

# Pushbutton Switch A22

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

- Easy mounting and removal of 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.
- Wide range of shapes and colors.
- IP65 oil resistance (non-lighted models)  
IP65 (lighted models)
- EN60947-5-1
- UL and cUL approved (File No. E41515)

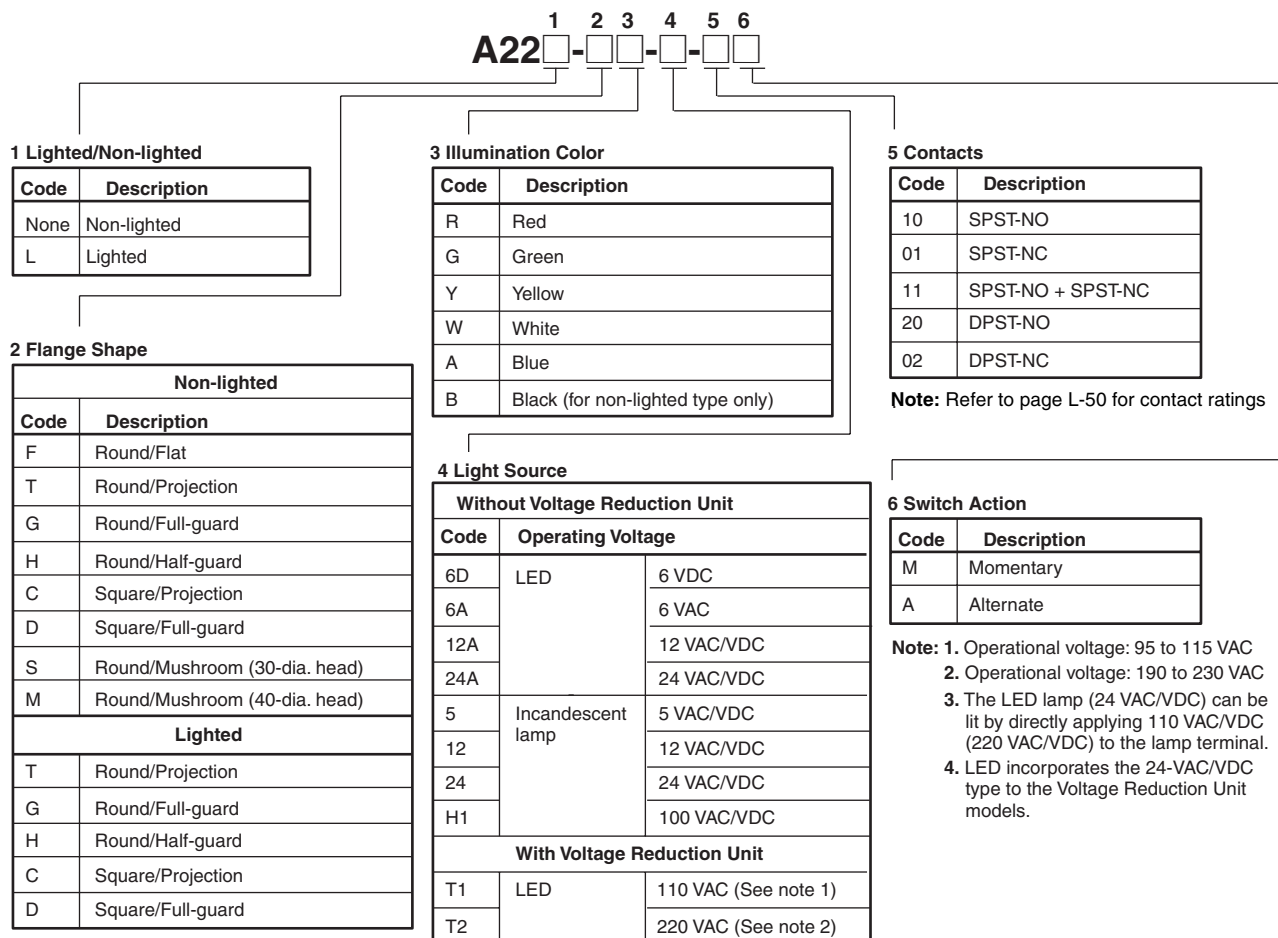


## Model Number Structure

### Model Number Legend

#### Completely Assembled

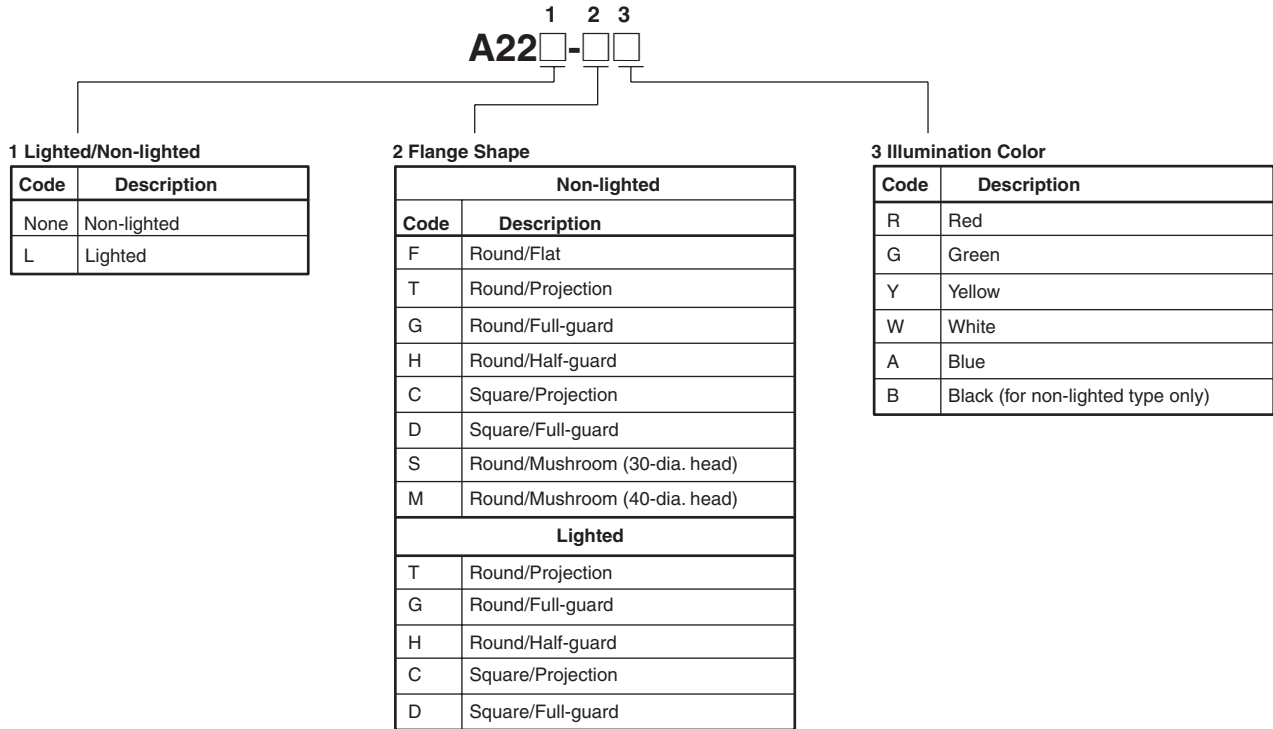
Shipped as a set which includes the Pushbutton, Lamp (lighted type only), and Switch.



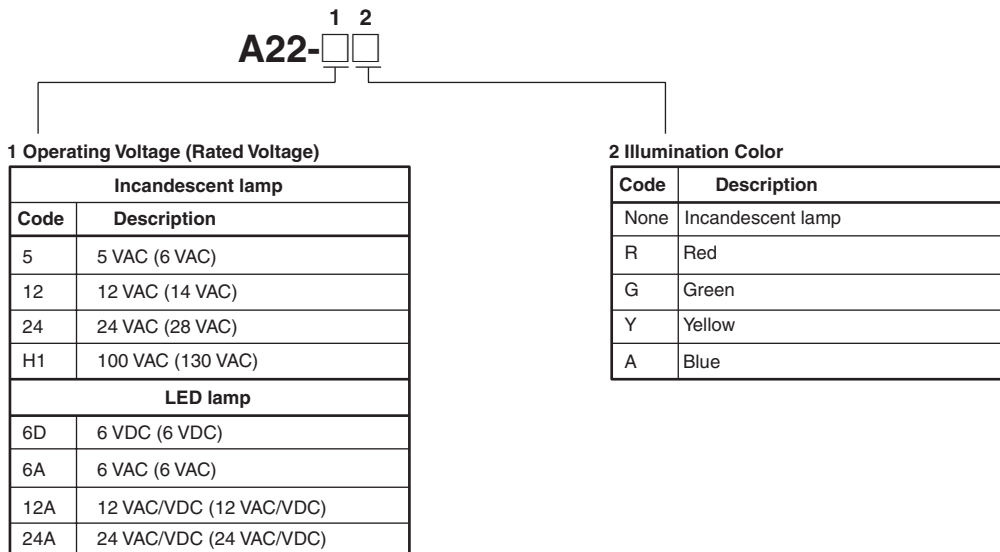
## Subassembled

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.

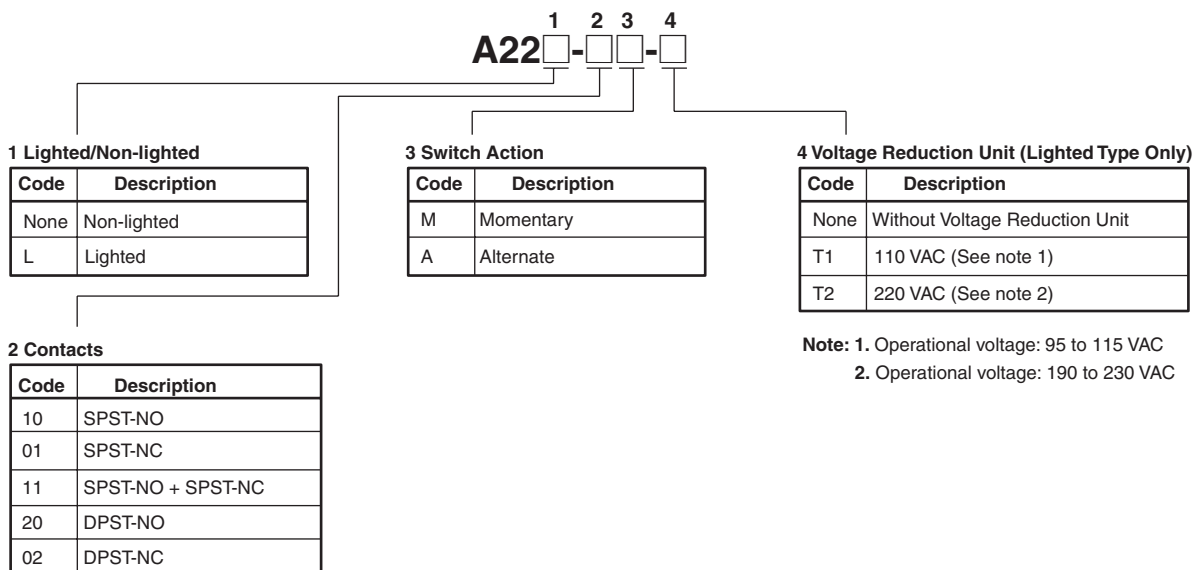
### 1. Pushbutton



### 2. Lamp



### 3. Switch (Standard Load)

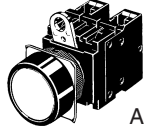
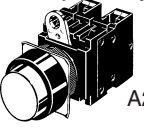

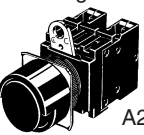

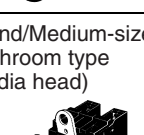


# Ordering Information


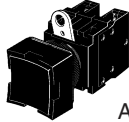
## ■ List of Models

### Ordering as a Set

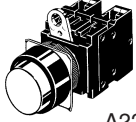
#### Non-lighted (Round Type)

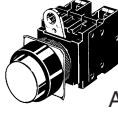

| Appearance  | Output            | Momentary operation<br>(self-resetting) | Alternate operation<br>(self-holding) | Illumination color  |
|---|-------------------|---|---------------------------------------|---|
| Round/Flat type<br><br>A22-F                                       | SPST-NO           | A22-F□-10M                              | A22-F□-10A                            | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue)<br>B (black) |
|   | SPST-NC           | A22-F□-01M                              | A22-F□-01A                            |   |
|   | SPST-NO + SPST-NC | A22-F□-11M                              | A22-F□-11A                            |   |
|   | DPST-NO           | A22-F□-20M                              | A22-F□-20A                            |   |
|   | DPST-NC           | A22-F□-02M                              | A22-F□-02A                            |   |
| Round/Projection type<br><br>A22-T                                 | SPST-NO           | A22-T□-10M                              | A22-T□-10A                            |   |
|   | SPST-NC           | A22-T□-01M                              | A22-T□-01A                            |   |
|   | SPST-NO + SPST-NC | A22-T□-11M                              | A22-T□-11A                            |   |
|   | DPST-NO           | A22-T□-20M                              | A22-T□-20A                            |   |
|   | DPST-NC           | A22-T□-02M                              | A22-T□-02A                            |   |
| Round/Full-guard type<br><br>A22-G                                 | SPST-NO           | A22-G□-10M                              | A22-G□-10A                            |   |
|   | SPST-NC           | A22-G□-01M                              | A22-G□-01A                            |   |
|   | SPST-NO + SPST-NC | A22-G□-11M                              | A22-G□-11A                            |   |
|   | DPST-NO           | A22-G□-20M                              | A22-G□-20A                            |   |
|   | DPST-NC           | A22-G□-02M                              | A22-G□-02A                            |   |
| Round/Half-guard type<br><br>A22-H                               | SPST-NO           | A22-H□-10M                              | A22-H□-10A                            | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue)<br>B (black) |
|   | SPST-NC           | A22-H□-01M                              | A22-H□-01A                            |   |
|   | SPST-NO + SPST-NC | A22-H□-11M                              | A22-H□-11A                            |   |
|   | DPST-NO           | A22-H□-20M                              | A22-H□-20A                            |   |
|   | DPST-NC           | A22-H□-02M                              | A22-H□-02A                            |   |
| Round/Small-size<br>Mushroom type<br>(30-dia. head)<br><br>A22-S | SPST-NO           | A22-S□-10M                              | A22-S□-10A                            |   |
|   | SPST-NC           | A22-S□-01M                              | A22-S□-01A                            |   |
|   | SPST-NO + SPST-NC | A22-S□-11M                              | A22-S□-11A                            |   |
|   | DPST-NO           | A22-S□-20M                              | A22-S□-20A                            |   |
|   | DPST-NC           | A22-S□-02M                              | A22-S□-02A                            |   |
| Round/Medium-size<br>Mushroom type<br>(40-dia head)<br><br>A22-M | SPST-NO           | A22-M□-10M                              | A22-M□-10A                            |   |
|   | SPST-NC           | A22-M□-01M                              | A22-M□-01A                            |   |
|   | SPST-NO + SPST-NC | A22-M□-11M                              | A22-M□-11A                            |   |
|   | DPST-NO           | A22-M□-20M                              | A22-M□-20A                            |   |
|   | DPST-NC           | A22-M□-02M                              | A22-M□-02A                            |   |


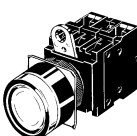

**Non-lighted (Square Type)**

| Appearance   | Output            | Momentary operation (self-reset) | Alternate operation (self-holding) | Illumination color  |
|--|-------------------|----------------------------------|------------------------------------|---|
| Square/Projection type<br><br>A22-C | SPST-NO           | A22-C□-10M                       | A22-C□-10A                         | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue)<br>B (black) |
|  | SPST-NC           | A22-C□-01M                       | A22-C□-01A                         |   |
|  | SPST-NO + SPST-NC | A22-C□-11M                       | A22-C□-11A                         |   |
|  | DPST-NO           | A22-C□-20M                       | A22-C□-20A                         |   |
|  | DPST-NC           | A22-C□-02M                       | A22-C□-02A                         |   |
| Square/Guard type<br><br>A22-D      | SPST-NO           | A22-D□-10M                       | A22-D□-10A                         |   |
|  | SPST-NC           | A22-D□-01M                       | A22-D□-01A                         |   |
|  | SPST-NO + SPST-NC | A22-D□-11M                       | A22-D□-11A                         |   |
|  | DPST-NO           | A22-D□-20M                       | A22-D□-20A                         |   |
|  | DPST-NC           | A22-D□-02M                       | A22-D□-02A                         |   |



**Lighted (Round Type)**

| Appearance  | Output            | Lighting | Operating voltage | Momentary operation (self-resetting) | Alternate operation (self-holding) | Illumination color   |
|---|-------------------|----------|-------------------|--------------------------------------|------------------------------------|--|
| Round/Projection type<br>LED lighting (without Voltage Reduction Unit)<br><br>A22L-T | SPST-NO           | LED      | 6 VDC             | A22L-T□-6D-10M                       | A22L-T□-6D-10A                     | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |
|   |                   |          | 6 VAC             | A22L-T□-6A-10M                       | A22L-T□-6A-10A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-T□-12A-10M                      | A22L-T□-12A-10A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-T□-24A-10M                      | A22L-T□-24A-10A                    |  |
|   | SPST-NC           |          | 6 VDC             | A22L-T□-6D-01M                       | A22L-T□-6D-01A                     |  |
|   |                   |          | 6 VAC             | A22L-T□-6A-01M                       | A22L-T□-6A-01A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-T□-12A-01M                      | A22L-T□-12A-01A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-T□-24A-01M                      | A22L-T□-24A-01A                    |  |
|   | SPST-NO + SPST-NC |          | 6 VDC             | A22L-T□-6D-11M                       | A22L-T□-6D-11A                     |  |
|   |                   |          | 6 VAC             | A22L-T□-6A-11M                       | A22L-T□-6A-11A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-T□-12A-11M                      | A22L-T□-12A-11A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-T□-24A-11M                      | A22L-T□-24A-11A                    |  |
|   | DPST-NO           |          | 6 VDC             | A22L-T□-6D-20M                       | A22L-T□-6D-20A                     |  |
|   |                   |          | 6 VAC             | A22L-T□-6A-20M                       | A22L-T□-6A-20A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-T□-12A-20M                      | A22L-T□-12A-20A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-T□-24A-20M                      | A22L-T□-24A-20A                    |  |
|   | DPST-NC           |          | 6 VDC             | A22L-T□-6D-02M                       | A22L-T□-6D-02A                     |  |
|   |                   |          | 6 VAC             | A22L-T□-6A-02M                       | A22L-T□-6A-02A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-T□-12A-02M                      | A22L-T□-12A-02A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-T□-24A-02M                      | A22L-T□-24A-02A                    |  |



| Appearance  | Output   | Lighting        | Operating voltage | Momentary operation (self-resetting) | Alternate operation (self-holding) | Illumination color   |                |
|---|--|-----------------|-------------------|--------------------------------------|------------------------------------|--|----------------|
| Round/Projection type<br>LED voltage-reduction lighting (with Voltage Reduction Unit)<br> A22L-T | SPST-NO  | LED             | 110 VAC           | A22L-T□-T1-10M                       | A22L-T□-T1-10A                     | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |                |
|   |  |                 | 220 VAC           | A22L-T□-T2-10M                       | A22L-T□-T2-10A                     |  |                |
|   | SPST-NC  |                 | 110 VAC           | A22L-T□-T1-01M                       | A22L-T□-T1-01A                     |  |                |
|   |  |                 | 220 VAC           | A22L-T□-T2-01M                       | A22L-T□-T2-01A                     |  |                |
|   | SPST-NO + SPST-NC  |                 | 110 VAC           | A22L-T□-T1-11M                       | A22L-T□-T1-11A                     |  |                |
|   |  |                 | 220 VAC           | A22L-T□-T2-11M                       | A22L-T□-T2-11A                     |  |                |
|   | DPST-NO  |                 | 110 VAC           | A22L-T□-T1-20M                       | A22L-T□-T1-20A                     |  |                |
|   |  |                 | 220 VAC           | A22L-T□-T2-20M                       | A22L-T□-T2-20A                     |  |                |
|   | DPST-NC  |                 | 110 VAC           | A22L-T□-T1-02M                       | A22L-T□-T1-02A                     |  |                |
|   |  |                 | 220 VAC           | A22L-T□-T2-02M                       | A22L-T□-T2-02A                     |  |                |
|   | Round/Half-guard type<br>LED lighting (without Voltage Reduction Unit)<br> A22L-H |                 | SPST-NO           | 6 VDC                                | A22L-H□-6D-10M                     |  | A22L-H□-6D-10A |
|   |  |                 |                   | 6 VAC                                | A22L-H□-6A-10M                     |  | A22L-H□-6A-10A |
| 12 VAC/VDC  |  | A22L-H□-12A-10M |                   | A22L-H□-12A-10A                      |                                    |  |                |
| 24 VAC/VDC  |  | A22L-H□-24A-10M |                   | A22L-H□-24A-10A                      |                                    |  |                |
| SPST-NC   |  | 6 VDC           | A22L-H□-6D-01M    | A22L-H□-6D-01A                       |                                    |  |                |
|   |  | 6 VAC           | A22L-H□-6A-01M    | A22L-H□-6A-01A                       |                                    |  |                |
|   |  | 12 VAC/VDC      | A22L-H□-12A-01M   | A22L-H□-12A-01A                      |                                    |  |                |
|   |  | 24 VAC/VDC      | A22L-H□-24A-01M   | A22L-H□-24A-01A                      |                                    |  |                |
| SPST-NO + SPST-NC   |  | 6 VDC           | A22L-H□-6D-11M    | A22L-H□-6D-11A                       |                                    |  |                |
|   |  | 6 VAC           | A22L-H□-6A-11M    | A22L-H□-6A-11A                       |                                    |  |                |
|   |  | 12 VAC/VDC      | A22L-H□-12A-11M   | A22L-H□-12A-11A                      |                                    |  |                |
|   |  | 24 VAC/VDC      | A22L-H□-24A-11M   | A22L-H□-24A-11A                      |                                    |  |                |
| DPST-NO   |  | 6 VDC           | A22L-H□-6D-20M    | A22L-H□-6D-20A                       |                                    |  |                |
|   |  | 6 VAC           | A22L-H□-6A-20M    | A22L-H□-6A-20A                       |                                    |  |                |
|   |  | 12 VAC/VDC      | A22L-H□-12A-20M   | A22L-H□-12A-20A                      |                                    |  |                |
|   |  | 24 VAC/VDC      | A22L-H□-24A-20M   | A22L-H□-24A-20A                      |                                    |  |                |
| DPST-NC   |  | 6 VDC           | A22L-H□-6D-02M    | A22L-H□-6D-02A                       |                                    |  |                |
|   |  | 6 VAC           | A22L-H□-6A-02M    | A22L-H□-6A-02A                       |                                    |  |                |
|   |  | 12 VAC/VDC      | A22L-H□-12A-02M   | A22L-H□-12A-02A                      |                                    |  |                |
|   |  | 24 VAC/VDC      | A22L-H□-24A-02M   | A22L-H□-24A-02A                      |                                    |  |                |

| Appearance  | Output            | Lighting   | Operating voltage | Momentary operation (self-resetting) | Alternate operation (self-holding) | Illumination color   |
|---|-------------------|------------|-------------------|--------------------------------------|------------------------------------|--|
| Round/Half-guard type<br>LED voltage-reduction lighting (with Voltage Reduction Unit)<br> A22L-H   | SPST-NO           | LED        | 110 VAC           | A22L-H□-T1-10M                       | A22L-H□-T1-10A                     | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |
|   |                   |            | 220 VAC           | A22L-H□-T2-10M                       | A22L-H□-T2-10A                     |  |
|   | SPST-NC           |            | 110 VAC           | A22L-H□-T1-01M                       | A22L-H□-T1-01A                     |  |
|   |                   |            | 220 VAC           | A22L-H□-T2-01M                       | A22L-H□-T2-01A                     |  |
|   | SPST-NO + SPST-NC |            | 110 VAC           | A22L-H□-T1-11M                       | A22L-H□-T1-11A                     |  |
|   |                   |            | 220 VAC           | A22L-H□-T2-11M                       | A22L-H□-T2-11A                     |  |
|   | DPST-NO           |            | 110 VAC           | A22L-H□-T1-20M                       | A22L-H□-T1-20A                     |  |
|   |                   |            | 220 VAC           | A22L-H□-T2-20M                       | A22L-H□-T2-20A                     |  |
|   | DPST-NC           |            | 110 VAC           | A22L-H□-T1-02M                       | A22L-H□-T1-02A                     |  |
|   |                   |            | 220 VAC           | A22L-H□-T2-02M                       | A22L-H□-T2-02A                     |  |
| Round/Full-guard type<br>LED lighting (without Voltage Reduction Unit)<br> A22L-G                  | SPST-NO           | 6 VDC      | A22L-G□-6D-10M    | A22L-G□-6D-10A                       |                                    |  |
|   |                   | 6 VAC      | A22L-G□-6A-10M    | A22L-G□-6A-10A                       |                                    |  |
|   |                   | 12 VAC/VDC | A22L-G□-12A-10M   | A22L-G□-12A-10A                      |                                    |  |
|   |                   | 24 VAC/VDC | A22L-G□-24A-10M   | A22L-G□-24A-10A                      |                                    |  |
|   | SPST-NC           | 6 VDC      | A22L-G□-6D-01M    | A22L-G□-6D-01A                       |                                    |  |
|   |                   | 6 VAC      | A22L-G□-6A-01M    | A22L-G□-6A-01A                       |                                    |  |
|   |                   | 12 VAC/VDC | A22L-G□-12A-01M   | A22L-G□-12A-01A                      |                                    |  |
|   |                   | 24 VAC/VDC | A22L-G□-24A-01M   | A22L-G□-24A-01A                      |                                    |  |
|   | SPST-NO + SPST-NC | 6 VDC      | A22L-G□-6D-11M    | A22L-G□-6D-11A                       |                                    |  |
|   |                   | 6 VAC      | A22L-G□-6A-11M    | A22L-G□-6A-11A                       |                                    |  |
|   |                   | 12 VAC/VDC | A22L-G□-12A-11M   | A22L-G□-12A-11A                      |                                    |  |
|   |                   | 24 VAC/VDC | A22L-G□-24A-11M   | A22L-G□-24A-11A                      |                                    |  |
|   | DPST-NO           | 6 VDC      | A22L-G□-6D-20M    | A22L-G□-6D-20A                       |                                    |  |
|   |                   | 6 VAC      | A22L-G□-6A-20M    | A22L-G□-6A-20A                       |                                    |  |
|   |                   | 12 VAC/VDC | A22L-G□-12A-20M   | A22L-G□-12A-20A                      |                                    |  |
|   |                   | 24 VAC/VDC | A22L-G□-24A-20M   | A22L-G□-24A-20A                      |                                    |  |
|   | DPST-NC           | 6 VDC      | A22L-G□-6D-02M    | A22L-G□-6D-02A                       |                                    |  |
|   |                   | 6 VAC      | A22L-G□-6A-02M    | A22L-G□-6A-02A                       |                                    |  |
|   |                   | 12 VAC/VDC | A22L-G□-12A-02M   | A22L-G□-12A-02A                      |                                    |  |
|   |                   | 24 VAC/VDC | A22L-G□-24A-02M   | A22L-G□-24A-02A                      |                                    |  |
| Round/Full-guard type<br>LED voltage-reduction lighting (with Voltage Reduction Unit)<br> A22L-G | SPST-NO           | 110 VAC    | A22L-G□-T1-10M    | A22L-G□-T1-10A                       |                                    |  |
|   |                   | 220 VAC    | A22L-G□-T2-10M    | A22L-G□-T2-10A                       |                                    |  |
|   | SPST-NC           | 110 VAC    | A22L-G□-T1-01M    | A22L-G□-T1-01A                       |                                    |  |
|   |                   | 220 VAC    | A22L-G□-T2-01M    | A22L-G□-T2-01A                       |                                    |  |
|   | SPST-NO + SPST-NC | 110 VAC    | A22L-G□-T1-11M    | A22L-G□-T1-11A                       |                                    |  |
|   |                   | 220 VAC    | A22L-G□-T2-11M    | A22L-G□-T2-11A                       |                                    |  |
|   | DPST-NO           | 110 VAC    | A22L-G□-T1-20M    | A22L-G□-T1-20A                       |                                    |  |
|   |                   | 220 VAC    | A22L-G□-T2-20M    | A22L-G□-T2-20A                       |                                    |  |
|   | DPST-NC           | 110 VAC    | A22L-G□-T1-02M    | A22L-G□-T1-02A                       |                                    |  |
|   |                   | 220 VAC    | A22L-G□-T2-02M    | A22L-G□-T2-02A                       |                                    |  |

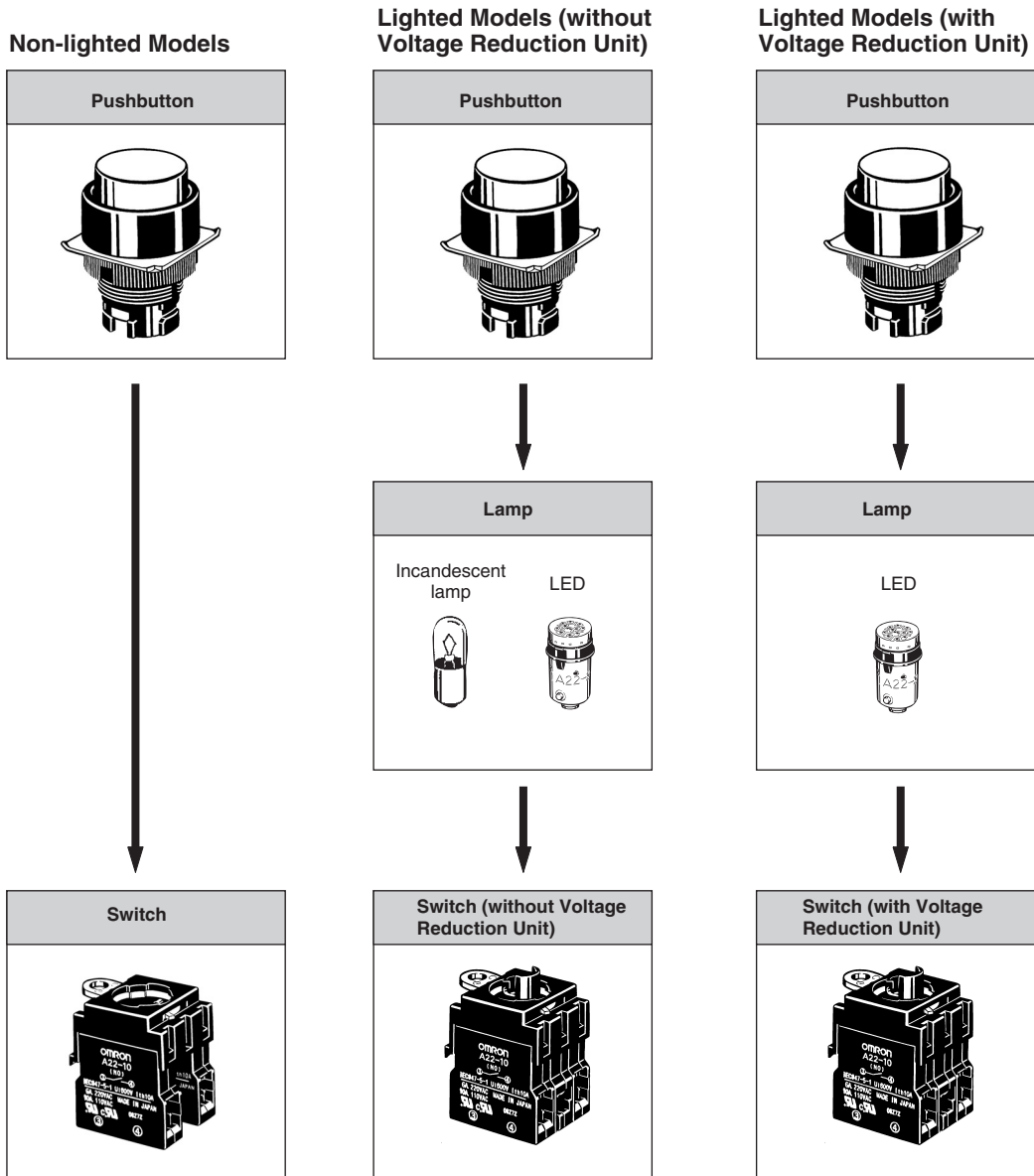
Lighted (Square Type)

| Appearance   | Output            | Lighting | Operating voltage | Momentary operation (self-resetting) | Alternate operation (self-holding) | Illumination color   |                 |
|--|-------------------|----------|-------------------|--------------------------------------|------------------------------------|--|-----------------|
| Square/Projection type<br><br>LED lighting (without Voltage Reduction Unit)<br><br> A22L-C                  | SPST-NO           | LED      | 6 VDC             | A22L-C□-6D-10M                       | A22L-C□-6D-10A                     | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |                 |
|  |                   |          | 6 VAC             | A22L-C□-6A-10M                       | A22L-C□-6A-10A                     |  |                 |
|  |                   |          | 12 VAC/VDC        | A22L-C□-12A-10M                      | A22L-C□-12A-10A                    |  |                 |
|  |                   |          | 24 VAC/VDC        | A22L-C□-24A-10M                      | A22L-C□-24A-10A                    |  |                 |
|  |                   |          | SPST-NC           | 6 VDC                                | A22L-C□-6D-01M                     |  | A22L-C□-6D-01A  |
|  |                   |          |                   | 6 VAC                                | A22L-C□-6A-01M                     |  | A22L-C□-6A-01A  |
|  |                   |          |                   | 12 VAC/VDC                           | A22L-C□-12A-01M                    |  | A22L-C□-12A-01A |
|  |                   |          |                   | 24 VAC/VDC                           | A22L-C□-24A-01M                    |  | A22L-C□-24A-01A |
|  | SPST-NO + SPST-NC |          | 6 VDC             | A22L-C□-6D-11M                       | A22L-C□-6D-11A                     |  |                 |
|  |                   |          | 6 VAC             | A22L-C□-6A-11M                       | A22L-C□-6A-11A                     |  |                 |
|  |                   |          | 12 VAC/VDC        | A22L-C□-12A-11M                      | A22L-C□-12A-11A                    |  |                 |
|  |                   |          | 24 VAC/VDC        | A22L-C□-24A-11M                      | A22L-C□-24A-11A                    |  |                 |
|  | DPST-NO           |          | 6 VDC             | A22L-C□-6D-20M                       | A22L-C□-6D-20A                     |  |                 |
|  |                   |          | 6 VAC             | A22L-C□-6A-20M                       | A22L-C□-6A-20A                     |  |                 |
|  |                   |          | 12 VAC/VDC        | A22L-C□-12A-20M                      | A22L-C□-12A-20A                    |  |                 |
|  |                   |          | 24 VAC/VDC        | A22L-C□-24A-20M                      | A22L-C□-24A-20A                    |  |                 |
|  | DPST-NC           |          | 6 VDC             | A22L-C□-6D-02M                       | A22L-C□-6D-02A                     |  |                 |
|  |                   |          | 6 VAC             | A22L-C□-6A-02M                       | A22L-C□-6A-02A                     |  |                 |
|  |                   |          | 12 VAC/VDC        | A22L-C□-12A-02M                      | A22L-C□-12A-02A                    |  |                 |
|  |                   |          | 24 VAC/VDC        | A22L-C□-24A-02M                      | A22L-C□-24A-02A                    |  |                 |
| Square/Projection type<br><br>LED voltage-reduction lighting (with Voltage Reduction Unit)<br><br> A22L-C | SPST-NO           |          | 110 VAC           | A22L-C□-T1-10M                       | A22L-C□-T1-10A                     |  |                 |
|  |                   |          | 220 VAC           | A22L-C□-T2-10M                       | A22L-C□-T2-10A                     |  |                 |
|  | SPST-NC           |          | 110 VAC           | A22L-C□-T1-01M                       | A22L-C□-T1-01A                     |  |                 |
|  |                   |          | 220 VAC           | A22L-C□-T2-01M                       | A22L-C□-T2-01A                     |  |                 |
|  | SPST-NO + SPST-NC | 110 VAC  | A22L-C□-T1-11M    | A22L-C□-T1-11A                       |                                    |  |                 |
|  |                   | 220 VAC  | A22L-C□-T2-11M    | A22L-C□-T2-11A                       |                                    |  |                 |
|  | DPST-NO           | 110 VAC  | A22L-C□-T1-20M    | A22L-C□-T1-20A                       |                                    |  |                 |
|  |                   | 220 VAC  | A22L-C□-T2-20M    | A22L-C□-T2-20A                       |                                    |  |                 |
|  | DPST-NC           | 110 VAC  | A22L-C□-T1-02M    | A22L-C□-T1-02A                       |                                    |  |                 |
|  |                   | 220 VAC  | A22L-C□-T2-02M    | A22L-C□-T2-02A                       |                                    |  |                 |







| Appearance  | Output            | Lighting | Operating voltage | Momentary operation (self-resetting) | Alternate operation (self-holding) | Illumination color   |
|---|-------------------|----------|-------------------|--------------------------------------|------------------------------------|--|
| Square/Full-guard type<br>LED lighting (without Voltage Reduction Unit)<br> A22L-D                 | SPST-NO           | LED      | 6 VDC             | A22L-D□-6D-10M                       | A22L-D□-6D-10A                     | Insert one of the following letters into the box □.<br>R (red)<br>Y (yellow)<br>G (green)<br>W (white)<br>A (blue) |
|   |                   |          | 6 VAC             | A22L-D□-6A-10M                       | A22L-D□-6A-10A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-D□-12A-10M                      | A22L-D□-12A-10A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-D□-24A-10M                      | A22L-D□-24A-10A                    |  |
|   | SPST-NC           |          | 6 VDC             | A22L-D□-6D-01M                       | A22L-D□-6D-01A                     |  |
|   |                   |          | 6 VAC             | A22L-D□-6A-01M                       | A22L-D□-6A-01A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-D□-12A-01M                      | A22L-D□-12A-01A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-D□-24A-01M                      | A22L-D□-24A-01A                    |  |
|   | SPST-NO + SPST-NC |          | 6 VDC             | A22L-D□-6D-11M                       | A22L-D□-6D-11A                     |  |
|   |                   |          | 6 VAC             | A22L-D□-6A-11M                       | A22L-D□-6A-11A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-D□-12A-11M                      | A22L-D□-12A-11A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-D□-24A-11M                      | A22L-D□-24A-11A                    |  |
|   | DPST-NO           |          | 6 VDC             | A22L-D□-6D-20M                       | A22L-D□-6D-20A                     |  |
|   |                   |          | 6 VAC             | A22L-D□-6A-20M                       | A22L-D□-6A-20A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-D□-12A-20M                      | A22L-D□-12A-20A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-D□-24A-20M                      | A22L-D□-24A-20A                    |  |
|   | DPST-NC           |          | 6 VDC             | A22L-D□-6D-02M                       | A22L-D□-6D-02A                     |  |
|   |                   |          | 6 VAC             | A22L-D□-6A-02M                       | A22L-D□-6A-02A                     |  |
|   |                   |          | 12 VAC/VDC        | A22L-D□-12A-02M                      | A22L-D□-12A-02A                    |  |
|   |                   |          | 24 VAC/VDC        | A22L-D□-24A-02M                      | A22L-D□-24A-02A                    |  |
| Square/Full-guard type<br>LED voltage-reduction lighting (with Voltage Reduction Unit)<br> A22L-D | SPST-NO           | 110 VAC  | A22L-D□-T1-10M    | A22L-D□-T1-10A                       |                                    |  |
|   | SPST-NC           | 220 VAC  | A22L-D□-T2-10M    | A22L-D□-T2-10A                       |                                    |  |
|   |                   | 110 VAC  | A22L-D□-T1-01M    | A22L-D□-T1-01A                       |                                    |  |
|   | SPST-NO + SPST-NC | 220 VAC  | A22L-D□-T2-01M    | A22L-D□-T2-01A                       |                                    |  |
|   |                   | 110 VAC  | A22L-D□-T1-11M    | A22L-D□-T1-11A                       |                                    |  |
|   | DPST-NO           | 220 VAC  | A22L-D□-T2-11M    | A22L-D□-T2-11A                       |                                    |  |
|   |                   | 110 VAC  | A22L-D□-T1-20M    | A22L-D□-T1-20A                       |                                    |  |
|   | DPST-NC           | 220 VAC  | A22L-D□-T2-20M    | A22L-D□-T2-20A                       |                                    |  |
|   |                   | 110 VAC  | A22L-D□-T1-02M    | A22L-D□-T1-02A                       |                                    |  |
|   |                   |          | 220 VAC           | A22L-D□-T2-02M                       | A22L-D□-T2-02A                     |  |





**Ordering Individually**






**Pushbutton**

**Non-lighted**



| Color         | IP65 oil-resistant models  |  |  |  |
|---------------|--|--|--|--|
|               | Flat type<br> | Projection type<br> | Full-guard type<br> | Half-guard type<br> |
| <b>Red</b>    | A22-FR   | A22-TR   | A22-GR   | A22-HR   |
| <b>Green</b>  | A22-FG   | A22-TG   | A22-GG   | A22-HG   |
| <b>Yellow</b> | A22-FY   | A22-TY   | A22-GY   | A22-HY   |
| <b>White</b>  | A22-FW   | A22-TW   | A22-GW   | A22-HW   |
| <b>Blue</b>   | A22-FA   | A22-TA   | A22-GA   | A22-HA   |
| <b>Black</b>  | A22-FB   | A22-TB   | A22-GB   | A22-HB   |

| Color         | IP65 oil-resistant models   |   |   |   |
|---------------|---|---|---|---|
|               | Square/Projection type<br> | Square/Full-guard type<br> | Round/Mushroom type (30-dia. head)<br> | Round/Mushroom type (40-dia. head)<br> |
| <b>Red</b>    | A22-CR  | A22-DR  | A22-SR  | A22-MR  |
| <b>Green</b>  | A22-CG  | A22-DG  | A22-SG  | A22-MG  |
| <b>Yellow</b> | A22-CY  | A22-DY  | A22-SY  | A22-MY  |
| <b>White</b>  | A22-CW  | A22-DW  | A22-SW  | A22-MW  |
| <b>Blue</b>   | A22-CA  | A22-DA  | A22-SA  | A22-MA  |
| <b>Black</b>  | A22-CB  | A22-DB  | A22-SB  | A22-MB  |

**Lighted**


| Color         | IP65   |   |  |
|---------------|--|---|--|
|               | Projection type<br> | Full-guard type<br> | Half-guard type<br> |
| <b>Red</b>    | A22L-TR  | A22L-GR   | A22L-HR  |
| <b>Green</b>  | A22L-TG  | A22L-GG   | A22L-HG  |
| <b>Yellow</b> | A22L-TY  | A22L-GY   | A22L-HY  |
| <b>White</b>  | A22L-TW  | A22L-GW   | A22L-HW  |
| <b>Blue</b>   | A22L-TA  | A22L-GA   | A22L-HA  |

**Note:** Common to incandescent lamps and LED lamps.

| Color         | IP65   |  |
|---------------|--|--|
|               | Square/Projection<br> | Square/Full-guard type<br> |
| <b>Red</b>    | A22L-CR  | A22L-DR  |
| <b>Green</b>  | A22L-CG  | A22L-DG  |
| <b>Yellow</b> | A22L-CY  | A22L-DY  |
| <b>White</b>  | A22L-CW  | A22L-DW  |
| <b>Blue</b>   | A22L-CA  | A22L-DA  |


## Lamp

### LED Lamp

| Appearance  | Operating voltage |                      | 6 V     | 12 V     | 24 V     | 24 V Super-bright |
|---|-------------------|----------------------|---------|----------|----------|-------------------|
|   | AC/DC             | LED light            | Model   |          |          |                   |
|  | DC                | Red                  | A22-6DR | ---      | ---      | ---               |
|   |                   | Green                | A22-6DG | ---      | ---      | ---               |
|   |                   | Yellow (See note 2.) | A22-6DY | ---      | ---      | ---               |
|   |                   | Blue                 | A22-6DA | ---      | ---      | ---               |
|   | AC                | Red                  | A22-6AR | ---      | ---      | ---               |
|   |                   | Green                | A22-6AG | ---      | ---      | ---               |
|   |                   | Yellow (See note 2.) | A22-6AY | ---      | ---      | ---               |
|   |                   | Blue                 | A22-6AA | ---      | ---      | ---               |
|   | AC and DC         | Red                  | ---     | A22-12AR | A22-24AR | A22-24ASR         |
|   |                   | Green                | ---     | A22-12AG | A22-24AG | A22-24ASG         |
|   |                   | Yellow (See note 2.) | ---     | A22-12AY | A22-24AY | A22-24ASY         |
|   |                   | Blue                 | ---     | A22-12AA | A22-24AA | A22-24ASA         |

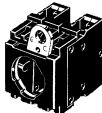
**Note:** 1. For voltage-reduction lighting, use the A22-24A□.  
 2. Used when the Pushbutton color is yellow or white.

### Incandescent Lamp


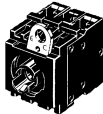

| Operating voltage   | 5 VAC/VDC | 12 VAC/VDC | 24 VAC/VDC | 100 VAC/VDC |
|---|-----------|------------|------------|-------------|
|  | A22-5     | A22-12     | A22-24     | A22-H1      |

## Switch (Standard Load)

### Non-lighted

| Switch operation  | Contacts          | Model   |
|---|-------------------|---------|
|  | SPST-NO           | A22-10M |
|   | SPST-NC           | A22-01M |
|   | SPST-NO + SPST-NC | A22-11M |
|   | DPST-NO           | A22-20M |
|   | DPST-NC           | A22-02M |
|   | Alternate         | SPST-NO |
| SPST-NC   |                   | A22-01A |
| SPST-NO + SPST-NC   |                   | A22-11A |
| DPST-NO   |                   | A22-20A |
| DPST-NC   |                   | A22-02A |








Lighted

| Switch operation | Contacts          | Voltage reduction circuits  |  |   |
|------------------|-------------------|---|--|---|
|                  |                   | Without Voltage Reduction Unit  | With Voltage Reduction Unit  |   |
|                  |                   |   | 110 VAC  | 220 VAC   |
|                  |                   |  |  |  |
| Momentary        | SPST-NO           | A22L-10M  | A22L-10M-T1  | A22L-10M-T2   |
|                  | SPST-NC           | A22L-01M  | A22L-01M-T1  | A22L-01M-T2   |
|                  | SPST-NO + SPST-NC | A22L-11M  | A22L-11M-T1  | A22L-11M-T2   |
|                  | DPST-NO           | A22L-20M  | A22L-20M-T1  | A22L-20M-T2   |
|                  | DPST-NC           | A22L-02M  | A22L-02M-T1  | A22L-02M-T2   |
| Alternate        | SPST-NO           | A22L-10A  | A22L-10A-T1  | A22L-10A-T2   |
|                  | SPST-NC           | A22L-01A  | A22L-01A-T1  | A22L-01A-T2   |
|                  | SPST-NO + SPST-NC | A22L-11A  | A22L-11A-T1  | A22L-11A-T2   |
|                  | DPST-NO           | A22L-20A  | A22L-20A-T1  | A22L-20A-T2   |
|                  | DPST-NC           | A22L-02A  | A22L-02A-T1  | A22L-02A-T2   |

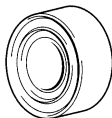
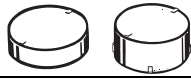

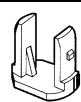




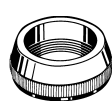


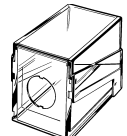
**Note:** 1. The above diagrams show the DPST-NO contact models as representative examples.  
 2. For voltage-reduction lighting, use the A22-24A□.

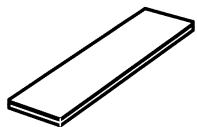
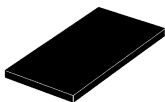

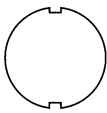




### ■ Accessories (Order Separately)

#### Common to A22, A22S/W, A22K, M22, and A22E

| Item                       |   | Appearance  | Classification                           |           | Model   | Remarks  |
|----------------------------|---|---|--|-----------|---|--|
| Switch Blocks              |  | SPST-NO   | Standard load                            | A22-10    | Provided as standard. Order Switch Blocks only when adding or replacing them. |  |
|                            |   |   | Microload                                | A22-10S   |   |  |
|                            |   | SPST-NC   | Standard load                            | A22-01    |   |  |
|                            |   |   | Microload                                | A22-01S   |   |  |
|                            |   | DPST-NO   | Standard load                            | A22-20    |   |  |
|                            |   |   | Microload                                | A22-20S   |   |  |
| DPST-NC                    | Standard load   | A22-02  |  |           |   |  |
|                            | Microload   | A22-02S   |  |           |   |  |
| Lamp Sockets               |   |  | Direct lighting                          |           | A22-TN  | Used when changing the lighting method. (LED only)   |
| Voltage-reduction lighting |   |   | 110 VAC                                  | A22-T1    |   |  |
|                            |   |   | 220 VAC                                  | A22-T2    |   |  |
| Mounting Latches           |   |  | For momentary models                     |           | A22-3200  | Provided as standard. Order Mounting Latches only when mounting Switch Blocks or Lamp Sockets that are purchased individually. |
|                            |   |   | For alternate models                     |           | A22-3210  |  |
| Legend Plate Frames        | Standard size   |  | With Snap-in Legend Plate (Without text) | White     | A22Z-3321   | Snap-in Legend Plate is acrylic.   |
|                            |   |   |  | Red       | A22Z-3322   |  |
|                            |   |   |  | Black     | A22Z-3323   |  |
|                            | Without Snap-in Legend Plate  |   | A22Z-3320                                |           |   |  |
|                            | Large size  |  | With Snap-in Legend Plate (Without text) | White     | A22Z-3331   |  |
|                            |   |   |  | Red       | A22Z-3332   |  |
| Black                      |   |   |  | A22Z-3333 |   |  |
|                            |   | Without Snap-in Legend Plate  |  | A22Z-3330 |   |  |
| Lock Ring                  |   |  | Round                                    |           | A22Z-3360   | The body is equipped with a Lock Ring. This Lock Ring is used when a more secure lock feature is required.                     |
| Metallic Bezel Rings       |   |  | For flat or projection models            |           | A22Z-3580   | Replace with the standard model. Material: nickel-plated zinc  |
|                            |   |   | For full-guard models                    |           | A22Z-3582   |  |

Pushbutton switches

| Item                       | Appearance  | Classification                                   | Model               | Remarks   |  |
|----------------------------|---|--|---------------------|---|--|
| Sealing Caps               |                        | For flat models                                  | A22Z-3600F          | Used to prevent dust or water from entering the Operation Unit (Push button, etc.).<br>Color: opaque<br>Material: silicon   |  |
|                            |   | For projection models                            | A22Z-3600T          |   |  |
|                            |   | For full-guard models                            | A22Z-3600G          |   |  |
| Caps                       | For A22    For M22<br> | For projection, full-guard, or half-guard models | A22Z-3490           | Material: polycarbonate resin   |  |
|                            |   | For round models                                 | A22Z-3495           |   |  |
| Color Caps                 |                        | Red  | A22Z-30TR           | Used for changing the Pushbutton color of the (round) Pushbutton Switches.  |  |
|                            |   | Green  | A22Z-30TG           |   |  |
|                            |   | Yellow   | A22Z-30TY           |   |  |
|                            |   | White  | A22Z-30TW           |   |  |
|                            |   | Blue   | A22Z-30TA           |   |  |
| Three-throw Spacer         |                        |  | A22Z-3003           | Used when mounting three Non-lighted Switches. (See page L-65.)   |  |
| Hole Plug                  |                        | Round  | A22Z-3530           | Can be plugged into pre-cut panel holes for future expansion. The color is black.   |  |
| Control Boxes (Enclosures) |                       | One hole   | Exclusively for A22 | A22Z-B101   | For those designed exclusively for A22, DPST-NO or DPST-NC Switches cannot be used.<br>Material: Polycarbonate resin |
|                            |   |  | Compatible with A3T | A22Z-B201   |  |
|                            |   | One hole, yellow box (for emergency stop)        | Exclusively for A22 | A22Z-B101Y  |  |
|                            |   |  | Compatible with A3T | A22Z-B201Y  |  |
|                            |   | Two holes  | Exclusively for A22 | A22Z-B102   |  |
|                            |   |  | Compatible with A3T | A22Z-B202   |  |
| Three holes                | Exclusively for A22   | A22Z-B103  |                     |   |  |
|                            | Compatible with A3T   | A22Z-B203  |                     |   |  |
| Connectors                 |                      | Applicable cable diameter (mm)                   | 7 to 9 dia.         | A22Z-3500-1   | Plastic connector used to extend a cable from the Switch Box. (See page L-63.)                                       |
|                            |   |  | 9 to 11 dia.        | A22Z-3500-2   |  |
| 25-dia. Ring               |                      | ---  | A22Z-R25            | Use when mounting to a panel with a 25-dia. hole. For details, refer to page L-54. Since this is not attached to the main body, order separately.                           |  |
| 30-dia. Metal Flange       |                      | Flat, projecting                                 | A22Z-F30            | Use instead of the standard flange when mounting into a panel with a 30-dia. hole. For details of mounting hole dimensions, refer to the corresponding section for the A30. |  |
|                            |   | Full guard                                       | A22Z-G30            |   |  |
| 30-dia. Resin Attachment   |                      | Round  | A22Z-A30            | Use when mounting to a panel with a 30-dia. hole. For details, refer to page L-56.  |  |
| Lock Plate                 |                      | ---  | A22Z-3380           | Use to fix the lever on the Switch.   |  |
| Simple Protective Cover    |                      | ---  | A11Z-3700           | Prevents foreign matter entering into the Switch from the back of the panel.  |  |

| Item                      |   | Appearance  | Classification               |                                | Model  | Remarks  |              |
|---------------------------|---|---|------------------------------|--------------------------------|--|--|--------------|
| Snap-in Legend Plates     | Standard size   |  | Without text                 | Black                          | A22Z-3443B   | Attached to the Standard-size Legend Plate Frame.<br>Material: Acrylic (See page L-56.)                                      |              |
|                           |   |   |                              | Red                            | A22Z-3443R   |  |              |
|                           |   |   |                              | White                          | A22Z-3443W   |  |              |
|                           |   |   |                              | Transparent                    | A22Z-3443C   |  |              |
|                           |   |   | White text on red background | m                              | 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                     | Attached to the Large-size Legend Plate Frame<br>Material: Acrylic (See page L-56.)      |  |              |
|                           |   |   | Red                          | A22Z-3453R                     |  |  |              |
|                           |   |   | White                        | A22Z-3453W                     |  |  |              |
|                           |   |   | Transparent                  | A22Z-3453C                     |  |  |              |
| For Emergency Stop Switch |    | 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  |  |              |
|                           |   |   | m                            |                                | A22Z-3460-2  |  |              |
|                           |   |   | START                        |                                | A22Z-3460-3  |  |              |
|                           |   |   | STOP                         |                                | A22Z-3460-4  |  |              |
| No print (Square)         |   |   | A22Z-3480                    |                                |  |  |              |
| Lamp Extractor            |  | ---   |                              | A22Z-3901                      | Rubber tool used to easily replace Lamps   |  |              |
| Tightening Wrench         |  | ---   |                              | A22Z-3905                      | Tool used to tighten nuts from the back of the panel                                     |  |              |
| Cap Tightening Tool       |  | ---   |                              | A22Z-3908                      | Used for replacing the cap of the Half-guard Pushbutton Switch.                          |  |              |
| Cap Puller                |  | ---   |                              | A3PJ-5080                      | Used for removing the cap from the Pushbutton of the Square Lighted Pushbutton Switch.   |  |              |

# Specifications

## Common to A22, A22S/W, A22K, and A22E

### ■ Approved Standards

| Recognized organization | Standards   | File No. |
|-------------------------|-------------|----------|
| UL, cUL (See note.)     | UL508       | E41515   |
| ---                     | EN60947-5-1 | ---      |

Note: cUL: CSA C22.2 No. 14

### ■ Approved Standard Ratings

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

6 A at 220 VAC, 10 A at 110 VAC

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

10 A at 220 VAC

### ■ Ratings

#### Contacts (Standard Load)

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

Note: 1. Rated current values are determined according to the testing conditions. The above ratings were obtained by conducting tests under the following conditions.

- (1) Ambient temperature: 20°±2°C
- (2) Ambient humidity: 65±5%
- (3) Operating frequency: 20 operations/minute

2. Minimum applicable load: 10 mA at 5 VDC

#### Contacts (Microload)

| Rated applicable load           | Minimum applicable load |
|---------------------------------|-------------------------|
| 50 mA at 5 VDC (Resistive load) | 1 mA at 5 VDC           |

#### LED Indicators without Voltage Reduction Unit

| Rated voltage | Rated current | Operating voltage |
|---------------|---------------|-------------------|
| 6 VDC         | 60 mA (20 mA) | 6 VDC±5%          |
| 6 VAC         | 60 mA (20 mA) | 6 VAC/VDC±5%      |
| 12 VAC/VDC    | 30 mA (10 mA) | 12 VAC/VDC±5%     |
| 24 VAC/VDC    | 15 mA (10 mA) | 24 VAC/VDC±5%     |

Note: Values in parentheses are for blue Pushbuttons.

#### Super-bright LED Indicator

| Rated voltage | Rated current | Operating voltage |
|---------------|---------------|-------------------|
| 24 VAC/VDC    | 15 mA         | 24 VAC/VDC ±5%    |

#### Incandescent Lamp

| Rated voltage | Rated current | Operating voltage |
|---------------|---------------|-------------------|
| 6 VAC/VDC     | 200 mA        | 5 VAC/VDC         |
| 14 VAC/VDC    | 80 mA         | 12 VAC/VDC        |
| 28 VAC/VDC    | 40 mA         | 24 VAC/VDC        |
| 130 VAC/VDC   | 20 mA         | 100 VAC/VDC       |

#### Voltage-reduction Lighting

| Rated voltage | Operational voltage | Applicable lamp (BA8S/13□ gold) |
|---------------|---------------------|---------------------------------|
| 110 VAC       | 95 to 115 VAC       | LED Lamp (A22-24A□)             |
| 220 VAC       | 190 to 230 VAC      |                                 |



## ■ Characteristics

| Item                              |                           | Pushbutton Switches   |   | Emergency Stop Switches                               |  | Knob-type Selector Switches   |  | Key-type Selector Switch                              |
|-----------------------------------|---------------------------|---|---|---|--|---|--|---|
|                                   |                           | Non-lighted models:<br>A22-F<br>A22-T<br>A22-G<br>A22-S<br>A22-C<br>A22-D<br>A22-H<br>A22-M   | Lighted models:<br>A22L-T<br>A22L-G<br>A22L-H<br>A22L-D<br>A22L-C | Non-lighted model: A22E                               | Lighted model: A22EL                                     | Non-lighted model: A22S   | Lighted model: A22W                                      | Non-lighted model: A22K                               |
| Allowable operating frequency     | Mechanical                | Momentary operation:<br>60 operations/minute max.   |   | 30 operations/minute max.                             |  | Manual release: 30 operations/minute max.<br>Automatic release: 30 operations/minute max. |  |   |
|                                   | Electrical                | 30 operations/minute max.   |   |   |  | 30 operations/minute max.   |  |   |
| Insulation resistance             |                           | 100 MΩ min. (at 500 VDC)  |   |   |  |   |  |   |
| Dielectric strength               |                           | 2,500 VAC, 50/60 Hz for 1 min between terminals of same polarity<br>2,500 VAC, 50/60 Hz for 1 min between terminals of different polarity and also between each terminal and ground |   |   |  |   |  |   |
| Vibration resistance              |                           | Malfunction (See note 2.): 10 to 55 Hz, 1.5-mm double amplitude   |   |   |  |   |  |   |
| Shock resistance                  | Mechanical                | 1,000 m/s <sup>2</sup>  | 1,000 m/s <sup>2</sup>  | 1,000 m/s <sup>2</sup>                                |  | 1,000 m/s <sup>2</sup>  | 1,000 m/s <sup>2</sup>                                   | 1,000 m/s <sup>2</sup>                                |
|                                   | Malfunction (See note 2.) | 1,000 m/s <sup>2</sup> max.   | 600 m/s <sup>2</sup> max.   | 250 m/s <sup>2</sup> max.                             |  | 1,000 m/s <sup>2</sup> max.   | 600 m/s <sup>2</sup> max.                                | 1,000 m/s <sup>2</sup> max.                           |
| Durability                        | Mechanical                | Momentary operation:<br>5,000,000 operations min.   |   | Momentary operation:<br>300,000 operations min.       |  | 500,000 operations min.   | 100,000 operations min.                                  | 500,000 operations min.                               |
|                                   | Electrical                | 500,000 operations min.   |   | 300,000 operations min.                               | 300,000 operations min.                                  | 500,000 operations min.   | 100,000 operations min.                                  | 500,000 operations min.                               |
| Ambient temperature (See note 1.) |                           | Operating:<br>-20°C to 70°C<br>Storage: -40°C to 70°C   | Operating:<br>-20°C to 55°C<br>Storage:<br>-40°C to 70°C          | Operating:<br>-20°C to 70°C<br>Storage: -40°C to 70°C | Operating:<br>-20°C to 55°C<br>Storage:<br>-40°C to 70°C | Operating:<br>-20°C to 70°C<br>Storage: -40°C to 70°C                                     | Operating:<br>-20°C to 55°C<br>Storage:<br>-40°C to 70°C | Operating:<br>-20°C to 70°C<br>Storage: -40°C to 70°C |
| Ambient humidity                  |                           | Operating: 35% to 85%   |   |   |  |   |  |   |
| Degree of protection              |                           | IP65 (oil-resistant)  | IP65  | IP65 (oil-resistant)                                  | IP65   | IP65 (oil-resistant)  | IP65   | IP65 (oil-resistant)                                  |
| Electric shock protection class   |                           | Class II  |   |   |  |   |  |   |
| PTI (tracking characteristic)     |                           | 175   |   |   |  |   |  |   |
| Degree of contamination           |                           | 3 (IEC947-5-1)  |   |   |  |   |  |   |

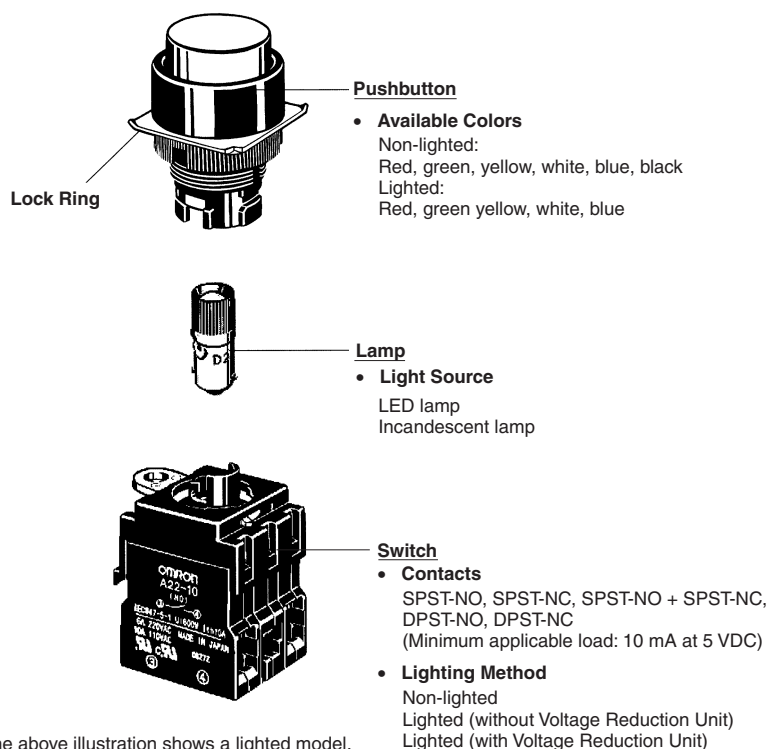
- Note:** 1. With no icing or condensation.  
2. Malfunction within 1 ms.

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

| Item                          | Pushbutton Switches   | Emergency Stop Switches      | Knob-type Selector Switches                                    |   | Key-type Selector Switch                                       |   |
|-------------------------------|---|------------------------------|--|---|--|---|
|                               | Lighted Non-lighted Pushbutton Switches   | Push-lock turn-reset system  | Manual release   | Automatic release                         | Manual release   | Automatic release                         |
|                               | A22-F A22-G A22-C<br>A22-S A22-T A22-H<br>A22-D A22-M<br>A22L-T A22L-H<br>A22L-D A22L-G<br>A22L-C | A22E, A22EL                  | A22S, A22W   | A22S, A22W                                | A22K   |   |
| Total travel force (TTF) max. | 29.4 N  | 44.1 N                       | 0.34 N·m<br>(See note.)  | 0.25 N·m for two notches<br>(See note.)   | 0.34 N·m<br>(See note.)  | 0.25 N·m for three notches<br>(See note.) |
|                               |   |                              |  | 0.34 N·m for three notches<br>(See note.) |  | 0.34 N·m for three notches<br>(See note.) |
| Total travel (TT)             | 5.5 mm max.   | 10±1 mm                      | Approx. 90° for two notches<br>(Approx. 45° for three notches) |   | Approx. 90° for two notches<br>(Approx. 45° for three notches) |   |
| Releasing force (RF) min.     | ---   | 0.25 N·m max.<br>(See note.) | 0.34 N·m max.<br>(See note.)                                   | ---                                       | 0.34 N·m max.<br>(See note.)                                   | ---                                       |

Note: Rotation torque for Emergency Stop Pushbutton, Knob-type Selector, and Key-type Selector Switches.

## Nomenclature

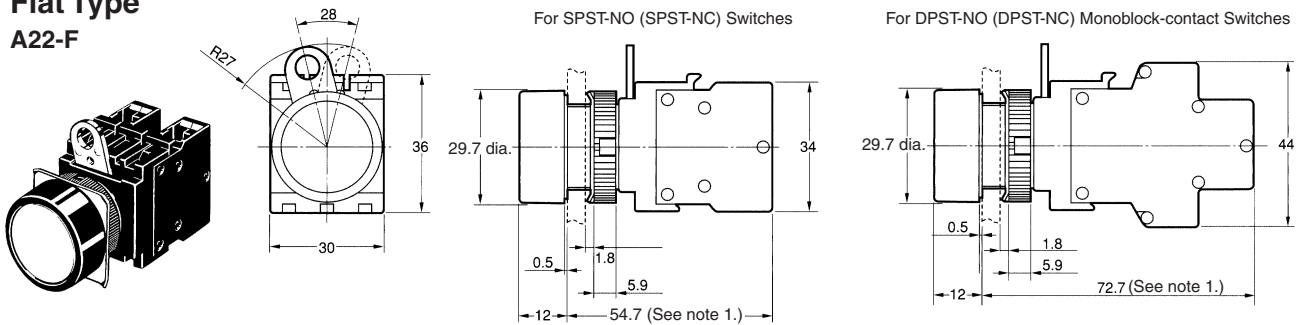


# Dimensions

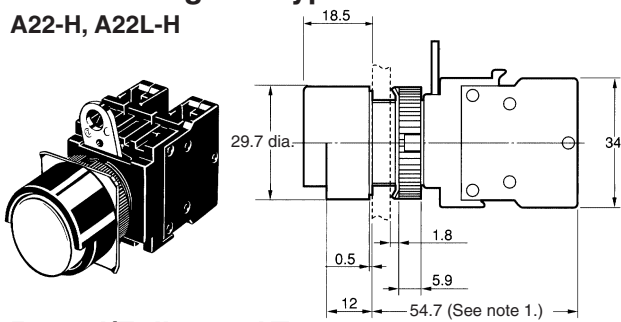
**Note:** 1. All units are in millimeters unless otherwise indicated.  
 2. The following illustrations are for momentary operation.

## Lighted/Non-lighted Pushbutton Switches

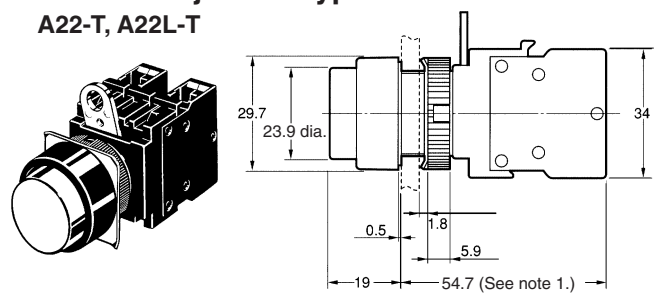
### Flat Type A22-F



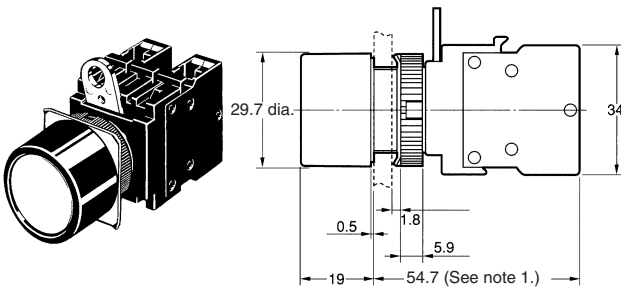
### Round/Half-guard Type A22-H, A22L-H



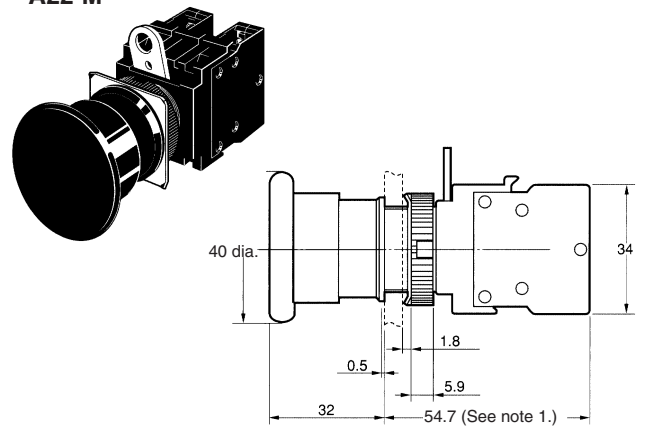
### Round/Projection Type A22-T, A22L-T



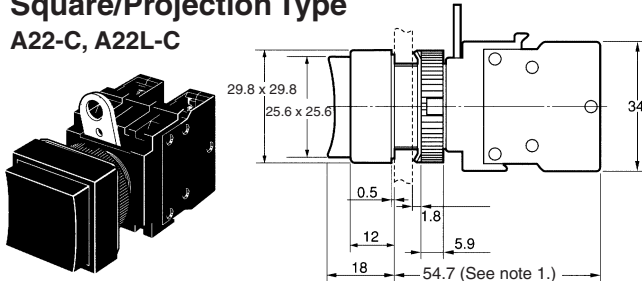
### Round/Full-guard Type A22-G, A22L-G



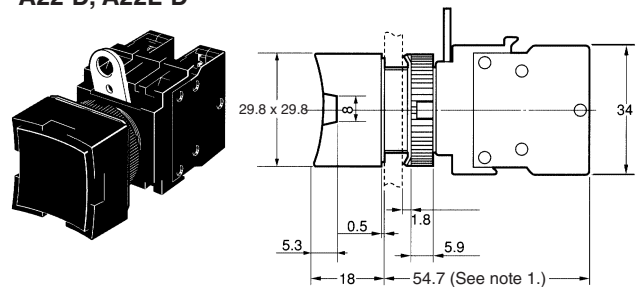
### 40-dia. Mushroom Type A22-M



### Square/Projection Type A22-C, A22L-C



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



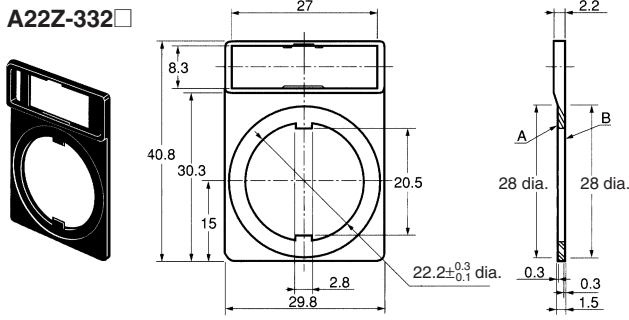
**Note:** 1. Alternate operation models are 9.3 mm longer.  
 2. Lighted models have the same dimensions as shown above, whether they are with or without Voltage Reduction Units.

## ■ Accessories

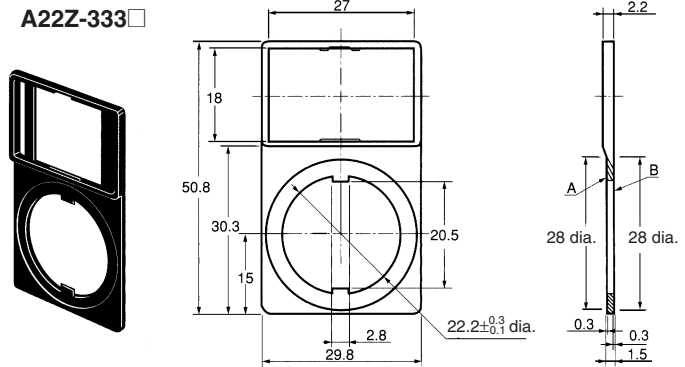
Note: All units are in millimeters unless otherwise indicated.

### Legend Plate Frames

A22Z-332□

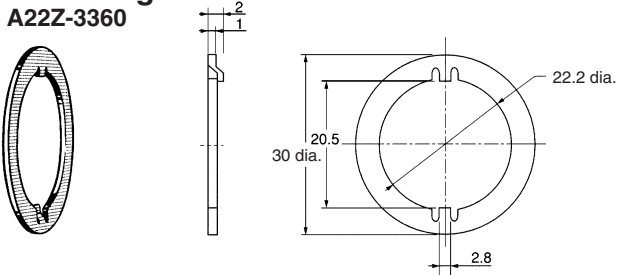


A22Z-333□



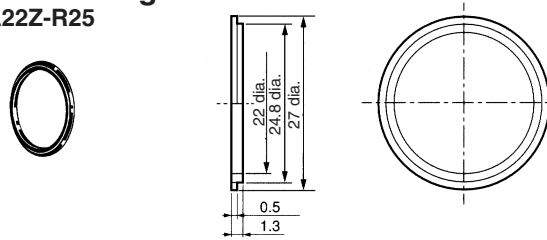
### Lock Ring

A22Z-3360



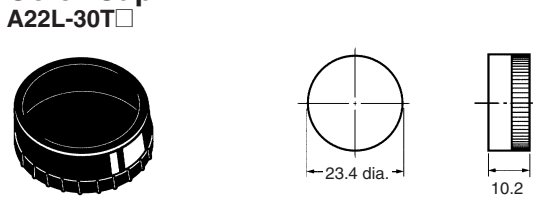
### 25-dia. Ring

A22Z-R25



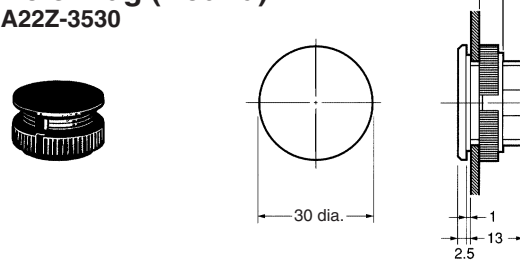
### Color Cap

A22L-30T□



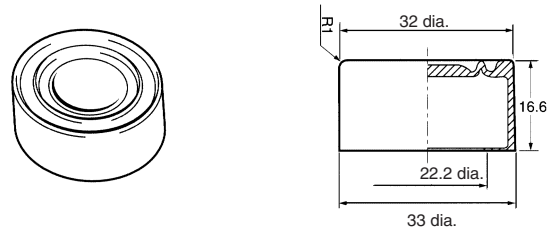
### Hole Plug (Round)

A22Z-3530

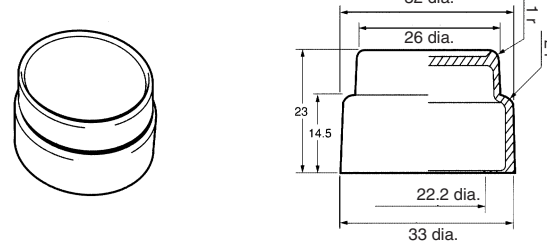


### Sealing Caps

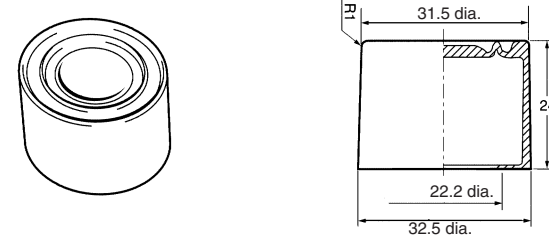
For Flat Models  
A22Z-3600F



For Projection Models  
A22Z-3600T

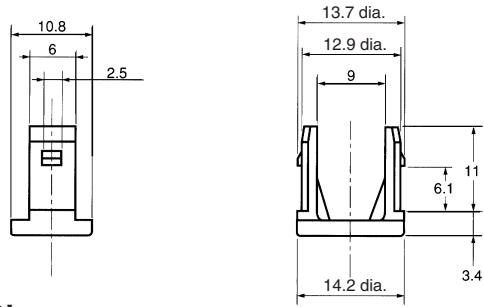
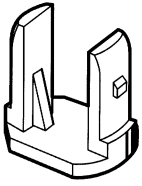


For Full-guard Models  
A22Z-3600G



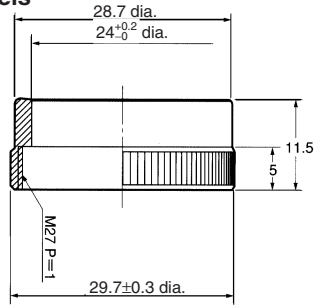
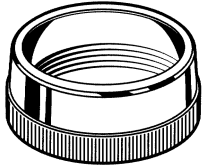
**Three-throw Spacer**

A22Z-3003

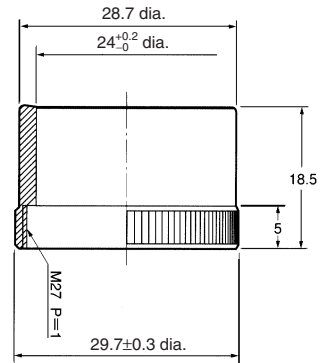
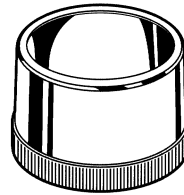


**Metallic Bezel Rings**

For Flat/Projection Models  
A22Z-3580

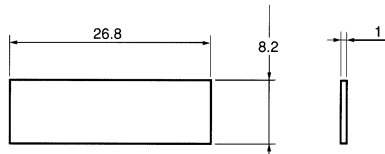
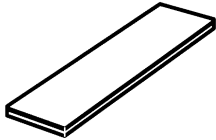


For Full-guard Models  
A22Z-3582

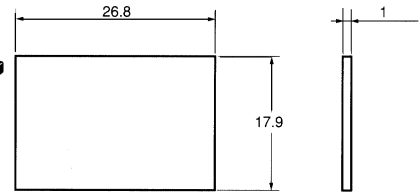
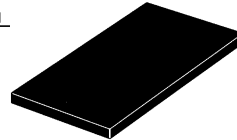


**Snap-in Legend Plates**

For Standard Models  
A22L-3443 □-□

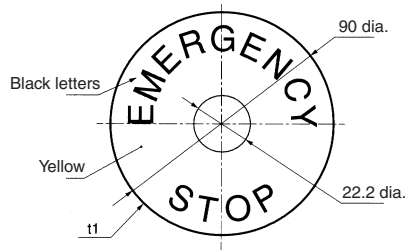


For Large Models  
A22Z-3453 □

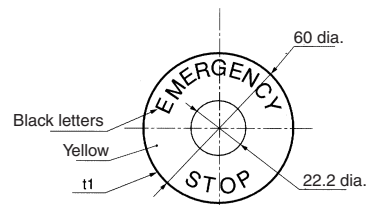


**For Emergency-stop Models**

A22Z-3476-1 (90 dia.)

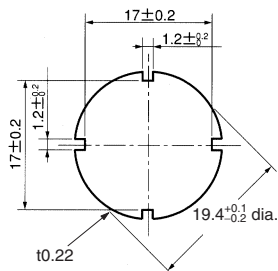
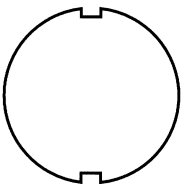


A22Z-3466-1 (60 dia.)

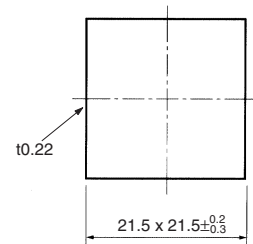
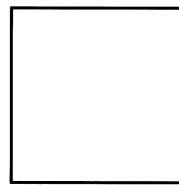


**Character Film**

For Round Models  
A22Z-3460-□

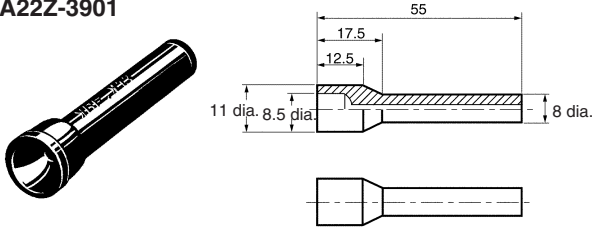


For Square Models  
A22Z-3480



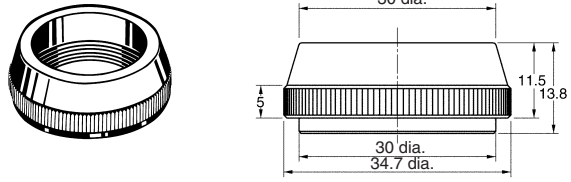
**Lamp Extractor**

A22Z-3901



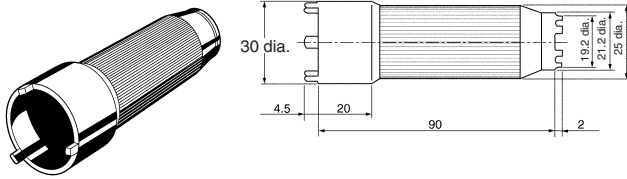
**30-dia. Metal Flange**

A22Z-F30



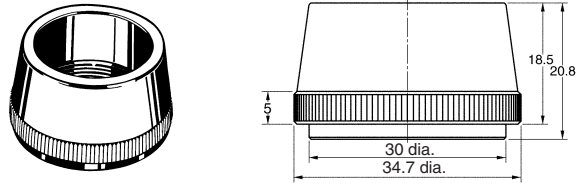
**Tightening Wrench**

A22Z-3905



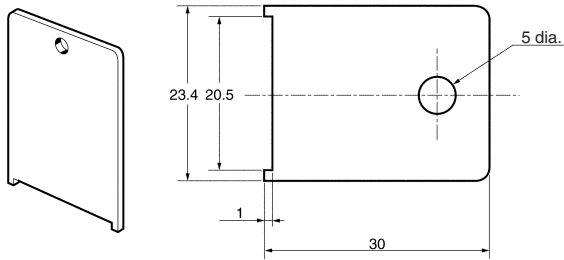
**30-dia. Metal Flange**

A22Z-G30



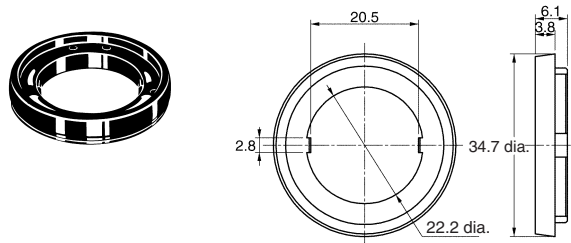
**Cap Tightening Tool**

A22Z-3908



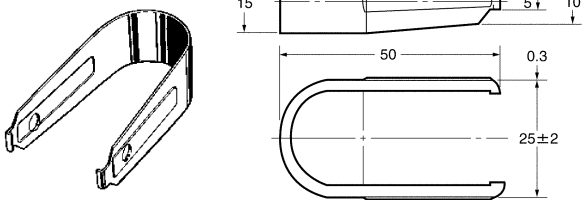
**30-dia. Resin Attachment**

A22Z-A30



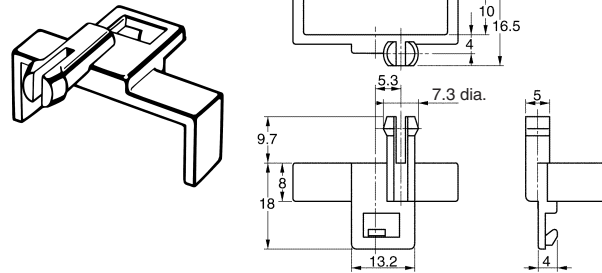
**Cap Puller**

A3PJ-5080



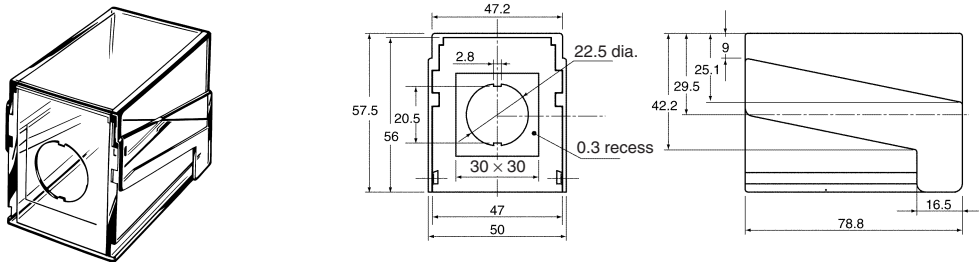
**Lock Plate**

A22Z-3380



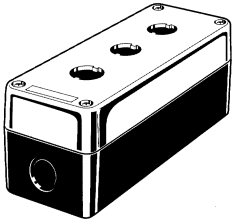
**Simple Protective Cover**

A22Z-3700

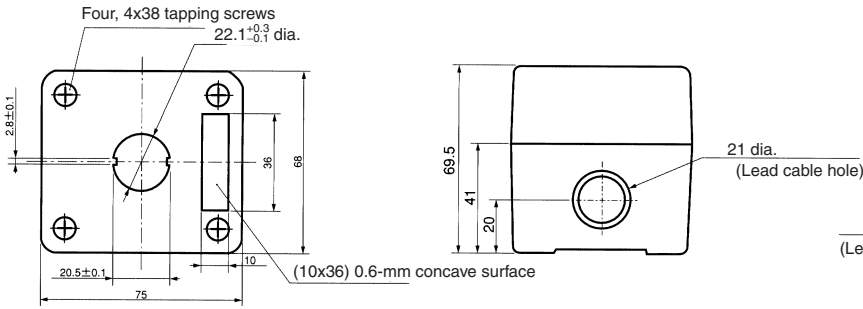


## Control Box (Enclosure)

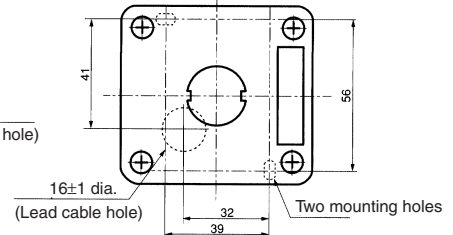
A22Z-B10□



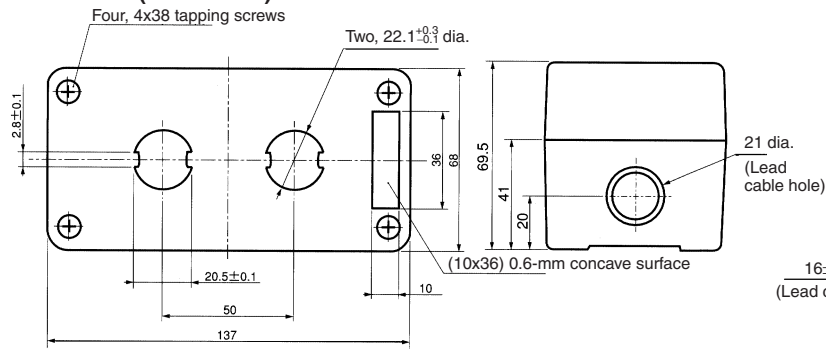
**A22Z-B101 (One Hole)**  
**A22Z-B101Y**



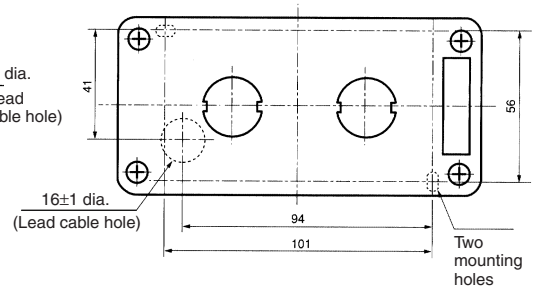
### Cable Port Hole (Top View)



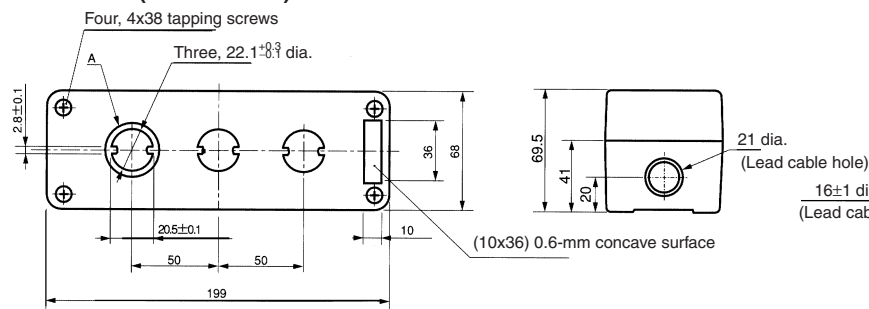
**A22Z-B102 (Two Holes)**



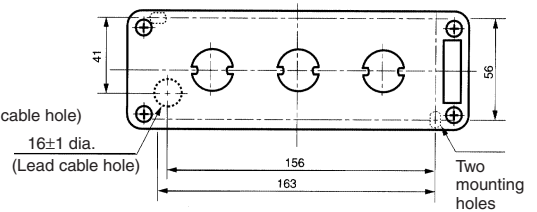
### Cable Port Hole (Top View)



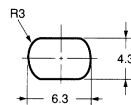
**A22Z-B103 (Three Holes)**



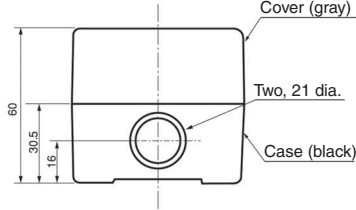
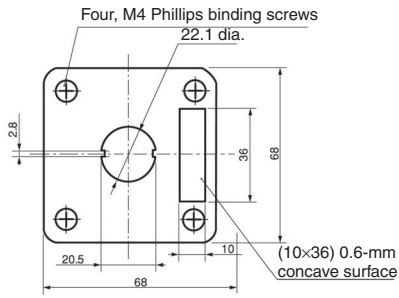
### Cable Port Hole (Top View)



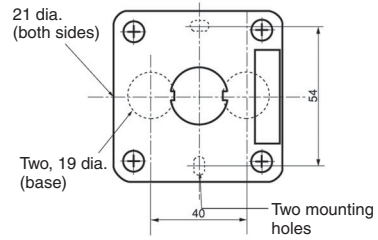
### Panel Mounting Hole



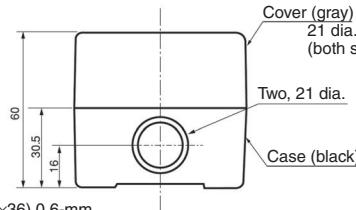
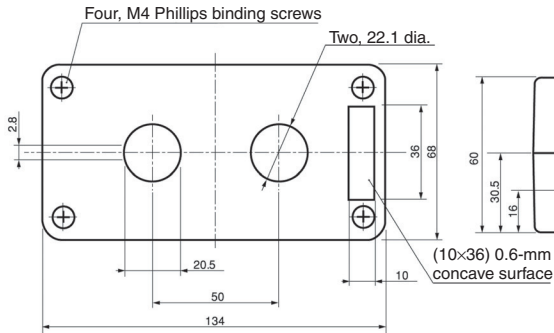
**A22Z-B201 (One Hole)  
A22Z-B201Y**



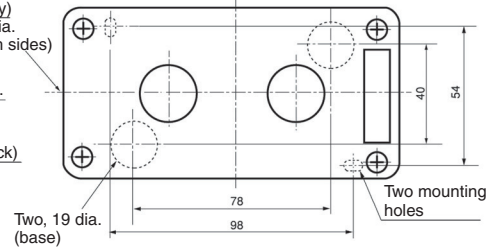
**Cable Port Hole (Top View)**



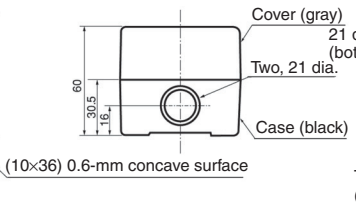
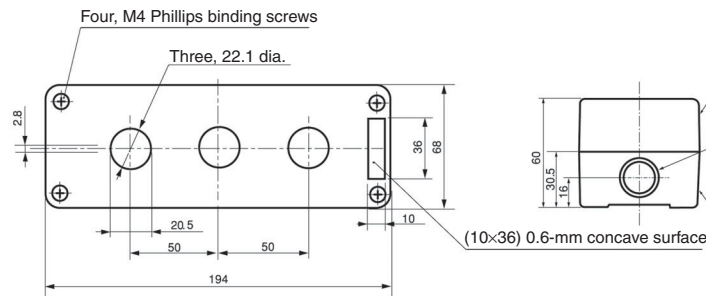
**A22Z-B202 (Two Holes)**



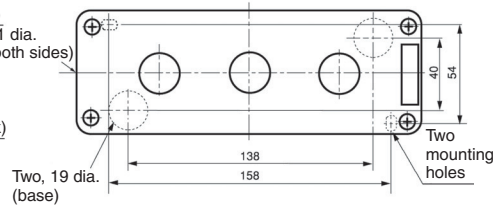
**Cable Port Hole (Top View)**



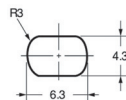
**A22Z-B203 (Three Holes)**



**Cable Port Hole (Top View)**



**Panel Mounting Hole**



**Terminal Arrangement (Bottom View)**

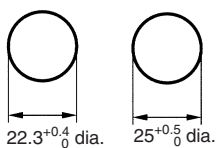
| Non-lighted (SPST-NO + SPST-NC) | Lighted (SPST-NO + SPST-NC) | Non-lighted (DPST-NO + DPST-NC) |
|---------------------------------|-----------------------------|---------------------------------|
|                                 |                             |                                 |



## Terminal Connection

| Type   | Terminal connection |
|--|---------------------|
| Non-lighted<br>(SPST-NO + SPST-NC)                               | <p>Bottom view</p>  |
| Non-lighted<br>(DPST-NO + DPST-NC)                               | <p>Bottom view</p>  |
| Lighted without Voltage<br>Reduction Unit<br>(SPST-NO + SPST-NC) | <p>Bottom view</p>  |
| Lighted with Voltage<br>Reduction Unit<br>(SPST-NO + SPST-NC)    | <p>Bottom view</p>  |

## Panel Cutouts



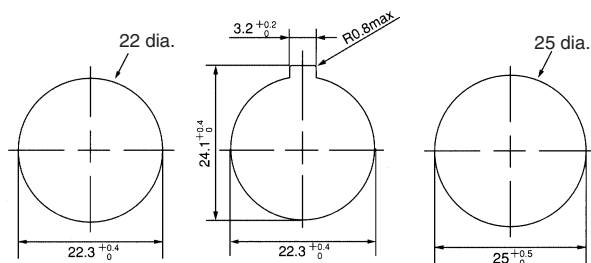
- Note:**
1. When applying coating such as paint to the panel, the dimensions should be those after the application of coating. Lock ring is provided as a standard item.
  2. Recommended panel thickness: 1 to 5 mm.
  3. Use an A22Z-R25 Ring when mounting to a panel with 25-mm holes.

# Installation

## Common to A22, A22S/W, A22K, M22, and A22E

### ■ Mounting to the Panel

#### Panel Hole Dimensions



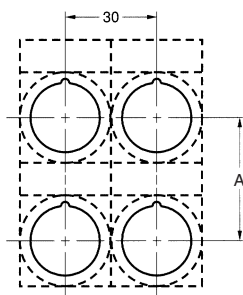
For 25-dia. holes, always use 25-dia. Rings. (Since the cutout dimensions are large, IP65 cannot be guaranteed unless 25-dia. Rings are used.)

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.

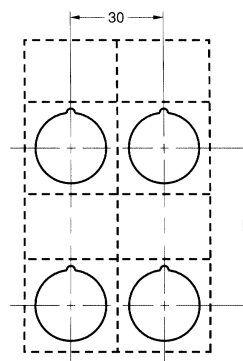
**Note:** Recommended panel thickness: 1 to 5 mm.

#### 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, A22-01, A22-01S                  | 45 mm min. |
| A22-20, A22-20S, A22-02, 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, A22-01, A22-01S                  | 51 mm min. |
|  | A22-20, A22-20S, A22-02, A22-02S, A22-11, A22-11S | 61 mm min. |
| Crimp terminals with insulating sheath | A22-10, A22-10S, A22-01, A22-01S                  | 60 mm min. |
|  | A22-20, A22-20S, A22-02, 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 L-66 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.)

**3.** When using a pushbutton with external dimensions exceeding 30 mm, use a pitch appropriate for the pushbutton.

## Mounting the Operation Unit on the Panel

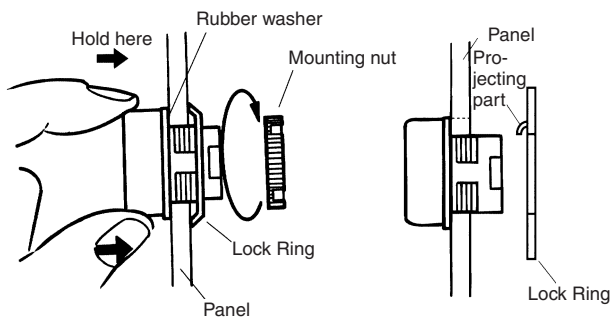
Insert the Operation Unit (Pushbutton, etc.) from the front surface of the panel, insert the Lock Ring and the mounting nut from the terminal side, then tighten the nut. Before tightening, check that the rubber washer is present between the Pushbutton Unit and the panel.

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.)

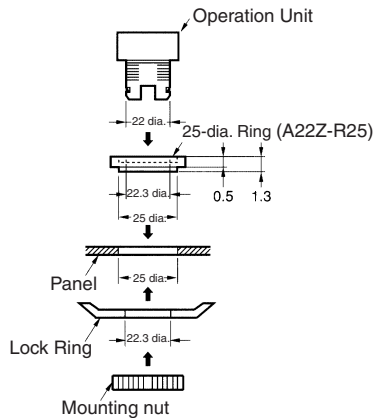
Align the Lock Ring with the groove in the casing, then insert the Lock Ring so that its edge is located on the panel side.

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.

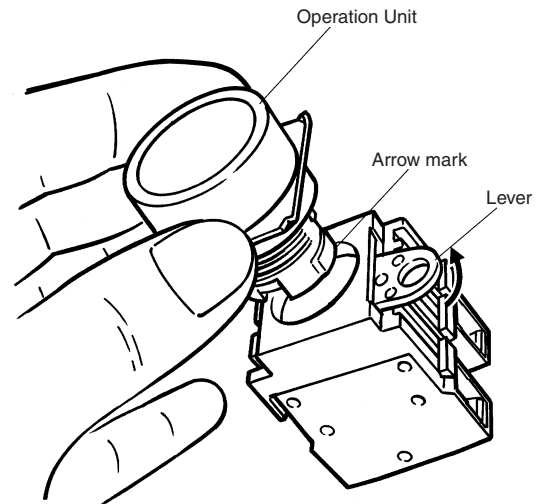


When the panel cutout dimension is 25 dia., remove the supplied rubber washer and mount the 25-dia. Ring as shown below. (Since the A22Z-R25 is not attached to the main body, order separately.)



## Mounting the Switch on the Pushbutton Unit

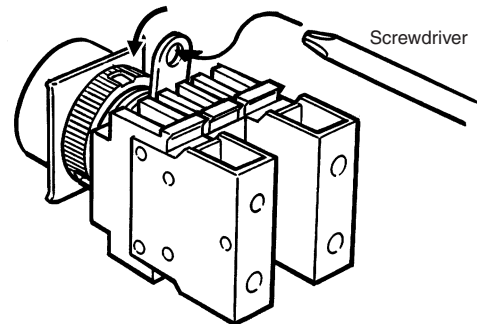
Insert the Pushbutton Unit into the Switch Unit, aligning the arrow mark inscribed on the Case with the lever on the Switch Blocks, then move the lever in the direction indicated by the arrow in the following figure.



## 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.

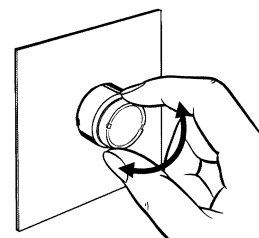
Since the lever has a hole with an inside diameter of 6.5 mm, the lever can be moved in the specified direction by inserting a screwdriver into the hole and then moving the screwdriver.



## Mounting/Replacing the Color Cap

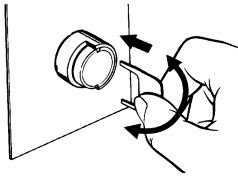
### Projection, Fall-guard

Grip and rotate the Color Cap with your fingers.



## Half-guard Indicators

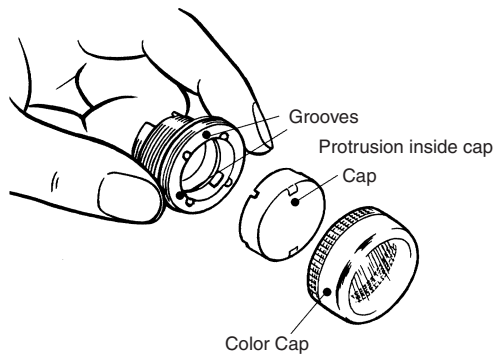
Put the tips of the Cap Tightening Tool (A22Z-3908) into the Color Cap slot and turn the Tool.



## ■ Assembling the Cap

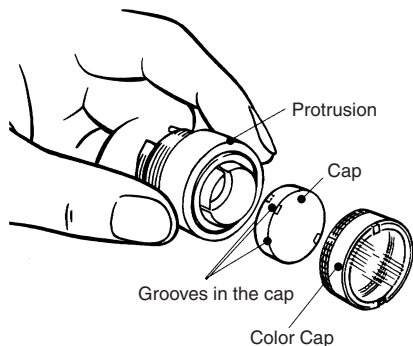
### Lighted Pushbutton Switch

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



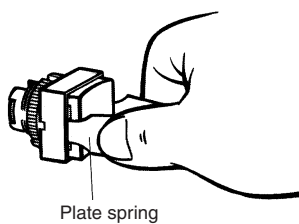
### Indicator

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

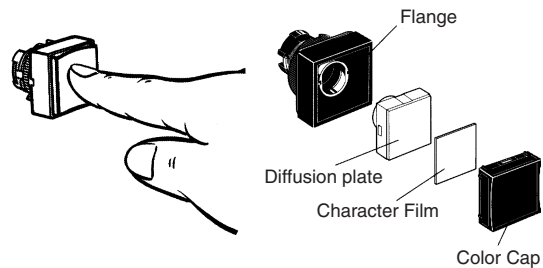


### Square Pushbutton/Indicator

Removing the Color Cap:  
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.

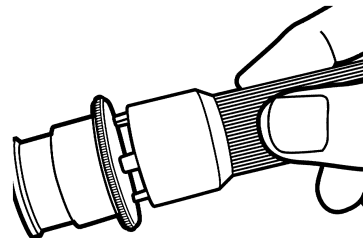


Mounting the Color Cap:  
Mount the Color Cap on the flange and firmly push the Color Cap. When the Color Cap is inserted, check whether it operates properly. When replacing the Lamp, remove the Color Cap and diffusion plate with fingers or Cap Puller. Attach the Character Film properly so that it fits inside the protruding part of the diffusion plate. Then, match the diffusion plate to the square flange and insert the Cap.



### Emergency Stop Switch

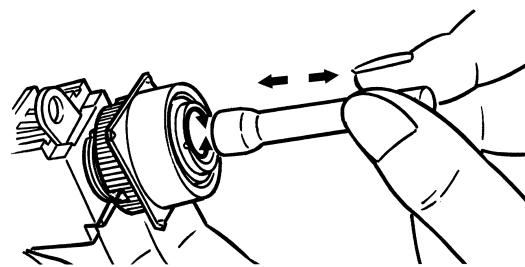
Insert the protrusion of the Tightening Wrench (A22Z-3905) into the Cap slot and then turn to remove the Cap.



## ■ Installing/Replacing the Lamp

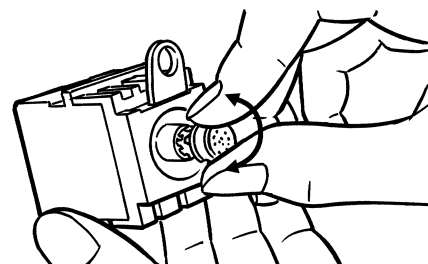
### Installing/Replacing from the Panel Surface

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



### Installing/Replacing on the Switch

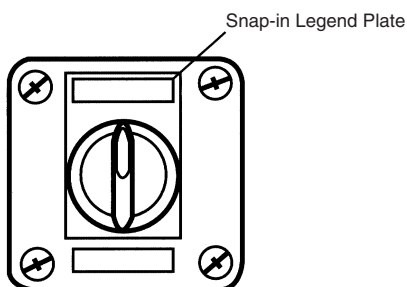
Grip the indicator with your fingers, then rotate the indicator while pressing it against the Switch.



## ■ Control Box (Enclosure)

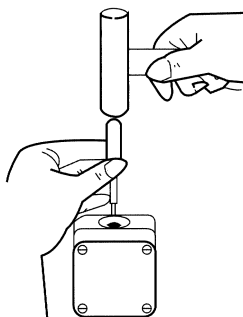
### Mounting the Switch

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.



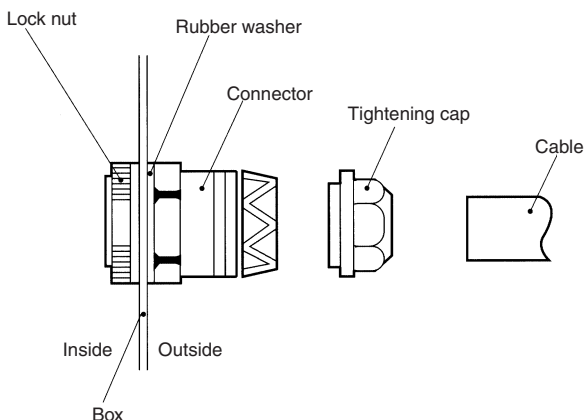
### Creating a Cable Port Hole

Place the tip of a screwdriver on the surface where the cable port hole is to be created with the cover attached and strike the screwdriver to punch a hole. Attempts to punch a hole on the other side of the case will damage the Box.



### 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.

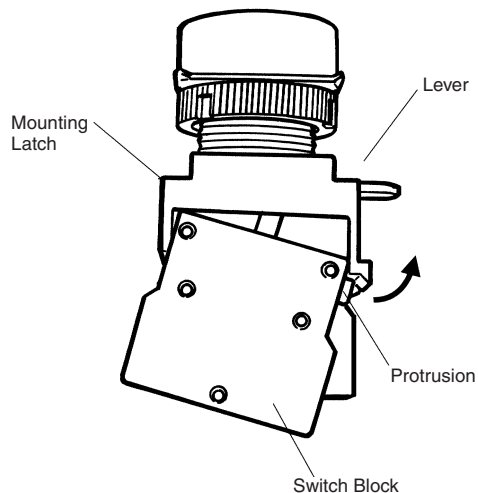


| Cable diameter | Connector   |
|----------------|-------------|
| 7 to 9 dia.    | A22Z-3500-1 |
| 9 to 11 dia.   | A22Z-3500-2 |

## ■ Installing/Removing the Switch Blocks

### Installing the Switch Blocks

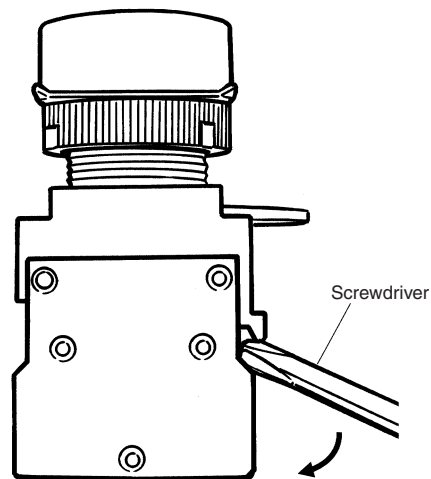
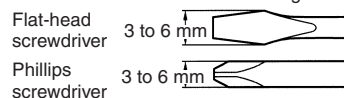
Hook the small protrusion on the Mounting Latch into the groove on the other side of the lever, then push up the Switch Block in the direction indicated by the arrow in the figure below.



### 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.

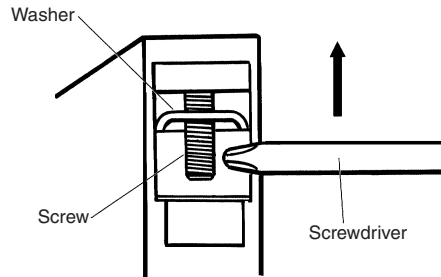
Use either of the following screwdrivers.



## ■ Wiring

### Wiring Round Crimp Terminals

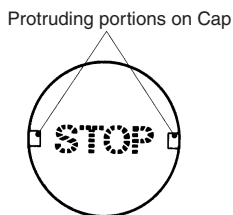
Loosen the terminal screw from the Switch Unit until it completely comes off the groove, insert a screwdriver as shown in the following figure, then push up the washer in the direction indicated by the arrow to temporarily secure it. Now, a round crimp terminal can be connected. After inserting the terminal, tighten the screws to complete wiring.



## ■ Engraving

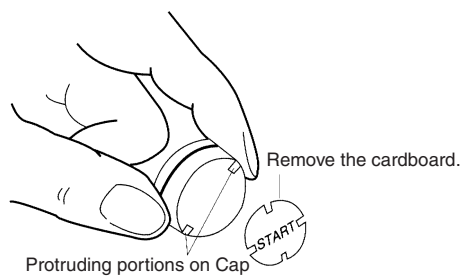
Engrave the characters on the surface on the Cap. Make sure that the characters are aligned parallel to the imaginary line connecting the two protruding portions to the left and right of the Cap.

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

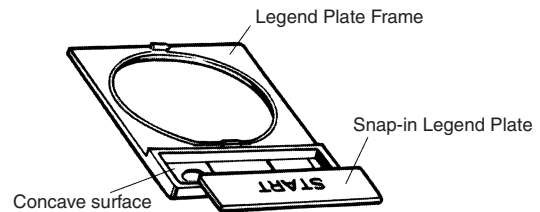
Hold the Cap, remove the cardboard on the Film, and attach the Film to the Cap. Make sure that the protruding portions of the Cap engage the cutout portions of the Film and that the characters are aligned parallel to the imaginary line connecting the two protruding portions to the left and right of the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



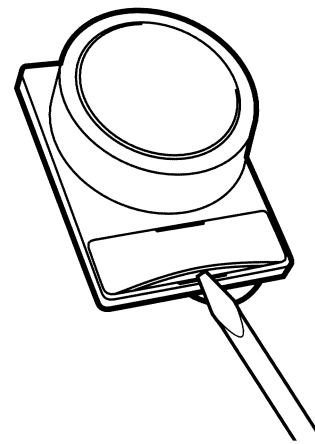
## ■ Mounting and Dismounting Snap-in Legend

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.

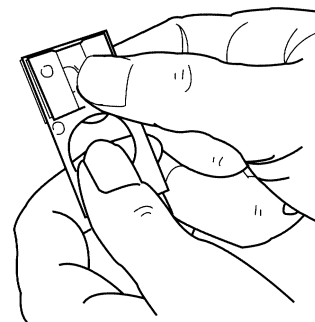


To easily remove the Snap-in Legend Plate from the Legend Plate Frame mounted to the panel, insert a Tool with a thin tip into the space between the Snap-in Legend Plate and the Legend Plate Frame.



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.

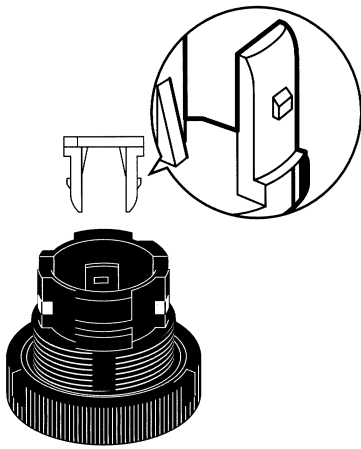
The characters must be engraved no deeper than 0.5 mm.

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 (A22Z-3003)

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.



# Precautions

## Common to A22, A22S/W, A22K, M22, and A22E

### ⚠ WARNING

Do not apply a voltage between the incandescent lamp and the terminal that is greater than the rated voltage. If the incandescent lamp 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.

## ■ Correct Use

### Mounting

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.

### Wiring

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

When DC-specific LEDs are used, wire the Switch so that the X1 terminal is positive.

Terminal screws must be Phillips or slotted M3.5 screws with a square washer.

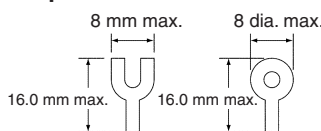
The tightening torque is 1.08 to 1.27 N·m.

Single wires, stranded wires, and crimp terminals can be connected to the Switch.

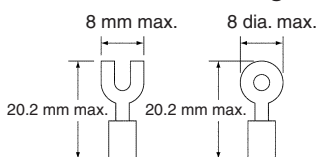
### Applicable Wire Size

Stranded wire: 2 mm<sup>2</sup> max.  
Solid wire: 1.6 dia. max.

#### Bare Crimp Terminals



#### Crimp Terminals with Insulating Sheath



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

## Operating Environment

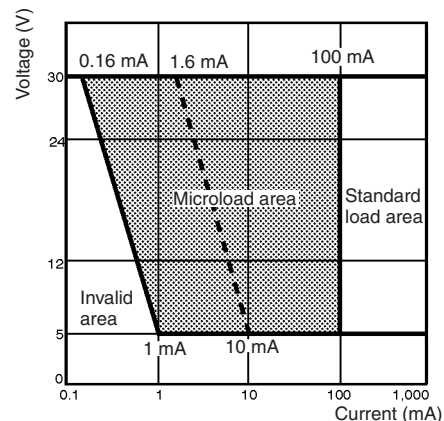
The IP65 model is designed with a degree of protection so that it will not sustain damage if it is subjected to water from any direction to the front of the panel.

## 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%.



## 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.

## 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.