## Pushbutton Switches

## A30NZ-M $\square \square-\square \square A$

## 30-mm Pushbutton Switches

## Universal Design.

Emphasis on Color Coding, Workability, and Safety.

## Easy to Use

- You can connect up to three Contact Blocks in one stage for multistage expansion.
- The terminals can be retightened when Contact Blocks are stacked.
- Contact Blocks can be attached in any direction for easy assembly.

- Screw terminal structure is compatible with round crimp terminals.


## Safety

- Easy-to-operate lock lever for secure locking.
- Easy-mounting Contact Blocks provide finger protection.
- Different colors of Contract Blocks (NO: blue, NC: orange) help prevent wiring errors.


## Product Lineup

- Meet global safety standards.
- Many color variations.


## Button Colors



[^0]A30NZ-M $\square \square-\square \square$ A

## Structure

Switch Structure .... Order Operation Units, LED Lamps, Mounting Collars, and Contact Blocks individually. The same LED Lamps, Mounting Collars, and Contact Blocks are also used for the A22N Series.


Note: Use a Reinforcement Plate for greater strength.
Reinforcement Plate

## Model Number Structure

Model Number Legend
Order Operation Units, LED Lamps, Mounting Collars, and Contact Blocks individually. The same LED Lamps, Mounting Collars, and Contact Blocks are also used for the A22N Series.

## Subassemblies

(1) (2) (3) (4) (5)
$A 30 N Z-M N M-N R A$
(1) Type

| Code | Type |
| :---: | :---: |
| $Z$ | Subassembly |

(2) Bezel Material and Button Shape

| Code | Bezel material | Button shape |
| :---: | :---: | :--- |
| MN | Brushed metal | Flat |
| MP | Brushed metal | Projected |
| MG | Brushed metal | Full guard |
| MM | Brushed metal | Mushroom |

## (3) Switch Action

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

(4) Button Transparency and Color

| Lighted/non- <br> lighted | Code | Transparency | Color |
| :---: | :---: | :---: | :---: |
|  | NR | Opaque | Red |
|  | NG | Opaque | Green |
|  | NY | Opaque | Yellow |
|  | NW | Opaque | White |
|  | NA | Opaque | Blue |
|  | NB | Opaque | Black |
|  | UR | Transparent | Red |
|  | UG | Transparent | Green |
|  | UY | Transparent | Yellow |
|  | UW | Transparent | White |
|  | UA | Transparent | Blue |
|  | UO | Transparent | Orange |
| Lighted | TR | Transparent | Red |
|  | TG | Transparent | Green |
|  | TY | Transparent | Yellow |
|  | TW | Transparent | White |
|  | TA | Transparent | Blue |
|  | TO | Transparent | Orange |

(5) Degree of Protection

| Code | Description |
| :---: | :---: |
| A | IP66 |

## A30NZ-M $\square \square-\square \square \mathbf{A}$

## Ordering Information

Subassemblies $\qquad$ - Order Operation Units, LED Lamps, Mounting Collars, and Contact Blocks individually. The same LED Lamps, Mounting Collars, and Contact Blocks are also used for the A22N Series.

## Operation Units



| Lighted/ non-lighted | Transparency | n shape <br> h Action <br> Color | Brushed metal, full-guard |  | Brushed metal, mushroom |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Momentary | Alternate | Momentary | Alternate |
|  |  |  | Model | Model | Model | Model |
| Non-lighted | Opaque | Red | A30NZ-MGM-NRA | A30NZ-MGA-NRA | A30NZ-MMM-NRA | A30NZ-MMA-NRA |
|  | Opaque | Green | A30NZ-MGM-NGA | A30NZ-MGA-NGA | A30NZ-MMM-NGA | A30NZ-MMA-NGA |
|  | Opaque | Yellow | A30NZ-MGM-NYA | A30NZ-MGA-NYA | A30NZ-MMM-NYA | A30NZ-MMA-NYA |
|  | Opaque | White | A30NZ-MGM-NWA | A30NZ-MGA-NWA | A30NZ-MMM-NWA | A30NZ-MMA-NWA |
|  | Opaque | Blue | A30NZ-MGM-NAA | A30NZ-MGA-NAA | A30NZ-MMM-NAA | A30NZ-MMA-NAA |
|  | Opaque | Black | A30NZ-MGM-NBA | A30NZ-MGA-NBA | A30NZ-MMM-NBA | A30NZ-MMA-NBA |
|  | Transparent | Red | A30NZ-MGM-URA | A30NZ-MGA-URA | A30NZ-MMM-URA | A30NZ-MMA-URA |
|  | Transparent | Green | A30NZ-MGM-UGA | A30NZ-MGA-UGA | A30NZ-MMM-UGA | A30NZ-MMA-UGA |
|  | Transparent | Yellow | A30NZ-MGM-UYA | A30NZ-MGA-UYA | A30NZ-MMM-UYA | A30NZ-MMA-UYA |
|  | Transparent | White | A30NZ-MGM-UWA | A30NZ-MGA-UWA | A30NZ-MMM-UWA | A30NZ-MMA-UWA |
|  | Transparent | Blue | A30NZ-MGM-UAA | A30NZ-MGA-UAA | A30NZ-MMM-UAA | A30NZ-MMA-UAA |
|  | Transparent | Orange | A30NZ-MGM-UOA | A30NZ-MGA-UOA | A30NZ-MMM-UOA | A30NZ-MMA-UOA |
| Lighted | Transparent | Red | A30NZ-MGM-TRA | A30NZ-MGA-TRA | A30NZ-MMM-TRA | A30NZ-MMA-TRA |
|  | Transparent | Green | A30NZ-MGM-TGA | A30NZ-MGA-TGA | A30NZ-MMM-TGA | A30NZ-MMA-TGA |
|  | Transparent | Yellow | A30NZ-MGM-TYA | A30NZ-MGA-TYA | A30NZ-MMM-TYA | A30NZ-MMA-TYA |
|  | Transparent | White | A30NZ-MGM-TWA | A30NZ-MGA-TWA | A30NZ-MMM-TWA | A30NZ-MMA-TWA |
|  | Transparent | Blue | A30NZ-MGM-TAA | A30NZ-MGA-TAA | A30NZ-MMM-TAA | A30NZ-MMA-TAA |
|  | Transparent | Orange | A30NZ-MGM-TOA | A30NZ-MGA-TOA | A30NZ-MMM-TOA | A30NZ-MMA-TOA |

[^1]
## Ordering Information

Subassemblies

- Order Operation Units, LED Lamps, Mounting Collars, and Contact Blocks individually. The same LED Lamps, Mounting Collars, and Contact Blocks are also used for the A22N Series.


## LED Lamps

| Appearance | Applied voltage | 6 VAC/DC | 12 VAC/DC | 24 VAC/DC | 100/110/120 VAC | 200/220/230/240 VAC |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Color | Model | Model | Model | Model | Model |
|  | Red | A22NZ-L-RA | A22NZ-L-RB | A22NZ-L-RC | A22NZ-L-RD | A22NZ-L-RE |
| $\cdots$ | Green | A22NZ-L-GA | A22NZ-L-GB | A22NZ-L-GC | A22NZ-L-GD | A22NZ-L-GE |
|  | Yellow | A22NZ-L-YA | A22NZ-L-YB | A22NZ-L-YC | A22NZ-L-YD | A22NZ-L-YE |
|  | White | A22NZ-L-WA | A22NZ-L-WB | A22NZ-L-WC | A22NZ-L-WD | A22NZ-L-WE |
|  | Blue | A22NZ-L-AA | A22NZ-L-AB | A22NZ-L-AC | A22NZ-L-AD | A22NZ-L-AE |
|  | Orange | A22NZ-L-OA | A22NZ-L-OB | A22NZ-L-OC | A22NZ-L-OD | A22NZ-L-OE |

Mounting Collar

| Appearance | Model |
| :---: | :---: |
|  |  |

Contact Blocks

| Appearance | Contacts | Model |
| :---: | :---: | :---: |
|  | SPST-NO (blue) | A22NZ-S-G1A |
|  | SPST-NC (orange) | A22NZ-S-G1B |

Lighting Units

| Appearance | Applied voltage | Model |
| :--- | :--- | :--- |
|  | $6 \mathrm{VAC} / \mathrm{DC}$ | A22NZ-T-A |
|  | $12 \mathrm{VAC} / \mathrm{DC}$ | A22NZ-T-B |
|  | $24 \mathrm{VAC} / \mathrm{DC}$ | A22NZ-T-C |
|  | $100 / 110 / 120 \mathrm{VAC}$ | A22NZ-T-D |
|  | $200 / 220 / 230 / 240 \mathrm{VAC}$ | A22NZ-T-E |

Reinforcement Plate

| Appearance | Model |
| :---: | :---: |
|  |  |

## A30NZ-M $\square \square-\square \square$

Specifications (When Operation Unit, LED Lamp, Mounting Collar, and Contact Blocks Are Combined)

## Ratings

Contacts (Standard Load)

| Rated insulation voltage |  | 600 V |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rated carry current |  | 10 A |  |  |  |  |
| Applied voltage |  | 24 V | 120 V | 240 V | 380 V | 440 V |
| AC at 50/60 Hz | Resistive load (AC-12) | 10 A | 10 A | 6 A | 2A | 2 A |
|  | Inductive load (AC-15) | 10 A | 6 A | 3 A | 1.9 A | 1.6 A |
| DC | Resistive load (DC-12) | 8 A | 2.2 A | 1.1 A | --- | --- |
|  | Inductive load (DC-13) | 4 A | 1.1 A | 0.55 A | --- | --- |

Note: 1. The above ratings were obtained by conducting tests under the following conditions.
(1) Ambient temperature: $20 \pm 2^{\circ} \mathrm{C}$
(2) Ambient humidity: $65 \% \pm 5 \%$ RH
(3) Operating frequency: 30 operations/minute
2. Minimum applicable load: 10 mA at 5 VDC .

## LED Lamps

| Rated voltage | Applied voltage | Rated current |
| :---: | :---: | :---: |
| 6 VAC/DC | 6 VAC/DC $\pm 10 \%$ | Approx. 11 mA (red, orange, yellow, or blue) |
|  |  | Approx. 5 mA (white or green) |
| 12 VAC/DC | $12 \mathrm{VAC} / \mathrm{DC} \pm 10 \%$ | Approx. 12 mA (red, orange, yellow, or blue) |
|  |  | Approx. 5 mA (white or green) |
| 24 VAC/DC | 24 VAC/DC $\pm 10 \%$ | Approx. 12 mA (red, orange, yellow, or blue) |
|  |  | Approx. 5 mA (white or green) |
| 100 VAC | 100 VAC $\pm 10 \%$ | Approx. 2 mA |
| 110 VAC | 110 VAC $\pm 10 \%$ |  |
| 120 VAC | 100 to 130 VAC |  |
| 200 VAC | 200 VAC $\pm 10 \%$ | Approx. 2 mA |
| 220 VAC | 220 VAC $\pm 10 \%$ |  |
| 230 VAC | 230 VAC $\pm 10 \%$ |  |
| 240 VAC | 220 to 250 VAC |  |

## Specifications (When Operation Unit, LED Lamp, Mounting Collar, and Contact Blocks Are Combined)

## Characteristics

| Item ${ }^{\text {arm }}$ |  | Pushbutton Switches |  |
| :---: | :---: | :---: | :---: |
|  |  | Non-lighted models | Lighted models |
| Allowable operating frequency | Mechanical | 60 operations/minute max. |  |
|  | Electrical | 30 operations/minute max. |  |
| Insulation resistance |  | $100 \mathrm{M} \Omega \mathrm{min}$. (at 500 VDC ) |  |
| Contact resistance |  | $100 \mathrm{~m} \Omega$ max. (initial value) |  |
| Dielectric strength | Between terminals of same polarity | 2,500 VAC at $50 / 60 \mathrm{~Hz}$ for 1 min |  |
|  | Between each terminal and ground | 2,500 VAC at $50 / 60 \mathrm{~Hz}$ for 1 min |  |
| Vibration resistance | Malfunction | 10 to $55 \mathrm{~Hz}, 1.5-\mathrm{mm}$ double amplitude (malfunction within 1 ms ) |  |
| Shock resistance | Malfunction | $1,000 \mathrm{~m} / \mathrm{s}^{2} \mathrm{max}$. (malfunction within 1 ms ) |  |
| Durability | Mechanical | Momentary action: 5,000,000 operations min. Alternate action: 500,000 operations min. |  |
|  | Electrical | 500,000 operations min. |  |
| Ambient operating temperature*1 |  | -25 to $70^{\circ} \mathrm{C}$ | -25 to $55^{\circ} \mathrm{C}$ |
| Ambient operating humidity |  | $35 \%$ to $85 \%$ RH |  |
| Ambient storage temperature*1 |  | -40 to $80^{\circ} \mathrm{C}$ |  |
| Degree of protection ${ }^{*}$ |  | IP66 |  |
| Electric shock protection class |  | Class II |  |
| PTI (tracking characteristic) |  | 175 |  |
| Degree of contamination (application environment) |  | 3 (IEC 60947-5-1) |  |
| Weight |  | Approx. 60 g (for $1 \mathrm{NC} / 1 \mathrm{NO}$ ) | Approx. 75 g (for $1 \mathrm{NC} / 1 \mathrm{NO}$ ) |

*1. With no icing or condensation.
*2. Degree of protection from the front of the panel.

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

| Item $\quad$ Type | Pushbutton Switches |
| :---: | :---: |
|  | Lighted/non-lighted |
| Total travel force (torque) (maximum TTF) | 18 N |
| Total travel (TT) | 6 mm max. |
| Resetting force (torque) (RF) | --- |

Examples of Linked Contact Blocks $\quad \square$ Contact Blocks $\quad$ Lighting Units

|  | Pushbutton Switches |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Momentary |  | Alternate |  |
|  | Lighted | Non-lighted | Lighted | Non-lighted |
| Linking example |  |  |  |  |

Note: If you increase the number of Contact Blocks, evaluate the Switch under actual working conditions before permanent installation and use the Switch within a number of switching operations that will not adversely affect the Switch's performance.

## Lighted and Non-lighted Pushbutton Switches

## Flat Switches with Brushed Metal Bezels

A30NZ-MN $\square$-N $\square A$


A30NZ-MN $\square$-T $\square A$
A30NZ-MN $\square-U \square A$


Projected Switches with Brushed Metal Bezels A30NZ-MP $\square$ - $\square \square$ A


Full-guard Switches with Brushed Metal Bezels A30NZ-MG $\square-\square \square A$


Mushroom Switches with Brushed Metal Bezels
A30NZ-MM $\square-\square \square$ A


## Depth with Linked Units



## Safety Precautions

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

## Read the Safety Precautions in the A22NN/A22NL datasheet.

## Application

## Mounting to the Panel

- Panel hole dimensions are given below.
- The recommended panel thicknesses is 0.8 to 7 mm .
- 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.
- The following figure gives pitch dimension A and pitch dimension $B$ between the centers of the mounting holes.

Panel Hole Dimensions


## Dimension A

| Wire type | Number of <br> linked Con- <br> tact Blocks | Number of <br> wires per ter- <br> minal | Minimum al- <br> lowable pitch <br> Dimension A <br> (mm) or larger |
| :--- | :---: | :---: | :---: |
| Leads (twisted wires <br> or solid wire) | 1 | 1 | 50 |
| Bare crimp terminals | 1 | 1 | 50 |
| Crimp terminals with <br> insulating sheathes | 1 | 1 | 60 |

Note: The minimum mounting pitch is based on three Contact Blocks in stage 1 with one wire attached to each terminal. If you attach two wires or link Units, determine the mounting pitch based on the dimensions diagrams and ease of operation and wiring.

## Dimension B

| Operation Unit shape | Dimension B |
| :---: | :---: |
| Mushroom | 40 mm min. |
| Other than the above | 35 mm min. |

## Mounting the Operation Unit

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



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[^0]:    * The colors when the Switches are lit are for transparent white buttons (code: TW) and yellow LED Lamps (code: Y).

[^1]:    Specifications: Refer to page 6. Dimensions: Refer to page 8.
    Accessories and tools: Refer to the A22NN/A22NL.

