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Pushbutton Switch
A16

Mounting Aperture of 16 mm

- Modular construction (Pushbutton + Case + Lamp + Switch)
- Wide Variety of Control and Signal Devices: Lighted, Non-Lighted, and Buzzer
- UL and cUL approved.
- Conforms to EN60947-5-1, IEC947-5-1
- Quick and easy assembly, snap-in Switch.
- Wide range of switching capacity from standard to microload
- High reliability, IP65
- Short mounting depth, less than 28.5 mm below panel

Model Number Structure

■ Model Number Legend

Completely Assembled

The model numbers used to order sets of Units are illustrated below. One set comprises the Pushbutton, Lamp (lighted models only), Case, and Switch.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
A16	5	L	J	R	M	24D	2

(1) Degree of Protection

Symbol	Protection
No symbol	IP40
5	IP65 oil-resistant

(2) Lighted/Non-lighted

Symbol	Type
No symbol	Non-lighted
L	Lighted

(3) Shape of Pushbutton

Symbol	Shape	
J	Rectangular	2-way guard
A	Square	2-way guard
T	Round	Projecting model
3J	Rectangular	3-way guard
BA	Square	24-mm square

(4) Color of Pushbutton

Symbol	Color
R	Red
Y	Yellow
PY	Pure yellow
G	Green
W	White
A	Blue
B	Black (non-lighted models only)

"Colored-illumination" models operate in the way shown below:

Unlit	Lit
White	Color

The built-in LED is colored.

(5) Switch Operation

Symbol	Operation
M	Momentary
A	Alternate

Momentary-action: Self-resetting
Alternate-action: Self-holding

(6) Light Source

Symbol	Type	Operating voltage	Rated voltage
No symbol	Non-lighted		
5	Incandescent lamp	5 VAC/VDC	6 VAC/VDC
12		12 VAC/VDC	14 VAC/VDC
24		24 VAC/VDC	28 VAC/VDC
5D	LED	5 ±5% VDC	5 VDC
12D		12 ±5% VDC	12 VDC
24D		24 ±5% VDC	24 VDC

Voltage Reduction Unit (24-V Built-in LED)

Symbol	Type	Operating voltage	Rated voltage
T1	LED	90 to 121 VAC/VDC	110 VAC
T2		180 to 242 VAC/VDC	220 VAC

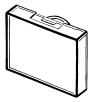
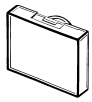
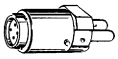
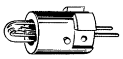
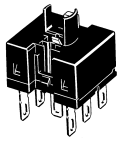
(7) Contact Configuration

Symbol	Type	Terminal
1	SPDT	Solder Terminal
2	DPDT	
1P	SPDT	PCB Terminal
2P	DPDT	
2S	DPDT	Screw-Less Clamp

Only DPDT contacts are available with Screw-Less Clamp.

Note: 1. Solder terminals are available only with 100-V models.
2. The Voltage Reduction Unit is not available for models with PCB terminals.

Neon lamps are not available with models that are ordered as a set. They must be ordered individually if required. Refer to page 13.

Model	Lighted Pushbutton Switches	Non-lighted Pushbutton Switches
Pushbutton	Rectangular  Square  Round 	Rectangular  Square  Round 
Lamp	LED lamp  Incandescent lamp  Neon lamp 	
Case		
Switch	Solder Terminals (Without Voltage Reduction Unit) 	

Note: There is no Lamp with non-lighted models.

Subassembled

1. Pushbutton

Non-lighted/Lighted

A16□L-□□
1 2 3

1. Degree of Protection
None: IP40
5: IP65

2. Flange Shape
J: Rectangular
T: Round
A: Square

3. Illumination Color for Non-lighted Models
R: Red
G: Green
Y: Yellow
W: White
A: Blue
B: Black

Illumination Color for Lighted Models
LED/Incandescent Lamp
R: Red
Y: Yellow
PY: Pure yellow
W: White
A: Blue
LED
GY: Green
Incandescent Lamp
G: Green
Neon Lamp
RN: Red
GN: Green

2. Lamp

A16-□□
1 2

1. Operating Voltage (Rated Voltage)
Incandescent Lamp
5: 5 VAC/VDC (6 VAC/VDC)
12: 12 VAC/VDC (14 VAC/VDC)
24: 24 VAC/VDC (28 VAC/VDC)
LED
5DS: 5 VDC (5 VDC)
12DS: 12 VDC (12 VDC)
24DS: 24 VDC (24 VDC)
Neon Lamp
1N: 100 VAC (110 VAC)
2N: 200 VAC (220 VAC)

2. Illumination Color
None: Incandescent Lamp
R: Red (LED)
G: Green (LED)
Y: Yellow (LED)
W: White (LED)
A: Blue (LED)
RN: Red (Neon Lamp)
GN: Green (Neon Lamp)

3. Case

A16□-□□
1 2 3

1. Degree of Protection
None: IP40
5: IP65 Oil-resistant

2. Flange Shape
CJ: Rectangular
CT: Round
CA: Square

3. Switch Action
M: Momentary
A: Alternate

4. Switch (Solder Terminals)

A16-□-□
1 2

1. Voltage Reduction Circuit (Operating Voltage/Rated Voltage)
None: Without Voltage Reduction Unit
T1: 100 VAC/110 VAC

2. Contacts
1: SPDT
2: DPDT

5. Socket (Solder Terminals Only)

M16-□
1

1. Voltage Reduction Circuit (Operating Voltage/Rated Voltage)
0: Without Voltage Reduction Unit
T1: 100 VAC/110 VAC

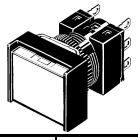
Ordering Information

■ List of Models

Ordering as a Set

The model numbers used to order sets of Units are given in the following tables. One set comprises the Pushbutton, Lamp (lighted models only), Case, and Switch.

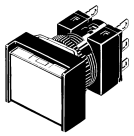
A16□-J (Rectangular) Models



Solder Terminal Models

IP40

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED without Voltage Reduction Unit	5 VDC	A16L-J□M-5D-1	A16L-J□A-5D-1	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A16L-J□M-12D-1	A16L-J□A-12D-1	
		24 VDC	A16L-J□M-24D-1	A16L-J□A-24D-1	
	Incandescent lamp	5 VDC/VAC	A16L-J□M-5-1	A16L-J□A-5-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A16L-J□M-12-1	A16L-J□A-12-1	
		24 VDC/VAC	A16L-J□M-24-1	A16L-J□A-24-1	
	Non-lighted		A16-J□M-1	A16-J□A-1	
DPDT	LED without Voltage Reduction Unit	5 VDC	A16L-J□M-5D-2	A16L-J□A-5D-2	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A16L-J□M-12D-2	A16L-J□A-12D-2	
		24 VDC	A16L-J□M-24D-2	A16L-J□A-24D-2	
	Incandescent lamp	5 VDC/VAC	A16L-J□M-5-2	A16L-J□A-5-2	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A16L-J□M-12-2	A16L-J□A-12-2	
		24 VDC/VAC	A16L-J□M-24-2	A16L-J□A-24-2	
	Non-lighted		A16-J□M-2	A16-J□A-2	



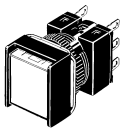
IP65 Oil-resistant

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED without Voltage Reduction Unit	5 VDC	A165L-J□M-5D-1	A165L-J□A-5D-1	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A165L-J□M-12D-1	A165L-J□A-12D-1	
		24 VDC	A165L-J□M-24D-1	A165L-J□A-24D-1	
	Incandescent lamp	5 VDC/VAC	A165L-J□M-5-1	A165L-J□A-5-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A165L-J□M-12-1	A165L-J□A-12-1	
		24 VDC/VAC	A165L-J□M-24-1	A165L-J□A-24-1	
	Non-lighted		A165-J□M-1	A165-J□A-1	
DPDT	LED without Voltage Reduction Unit	5 VDC	A165L-J□M-5D-2	A165L-J□A-5D-2	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A165L-J□M-12D-2	A165L-J□A-12D-2	
		24 VDC	A165L-J□M-24D-2	A165L-J□A-24D-2	
	Incandescent lamp	5 VDC/VAC	A165L-J□M-5-2	A165L-J□A-5-2	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A165L-J□M-12-2	A165L-J□A-12-2	
		24 VDC/VAC	A165L-J□M-24-2	A165L-J□A-24-2	
	Non-lighted		A165-J□M-2	A165-J□A-2	

Note: 1. Enter the desired color symbol for the Pushbutton in the □.

2. Black (“B”) Pushbuttons are only available for non-lighted models.

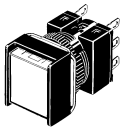
A16□-A (Square) Models



Solder Terminal Models

IP40

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED without Voltage Reduction Unit	5 VDC	A16L-A□M-5D-1	A16L-A□A-5D-1	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A16L-A□M-12D-1	A16L-A□A-12D-1	
		24 VDC	A16L-A□M-24D-1	A16L-A□A-24D-1	
	Incandescent lamp	5 VDC/VAC	A16L-A□M-5-1	A16L-A□A-5-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A16L-A□M-12-1	A16L-A□A-12-1	
		24 VDC/VAC	A16L-A□M-24-1	A16L-A□A-24-1	
	Non-lighted		A16-A□M-1	A16-A□A-1	
DPDT	LED without Voltage Reduction Unit	5 VDC	A16L-A□M-5D-2	A16L-A□A-5D-2	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A16L-A□M-12D-2	A16L-A□A-12D-2	
		24 VDC	A16L-A□M-24D-2	A16L-A□A-24D-2	
	Incandescent lamp	5 VDC/VAC	A16L-A□M-5-2	A16L-A□A-5-2	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A16L-A□M-12-2	A16L-A□A-12-2	
		24 VDC/VAC	A16L-A□M-24-2	A16L-A□A-24-2	
	Non-lighted		A16-A□M-2	A16-A□A-2	



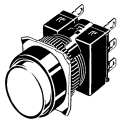
IP65 Oil-resistant

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED without Voltage Reduction Unit	5 VDC	A165L-A□M-5D-1	A165L-A□A-5D-1	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A165L-A□M-12D-1	A165L-A□A-12D-1	
		24 VDC	A165L-A□M-24D-1	A165L-A□A-24D-1	
	Incandescent lamp	5 VDC/VAC	A165L-A□M-5-1	A165L-A□A-5-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A165L-A□M-12-1	A165L-A□A-12-1	
		24 VDC/VAC	A165L-A□M-24-1	A165L-A□A-24-1	
	Non-lighted		A165-A□M-1	A165-A□A-1	
DPDT	LED without Voltage Reduction Unit	5 VDC	A165L-A□M-5D-2	A165L-A□A-5D-2	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A165L-A□M-12D-2	A165L-A□A-12D-2	
		24 VDC	A165L-A□M-24D-2	A165L-A□A-24D-2	
	Incandescent lamp	5 VDC/VAC	A165L-A□M-5-2	A165L-A□A-5-2	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A165L-A□M-12-2	A165L-A□A-12-2	
		24 VDC/VAC	A165L-A□M-24-2	A165L-A□A-24-2	
	Non-lighted		A165-A□M-2	A165-A□A-2	

Note: 1. Enter the desired color symbol for the Pushbutton in the □.

2. Black (“B”) Pushbuttons are only available for non-lighted models.

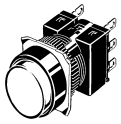
A16□-T (Round) Models



Solder Terminals

IP40

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED without Voltage Reduction Unit	5 VDC	A16L-T□M-5D-1	A16L-T□A-5D-1	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A16L-T□M-12D-1	A16L-T□A-12D-1	
		24 VDC	A16L-T□M-24D-1	A16L-T□A-24D-1	
	Incandescent lamp	5 VDC/VAC	A16L-T□M-5-1	A16L-T□A-5-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A16L-T□M-12-1	A16L-T□A-12-1	
		24 VDC/VAC	A16L-T□M-24-1	A16L-T□A-24-1	
	Non-lighted		A16-T□M-1	A16-T□A-1	
DPDT	LED without Voltage Reduction Unit	5 VDC	A16L-T□M-5D-2	A16L-T□A-5D-2	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A16L-T□M-12D-2	A16L-T□A-12D-2	
		24 VDC	A16L-T□M-24D-2	A16L-T□A-24D-2	
	Incandescent lamp	5 VDC/VAC	A16L-T□M-5-2	A16L-T□A-5-2	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A16L-T□M-12-2	A16L-T□A-12-2	
		24 VDC/VAC	A16L-T□M-24-2	A16L-T□A-24-2	
	Non-lighted		A16-T□M-2	A16-T□A-2	



IP65 Oil-resistant

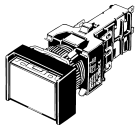
Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED without Voltage Reduction Unit	5 VDC	A165L-T□M-5D-1	A165L-T□A-5D-1	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A165L-T□M-12D-1	A165L-T□A-12D-1	
		24 VDC	A165L-T□M-24D-1	A165L-T□A-24D-1	
	Incandescent lamp	5 VDC/VAC	A165L-T□M-5-1	A165L-T□A-5-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A165L-T□M-12-1	A165L-T□A-12-1	
		24 VDC/VAC	A165L-T□M-24-1	A165L-T□A-24-1	
	Non-lighted		A165-T□M-1	A165-T□A-1	
DPDT	LED without Voltage Reduction Unit	5 VDC	A165L-T□M-5D-2	A165L-T□A-5D-2	R: red Y: yellow PY: pure yellow G: green A: blue W: white
		12 VDC	A165L-T□M-12D-2	A165L-T□A-12D-2	
		24 VDC	A165L-T□M-24D-2	A165L-T□A-24D-2	
	Incandescent lamp	5 VDC/VAC	A165L-T□M-5-2	A165L-T□A-5-2	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC/VAC	A165L-T□M-12-2	A165L-T□A-12-2	
		24 VDC/VAC	A165L-T□M-24-2	A165L-T□A-24-2	
	Non-lighted		A165-T□M-2	A165-T□A-2	

Note: 1. Enter the desired color symbol for the Pushbutton in the □.

2. Black (“B”) Pushbuttons are only available for non-lighted models.

Other Models

Models with Reduced-voltage Lighting and Solder Terminals



IP40

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED (with built-in reduced-voltage lighting function)	100/110 VAC/VDC	A16L-Δ□M-T1-1	A16L-Δ□A-T1-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue
DPDT		100/110 VAC/VDC	A16L-Δ□M-T1-2	A16L-Δ□A-T1-2	

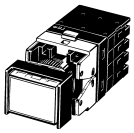
IP65

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED (with built-in reduced-voltage lighting function)	100/110 VAC/VDC	A165L-Δ□M-T1-1	A165L-Δ□A-T1-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue
DPDT		100/110 VAC/VDC	A165L-Δ□M-T1-2	A165L-Δ□A-T1-2	

Note: 1. Enter the desired shape for the Pushbutton in Δ: J (rectangular), A (square), or T (round). Enter the desired color symbol for the Pushbutton in the □.

2. Models with rated voltage 200 to 220 VAC/VDC (T2 models) are only available with Screw-Less Clamps.

Screw-Less Clamp Models



IP40

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
DPDT	LED	5 VDC	A16L-Δ□M-5D-2S	A16L-Δ□A-5D-2S	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC	A16L-Δ□M-12D-2S	A16L-Δ□A-12D-2S	
		24 VDC	A16L-Δ□M-24D-2S	A16L-Δ□A-24D-2S	
	LED (with built-in reduced-voltage lighting function)	100/110 VAC/VDC	A16L-Δ□M-T1-2S	A16L-Δ□A-T1-2S	
		200/220 VAC/VDC	A16L-Δ□M-T2-2S	A16L-Δ□A-T2-2S	
	Non-lighted		A16-Δ□M-2S	A16-Δ□A-2S	

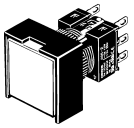
IP65

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
DPDT	LED	5 VDC	A165L-Δ□M-5D-2S	A165L-Δ□A-5D-2S	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
		12 VDC	A165L-Δ□M-12D-2S	A165L-Δ□A-12D-2S	
		24 VDC	A165L-Δ□M-24D-2S	A165L-Δ□A-24D-2S	
	LED (with built-in reduced-voltage lighting function)	100/110 VAC/VDC	A165L-Δ□M-T1-2S	A165L-Δ□A-T1-2S	
		200/220 VAC/VDC	A165L-Δ□M-T2-2S	A165L-Δ□A-T2-2S	
	Non-lighted		A165-Δ□M-2S	A165-Δ□A-2S	

Note: 1. Enter the desired shape for the Pushbutton in Δ: J (rectangular), A (square), or T (round). Enter the desired color symbol for the Pushbutton in the □.

2. Black (“B”) Pushbuttons are only available for non-lighted models.

A165□-BA (24-mm Square) Models



Solder Terminals

IP65

Output	Lighting	Operating voltage	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol (See note 1.)
SPDT	LED	5 VDC	A165L-BA□M-5D-1	A165L-BA□A-5D-1	R: red Y: yellow PY: pure yellow G: green W: white A: blue B: black (See note 2.)
	LED	12 VDC	A165L-BA□M-12D-1	A165L-BA□A-12D-1	
	LED	24 VDC	A165L-BA□M-24D-1	A165L-BA□A-24D-1	
	Non-lighted		A165-BA□M-1	A165-BA□A-1	
DPDT	LED	5 VDC	A165L-BA□M-5D-2	A165L-BA□A-5D-2	
	LED	12 VDC	A165L-BA□M-12D-2	A165L-BA□A-12D-2	
	LED	24 VDC	A165L-BA□M-24D-2	A165L-BA□A-24D-2	
	Non-lighted		A165-BA□M-2	A165-BA□A-2	

Note: 1. Enter the desired color symbol for the Pushbutton in the □.

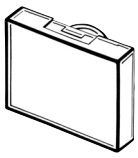
2. Black (“B”) Pushbuttons are only available for non-lighted models.

Ordering Individually

Pushbuttons, Lamps, Cases, and Switches (Sockets) can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

Pushbutton

Rectangular Models

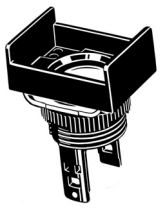


Square Models

Round Models

Note: Use IP40 Pushbuttons with IP40 Switches and use IP65 Pushbuttons with IP65 Switches. There is no Legend Plate built into the Pushbutton

Case

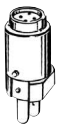


Lighted Models

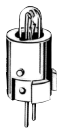
Non-lighted Models

Lamp

LED



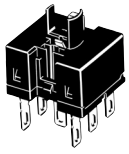
Incandescent lamp



Neon lamp

Socket

Solder terminals (no transformer)

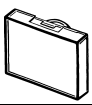
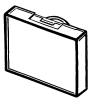


Lighted/non-lighted

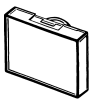
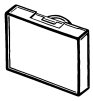
Pushbuttons

Illumination: red, yellow, and white use either LED or incandescent lamps.

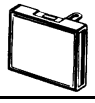
LED

Degree of protection	IP40			Oil-resistant IP65		
Color	Rectangular 	Square 	Round 	Rectangular 	Square 	Round 
Red	A16L-JR	A16L-AR	A16L-TR	A165L-JR	A165L-AR	A165L-TR
Yellow	A16L-JY	A16L-AY	A16L-TY	A165L-JY	A165L-AY	A165L-TY
Pure yellow	A16L-JPY	A16L-APY	A16L-TPY	A165L-JPY	A165L-APY	A165L-TPY
Green	A16L-JGY	A16L-AGY	A16L-TGY	A165L-TGY	A165L-AGY	A165L-TGY
White	A16L-JW	A16L-AW	A16L-TW	A165L-TW	A165L-AW	A165L-TW
Blue	A16L-JA	A16L-AA	A16L-TA	A165L-JA	A165L-AA	A165L-TA

Incandescent Lamps (With the exception of green, the Units are the same as for LEDs.)

Degree of protection	IP40			Oil-resistant IP65		
Color	Rectangular 	Square 	Round 	Rectangular 	Square 	Round 
Red	A16L-JR	A16L-AR	A16L-TR	A165L-JR	A165L-AR	A165L-TR
Yellow	A16L-JY	A16L-AY	A16L-TY	A165L-JY	A165L-AY	A165L-TY
Pure yellow	A16L-JPY	A16L-APY	A16L-TPY	A165L-JPY	A165L-APY	A165L-TPY
Green	A16L-JG	A16L-AG	A16L-TG	A165L-JG	A165L-AG	A165L-TG
White	A16L-JW	A16L-AW	A16L-TW	A165L-JW	A165L-AW	A165L-TW
Blue	A16L-JA	A16L-AA	A16L-TA	A165L-JA	A165L-AA	A165L-TA

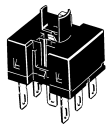
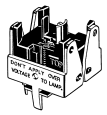
Non-lighted (Same as Units for incandescent lamps.)

Degree of protection	IP40			Oil-resistant IP65		
Color	Rectangular 	Square 	Round 	Rectangular 	Square 	Round 
Red	A16L-JR	A16L-AR	A16L-TR	A165L-JR	A165L-AR	A165L-TR
Yellow	A16L-JY	A16L-AY	A16L-TY	A165L-JY	A165L-AY	A165L-TY
Pure yellow	A16L-JPY	A16L-APY	A16L-TPY	A165L-JPY	A165L-APY	A165L-TPY
Green	A16L-JG	A16L-AG	A16L-TG	A165L-JG	A165L-AG	A165L-TG
White	A16L-JW	A16L-AW	A16L-TW	A165L-JW	A165L-AW	A165L-TW
Blue	A16L-JA	A16L-AA	A16L-TA	A165L-JA	A165L-AA	A165L-TA
Black	A16L-JB	A16L-AB	A16L-TB	A165L-JB	A165L-AB	A165L-TB

Neon Lamps

Degree of protection	IP40			Oil-resistant IP65		
Color	Rectangular 	Square 	Round 	Rectangular 	Square 	Round 
Red	A16L-JRN	A16L-ARN	A16L-TRN	A165L-JRN	A165L-ARN	A165L-TRN
Green	A16L-JGN	A16L-AGN	A16L-TGN	A165L-JGN	A165L-AGN	A165L-TGN
White	A16L-JWN	A16L-AWN	A16L-TWN	A165L-JWN	A165L-AWN	A165L-TWN

Switches

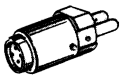
Appearance	Classification				Model
	Lighted/non-lighted (common use)	Standard load/microload (common use)	SPDT	Solder terminal	A16-1
			DPDT		A16-2
			SPDT	PCB terminal	A16-1P
			DPDT		A16-2P
			DPDT	Screw-Less Clamp	A16-2S

Switches with Reduced-voltage Lighting

Appearance	Classification				Model
	100 V	Standard load/microload (common use)	SPDT	Solder terminal	A16-T1-1
			DPDT		A16-T1-2
	100 V		DPDT	Screw-less clamp	A16-T1-2S
	200 V				A16-T2-2S

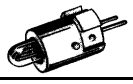
Lamps

LED

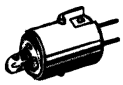
Operating voltage / Light color 	5 VDC	12 VDC	24 VDC
Red	A16-5DSR	A16-12DSR	A16-24DSR
Yellow	A16-5DSY	A16-12DSY	A16-24DSY
Green	A16-5DSG	A16-12DSG	A16-24DSG
White (See note.)	A16-5DSW	A16-12DSW	A16-24DSW
Blue	A16-5DA	A16-12DA	A16-24DA

Note: Use the white LED together with white or pure yellow Pushbuttons.

Incandescent Lamp

Operating voltage 	5 VAC/VDC	12 VAC/VDC	24 VAC/VDC
Model	A16-5	A16-12	A16-24

Neon Lamp

Operating voltage 	100 VAC	200 VAC
Red (See note.)	A16-1NRN	A16-2NRN
Green	A16-1NGN	A16-2NGN

Note: Use the red neon lamp with red or white Pushbuttons.

Cases

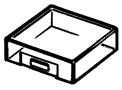
Appearance	Classification			Model
	IP40	Momentary operation	Rectangular (2-way guard)	A16-CJM
			Rectangular (3-way guard)	A16-C3JM
			Square	A16-CAM
			Round	A16-CTM
		Alternate operation	Rectangular (2-way guard)	A16-CJA
			Rectangular (3-way guard)	A16-C3JA
			Square	A16-CAA
			Round	A16-CTA
	Oil-resistant IP65	Momentary operation	Rectangular (2-way guard)	A165-CJM
			Rectangular (3-way guard)	A165-C3JM
			Square	A165-CAM
			Round	A165-CTM
		Alternate operation	Rectangular (2-way guard)	A165-CJA
			Rectangular (3-way guard)	A165-C3JA
			Square	A165-CAA
			Round	A165-CTA

Accessories (Order Separately)

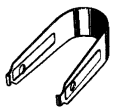
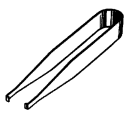
Accessories

Name	Appearance	Classification	Model	Remarks
Switch Guards		For rectangular models	A16ZJ-5050	Cannot be used with the Dust Cover.
		For square and round models	A16ZA-5050	
Dust Covers		For rectangular models	A16ZJ-5060	Cannot be used with the Switch Guard.
		For square models	A16ZA-5060	
		For round models	A16ZT-5060	
Panel Plugs		For rectangular models	A16ZJ-3003	Used for covering the panel cutouts for future panel expansion.
		For square models	A16ZA-3003	
		For round models	A16ZT-3003	

Replacements

Name	Appearance	Classification			Model	Remarks
Legend Plates		Rectangular	IP40	Milky	A16ZJ-5204	A single Legend Plate (transparent) is included with a standard model. The milky Legend Plate can be used with the IP40 and oil-resistant IP65.
				Transparent	A16ZJ-5202	
			Oil-resistant IP65	Milky	A16ZJ-5204	
				Transparent	A16ZJ-5203	
		Square	IP40	Milky	A16ZA-5204	
				Transparent	A16ZA-5202	
			Oil-resistant IP65	Milky	A16ZA-5204	
				Transparent	A16ZA-5203	
		Round	IP40	Milky	A16ZT-5204	
				Transparent	A16ZT-5202	
			Oil-resistant IP65	Milky	A16ZT-5204	
				Transparent	A16ZT-5203	
Color Caps (for IP40)	Rectangular 	LED indicator/incandescent lamp/non-lighted		White	A16Z□-5001W	Insert one of the following letters into the box (□). J: Rectangular A: Square T: Round The Color Cap is usually supplied. Replace the Cap if the color is to be changed. When using an LED indicator, be sure to use a Color Cap that matches the luminescent color of the LED. The materials used for the IP40 and oil-resistant IP65 are different so be sure to use a Color Cap that matches the specifications of the Switch.
				Red	A16Z□-5001R	
				Yellow	A16Z□-5001Y	
		LED indicator		Pure yellow	A16Z□-5001PY	
				Green	A16Z□-5001GY	
		Incandescent lamp/non-lighted		Blue	A16Z□-5001A	
				Green	A16Z□-5001G	
		Non-lighted		Black	A16Z□-5011B	
Color Caps (for oil-resistant IP65)	Square 	LED indicator/incandescent lamp/non-lighted		White	A16Z□-5101W	
				Red	A16Z□-5101R	
				Yellow	A16Z□-5101Y	
	Round 	LED indicator		Pure yellow	A16Z□-5101PY	
				Green	A16Z□-5101GY	
		Incandescent lamp/non-lighted		Blue	A16Z□-5101A	
				Green	A16Z□-5101G	
		Non-lighted		Black	A16Z□-5111B	

Tools

Name	Appearance	Model	Applicable types					Remarks
			Pushbutton Switch	Knob-type Selector Switch	Key-type Selector Switch	Emergency Stop Switch	Indicator	
Extractor		A3PJ-5080	Yes	No	No	No	Yes	Convenient for extracting Pushbutton Switches
Screw Fitting		A16Z-3004	Yes	Yes	Yes	Yes	Yes	Convenient for ganged installation. Tighten to a torque of 0.39 N · m min.
Extractor		A16Z-5080	Yes	Yes	Yes	Yes	Yes	Convenient for extracting the Switch and Lamps.

Specifications

■ Approved Standards

Agency	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)

5 A at 125 VAC, 3 A at 250 VAC (general use)
3 A at 30 VDC (resistive)

EN60947-5-1 (Low Voltage Directive)

3 A at 250 VAC (AC12), 3 A at 30 VDC (DC12)

■ Ratings

Contacts

AC resistive load	DC resistive load
3 A at 250 VAC 5 A at 125 VAC	3 A at 30 VDC

Minimum applicable load: 1 mA at 5 VDC
Rated values are obtained from tests conducted under the following conditions.

1. Load: Resistive load
2. Mounting conditions: No vibration and no shock
3. Temperature: 20±2°C
4. Operating frequency: 20 operations/min

Super-bright LED

Rated voltage	Rated current	Operating voltage	Internal limiting resistor
5 VDC	30 mA (15 mA)	5 VDC±5%	33 Ω (68 Ω)
12 VDC	15 mA	12 VDC±5%	270 Ω (560 Ω)
24 VDC	10 mA	24 VDC±5%	1600 Ω (2,000 Ω)

Note: The values in parentheses are for models with blue Pushbuttons.

Incandescent Lamp

Rated voltage	Rated current	Operating voltage
6 VAC/VDC	60 mA	5 VAC/VDC
14 VAC/VDC	40 mA	12 VAC/VDC
28 VAC/VDC	24 mA	24 VAC/VDC

■ Characteristics

Item		Pushbutton Switch
Allowable operating frequency	**Mechanical**	Momentary operation: 120 operations/minute max. (See note 1.) Alternate operation: 60 operations/minute max. (See note 1.)
	Electrical	20 operations/minute max. (See note 1.)
Insulation resistance		100 MΩ min. (at 500 VDC)
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min between terminals of same polarity 2,000 VAC, 50/60 Hz for 1 min between terminals of different polarity and also between each terminal and ground 1,000 VAC, 50/60 Hz for 1 min between lamp terminals (See note 2.)
Vibration resistance	**Malfunction**	10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms)
Shock resistance	**Mechanical**	500 m/s^2
	Malfunction	150 m/s^2 max. (malfunction within 1 ms)
Durability	**Mechanical**	Momentary operation: 2,000,000 operations min. Alternate operation: 200,000 operations min. (See note 1.)
	Electrical	100,000 operations min. (See note 1.)
Ambient temperature		Operating: –10°C to 55°C (with no icing or condensation) Storage: –25°C to 65°C (with no icing or condensation)
Ambient humidity		Operating: 35% to 85%
Electric shock protection class		Class II
PTI (tracking characteristic)		175
Degree of contamination		3 (IEC947-5-1)
Weight		Approx. 10 g (in the case of a lighted DPDT switch with solder terminals)

Note: 1. Set and reset constitute one operation.
2. With LED and incandescent lamp not mounted.

Screw-Less Clamp

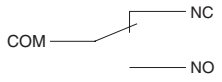
Item		Screw-Less Clamp			
Recommended wire size		0.5 mm^2 twisted wire or 0.8 mm-dia. solid wire			
Usable wires and tensile strength	Twisted wire	0.3 mm^2	0.5 mm^2	0.75 mm^2	1.25 mm^2
	Solid wire	0.5 mm dia.	0.8 mm dia.	1.0 mm dia.	---
	Tensile strength	10 N	20 N	30 N	40 N
Length of exposed wire		10 ±1 mm			

■ Operating Characteristics

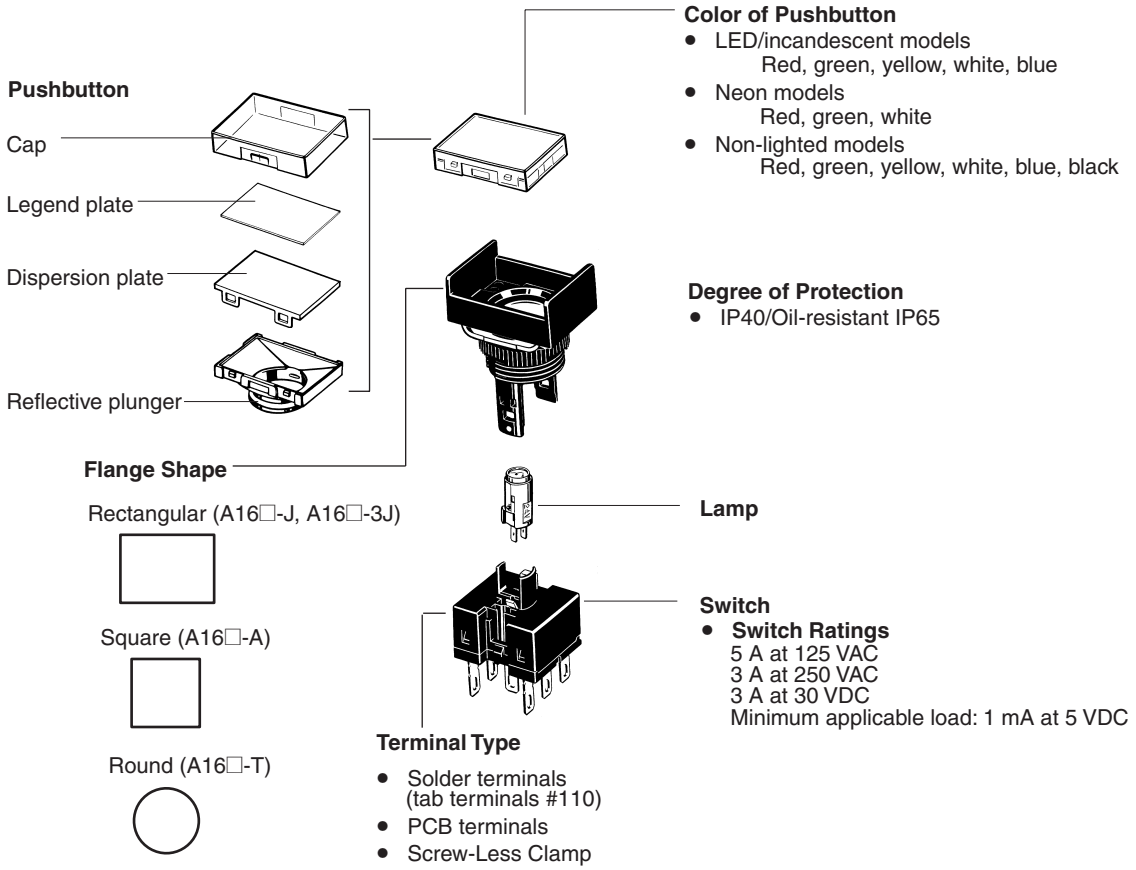
Type	Pushbutton Switch			
	IP40		Oil-resistant IP65	
Features	SPDT	DPDT	SPDT	DPDT
Operating force (OF) max.	2.45 N	4.41 N	2.94 N	4.91 N
Releasing force (RF) min.	0.29 N			
Total travel (TT)	Approx. 3 mm			
Pretravel (PT) max.	2.5 mm			
Lock stroke (LTA) min. (See note.)	0.5 mm			

Note: Lock stroke is only for alternate operation.

■ Contact Form

Name	Contact
DPDT	

Nomenclature



Dimensions

Note: All units are in millimeters unless otherwise indicated.

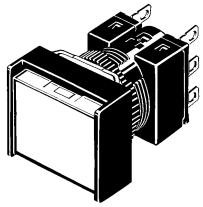
■ Lighted/Non-lighted Pushbutton Switches without Voltage Reduction Unit

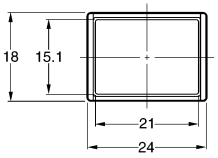
The lamp terminal is also provided with non-lighted models.

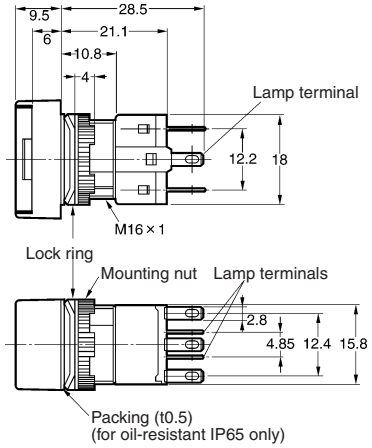
Solder terminals and tab terminals (#110) can be both used with Lighted and Non-lighted Pushbutton Switches.

Rectangular
A16□-J

Solder terminals (tab terminals #110)

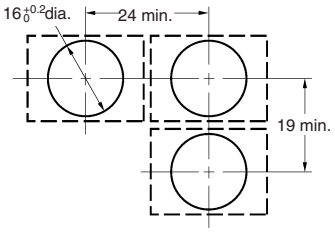






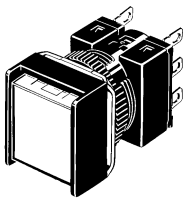
Panel Cutouts

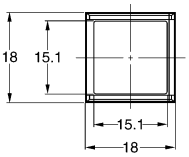
See page 25 for panel cutouts

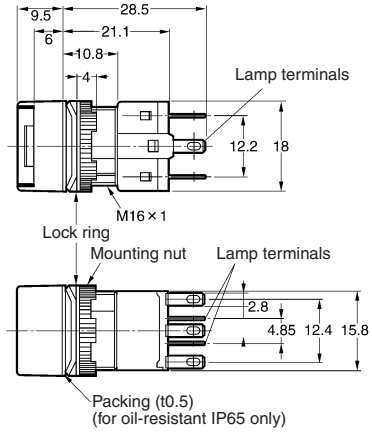


Square
A16□-A

Solder terminals (tab terminals #110)

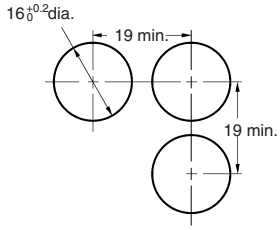






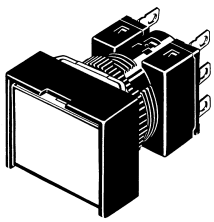
Panel Cutouts

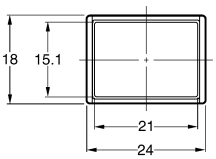
See page 25 for panel cutouts

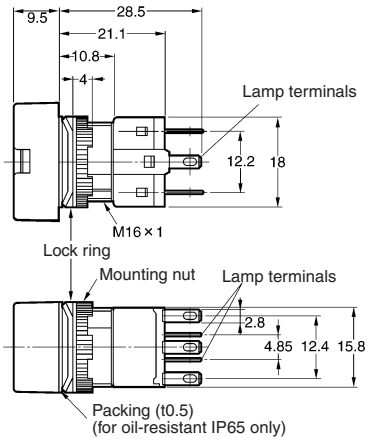


Rectangular
A16□-3J

Solder terminals (tab terminals #110)

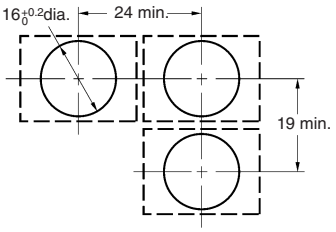






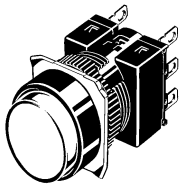
Panel Cutouts

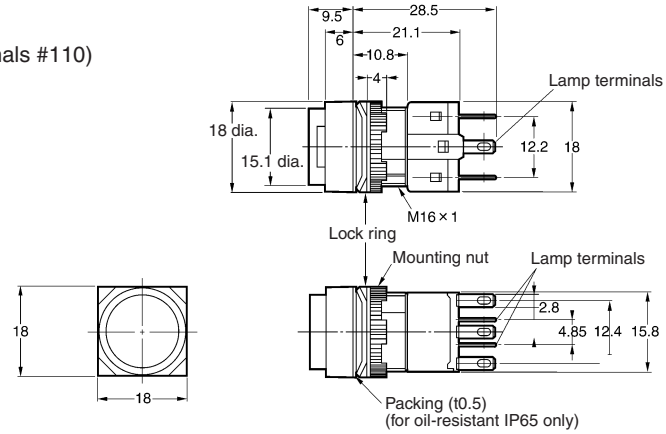
See page 25 for panel cutouts



Round
A16□-T

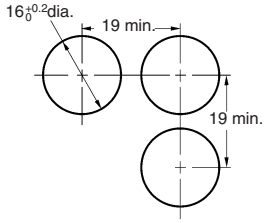
Solder terminals (tab terminals #110)





Panel Cutouts

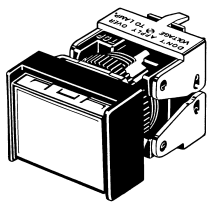
See page 25 for panel cutouts

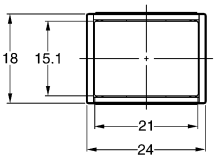


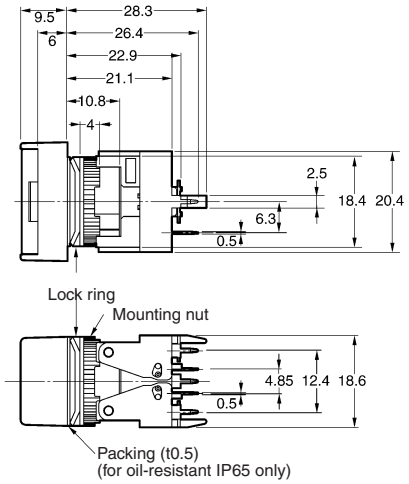
The following diagrams show the rectangular model as a representative example.

Rectangular
A16□-J

PCB terminals

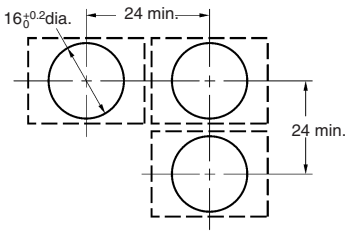






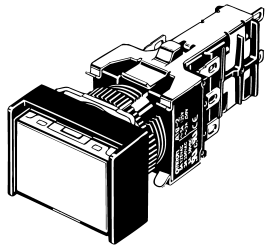
Panel Cutouts

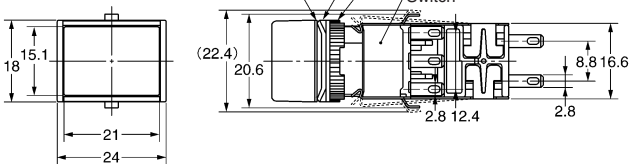
See page 25 for panel cutouts



Rectangular
A16□-T1, T2

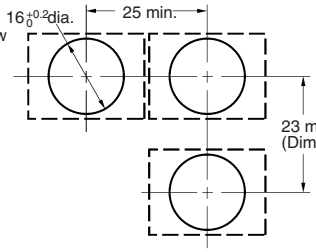
Voltage-reduction lighting,
solder terminals
(tab terminals #110)





Panel Cutouts

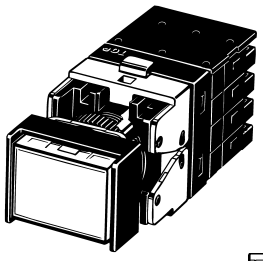
See page 25 for panel cutouts

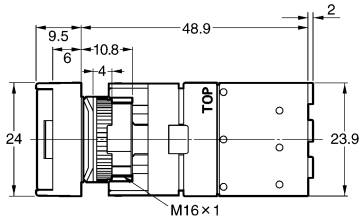


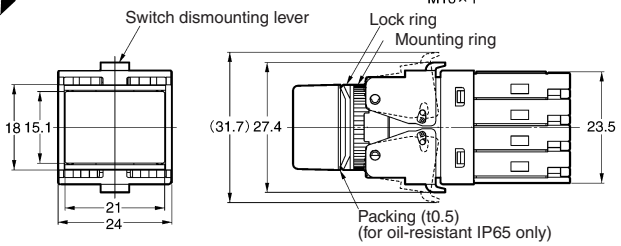
Recommended panel thickness: 0.5 to 3.2 mm

Rectangular
A16□-2S

Screw-Less Clamp

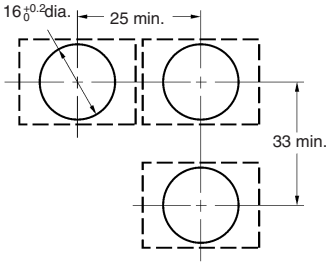






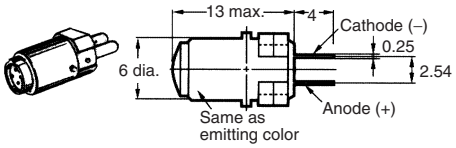
Panel Cutouts

See page 25 for panel cutouts

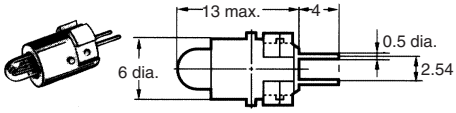


■ Lamps

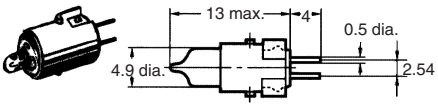
LED
A16-5DS□/-12DS□/-24DS□



Incandescent Lamp
A16-5/-12/-24

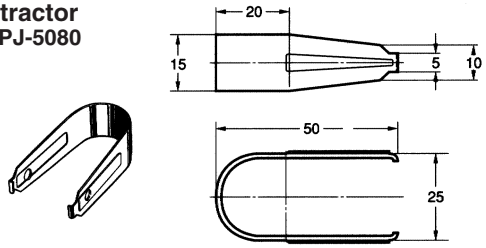


Neon Lamp
A16-1N/-2N

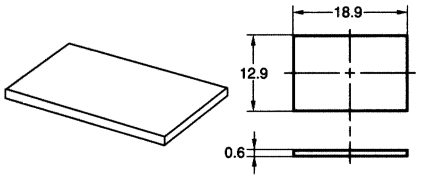


■ Accessories, Tools, and Components

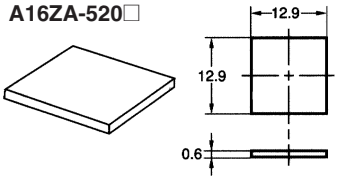
Extractor
A3PJ-5080



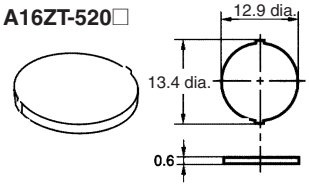
Legend Plates
A16ZJ-520□



A16ZA-520□



A16ZT-520□

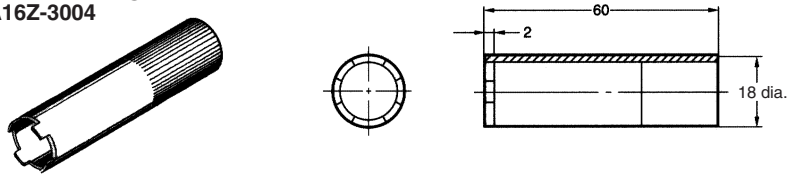


Note: 1. The panel is 0.6 mm thick.
2. The panel is made of the materials listed in the following table.

Color	Degree of protection	Materials
Milky	IP40	Polyacrylate resin
	IP65	
Transparent	IP40	Polycarbonate resin
	IP65	Polyacrylate resin

Note: The standard model is transparent.

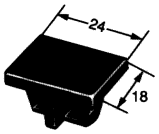
Screw Fitting
A16Z-3004



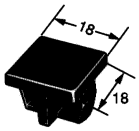
Panel Plugs (Black Resin)

Select the Plug that fits the panel design and mount from the front of the Panel. Panel cutouts are the same as those for Switches.

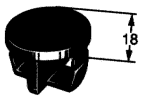
Rectangular
A16ZJ-3003



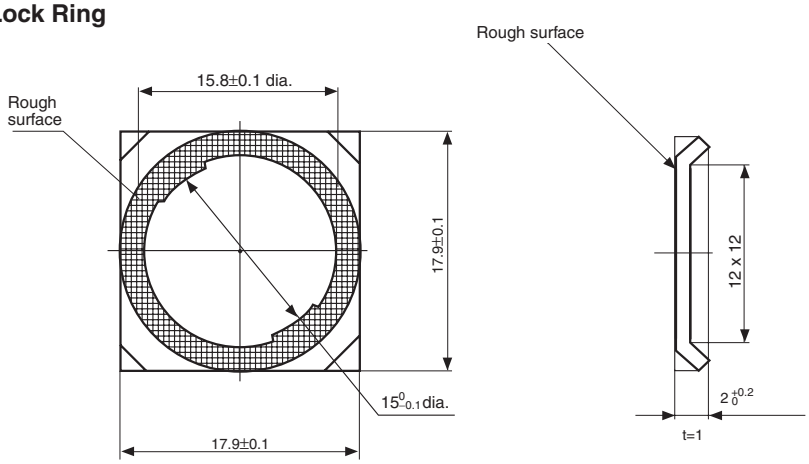
Square
A16ZA-3003



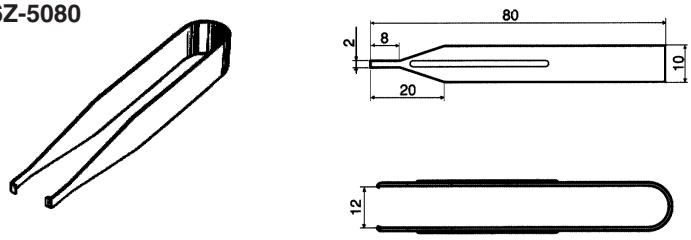
Round
A16ZT-3003



Lock Ring



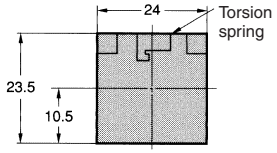
Extractor
A16Z-5080

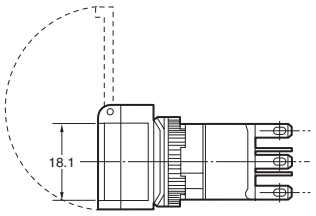


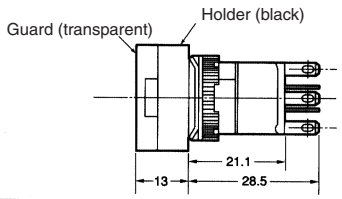
■ Dimensions with Accessories

Switch Guards

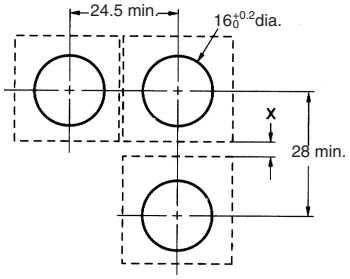
Rectangular
A16ZJ-5050





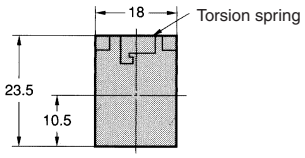


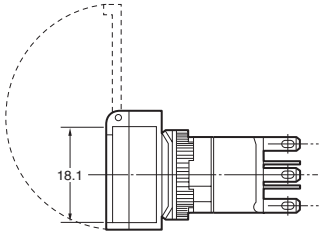
Panel Cutouts (Top View)

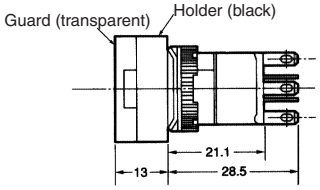


Note: The above illustration shows the case where 4.5 mm is provided for the distance "x." If no clearance is required for the "x" section, the vertical mounting dimension can be as small as 24 mm. Set this distance according to operating conditions.

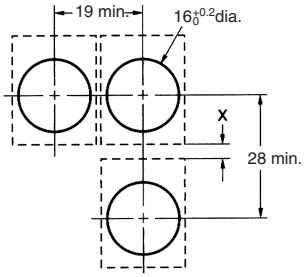
Square
A16ZA-5050







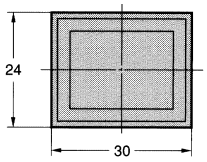
Panel Cutouts (Top View)

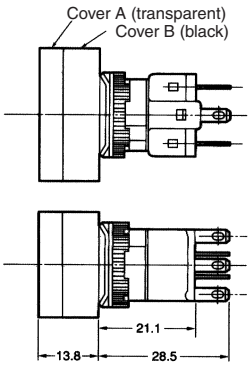


Note: The above illustration shows the case where 4.5 mm is provided for the distance "x." If no clearance is required for the "x" section, the vertical mounting dimension can be as small as 24 mm.Set this distance according to operating conditions.For models with PCB terminals, the horizontal mounting dimension is 24 mm min.

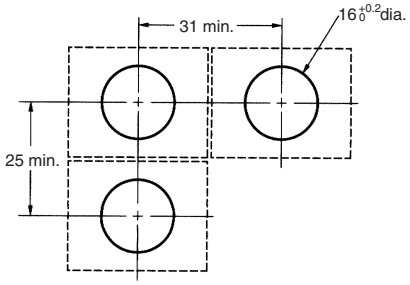
Dust Covers

Rectangular
A16ZJ-5060

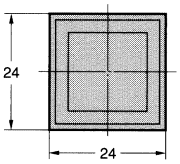


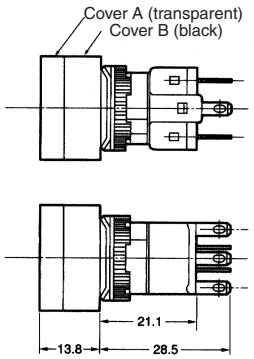


Panel Cutouts

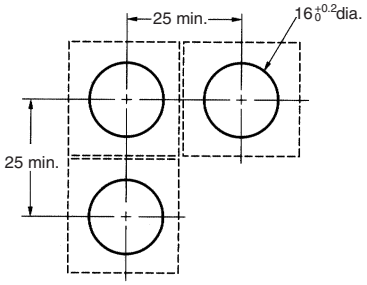


Square
A16ZA-5060

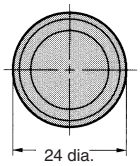


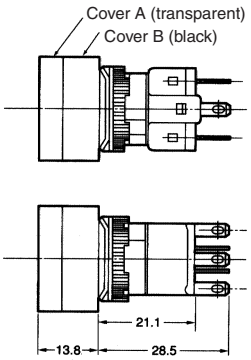


Panel Cutouts

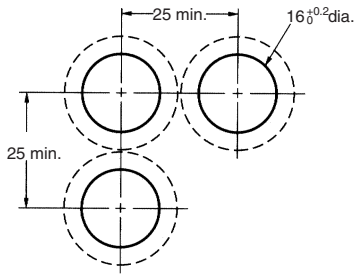


Round
A16ZT-5050





Panel Cutouts



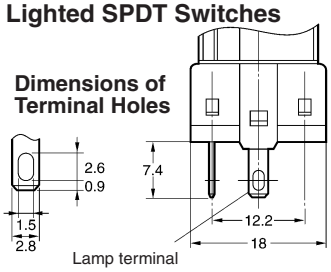
■ Terminal Arrangement

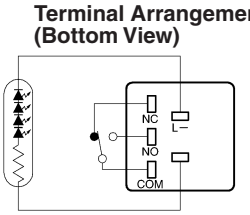
Models without Reduced-voltage Lighting

Non-lighted Pushbutton Switches are also provided with lamp terminals.

Solder Terminals

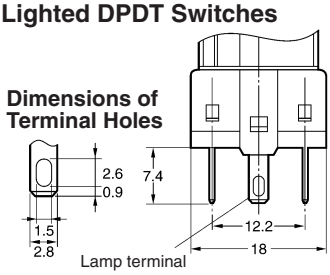
Lighted SPDT Switches

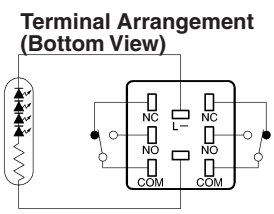




Note: The L+ is not shown on the Switch.

Lighted DPDT Switches

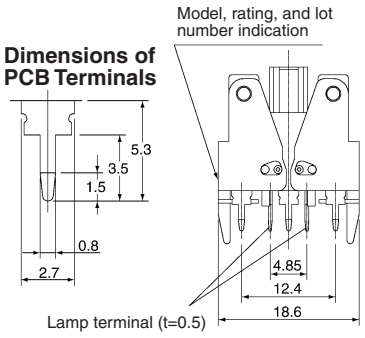


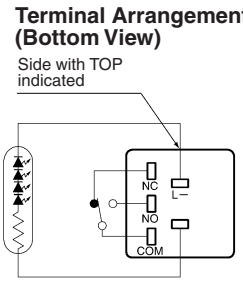


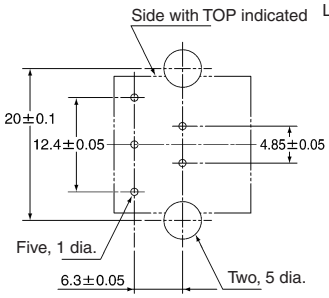
Note: The L+ is not shown on the Switch.

PCB Terminals

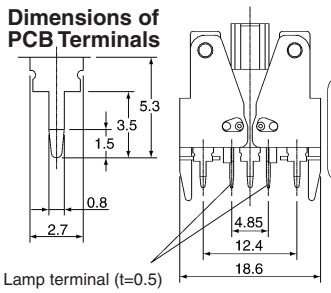
Lighted SPDT Switches

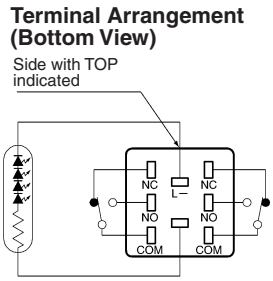


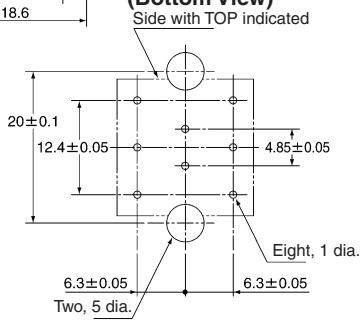




Lighted DPDT Switches

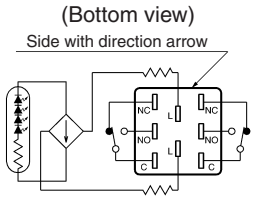






Voltage Reduction Units

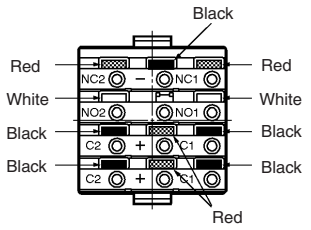
DPDT lighted models

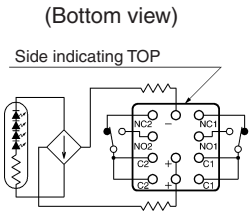


• The voltage-reduction circuit is built in.

Screw-Less Clamps

DPDT lighted models



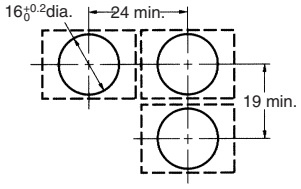


• Voltage-reduction lighting models with Screw-Less Clamps (A16L-□T1-2S, A16L-□T2-2S) incorporate voltage-reduction circuits.

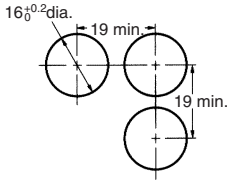
■ Panel Cutouts

Solder Terminals

Rectangular A16□-J/M16□-□J
(Top View)



Square A16□-A/M16□-A
Round A16□-T/M16□-T
(Top View)

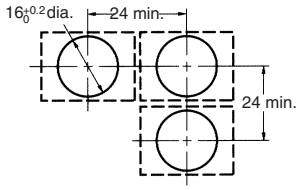


Note: 1. Make sure the thickness of the mounting panel is between 0.5 and 3.2 mm. If, however, a Switch Guard or Dust Cover is used, the thickness of the mounting panel must be between 0.5 and 2 mm.

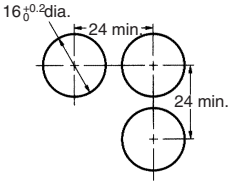
2. If the panel is to be finished with coating, etc., make sure that the panel meets the specified dimensions after coating.

PCB Terminals

Rectangular A16□-J/M16□-J
(Top View)



Square A16□-A/M16□-A, A165□-BA, M165-BA
Round A16□-T/M16□-T
(Top View)



Note: 1. Ensure that the variation in the distance between the centers of neighboring mounting holes is less than ±0.1 mm.

2. Make sure the thickness of the mounting panel is between 0.5 and 3.2 mm. If, however, a Switch Guard or Dust Cover is used, the thickness of the mounting panel must be between 0.5 and 2 mm.

3. If the panel is to be finished with coating, etc., make sure that the panel meets the specified dimensions after coating.