

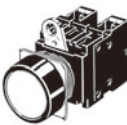
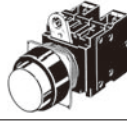
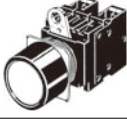
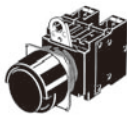
Install in 22-dia. or 25-dia. Panel Cutout (When Using a Ring)

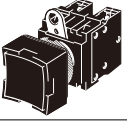
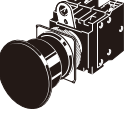
- Lever for easily mounting and removing the Switch Unit.
- Increase wiring efficiency with three-row mounting of Switch Blocks.
- Finger protection mechanism on Switch Unit provided as a standard feature.
- Use 25-dia. ring to install in 25-dia. panel cutouts.
- Mounted using either open-type (fork-type)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



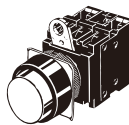
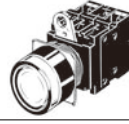
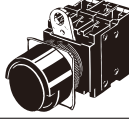
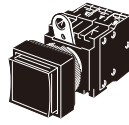
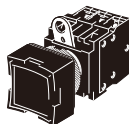
List of Models

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** - **12 A** - **10** **M**

(1) Type

Code	Description
No symbol	Non-lighted
L	Lighted

(2) Flange Shape Non-lighted

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

Lighted

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

(3) Illumination Color

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

* For non-lighted type only

(4) Light Source Without Voltage Reduction Unit

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

With Voltage Reduction Unit

Code	Operating Voltage
T1	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.

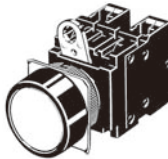
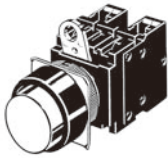
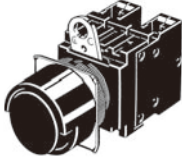
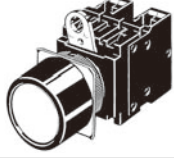
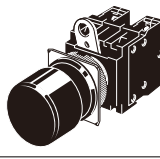
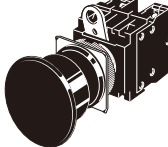
(6) Switch Action

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.

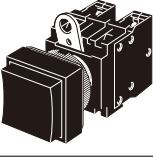
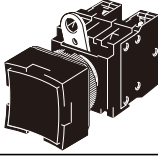
Ordering Information

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

Operation		Momentary operation (self-resetting)	Alternate operation (self-holding)	Illumination color
Appearance	Output	Set	Set	
Round/Flat type A22-F		SPST-NO	A22-F□-10M	A22-F□-10A
		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 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
		SPST-NO + SPST-NO	A22-T□-20M	A22-T□-20A
		SPST-NC + SPST-NC	A22-T□-02M	A22-T□-02A
Round/Full-guard type 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
		SPST-NO + SPST-NO	A22-G□-20M	A22-G□-20A
		SPST-NC + SPST-NC	A22-G□-02M	A22-G□-02A
Round/Half-guard type A22-H		SPST-NO	A22-H□-10M	A22-H□-10A
		SPST-NC	A22-H□-01M	A22-H□-01A
		SPST-NO + SPST-NC	A22-H□-11M	A22-H□-11A
		SPST-NO + SPST-NO	A22-H□-20M	A22-H□-20A
		SPST-NC + SPST-NC	A22-H□-02M	A22-H□-02A
Round/Small-size Mushroom type (30-dia. head) A22-S		SPST-NO	A22-S□-10M	---
		SPST-NC	A22-S□-01M	
		SPST-NO + SPST-NC	A22-S□-11M	
		SPST-NO + SPST-NO	A22-S□-20M	
		SPST-NC + SPST-NC	A22-S□-02M	
Round/Medium-size Mushroom type (40-dia head) A22-M		SPST-NO	A22-M□-10M	
		SPST-NC	A22-M□-01M	
		SPST-NO + SPST-NC	A22-M□-11M	
		SPST-NO + SPST-NO	A22-M□-20M	
		SPST-NC + SPST-NC	A22-M□-02M	

Note: The contact ratings are for standard loads.

Non-lighted (Square Type)

Appearance	Operation Output	Momentary operation (self-resetting)	Alternate operation (self-holding)	Illumination color
		Set	Set	
Square/Projection type A22-C 	SPST-NO	A22-C□-10M	A22-C□-10A	R (red) Y (yellow) G (green) W (white) A (blue) B (black)
	SPST-NC	A22-C□-01M	A22-C□-01A	
	SPST-NO + SPST-NC	A22-C□-11M	A22-C□-11A	
	SPST-NO + SPST-NO	A22-C□-20M	A22-C□-20A	
	SPST-NC + SPST-NC	A22-C□-02M	A22-C□-02A	
Square/Guard type 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	
	SPST-NO + SPST-NO	A22-D□-20M	A22-D□-20A	
	SPST-NC + SPST-NC	A22-D□-02M	A22-D□-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	---	---
	24 VDC	---	---	1.5	10
	110 VDC			0.5	2
	220 VDC			0.2	0.6
	380 VDC			0.1	0.2

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

(1) Ambient temperature: 20±2°C

(2) Ambient humidity: 65±5% RH

(3) Operating frequency: 20 operations/minute

2. Minimum applicable load: 10 mA at 5 VDC

Contacts (Microload)

Rated applicable load	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
Item									
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	Malfunction *1	Malfunction *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
	Malfunction *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.
Durability	Mechanical	Momentary operation: 5,000,000 operations min.		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.		500,000 operations min.	100,000 operations min.	500,000 operations min.	---
Ambient operating temperature * 2		-20°C to 70°C	-20°C to 55°C	-20°C to 70°C	-20°C to 55°C	-20°C to 70°C	-20°C to 55°C	-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. Malfunction within 1 ms.

*2. With no icing or condensation.

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

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

Item	Type	Pushbutton Switches	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	
	A22-F A22-T A22-G A22-H A22-C A22-D A22-S A22-M A22L-T A22L-G A22L-H A22L-C A22L-D	A22E A22EL A22E-□K	A22E-□P	A22S A22W		A22K		
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.*	---	

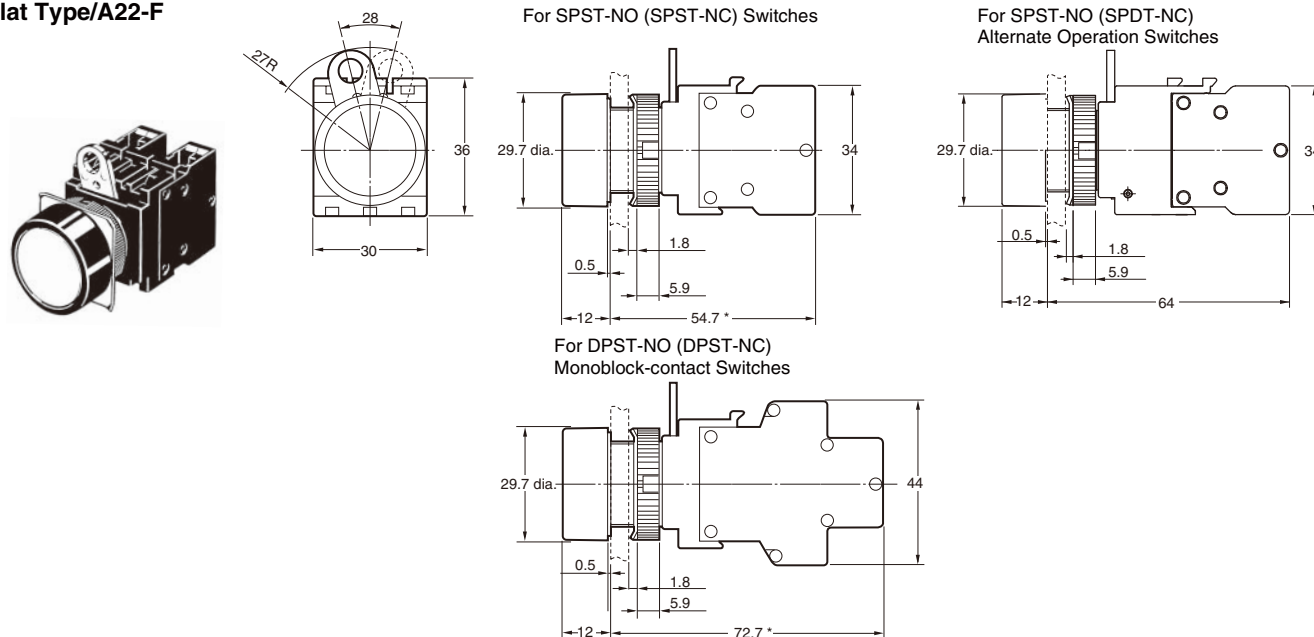
* Rotation torque for Emergency Stop Pushbutton, Knob-type Selector, and Key-type Selector Switches.

Dimensions

(Unit: mm)

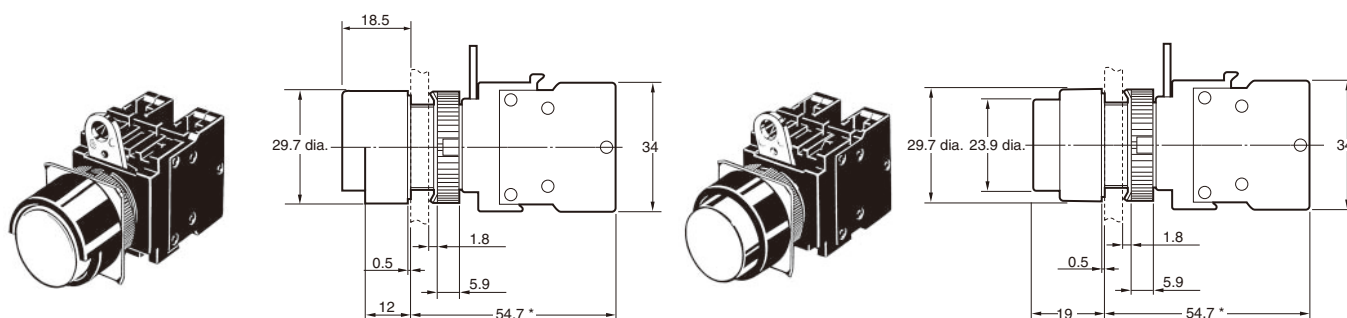
Lighted/Non-lighted Pushbutton Switches (The following illustrations are for momentary operation.)

Flat Type/A22-F



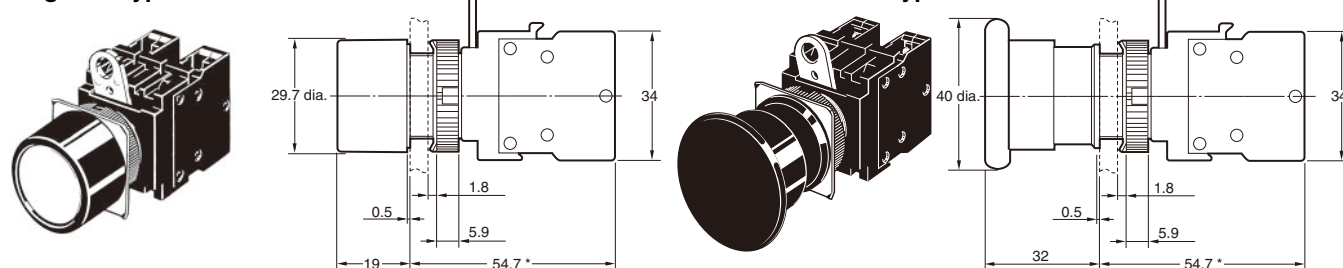
Half-guard Type/A22-H/A22L-H

Projection Type/A22-T/A22L-T



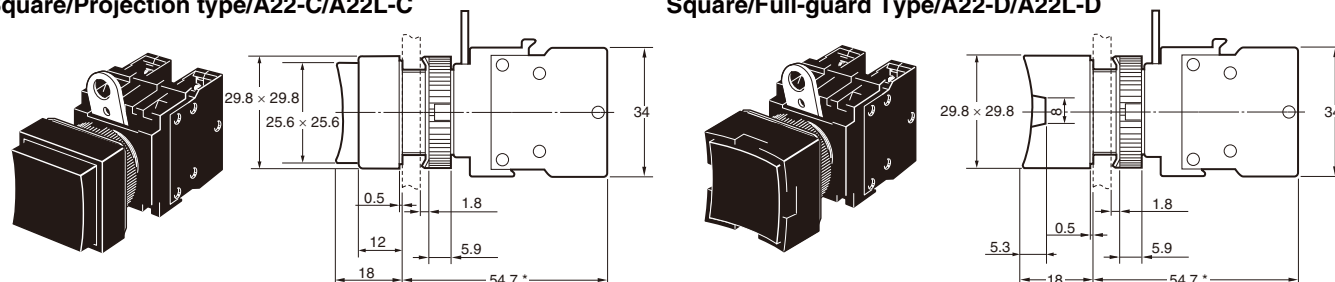
Full-guard Type/A22-G/A22L-G

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

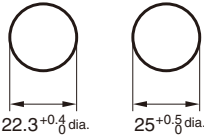
Terminal Arrangement (Bottom View)

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

Terminal Connection

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

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.