

A22

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



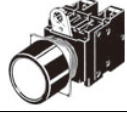
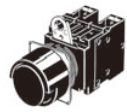



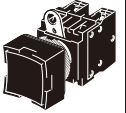


- Lever for easily mounting and removing the Switch Unit.
- Increase wiring efficiency with three-row mounting of Switch Blocks.
- Finger protection mechanism on Switch Unit provided as a standard feature.
- Use 25-dia. ring to install in 25-dia. panel cutouts.
- Mounted using either open-type (fork-type)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






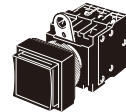
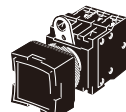
List of Models

Non-lighted Pushbutton Switches

Appearance	Model number
Flat 	A22-F
Projected 	A22-T
Full guard 	A22-G
Half guard 	A22-H

Appearance	Model number
Projected 	A22-C
Guard 	A22-D
Mushroom Small (30 dia.) 	A22-S
Mushroom Medium (40 dia.) 	A22-M

Lighted Pushbutton Switches

Appearance	Model number
Projected 	A22L-T
Full guard 	A22L-G
Half guard 	A22L-H
Projected 	A22L-C
Full guard 	A22L-D

Model Number Structure

Model Number Legend Shipped as a set which includes the Pushbutton, Lamp (lighted type only), and Switch.
For information on combinations, refer to *Ordering Information* on pages 3 to 6.

(1) (2) (3) (4) (5) (6)
A 22 **L** - **T** **R** - **12A** - **10** **M**

(1) Type

Code	Description
No symbol	Non-lighted
L	Lighted

(2) Flange Shape
Non-lighted

Code	Description	
F	Flat	
T	Round	
G		Projected
H		Full-guard
C	Square	
D		Half-guard
S	Round	
M		Projected
		Full-guard
		Mushroom Small (30 dia.)
		Mushroom Medium (40 dia.)

Lighted

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

(3) Illumination Color

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

* For non-lighted type only

(4) Light Source
Without Voltage Reduction Unit

Code	Operating Voltage	
No symbol	Non-lighted	
6D	LED	6 VDC
6A		6 VAC
12A		12 VAC/VDC
24A		24 VAC/VDC
5	Incandescent lamp	5 VAC/VDC
12		12 VAC/VDC
24		24 VAC/VDC

With Voltage Reduction Unit

Code	Operating Voltage	
T1	LED	100 VAC
T2		200 VAC

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

(5) Contacts

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

Note: 1. The contact ratings are for standard loads. For microloads, select from the accessories on page 10.
2. Refer to page 13 for contact ratings.

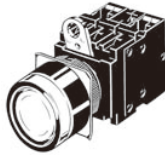
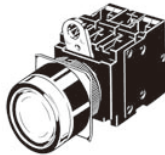
(6) Switch Action

Code	Description
M	Momentary
A	Alternate

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

Ordering Information

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

Appearance	Output	Lighting	Operation Operating voltage	Momentary operation (self-resetting)	Alternate operation (self-holding)	Illumination color
				Set	Set	
Round/Full-guard type LED lighting (without Voltage Reduction Unit) A22L-G 	SPST-NO	LED	6 VDC	A22L-G□-6D-10M	A22L-G□-6D-10A	R (red) Y (yellow) G (green) W (white) A (blue)
			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	
	SPST-NO + SPST-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	
SPST-NC + SPST-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 LED voltage-reduction lighting (with Voltage Reduction Unit) A22L-G 	SPST-NO	100 VAC	A22L-G□-T1-10M	A22L-G□-T1-10A		
		200 VAC	A22L-G□-T2-10M	A22L-G□-T2-10A		
	SPST-NC	100 VAC	A22L-G□-T1-01M	A22L-G□-T1-01A		
		200 VAC	A22L-G□-T2-01M	A22L-G□-T2-01A		
	SPST-NO + SPST-NC	100 VAC	A22L-G□-T1-11M	A22L-G□-T1-11A		
		200 VAC	A22L-G□-T2-11M	A22L-G□-T2-11A		
	SPST-NO + SPST-NO	100 VAC	A22L-G□-T1-20M	A22L-G□-T1-20A		
		200 VAC	A22L-G□-T2-20M	A22L-G□-T2-20A		
	SPST-NC + SPST-NC	100 VAC	A22L-G□-T1-02M	A22L-G□-T1-02A		
		200 VAC	A22L-G□-T2-02M	A22L-G□-T2-02A		

Note: The contact ratings are for standard loads.

Specifications

Approved Standard Ratings

UL, cUL (File No. E41515)

6 A at 220 VAC, 10 A at 110 VAC

EN60947-5-1 (Low Voltage Directive)

3 A at 220 VAC

CCC (GB14048.5)

3 A at 240 VAC, 1.5 A at 24 VDC

Ratings

Contacts (Standard Load)

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

Note: 1. The above ratings were obtained by conducting tests under the following conditions.

- (1) Ambient temperature: 20±2°C
 - (2) Ambient humidity: 65±5% RH
 - (3) Operating frequency: 20 operations/minute
2. Minimum applicable load: 10 mA at 5 VDC

Contacts (Microload)

Rated applicable load	50 mA at 24 VDC (Resistive load)
Minimum applicable load	1 mA at 5 VDC

LED Indicators

Rated voltage	Rated current	Operating voltage
6 VDC	60 mA (20 mA)	6 VDC±5%
6 VAC	60 mA (20 mA)	6 VAC±5%
12 VAC/VDC	30 mA (10 mA)	12 VAC/VDC±5%
24 VAC/VDC	30 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 V
14 VAC/VDC	80 mA	12 V
28 VAC/VDC	40 mA	24 V

Voltage-reduction Lighting

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

Specifications

Characteristics

Type		Pushbutton Switches		Emergency Stop Switches		Knob-type Selector Switches		Key-type Selector Switch	Indicator
		Non-lighted models: A22-F A22-T A22-G A22-H A22-S A22-M A22-C A22-D	Lighted models: A22L-T A22L-G A22L-H A22L-C A22L-D	Non-lighted model: A22E	Lighted model: A22EL	Non-lighted model: A22S	Lighted model: A22W	Non-lighted model: A22K	M22
Allowable operating frequency	Mechanical	Momentary operation: 60 operations/minute max.		30 operations/minute max.		Manual reset: 30 operations/minute max. Automatic reset: 30 operations/minute max.		---	
	Electrical			30 operations/minute max.				---	
Insulation resistance		100 MΩ min. (at 500 VDC)							
Dielectric strength	Between terminals of same polarity	2,500VAC, 50/60Hz for 1min							
	Between each terminal and ground	2,500VAC, 50/60Hz for 1min							
Vibration resistance	Malfuction *1	Malfuction *2: 10 to 55 Hz, 1.5-mm double amplitude							
Shock resistance	Destruction	1,000 m/s ²	1,000 m/s ²	1,000 m/s ²	1,000 m/s ²	1,000 m/s ²	1,000 m/s ²	1,000 m/s ²	1,000 m/s ²
	Malfuction *1	1,000 m/s ² max.	600 m/s ² max.	250 m/s ² max.	1,000 m/s ² max.	600 m/s ² max.	1000 m/s ² max.	600 m/s ² max.	600 m/s ² max.
Durability	Mechanical	Momentary operation: 5,000,000 operations min.		300,000 operations min.		500,000 operations min.		100,000 operations min.	
	Electrical	500,000 operations min.		300,000 operations min.		500,000 operations min.		100,000 operations min.	
Ambient operating temperature *2		-20°C to 70°C	-20°C to 55°C	-20°C to 70°C	-20°C to 55°C	-20°C to 70°C	-20°C to 55°C	-20°C to 70°C	-20°C to 55°C
Ambient operating humidity		35% to 85% RH							
Ambient storage temperature *2		-40°C to 70°C							
Degree of protection *3		IP65 (oil-resistant)	IP65	IP65 (oil-resistant)	IP65	IP65 (oil-resistant)	IP65	IP65 (oil-resistant)	IP65
Electric shock protection class		Class II							
PTI (tracking characteristic)		175							
Degree of contamination		3 (IEC947-5-1)							

*1. Malfuction within 1 ms.

*2. With no icing or condensation.

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

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

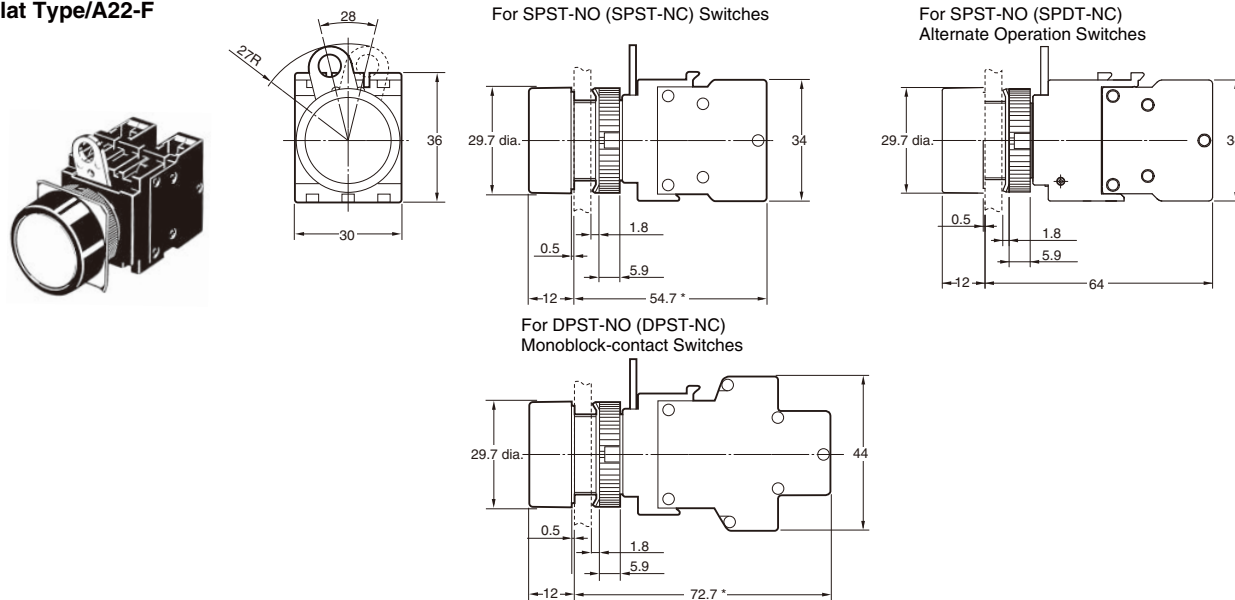
Item	Type	Pushbutton Switches	Emergency Stop Switches		Knob-type Selector		Key-type Selector Switch	
	Lighted Nonlighted Pushbutton Switches	Push-lock turn reset system/ Push-lock, key reset	Push-pull	Manual reset	Automatic reset	Manual reset	Automatic reset	
		A22E A22EL A22E-□K						A22E-□P
Total travel force (TTF) max.	29.4 N	44.1 N	58.8 N	0.34 N·m*	0.25 N·m for two notches * 0.34 N·m for three notches *	0.34 N·m*	0.25 N·m for two notches * 0.34 N·m for three notches *	
Total travel (TT)	5.5 mm max.	10±1 mm	5.5±1 mm	Approx. 90° for two notches (Approx. 45° for three notches)		Approx. 90° for two notches (Approx. 45° for three notches)		
Resetting force (RF) min.	---	0.25 N·m max.*	58.8N max.	0.34 N·m max.*	---	0.34 N·m max.*	---	

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

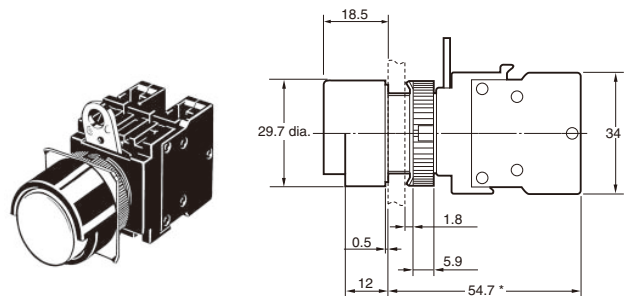
Dimensions

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

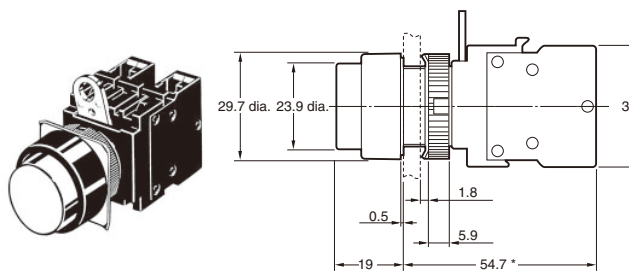
Flat Type/A22-F



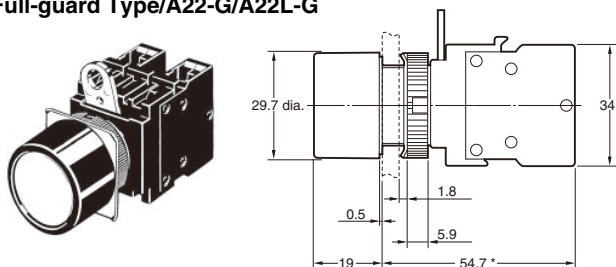
Half-guard Type/A22-H/A22L-H



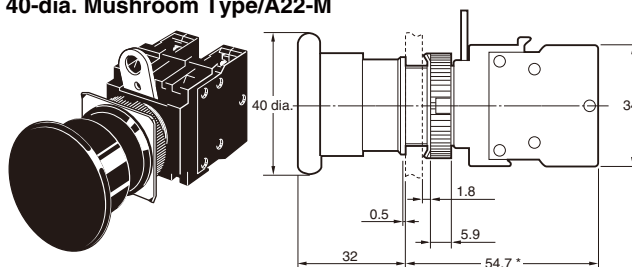
Projection Type/A22-T/A22L-T



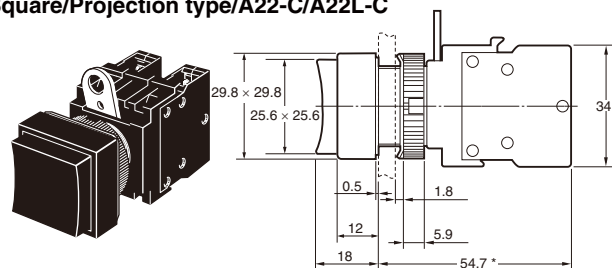
Full-guard Type/A22-G/A22L-G



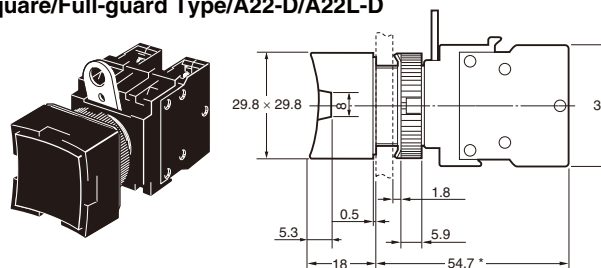
40-dia. Mushroom Type/A22-M



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



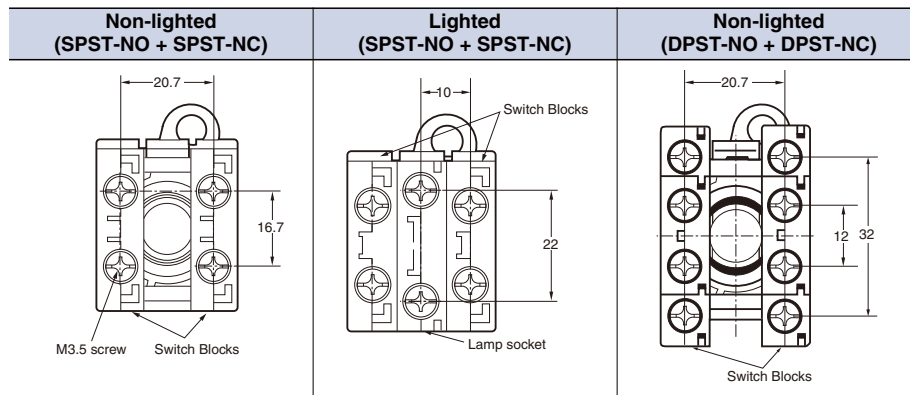
Square/Full-guard Type/A22-D/A22L-D



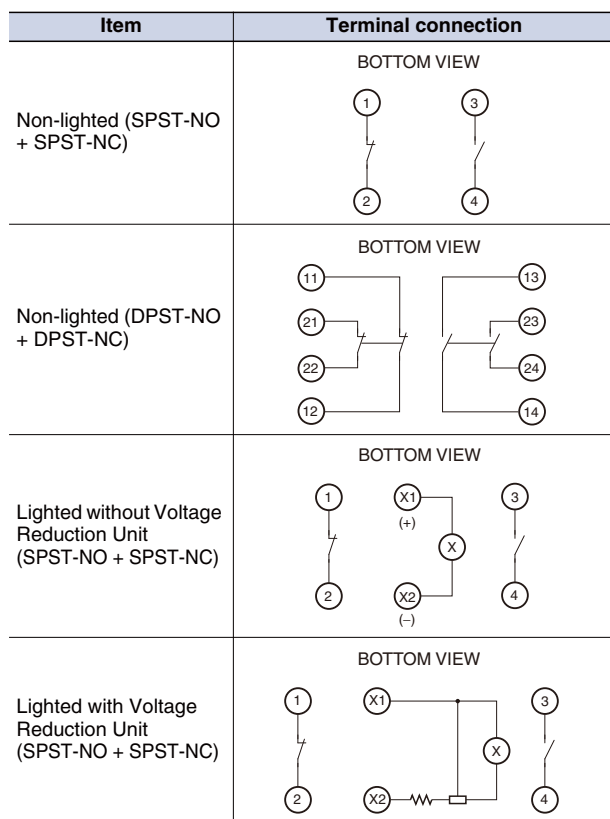
Note: Lighted models have the same dimensions as shown above, whether they are with or without Voltage Reduction Units.
* Alternate operation models are 9.3 mm longer.

Dimensions

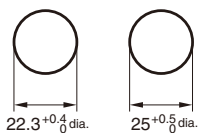
Terminal Arrangement (Bottom View)



Terminal Connection



Panel Cutouts



Lock ring is provided as a standard item.

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