A22L-11M-T1                                                                         | A22L-11A-T1 | A22L-11M-T2                                                                           | A22L-11A-T2 |
|                | SPST-NO + SPST-NO | A22L-20M-T1                                                                         | A22L-20A-T1 | A22L-20M-T2                                                                           | A22L-20A-T2 |
|                | SPST-NC + SPST-NC | A22L-02M-T1                                                                         | ---         | A22L-02M-T2                                                                           | ---         |

\*1. A DPST-NO model is shown here as an example.

\*2. For a model with a Voltage Reduction Unit, use the A22-24A□. Only 24-V LED lamps can be used.

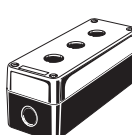
Ordering set combinations: Refer to pages 3 to 4.

- Specifications and dimensions: See pages 11 to 14.
- Accessories and tools: See pages 8 to 10.

## Ordering Information

### Accessories (Order Separately)

#### Accessories

| Item                       |               | Appearance                                                                          | Classification                                   |                  | Model                                                                                                                         | Remarks                                                                                                                                                                                                                                          |
|----------------------------|---------------|-------------------------------------------------------------------------------------|--------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Switch Blocks              |               |    | SPST-NO                                          | Standard load    | <b>A22-10</b>                                                                                                                 | Order Switch Blocks to add an SPST-NO (A22-10) or SPST-NC (A22-01) Switch Block (for standard loads) or to replace a Switch Block.<br>An A22Z-3003 Three-throw Spacer is required to mount three Non-lighted Switch Units.                       |
|                            |               |                                                                                     |                                                  | Microload        | <b>A22-10S</b>                                                                                                                |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | SPST-NC                                          | Standard load    | <b>A22-01</b>                                                                                                                 |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     |                                                  | Microload        | <b>A22-01S</b>                                                                                                                |                                                                                                                                                                                                                                                  |
|                            |               |    | DPST-NO                                          | Standard load    | <b>A22-20</b>                                                                                                                 |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     |                                                  | Microload        | <b>A22-20S</b>                                                                                                                |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | DPST-NC                                          | Standard load    | <b>A22-02</b>                                                                                                                 |                                                                                                                                                                                                                                                  |
|                            | Microload     | <b>A22-02S</b>                                                                      |                                                  |                  |                                                                                                                               |                                                                                                                                                                                                                                                  |
| Lamp Sockets               |               | SPST-NO + SPST-NC                                                                   |                                                  | Standard load    | <b>A22-11</b>                                                                                                                 |                                                                                                                                                                                                                                                  |
|                            |               | Direct lighting                                                                     |                                                  |                  | <b>A22-TN</b>                                                                                                                 |                                                                                                                                                                                                                                                  |
|                            |               | Voltage-reduction lighting                                                          | 110 VAC                                          | <b>A22-T1</b>    | Used when changing the lighting method. (LED only)                                                                            |                                                                                                                                                                                                                                                  |
| 220 VAC                    | <b>A22-T2</b> |                                                                                     |                                                  |                  |                                                                                                                               |                                                                                                                                                                                                                                                  |
| Mounting Latches           |               |    | For momentary models                             |                  | <b>A22-3200</b>                                                                                                               | Provided as standard. Order Mounting Latches only when mounting Switch Blocks or Lamp Sockets that are purchased individually.                                                                                                                   |
|                            |               |                                                                                     | For alternate models                             |                  | <b>A22-3210</b>                                                                                                               |                                                                                                                                                                                                                                                  |
| Legend Plate Frames        | Standard size |    | With Snap-in Legend Plate (Without text)         | White            | <b>A22Z-3321</b>                                                                                                              | Snap-in Legend Plate is acrylic.                                                                                                                                                                                                                 |
|                            |               |                                                                                     |                                                  | Red              | <b>A22Z-3322</b>                                                                                                              |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     |                                                  | Black            | <b>A22Z-3323</b>                                                                                                              |                                                                                                                                                                                                                                                  |
|                            | Large size    |    | Without Snap-in Legend Plate                     |                  | <b>A22Z-3320</b>                                                                                                              | Snap-in Legend Plate is acrylic.                                                                                                                                                                                                                 |
|                            |               |                                                                                     | With Snap-in Legend Plate (Without text)         | White            | <b>A22Z-3331</b>                                                                                                              |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     |                                                  | Red              | <b>A22Z-3332</b>                                                                                                              |                                                                                                                                                                                                                                                  |
|                            |               | Black                                                                               | <b>A22Z-3333</b>                                 |                  |                                                                                                                               |                                                                                                                                                                                                                                                  |
|                            |               | Without Snap-in Legend Plate                                                        |                                                  | <b>A22Z-3330</b> |                                                                                                                               |                                                                                                                                                                                                                                                  |
| Lock Ring                  |               |   | Round                                            |                  | <b>A22Z-3360</b>                                                                                                              | This Lock Ring is used when a more secure lock feature is required.                                                                                                                                                                              |
| Metallic Bezel Rings       |               |  | For flat or projection models                    |                  | <b>A22Z-3580</b>                                                                                                              | Replace with the standard model.<br>Material: Copper alloy-Nickel chrome plating<br>Cannot be used with the M22.                                                                                                                                 |
|                            |               |                                                                                     | For full-guard models                            |                  | <b>A22Z-3582</b>                                                                                                              |                                                                                                                                                                                                                                                  |
| Sealing Caps               |               |  | For flat models                                  |                  | <b>A22Z-3600F</b>                                                                                                             | Used to prevent dust or water from entering the Operation Unit (Pushbutton, etc.).<br>Color: opaque<br>Material: silicon                                                                                                                         |
|                            |               |                                                                                     | For projection models                            |                  | <b>A22Z-3600T</b>                                                                                                             |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | For full-guard models                            |                  | <b>A22Z-3600G</b>                                                                                                             |                                                                                                                                                                                                                                                  |
| Color Caps                 |               |  | Red                                              | <b>A22Z-30TR</b> | Used for changing the Pushbutton color of the (round) Pushbutton Switches. Cannot be used, however, with Half-guard Switches. |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | Green                                            | <b>A22Z-30TG</b> |                                                                                                                               |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | Yellow                                           | <b>A22Z-30TY</b> |                                                                                                                               |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | White                                            | <b>A22Z-30TW</b> |                                                                                                                               |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | Blue                                             | <b>A22Z-30TA</b> |                                                                                                                               |                                                                                                                                                                                                                                                  |
| Caps                       | For A22       |  | For projection, full-guard, or half-guard models |                  | <b>A22Z-3490</b>                                                                                                              | Material: polycarbonate resin                                                                                                                                                                                                                    |
|                            | For M22       |                                                                                     | For round models                                 |                  | <b>A22Z-3495</b>                                                                                                              |                                                                                                                                                                                                                                                  |
| Three-throw Spacer         |               |  | ---                                              |                  | <b>A22Z-3003</b>                                                                                                              | Used when mounting three Nonlighted Switches. Cannot be used with Alternate action type, knob-type Selector, and Key-type Selector because of the structure.<br>Mushroom-type Switch provides an A22Z-3003, three-throw spacer. (See page 26.)   |
| Hole Plug                  |               |  | Round                                            |                  | <b>A22Z-3530</b>                                                                                                              | Can be plugged into pre-cut panel holes for future expansion. The color is black.<br>Color: Black                                                                                                                                                |
| Control Boxes (Enclosures) |               |  | One hole                                         |                  | <b>A22Z-B101</b>                                                                                                              | For those designed A22Z-B1□, DPST-NO or DPST-NC Switches cannot be used.<br>A22Z-B2□ Control Boxes, A22-series alternate operation models, and DPST-NO, DPST-NC, and SPST-NO + SPST-NC contacts cannot be used.<br>Material: Polycarbonate resin |
|                            |               |                                                                                     |                                                  |                  | <b>A22Z-B201</b>                                                                                                              |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | One hole, yellow box                             |                  | <b>A22Z-B101Y</b>                                                                                                             |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     |                                                  |                  | <b>A22Z-B201Y</b>                                                                                                             |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     | Two holes                                        |                  | <b>A22Z-B102</b>                                                                                                              |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     |                                                  |                  | <b>A22Z-B202</b>                                                                                                              |                                                                                                                                                                                                                                                  |
|                            |               | Three holes                                                                         |                                                  | <b>A22Z-B103</b> |                                                                                                                               |                                                                                                                                                                                                                                                  |
|                            |               |                                                                                     |                                                  | <b>A22Z-B203</b> |                                                                                                                               |                                                                                                                                                                                                                                                  |
| Connectors                 |               |  | Applicable cable diameter (mm)                   | 7 to 9 dia.      | <b>A22Z-3500-1</b>                                                                                                            | Plastic connector used to extend a cable from the Switch Box. (See 9 to 11 dia. A22Z-3500-2 page 25.)                                                                                                                                            |
|                            |               |                                                                                     |                                                  | 9 to 11 dia.     | <b>A22Z-3500-2</b>                                                                                                            |                                                                                                                                                                                                                                                  |

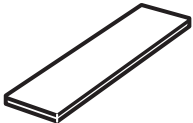
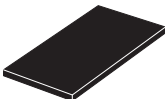
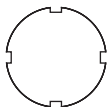
## Ordering Information

| Item                     | Appearance                                                                        | Classification | Model            | Remarks                                                                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------|----------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 25-dia. Ring             |  | ---            | <b>A22Z-R25</b>  | Use when mounting to a panel with a 25-dia. hole. For details, refer to page 16. Since this is not attached to the main body, order separately. |
| 30-dia. Resin Attachment |  | Round          | <b>A22Z-A30</b>  | Use when mounting to a panel with a 30-dia. hole. For details, refer to page 18.                                                                |
| Lock Plate               |  | ---            | <b>A22Z-3380</b> | Use to fix the lever on the Switch.                                                                                                             |
| Simple Protective Cover  |  | ---            | <b>A22Z-3700</b> | Prevents foreign matter entering into the Switch from the back of the panel.                                                                    |

■ Specifications: See pages 11 to 12.  
 ■ Dimensions: See page 14.

■ Precautions for correct use: See page 21.  
 ■ Accessories and tools: See pages 8 to 10.

## Ordering Information

| Item                      |                                                                                   | Appearance                                                                        | Classification                                                |                                | Model       | Remarks                                                                                                                      |                                                                                       |
|---------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Snap-in Legend Plates     | Standard size                                                                     |  | Without text                                                  | Black                          |             | A22Z-3443B                                                                                                                   | Attached to the Standard-size Legend Plate Frame. (See page 26.)<br>Material: Acrylic |
|                           |                                                                                   |                                                                                   |                                                               | Red                            |             | A22Z-3443R                                                                                                                   |                                                                                       |
|                           |                                                                                   |                                                                                   |                                                               | White                          |             | A22Z-3443W                                                                                                                   |                                                                                       |
|                           |                                                                                   |                                                                                   |                                                               | Transparent                    |             | A22Z-3443C                                                                                                                   |                                                                                       |
|                           |                                                                                   |                                                                                   | With text                                                     | White text on red background   | ○           | A22Z-3443R-2                                                                                                                 |                                                                                       |
|                           |                                                                                   |                                                                                   |                                                               |                                | STOP        | A22Z-3443R-4                                                                                                                 |                                                                                       |
|                           |                                                                                   |                                                                                   |                                                               | White text on black background |             | A22Z-3443B-1                                                                                                                 |                                                                                       |
|                           |                                                                                   |                                                                                   |                                                               |                                | START       | A22Z-3443B-3                                                                                                                 |                                                                                       |
|                           |                                                                                   |                                                                                   |                                                               |                                | ON          | A22Z-3443B-5                                                                                                                 |                                                                                       |
|                           |                                                                                   |                                                                                   |                                                               |                                | OFF         | A22Z-3443B-6                                                                                                                 |                                                                                       |
|                           | UP                                                                                | A22Z-3443B-7                                                                      |                                                               |                                |             |                                                                                                                              |                                                                                       |
|                           | DOWN                                                                              | A22Z-3443B-8                                                                      |                                                               |                                |             |                                                                                                                              |                                                                                       |
|                           | POWER ON                                                                          | A22Z-3443B-9                                                                      |                                                               |                                |             |                                                                                                                              |                                                                                       |
|                           | OFF-ON                                                                            | A22Z-3443B-10                                                                     |                                                               |                                |             |                                                                                                                              |                                                                                       |
|                           | Large size                                                                        |  | Without text                                                  | Black                          |             | A22Z-3453B                                                                                                                   | Used as an Emergency Stop Switch Legend Plate. (See page 26.)<br>Material: Acrylic    |
| White                     |                                                                                   |                                                                                   |                                                               | A22Z-3453W                     |             |                                                                                                                              |                                                                                       |
| Transparent               |                                                                                   |                                                                                   |                                                               | A22Z-3453C                     |             |                                                                                                                              |                                                                                       |
| For Emergency Stop Switch |  | Black text on yellow background                                                   | 60-dia. round plate with black letters on a yellow background |                                | A22Z-3466-1 | EMERGENCY STOP is engraved on the plate. Used as an Emergency Stop Switch Legend Plate                                       |                                                                                       |
|                           |                                                                                   |                                                                                   | 90-dia. round plate with black letters on a yellow background |                                | A22Z-3476-1 |                                                                                                                              |                                                                                       |
| Character Films           |  | No print (Round)                                                                  |                                                               | A22Z-3460                      |             | After printing on a film, affix to the indicator plate of the Lighted Pushbutton Switch. (The back is coated with adhesive.) |                                                                                       |
|                           |                                                                                   | Character print (Round)                                                           |                                                               |                                | A22Z-3460-1 |                                                                                                                              |                                                                                       |
|                           |                                                                                   |                                                                                   | ○                                                             |                                | A22Z-3460-2 |                                                                                                                              |                                                                                       |
|                           |                                                                                   |                                                                                   | START                                                         |                                | A22Z-3460-3 |                                                                                                                              |                                                                                       |
|                           |                                                                                   | No print (Square)                                                                 |                                                               | A22Z-3480                      |             |                                                                                                                              |                                                                                       |

### Tools

| Item                | Appearance                                                                          | Classification | Model            | Remarks                                                                                                          |
|---------------------|-------------------------------------------------------------------------------------|----------------|------------------|------------------------------------------------------------------------------------------------------------------|
| Lamp Extractor      |  | ---            | <b>A22Z-3901</b> | Rubber tool used to easily replace Lamps                                                                         |
| Tightening Wrench   |  | ---            | <b>A22Z-3905</b> | Used to tighten mounting nuts from the back of the panel and to replace the cap of the Lighted Emergency Switch. |
| Cap Tightening Tool |  | ---            | <b>A22Z-3908</b> | Used for replacing the cap of the Half-guard Pushbutton Switch.                                                  |
| Cap Puller          |  | ---            | <b>A3PJ-5080</b> | Used for removing the cap from the Pushbutton of the Square Lighted Pushbutton Switch.                           |

■ Specifications: See pages 11 to 12.

■ Dimensions: See page 14.

■ Precautions for correct use: See page 21.

■ Accessories and tools: See pages 8 to 10.

## Specifications

### Approved Standard Ratings

#### UL, cUL (File No. E41515)

6 A at 220 VAC, 10 A at 110 VAC

Note: Only Switch Blocks and Lamp Sockets are recognized by UL.  
Refer to Page 8 for the model numbers.

#### EN60947-5-1 (Low Voltage Directive)

3 A at 220 VAC

#### CCC (GB/T14048.5)

3 A at 240 VAC, 1.5 A at 24 VDC

### Ratings

#### Contacts (Standard Load)

| Contacts<br>(Standard<br>Load) | Rated<br>voltage | Rated current (A)   |                     |                     |                     |
|--------------------------------|------------------|---------------------|---------------------|---------------------|---------------------|
|                                |                  | Induc-<br>tive load | Resis-<br>tive load | Induc-<br>tive load | Resis-<br>tive load |
| 10A                            | 24 VAC           | 10                  | 10                  | ---                 | ---                 |
|                                | 110 VAC          | 5                   | 10                  |                     |                     |
|                                | 220 VAC          | 3                   | 6                   |                     |                     |
|                                | 380 VAC          | 2                   | 3                   |                     |                     |
|                                | 440 VAC          | 1                   | 2                   |                     |                     |
|                                | 24 VDC           | ---                 | ---                 | 1.5                 | 10                  |
|                                | 110 VDC          |                     |                     | 0.5                 | 2                   |
|                                | 220 VDC          |                     |                     | 0.2                 | 0.6                 |
|                                | 380 VDC          |                     |                     | 0.1                 | 0.2                 |

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% RH
  - (3) Operating frequency: 20 operations/minute
2. Minimum applicable load: 10 mA at 5 VDC

#### Contacts (Microload)

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

#### LED Indicators

| Rated voltage | Rated current | Operating voltage |
|---------------|---------------|-------------------|
| 6 VAC/VDC     | 8 mA          | 6 VAC/VDC±5%      |
| 12 VAC/VDC    |               | 12 VAC/VDC±5%     |
| 24 VAC/VDC    |               | 24 VAC/VDC±5%     |

#### Voltage-reduction Lighting

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

## Specifications

### Characteristics

| Type                              |                                    | Pushbutton Switches                                  |                                            | Knob-type Selector Switches                                                           |                             | Key-type Selector Switch    | Indicator                   |
|-----------------------------------|------------------------------------|------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|
|                                   |                                    | Non-lighted models:<br>A22-H A22-S<br>A22-C A22-D    | Lighted models:<br>A22L-H A22L-C<br>A22L-D | Non-lighted model:<br>A22S                                                            | Lighted model:<br>A22W      | Non-lighted model:<br>A22K  | M22                         |
| Item                              |                                    |                                                      |                                            |                                                                                       |                             |                             |                             |
| Allowable operating frequency     | Mechanical                         | Momentary operation:<br>60 operations/minute max.    |                                            | Manual reset: 30 operations/minute max.<br>Automatic reset: 30 operations/minute max. |                             |                             | ---                         |
|                                   | Electrical                         | 30 operations/minute max.                            |                                            |                                                                                       |                             |                             | ---                         |
| Insulation resistance             |                                    | 100 MΩ min. (at 500 VDC)                             |                                            |                                                                                       |                             |                             |                             |
| Contact resistance                | Standard load                      | 100 mΩ max. (initial value)                          |                                            |                                                                                       |                             |                             |                             |
|                                   | Microload                          | 100 mΩ max. (initial value)                          |                                            |                                                                                       |                             |                             |                             |
| Dielectric strength               | Between terminals of same polarity | 2,500VAC, 50/60Hz for 1min                           |                                            |                                                                                       |                             |                             |                             |
|                                   | Between each terminal and ground   | 2,500VAC, 50/60Hz for 1min                           |                                            |                                                                                       |                             |                             |                             |
| Vibration resistance              | Malfunction *1                     | Malfunction *2: 10 to 55 Hz, 1.5-mm double amplitude |                                            |                                                                                       |                             |                             |                             |
| Shock resistance                  | Destruction                        | 1,000 m/s <sup>2</sup> max.                          | 1,000 m/s <sup>2</sup> max.                | 1,000 m/s <sup>2</sup> max.                                                           | 1,000 m/s <sup>2</sup> max. | 1,000 m/s <sup>2</sup> max. | 1,000 m/s <sup>2</sup> max. |
|                                   | Malfunction *1                     | 1,000 m/s <sup>2</sup> max.                          | 600 m/s <sup>2</sup> max.                  | 1,000 m/s <sup>2</sup> max.                                                           | 600 m/s <sup>2</sup> max.   | 1000 m/s <sup>2</sup> max.  | 600 m/s <sup>2</sup> max.   |
| Durability                        | Mechanical                         | Momentary operation:<br>5,000,000 operations min.    |                                            | 500,000 operations min.                                                               | 100,000 operations min.     | 500,000 operations min.     | ---                         |
|                                   | Electrical                         | 500,000 operations min.                              |                                            | 500,000 operations min.                                                               | 100,000 operations min.     | 500,000 operations min.     | ---                         |
| Ambient operating temperature * 2 |                                    | -20°C to 70°C                                        | -20°C to 55°C                              | -20°C to 70°C                                                                         | -20°C to 55°C               | -20°C to 70°C               | -20°C to 55°C               |
| Ambient operating humidity        |                                    | 35% to 85% RH                                        |                                            |                                                                                       |                             |                             |                             |
| Ambient storage temperature *2    |                                    | -40°C to 70°C                                        |                                            |                                                                                       |                             |                             |                             |
| Degree of protection *3           |                                    | IP65 (oil-resistant)                                 | IP65                                       | IP65 (oil-resistant)                                                                  | IP65                        | IP65 (oil-resistant)        | IP65                        |
| Electric shock protection class   |                                    | Class II                                             |                                            |                                                                                       |                             |                             |                             |
| PTI (tracking characteristic)     |                                    | 175                                                  |                                            |                                                                                       |                             |                             |                             |
| Degree of contamination           |                                    | 3 (IEC60947-5-1)                                     |                                            |                                                                                       |                             |                             |                             |

\*1. Malfunction within 1 ms.

\*2. With no icing or condensation.

\*3. Degree of protection from the front of the panel.

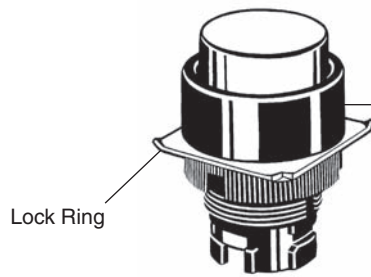
### Operating Characteristics (for SPST-NO/SPST-NC)

| Item                          | Type | Pushbutton Switches                                   | Knob-type Selector                                             |                                                            | Key-type Selector Switch                                       |                                                            |
|-------------------------------|------|-------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|
|                               |      | Lighted Nonlighted Pushbutton Switches                | Manual reset                                                   | Automatic reset                                            | Manual reset                                                   | Automatic reset                                            |
|                               |      | A22-H A22-C<br>A22-D A22-S<br>A22L-H A22L-C<br>A22L-D | A22S<br>A22W                                                   |                                                            | A22K                                                           |                                                            |
| Total travel force (TTF) max. |      | 29.4 N                                                | 0.34 N·m*                                                      | 0.25 N·m for two notches *<br>0.34 N·m for three notches * | 0.34 N·m*                                                      | 0.25 N·m for two notches *<br>0.34 N·m for three notches * |
| Total travel (TT)             |      | 5.5 mm max.                                           | Approx. 90° for two notches<br>(Approx. 45° for three notches) |                                                            | Approx. 90° for two notches<br>(Approx. 45° for three notches) |                                                            |
| Resetting force (RF) min.     |      | ---                                                   | 0.34 N·m max.*                                                 | ---                                                        | 0.34 N·m max.*                                                 | ---                                                        |

\* Rotation torque for Knob-type Selector and Key-type Selector Switches.

## Nomenclature

### Model Structure



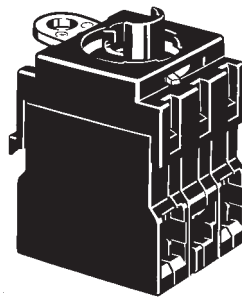
#### Pushbutton

- Available Colors  
Non-lighted:  
Red, Green, Yellow, White, Blue, Black  
Lighted:  
Red, Green Yellow, White, Blue



#### Lamp

- Light Source  
LED lamp



#### Switch

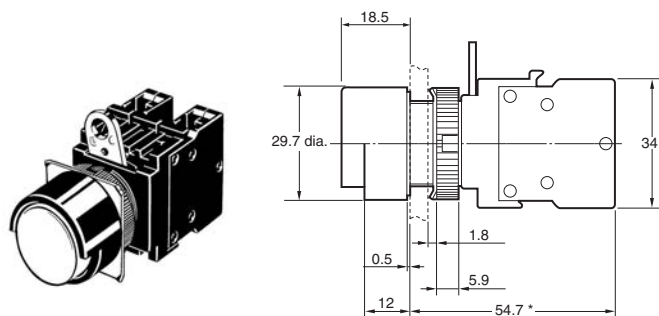
- Contacts  
SPST-NO, SPST-NC, SPST-NO + SPST-NC,  
SPST-NO + SPST-NO, SPST-NC + SPST-NC  
(Minimum applicable load: 10 mA at 5 VDC)
- Lighting Method  
Non-lighted  
Lighted (without Voltage Reduction Unit)  
Lighted (with Voltage Reduction Unit)

The above illustration shows a lighted model.

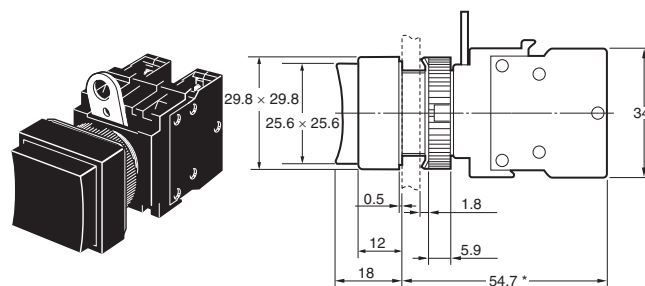
## Dimensions

Lighted/Non-lighted Pushbutton Switches (The following illustrations are for momentary operation.)

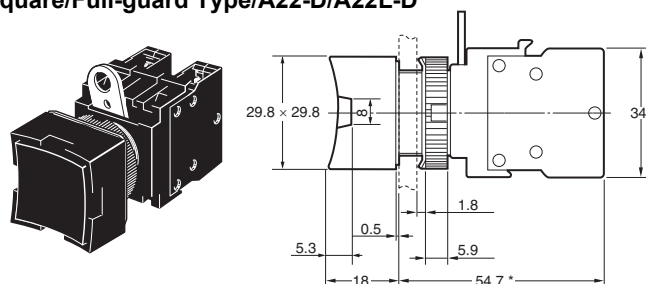
### Half-guard Type/A22-H/A22L-H



### Square/Projection type/A22-C/A22L-C



### Square/Full-guard Type/A22-D/A22L-D



Note: Lighted models have the same dimensions as shown above, whether they are with or without Voltage Reduction Units.

\* Alternate operation models are 9.3 mm longer.

## Dimensions

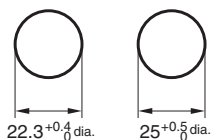
### Terminal Arrangement (Bottom View)

| Non-lighted<br>(SPST-NO + SPST-NC) | Lighted<br>(SPST-NO + SPST-NC) | Non-lighted<br>(DPST-NO + DPST-NC) |
|------------------------------------|--------------------------------|------------------------------------|
|                                    |                                |                                    |

### Terminal Connection

| Item                                                       | Terminal connection |
|------------------------------------------------------------|---------------------|
| Non-lighted (SPST-NO + SPST-NC)                            | <p>BOTTOM VIEW</p>  |
| Non-lighted (DPST-NO + DPST-NC)                            | <p>BOTTOM VIEW</p>  |
| Lighted without Voltage Reduction Unit (SPST-NO + SPST-NC) | <p>BOTTOM VIEW</p>  |
| Lighted with Voltage Reduction Unit (SPST-NO + SPST-NC)    | <p>BOTTOM VIEW</p>  |

### Panel Cutouts



#### Lock ring is provided as a standard item.

- When applying coating such as paint to the panel, the dimensions should be those after the application of coating.
- Recommended panel thickness: 1 to 5 mm.
- Use an A22Z-R25 Ring when mounting to a panel with 25-mm holes.

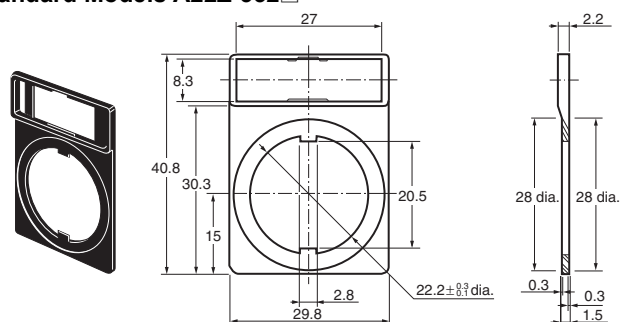
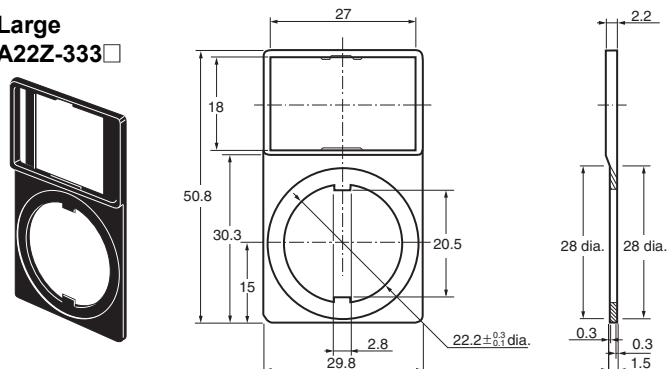
## Dimensions

(Unit: mm)

## Accessories

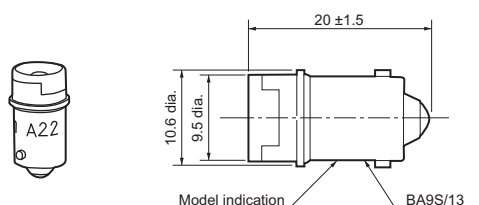
## Legend Plate Frames

## Standard Models A22Z-332□

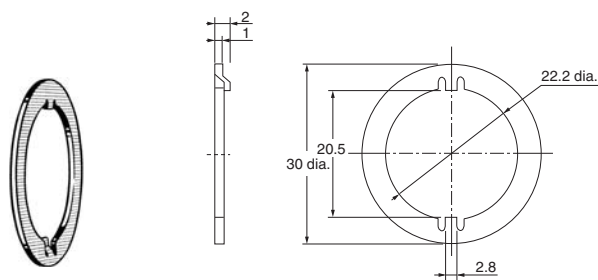
Large  
A22Z-333□

## Lamp

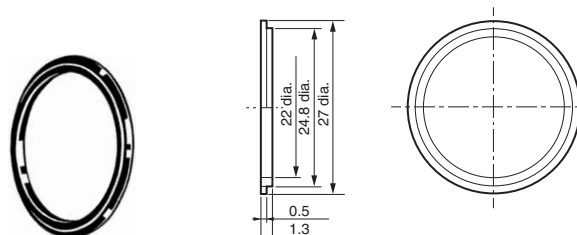
## LED A22-6□, 12□, 24□



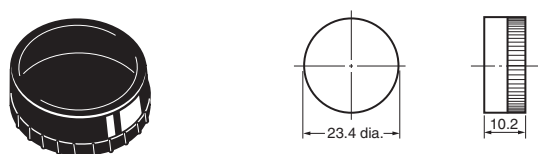
## Lock Ring A22Z-3360



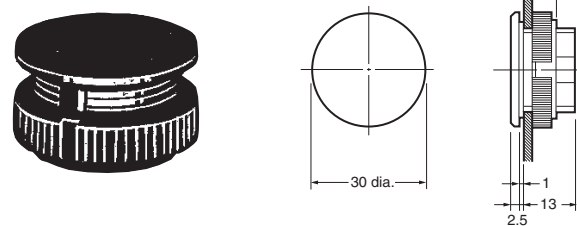
## 25-dia. Ring A22Z-R25



## Color Cap A22Z-30T□

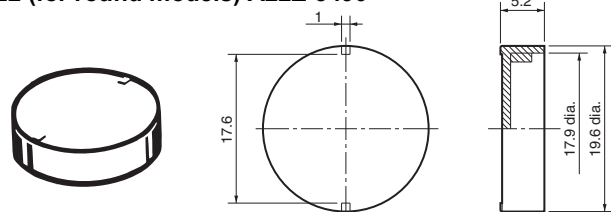


## Hole Plug (Round) A22Z-3530

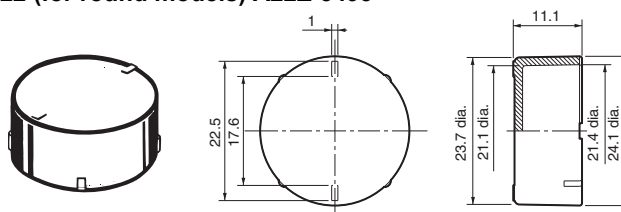


## Caps

## A22 (for round models) A22Z-3490



## M22 (for round models) A22Z-3495

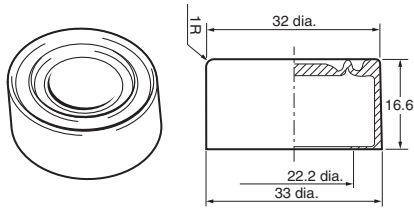


## Dimensions

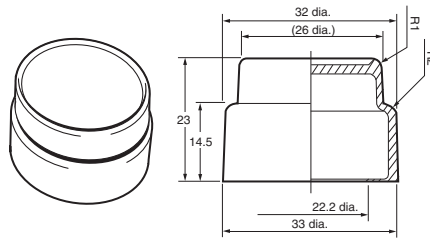
(Unit: mm)

### Sealing Caps

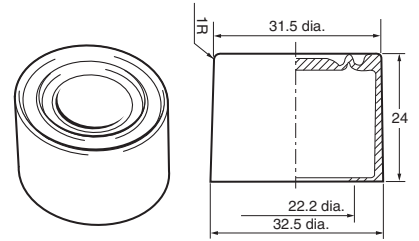
For Flat Models A22Z-3600F



For projection models A22Z-3600T

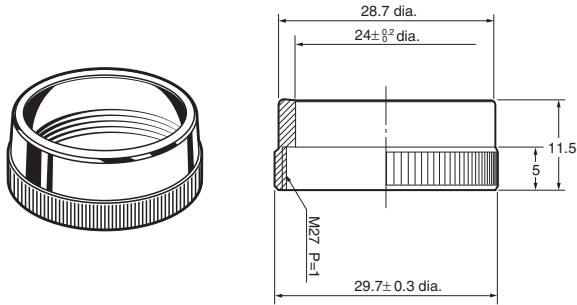


For full-guard models A22Z-3600G

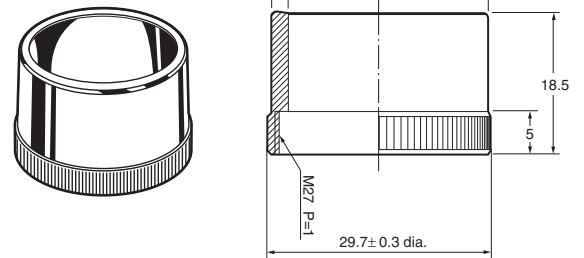


### Metallic Bezel Rings

For Flat/Projection Models A22Z-3580

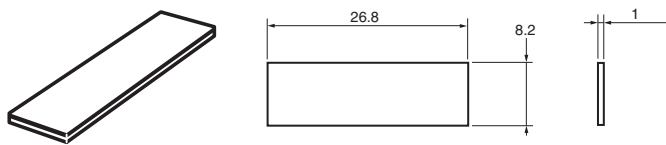


For full-guard models A22Z-3582

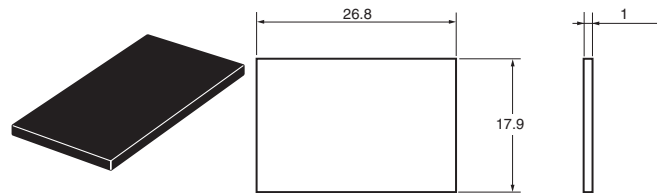


### Snap-in Legend Plates

For Standard Models A22Z-3443 □ □



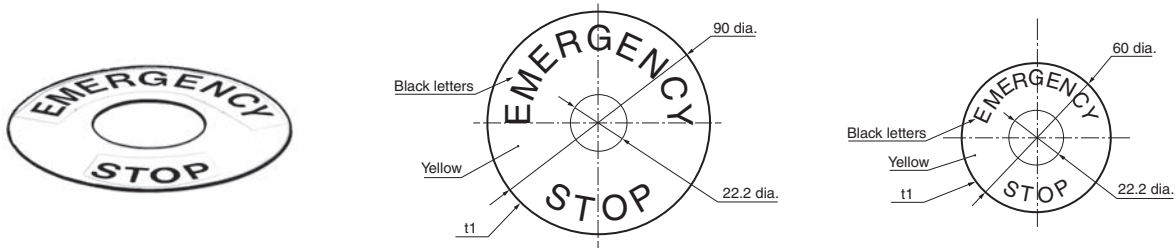
For Large Models A22Z-3453 □



For Emergency-stop Models

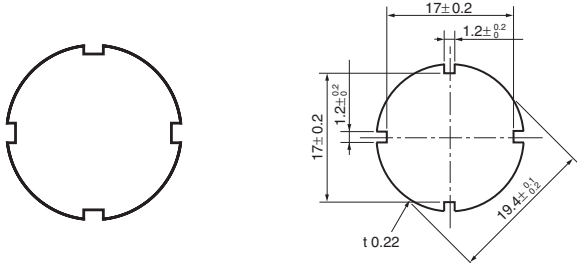
A22Z-3476-1 (90 dia.)

A22Z-3466-1 (60 dia.)

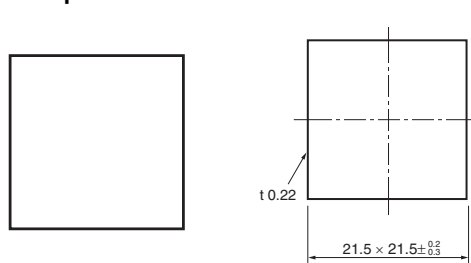


### Character Film

For Round Models A22Z-3460 □



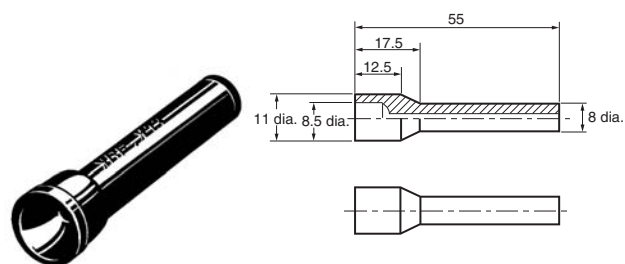
For Square Models A22Z-3480



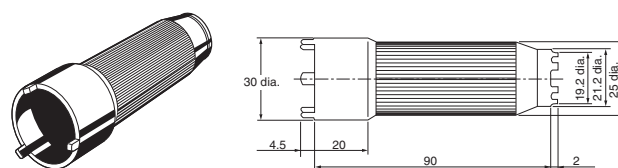
## Dimensions

(Unit: mm)

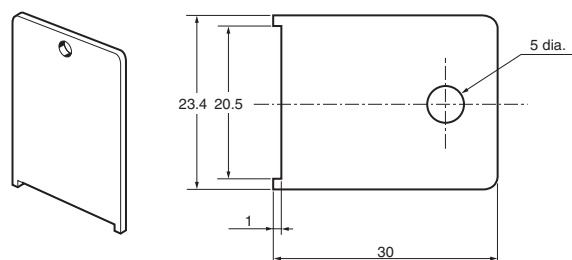
Lamp Extractor A22Z-3901



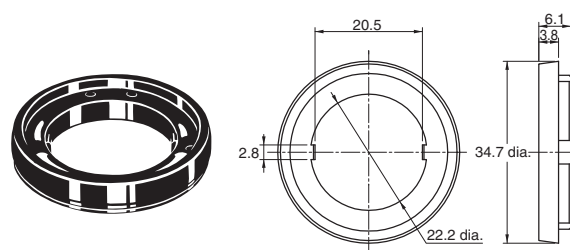
Tightening Wrench A22Z-3905



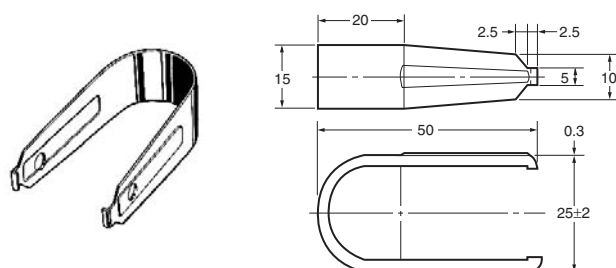
Cap Tightening Tool A22Z-3908



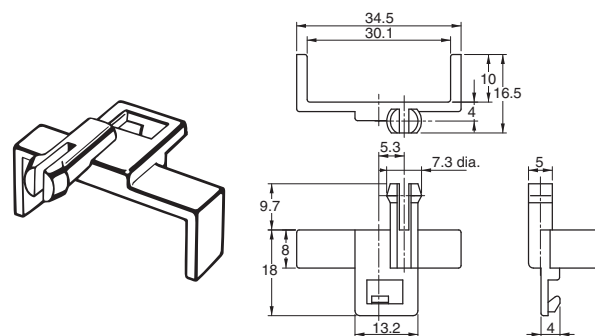
30-dia. Resin Attachment A22Z-A30



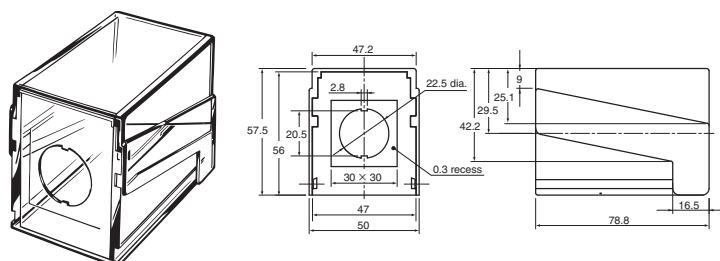
Cap Puller A3PJ-5080



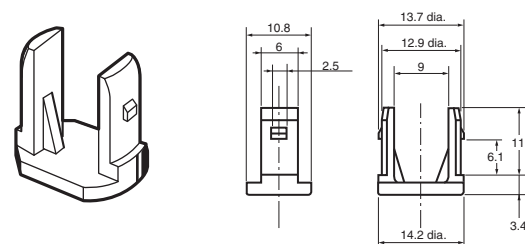
Lock Plate A22Z-3380



Simple Protective Cover A22Z-3700

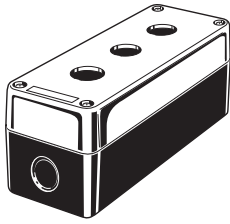


Three-throw Spacer A22Z-3003

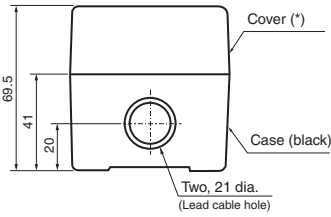
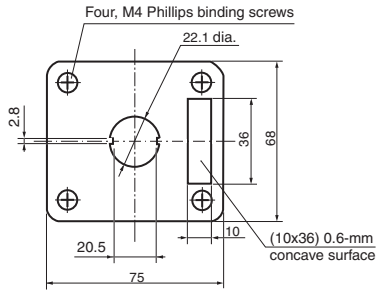


## Dimensions

### Control Box (Enclosure) A22Z-B10□

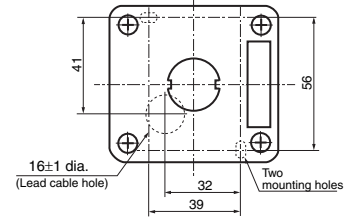


#### A22Z-B101 (One Hole) A22Z-B101Y

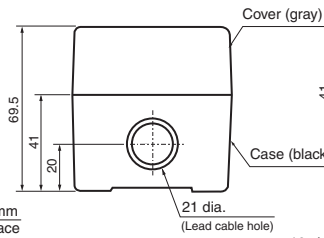
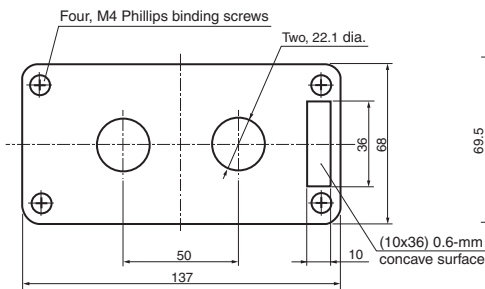


\* A22Z-B101: gray  
A22Z-B101Y: yellow

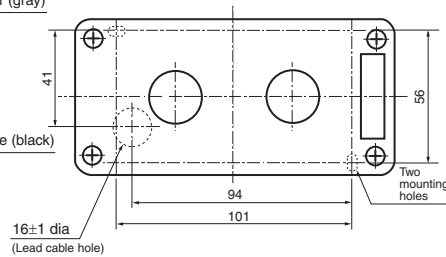
#### Cable Port Hole (Top View)



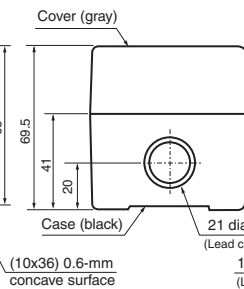
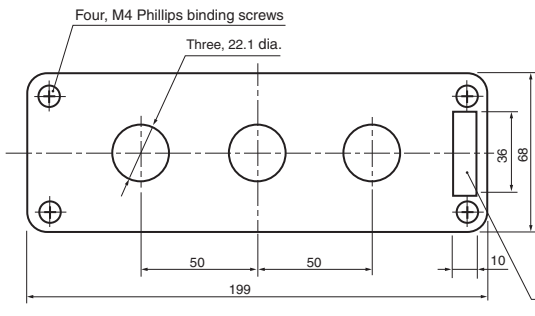
#### A22Z-B102 (Two Holes)



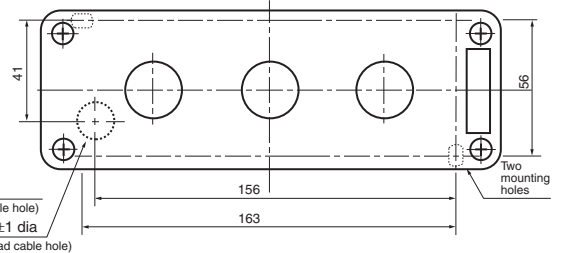
#### Cable Port Hole (Top View)



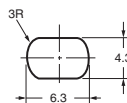
#### A22Z-B103 (Three Holes)



#### Cable Port Hole (Top View)



#### (Panel Mounting Hole)



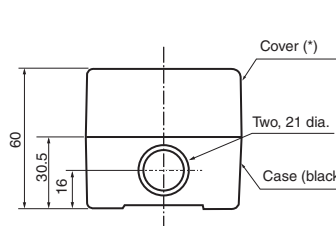
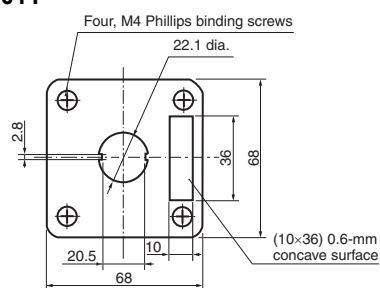
## Dimensions

### Control Box A22Z-B20□

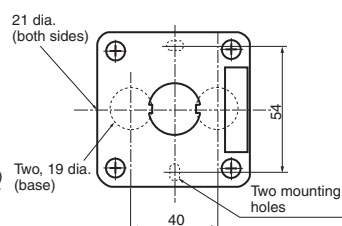
#### A22Z-B201 (One Hole)

#### A22Z-B201Y

#### Cable Port Hole (Top View)

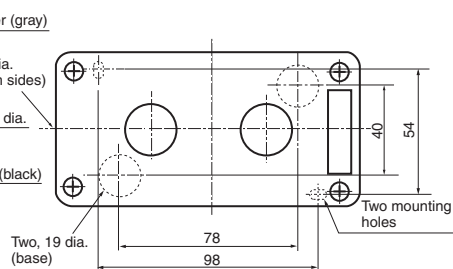
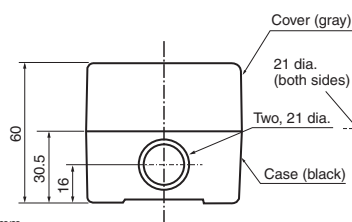
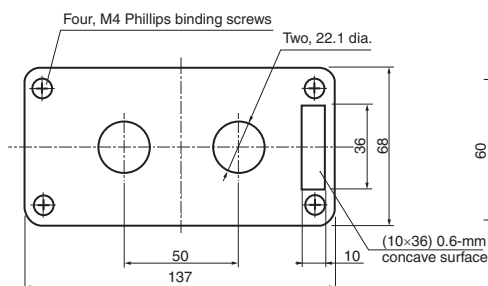


\* A22Z-B201: gray  
A22Z-B201Y: yellow



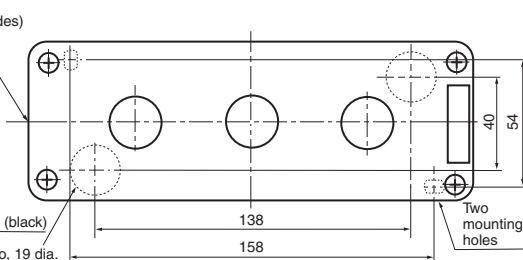
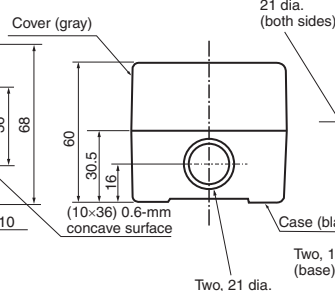
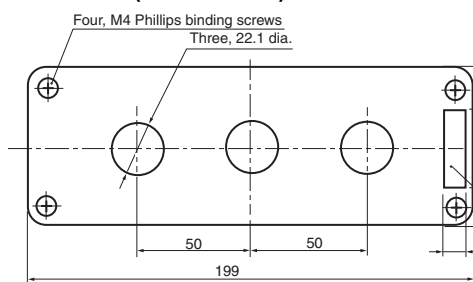
#### A22Z-B202 (Two Holes)

#### Cable Port Hole (Top View)

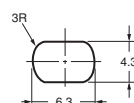


#### A22Z-B203 (Three Holes)

#### Cable Port Hole (Top View)



#### (Panel Mounting Hole)



## Safety Precautions

Refer to *Safety Precautions for All Pushbutton Switches/Indicators*.

### ⚠ WARNING

Do not apply a voltage between the LED and the terminal that is greater than the rated voltage. If the LED is broken, the Operation Units may pop out. Always turn OFF the power and wait for 10 minutes before replacing the incandescent lamp. If the lamp is replaced immediately after the power is turned OFF, the remaining heat may cause burns.



### Precautions for Correct Use

#### Mounting

- Do not perform wiring with power supplied to the Switch. Do not touch the terminals or other charged parts of the Switch while power is being supplied. Doing so may result in electric shock.
- Always make sure that the power is turned OFF before mounting, removing, or wiring the Switch, or performing maintenance. 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.

#### Wiring

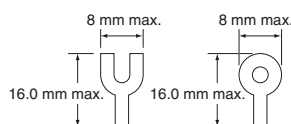
- Terminal screws must be Phillips or slotted M3.5 screws with a square washer.
- The tightening torque is 1.08 to 1.27 N·m.
- Solid wires, stranded wires, and crimp terminals can be connected to the Switch.

#### Applicable Wire Size

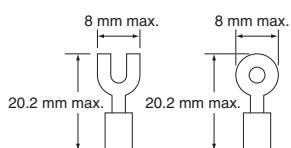
Stranded wire: 2 mm<sup>2</sup> max.

Solid wire: 1.6 dia. max.

Bare Crimp Terminals



Crimp Terminals with Insulating Sheath



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

#### Operating Environment

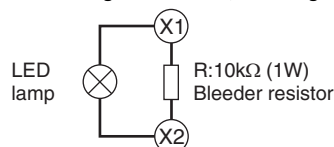
- The IP65 model is designed with a degree of protection so that it will not sustain damage if it is subjected to water from any direction to the front of the panel.
- This switch is intended for indoor use only. Using the Switch outdoors will result in failure.

#### LED

- 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

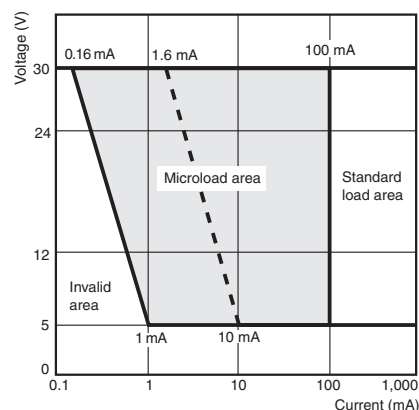


#### Others

- If the panel is to be finished with coating, etc., make sure that the panel meets the specified dimensions after the coating.
- Do not subject the Switch to extreme shock or vibration. Doing so will cause malfunctions and damage to the Switch.

#### Using the Microload

- 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% ( $\lambda_{60}$ ) (conforming to JIS C5003).  
The equation,  $\lambda_{60} = 0.5 \times 10^{-6}/\text{operations}$  indicates that the estimated malfunction rate is less than 1/2,000,000 operations with a reliability level of 60%.

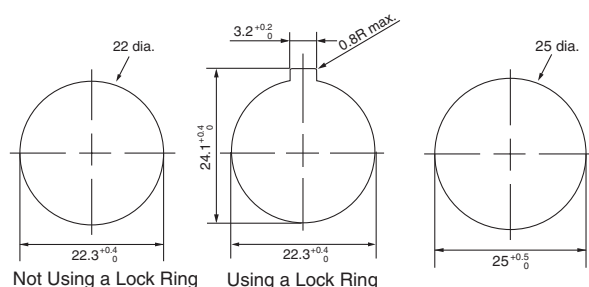


## Application

### Mounting to the Panel

#### Panel Hole Dimensions

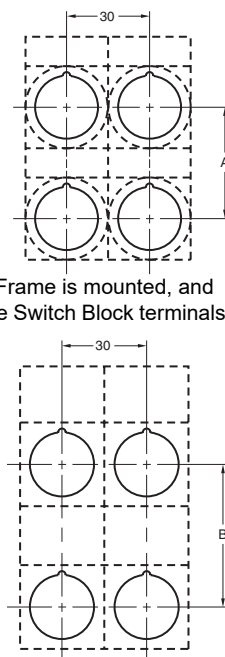
- Panel hole dimensions are given below.
- Recommended panel thickness: 1 to 5 mm.



- For 25-dia. holes, always use 25-dia. Rings. (Since the cutout dimensions are large, IP65 cannot be guaranteed unless 25-dia. Rings are used.)
- 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.

#### Matrix Installation

1. The following panel hole dimensions apply when Switch Unit and the Standard-size Legend Plate Frame and Lock Ring are mounted, and lead wires are connected directly to the Switch Block.
2. The following panel hole dimensions apply when the Large-size Legend Plate Frame is mounted, and when crimp terminals are connected to the Switch Block terminals.



Pitches A and B between the centers of the mounting holes are as follows:

#### For 1. above:

| Switch Blocks                                       | A          |
|-----------------------------------------------------|------------|
| A22-10, A22-10S<br>A22-01, A22-01S                  | 45 mm min. |
| A22-20, A22-20S, A22-02<br>A22-02S, A22-11, A22-11S | 55 mm min. |

#### For 2. above:

| Type of crimp terminal                    | Switch Blocks                                       | B          |
|-------------------------------------------|-----------------------------------------------------|------------|
| Bare crimp terminals                      | A22-10, A22-10S<br>A22-01, A22-01S                  | 51 mm min. |
|                                           | A22-20, A22-20S, A22-02<br>A22-02S, A22-11, A22-11S | 61 mm min. |
| Crimp terminals with<br>insulating sheath | A22-10, A22-10S<br>A22-01, A22-01S                  | 60 mm min. |
|                                           | A22-20, A22-20S, A22-02<br>A22-02S, A22-11, A22-11S | 70 mm min. |

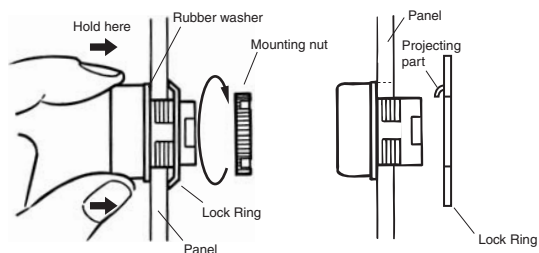
Note: 1. The above dimensions are the minimum dimensions for when the wires described under Applicable Wire Size on page 21 are used. If a different wires are used, the wiring dimensions may be different so determine an appropriate pitch before setup.

2. With pushbuttons of external dimensions greater than 30 mm, set the pitch according to the dimensions. (When using matrix installation for the A22-M□, mount with a pitch of 40 mm instead of 30 mm in the diagram above.)

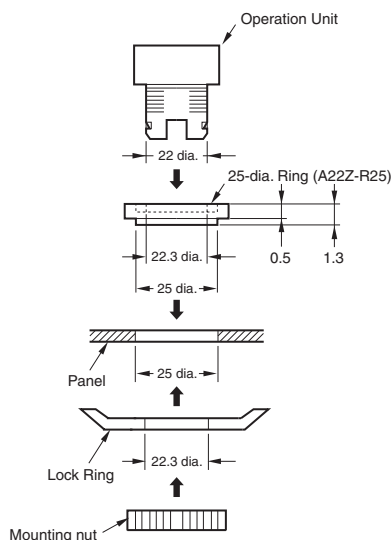
#### Mounting the Operation Unit on the Panel

- Insert the Operation Unit (Pushbutton, etc.) from the front surface of the panel, insert the Lock Ring and the mounting nut from the terminal side, then tighten the nut. Before tightening, check that the rubber washer is present between the Pushbutton Unit and the panel.
- When using a Legend Plate Frame, put one rubber washer each between the Legend Plate Frame and the panel and between the Operation Unit and the Legend Plate Frame. (One rubber washer will be provided when one Legend Plate Frame is ordered.)
- 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 nut.

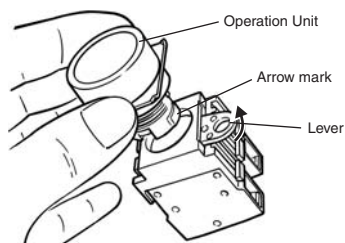


- When the panel cutout dimension is 25 dia., remove the supplied rubber washer and mount the 25-dia. Ring as shown below. (Since the A22Z-R25 is not attached to the main body, order separately.)



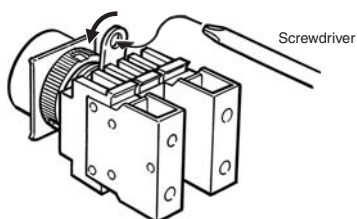
#### Mounting the Switch on the Pushbutton Unit

- Insert the Pushbutton 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.



#### Removing the Switch

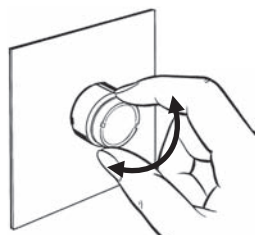
- Move the lever in the direction indicated by the arrow in the following figure, then pull the Pushbutton Unit or the Switch Blocks. Since the lever has a hole with an inside diameter of 6.5 mm, the lever can be moved in the specified direction by inserting a screwdriver into the hole and then moving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



#### Mounting/Replacing the Color Cap

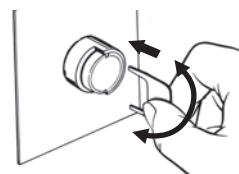
##### Projection, Fall-guard

- Grip and rotate the Color Cap with your fingers.



##### Half-guard Indicators

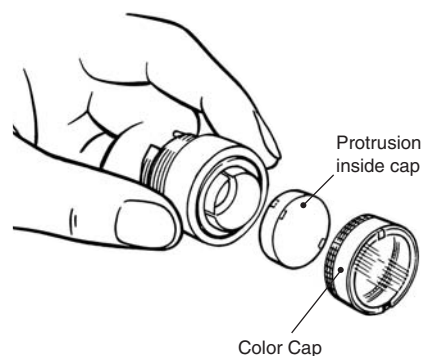
- Put the tips of the Cap Tightening Tool (A22Z-3908) into the Color Cap slot and turn the Tool.



#### Assembling the Cap

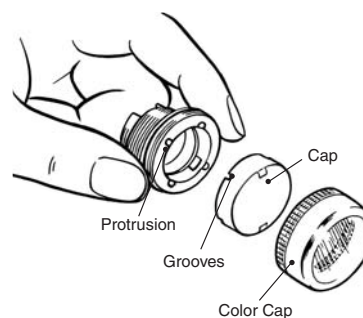
##### Lighted Pushbutton Switch

- Mount the Color Cap so that the protrusions inside the cap fit into the grooves in the Pushbutton Unit.



##### Indicator

- Mount the Color Cap so that the protrusions inside the Pushbutton Unit fit into the grooves in the cap.



### Square Pushbutton/Indicator

#### • Square Pushbutton/Indicator

Insert the protruding tip of the Cap Puller (A3PJ-5080) into the Cap slot, hold the plate spring, and pull them to remove the Color Cap.

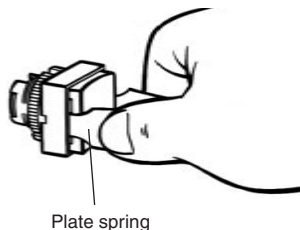
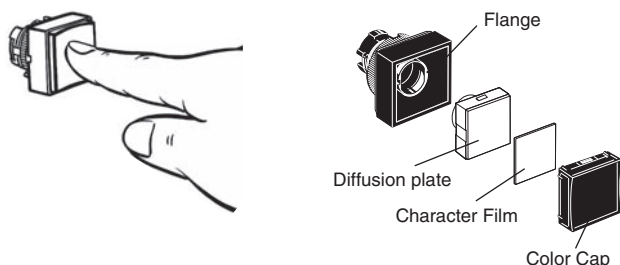


Plate spring

#### • Mounting the Color Cap:

Mount the Color Cap on the flange and firmly push the Color Cap. When the Color Cap is inserted, check whether it operates properly. When replacing the Lamp, remove the Color Cap and diffusion plate with fingers or Cap Puller.

Attach the Character Film properly so that it fits inside the protruding part of the diffusion plate. Then, match the diffusion plate to the square flange and insert the Cap.



Flange

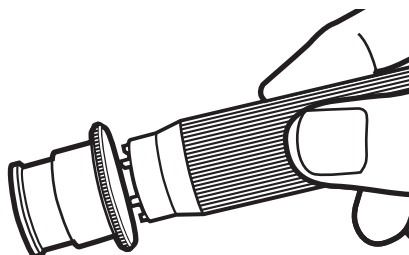
Diffusion plate

Character Film

Color Cap

### Emergency Stop Switch

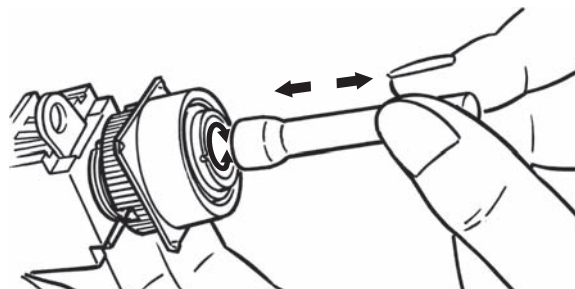
- Insert the protrusion of the Tightening Wrench (A22Z-3905) into the Cap slot and then turn to remove the Cap.



### Installing/Replacing the Lamp

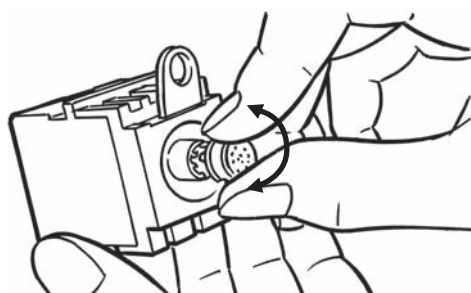
#### Installing/Replacing from the Panel Surface

- Insert the Lamp Extractor (A22Z-3901) into the lamp, then rotate the Extractor while pressing it.



#### Installing/Replacing on the Switch

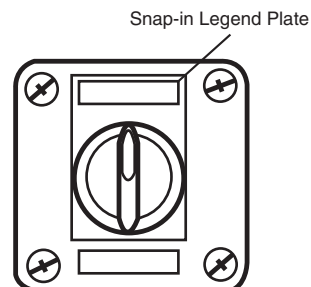
- Grip the lamp with your fingers, then rotate the lamp while pressing it against the Switch.



### Control Box (Enclosure)

#### Mounting the Switch

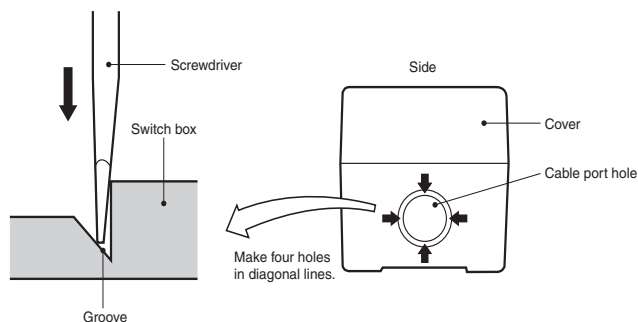
The Standard-size Legend Plate Frame can be mounted. Mount the Frame as shown in the following diagram. Mount the Switch in the same way as for an ordinary panel.



Snap-in Legend Plate

#### 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 with a hammer to punch four holes.

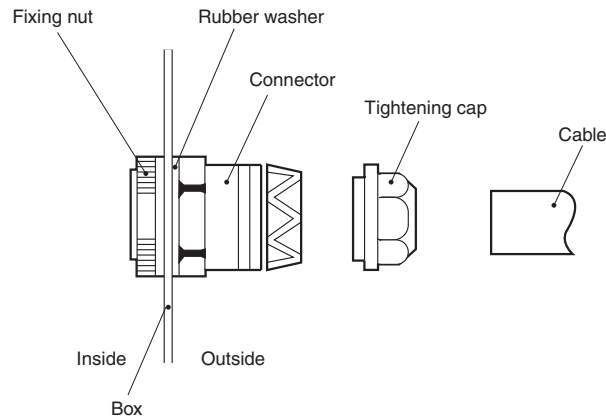


Make four holes in diagonal lines.

### 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.

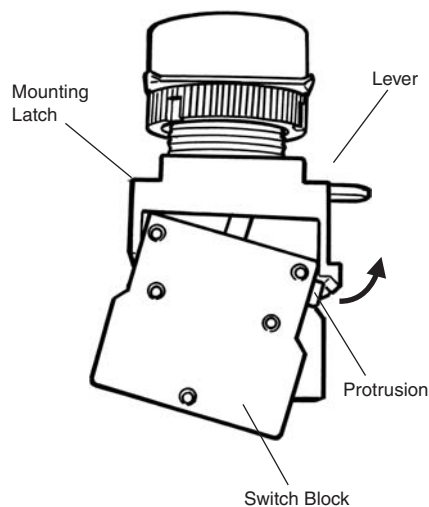
| Cable diameter | Connector   |
|----------------|-------------|
| 7 to 9 dia.    | A22Z-3500-1 |
| 9 to 11 dia.   | A22Z-3500-2 |



### Switch Blocks

#### Installing the Switch Blocks

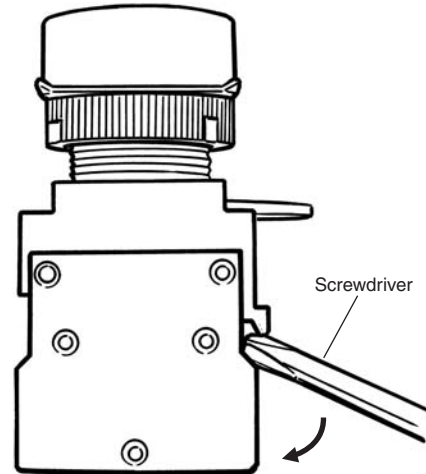
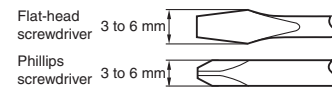
- Hook the small protrusion on the Switch Block into the groove on the Mounting Latch on the other side of the lever, then push up the Switch Block in the direction indicated by the arrow in the figure below.



### 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.

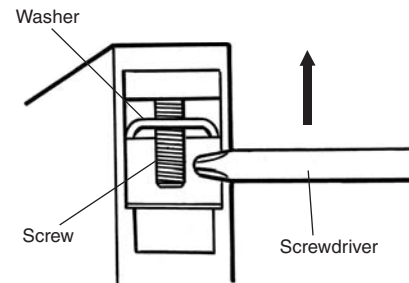
Use either of the following screwdrivers.



### Wiring

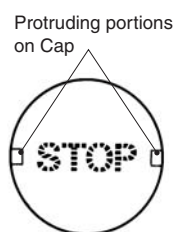
#### Wiring Round Crimp Terminals

- 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.



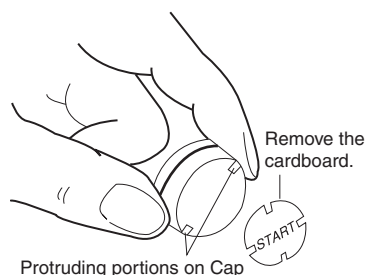
### Engraving

- Engrave the characters on the surface on the Cap. Make sure that the characters are aligned parallel to the imaginary line connecting the two protruding portions to the left and right of the Cap.
- The characters must not be engraved deeper than 0.5 mm. Apply an alcohol-based paint coating, such as melamine, alkyd, or acrylic resin paint coating, to the engraved characters.



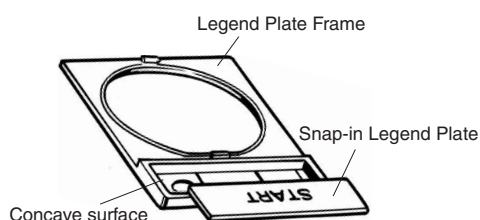
### Affixing Character Film

- Hold the Cap, remove the cardboard on the Film, and attach the Film to the Cap. Make sure that the protruding portions of the Cap engage the cutout portions of the Film and that the characters are aligned parallel to the imaginary line connecting the two protruding portions to the left and right of the Cap.

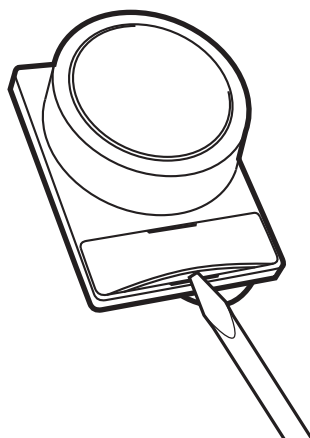


### Mounting and Dismounting Snap-in Legend

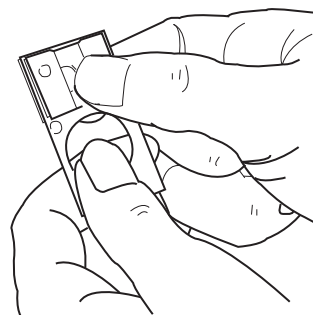
- Press and secure the Snap-in Legend Plate onto the Legend Plate Frame.
- The direction of the characters will vary with the mounting direction of the control panel if the Switch is a knob or key selector model.



- To easily remove the Snap-in Legend Plate from the Legend Plate Frame mounted to the panel, insert a Tool with a thin tip into the space between the Snap-in Legend Plate and the Legend Plate Frame.



- The Snap-in Legend Plate is easily removed by pressing the Snap-in Legend Plate from the back of the Legend Plate Frame.
- The Legend Plate Frame is made of acrylic resin, which is easily damaged by shock. Be sure to handle the Legend Plate Frame with care.



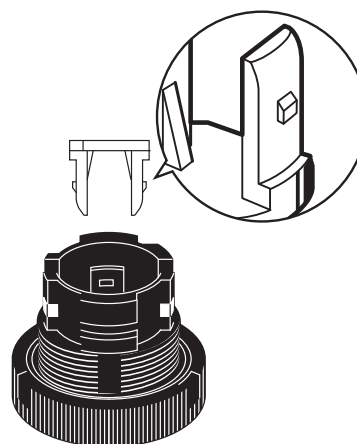
### Engraving Method

#### Material: Acrylic

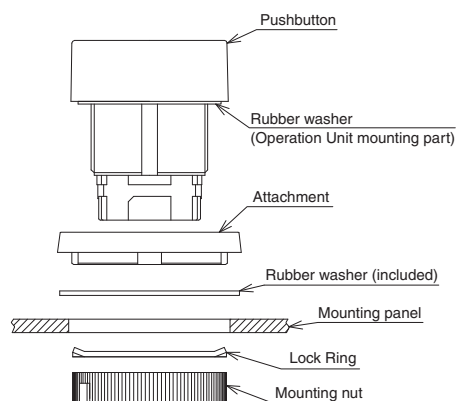
- Engrave the characters directly on the matted side of the Snap-in Legend Plate.
- The characters must be engraved no deeper than 0.5 mm.
- Apply alcohol-based paint coating to the engraved characters.
- If the Snap-in Legend Plate is transparent, engrave the mirror-written characters on the back of the Snap-in Legend Plate and apply paint coating to the characters. Then apply paint coating of a different color to the remaining part of the Snap-in Legend Plate.

### Mounting Three-throw Spacer

Press and secure the two protruding portions of the Three-throw Spacer to the two indented portions of the inner side of the control panel.



### Mounting the 30-dia. Resin Attachment



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