ø30 Series Switches & Pilot Lights

Heavy duty switches & pilot lights offer both variety and reliability
Endures harsh environments

- Degree of protection: IP65
- UL, CSA approved, and EN compliant.

Applicable Standards	Mark	File No. or Organization
UL 508		UL Listing File No. E68961
CSA C22.2 No.14		CSA File No. LR21451
EN60947-5-1		EU Low Voltage Directive
GB14048.5		CCC No. 200501030514658

Specifications and Ratings

Contact Ratings

Pushbuttons Illuminated Pushbuttons Selector Switches Illuminated Selector Switches Selector Pushbuttons	Contact Block	BS/BST (ø30 series)
	Rated Insulation Voltage	600V
	Rated Continuous Current	10A
	Contact Ratings by Utilization Category IEC 60947-5-1	AC-15 (A600) DC-13 (P600)

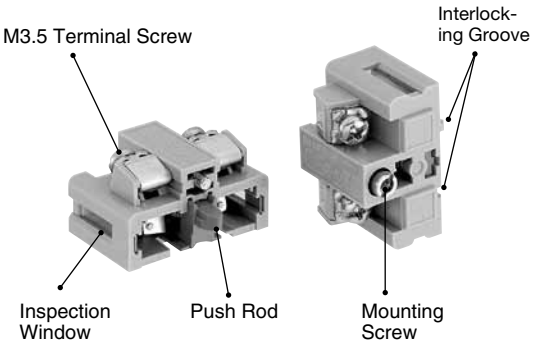
Characteristics

Contact Ratings by Utilization Category

Operational Voltage			24V	48V	50V	110V	220V	440V
Operational Current	AC 50/60 Hz	AC-12 Control of resistive loads and solid state loads	10A	—	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72 VA)	10A	—	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads and solid state loads	10A	5A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—

Note: The operational current represents the classification by making and breaking currents (IEC 60947-5-1).
Minimum applicable load: 3V AC/DC, 5 mA (applicable range may vary with operating conditions and load types)
For mono-levers and cam switches, see pages 55 and 58.

BS (BST) Contact Block



Contact Blocks

Contact		Single-pole Contact Block			
		1NO	1NC	1$\overline{NO}$ (early make)	1$\overline{NC}$ (late break)
Part No.	BS	**BS010E**	**BS001E**	**BS010SE**	**BS001SE**
	BST	**BST010**	**BST001**	**BST010S**	**BST001S**
Push Rod		Green	Red	Black	White

BST contact blocks are used for the following switches and are not interchangeable with BS contact blocks.
(The BS housing is dark gray and the BST housing is light gray.)

- Pushlock turn reset and push turn lock switches
- LED illuminated pushbuttons
- LED/incandescent illuminated selector switches
- All models of diecast zinc housing swiches & pilot lights

- Durable nylon 66 housing has a high resistance against alkalis.
- Silver contacts. Gold contact (gold-plated silver) also available.
- Up to four blocks in two layers can be mounted onto each operator.

LED Illuminated Unit Specifications

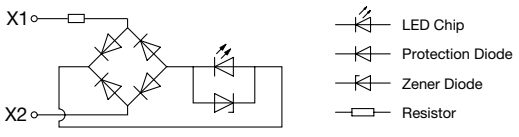
Unit	Color Code ②	Input	Operating Voltage	LED Lamp		
				Lamp Base	Part No.	Voltage
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	Full Voltage	6V AC/DC	BA9S/13	**LSTD-6**②	6V AC/DC ±10%
			12V AC/DC		**LSTD-1**②	12V AC/DC ±10%
			24V AC/DC		**LSTD-2**②	24V AC/DC ±10%
			6V AC/DC	E12/15	**LETD-6**②	6V AC/DC ±10%
			12V AC/DC		**LETD-8**②	12V AC/DC ±10%
			24V AC/DC		**LETD-2**②	24V AC/DC ±10%
		Transformer	100/110V AC 120V AC 200/220V AC 240V AC 380V AC 400/440V AC (50/60 Hz)	BA9S/13	**LSTD-6**②	6V AC/DC ±10%
				E12/15	**LETD-6**②	
		DC-DC Converter	110V DC	BA9S/13	**LSTD-6**②	6V AC/DC ±10%
				E12/15	**LETD-6**②	

Note: A pure white LED lamp is used for yellow illumination.

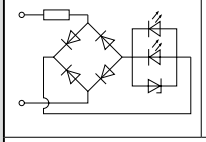
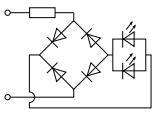
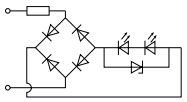
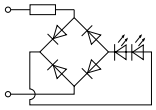
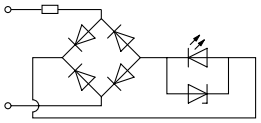
Incandescent Illuminated Unit Specifications

Unit	Color Code ②	Input	Operating Voltage	Incandescent Lamp		
				Lamp Base	Part No.	Rating
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber G: green O: orange R: red S: blue W: white	Full Voltage	6V AC/DC	BA9S/13	**LS-6**	1W (6.3V)
			12V AC/DC		**LS-8**	1W (18V)
			24V AC/DC		**LS-3**	1W (30V)
			6V AC/DC	E12/15	**LE-6**	2W (6.3V)
			12V AC/DC		**LE-8**	2W (18V)
			24V AC/DC		**LE-3**	12W (30V)
		Transformer	100/110V AC 120V AC 200/220V AC 240V AC 380V AC 400/440V AC 480V AC (50/60 Hz)	BA9S/13	**LS-6**	1W (6.3V)
				E12/15	**LE-8**	2W (18V)

LED Lamp Ratings (LSTD)

Part No.		**LSTD-6**②	**LSTD-1**②	**LSTD-2**②
Lamp Base		BA9S/13		
Rated Voltage		6V AC/DC	12V AC/DC	24V AC/DC
Voltage Range		6V AC/DC ±10%	12V AC/DC ±10%	24V AC/DC ±10%
Current Draw	AC	8 mA	11 mA	11 mA
	DC	A, R, W: 7 mA G, PW, S: 5.5 mA	10 mA	10 mA
Color Code ②		A (amber), G (green), PW (pure white), R (red), S (blue), W (white)		
Lamp Base Color		Same as illumination color		
Voltage Marking		Die stamped on the base		
Life (reference value)		Approx. 50,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC.)		
Internal Circuit				

LED Lamp Ratings (LETD)

Part No.		LETD-6②		LETD-8②	LETD-2②
Lamp Base		E12/15			
Rated Voltage		6V AC/DC		12V AC/DC	24V AC/DC
Voltage Range		6V AC/DC ±10%		12V AC/DC ±10%	24V AC/DC ±10%
Current Draw		A, R, W, Y	G, S	A, R, W, Y	G, S
	AC	17 mA	8 mA	7 mA	11 mA
	DC	14 mA	5.5 mA	6.5 mA	10 mA
Color Code ②		A (amber), G (green), R (red), S (blue), W (white), Y (yellow)			
Lamp Base Color		Same as illumination color			
Voltage Marking		Die stamped on the base			
Life (reference value)		Approx. 50,000 hours (The luminance is reduced to 50% the initial intensity when used on complete DC.)			
Internal Circuit		A, R, W	Y	A, R, W	Y
					
		G, S			
					

Incandescent Lamp Ratings (LS)

Part No.	LS-6	LS-8	LS-2	LS-3
Lamp Base	BA9S/13			
Rated Voltage	6V AC/DC	12V AC/DC	18V AC/DC	24V AC/DC
Wattage	1W (6.3V)	1W (18V)	1W (24V)	1W (30V)
Voltage Marking	Die stamped on the base			
Life (reference value)	Approx. 1,000 hours minimum (mean value when used on the rated voltage)			

Incandescent Lamp Ratings (LE)

Part No.	LE-6	LE-8	LE-2	LE-3
Lamp Base	E12/15			
Rated Voltage	6V AC/DC	12V AC/DC	18V AC/DC	24V AC/DC
Wattage	2W (6.3V)	2W (18V)	2W (24V)	2W (30V)
Voltage Marking	Die stamped on the base			
Life (reference value)	Approx. 1,000 hours minimum (mean value when used on the rated voltage)			

Specifications

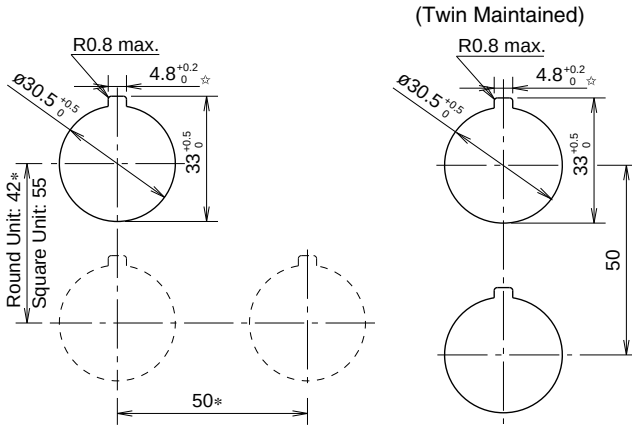
Operating Temperature	–25 to +50°C (no freezing)
Storage Temperature	–40 to +80°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead metal parts: 2,500V AC, 1 minute (Full voltage and pilot lights: 2,000V AC, 1 minute)
Vibration Resistance	Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s² Operating extremes: 100 m/s²
Mechanical Life (minimum operations)	Pushbuttons Momentary: 5,000,000 Maintained: 500,000 Illuminated pushbuttons Momentary: 2,500,000 Maintained: 500,000 Selector switches: 500,000 Key selector switches: 500,000 Illuminated selector switches: 500,000 Selector pushbuttons: 250,000 Mono-lever switches: 500,000 (Interlocking): 250,000 Pushlock turn reset 500,000 Mushroom push-pull switch Two contact blocks: 500,000 Four contact blocks: 200,000
Electrical Life (minimum operations)	Pushbuttons: 500,000 ∗1 Illuminated pushbuttons: 500,000 ∗1 Selector switches: 500,000 ∗2 Key selector switches: 500,000 ∗2 Illuminated selector switches: 500,000 ∗2 Selector pushbuttons: 250,000 ∗2 Mono-lever switches: 500,000 ∗3 (Interlocking): 250,000 ∗3 ∗1 Switching frequency 1,800 operations/h, duty ratio 40% ∗4 ∗2 Switching frequency 1,200 operations/h, duty ratio 40% ∗3 Switching frequency 900 operations/h, duty ratio 40% ∗4 Switching frequency 900 operations/h for square twin or twin maintained

Degree of Protection

Part No.	Unit	NEMA ICS 6-110	IEC 60529
A∗∗∗∗	Pushbuttons, pilot lights, illuminated pushbuttons, selector switches, selector pushbuttons, mono-lever switches, and cam switches (ACSNO/ACSSO)	Type 1, 2, 3, 3R, (3S), 4, 5, 12,13	IP65
	Illuminated selector switches, key pushbuttons, key reset pushbuttons, key cam switches, and key selector switches	Type 1, 2, 3, 3R, 5, 12, 13	IP54
U∗∗∗∗	Square pushbuttons, square pilot lights, and cam switches (UC)	Type 1, 2	IP40

Note: (3S) of NEMA ICS 6-110 applies to the pilot lights with round lens.

Mounting Hole Layout



∗The minimum mounting centers are applicable to switches with one layer of contact blocks (two contact blocks). When two layers of contact blocks (four contact blocks) are mounted, determine the minimum mounting centers in consideration of convenience for wiring.

- Mushroom with shroud: 50 mm minimum
- Jumbo mushroom: 67 mm minimum
- Jumbo mushroom with shroud: 76 mm minimum
- Square twin: 55 mm minimum
- Selector switch with lever: 50 mm minimum

☆ The 4.8 mm recess is for preventing rotation and is not necessary when the nameplate or anti-rotation ring is not used.

Note: For mounting hole layout of pushbuttons, mono-lever switches, and cam switches, see each section.

Ordering Information

Standard Units

- Specify an operator or lens color code in the Part No.
- Black, green, and red buttons are included with flush push-buttons.
- Terminal covers, nameplates, and accessories are ordered separately.

Terminal Cover

- When a terminal cover is required, order an applicable terminal cover referring to page 67.

The Part No. development charts shown below can be used to specify switches and pilot lights other than those listed on the following pages. Gold-plated silver contacts are also available.

ø30 Series Pushbuttons

ABN2 11 R - MAU

- MAU: Optional contact (MAU: Gold-plated silver contact)
- R: Button color code
- 11: Contact arrangement code

10: 1NO	01: 1NC
11: 1NO-1NC	20: 2NO
02: 2NC	22: 2NO-2NC
40: 4NO	04: 4NC
13: 1NO-3NC	31: 3NO-1NC
30: 3NO	03: 3NC
12: 1NO-2NC	21: 2NO-1NC

Note:
- Mushroom pull ATN23 can have a maximum of two contact blocks.
- Mushroom push-pull return ATN22 cannot have only NO or only NC contacts.
- No other contact configurations are available for square twin UWQN1 than those specified in this catalog.

ø30 Series Illuminated Pushbuttons

ALFN2 126 13 D N R - MAU

- MAU: Optional contact (MAU: Gold-plated silver contact)
- R: Lens color code
- 13: Contact arrangement code

11: 1NO-1NC	20: 2NO
02: 2NC	31: 3NO-1NC
22: 2NO-2NC	13: 1NO-3NC
40: 4NO	04: 4NC

- 126: Operating voltage code

Note:
- Illuminated pushbuttons cannot have an odd number of contact blocks, such as 1NO, 1NC, 3NO, 2NO-1NC, 1NO-2NC, and 3NC.

ø30 Series Pilot Lights

APN1 116 D R

- R: Lens color code
- 116: Operating voltage code

Note:
- LED lamps cannot be used on 480V AC transformers.

ø30 Series Switches & Pilot Lights (Ordering Information) ø30

ø30 Series Selector Switch

ASN 2 L 11 - MAU

- Optional contact
  - MAU: Gold-plated silver contact
- Contact arrangement code
- Operator
  - (blank): Knob
  - L: Lever
- Operator position code

ø30 Series Illuminated Selector Switch

ASLN 2 16 22 D N R - MAU

- Optional contact
  - MAU: Gold-plated silver contact
- Lens color code
- Contact arrangement code
- Operating voltage code
- Number of positions

ø30 Series Key Selector Switch

ASN 2 K 11 D - MAU

- Optional contact
  - MAU: Gold-plated silver contact
- Key removable position code

2-position
- Maintained
  - (blank): Removable in all positions
  - B: Removable in left only
  - C: Removable in right only
- Spring return from right
  - (blank): Removable in left only
- Spring return from left
  - (blank): Removable in right only

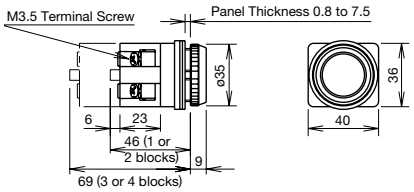
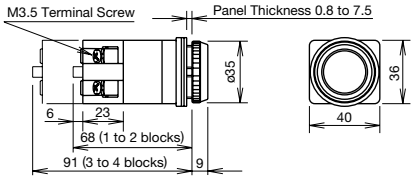
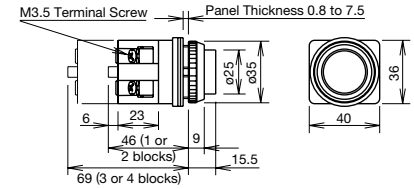
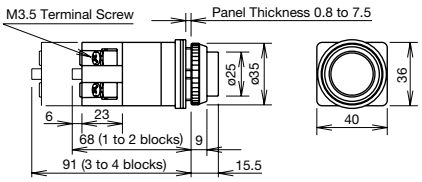
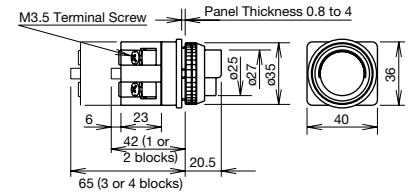
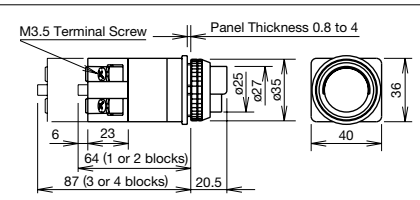
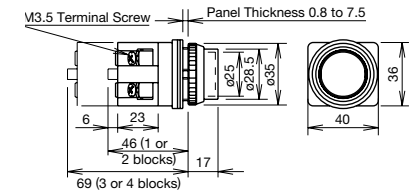
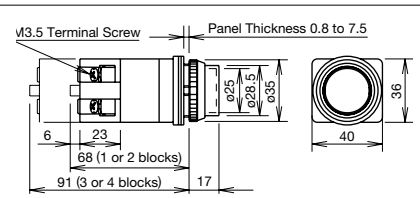
3-position
- Maintained
  - (blank): Removable in all positions
  - B: Removable in left and center
  - C: Removable in right and center
  - D: Removable in center only
  - E: Removable in right and left
  - G: Removable in left only
  - H: Removable in right only
- Spring return from right
  - (blank): Removable in left and center
  - D: Removable in center only
  - G: Removable in left only
- Spring return from left
  - (blank): Removable in right and center
  - D: Removable in center only
  - H: Removable in right only
- Spring return two-way
  - (blank): Removable in center only

- Contact arrangement code
- Operator position code

Note:
- The key cannot be removed in the return position.

Flush / Extended / Extended w/Half Shroud / Extended w/Full Shroud Pushbuttons

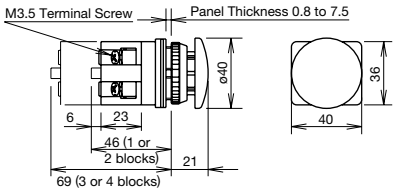
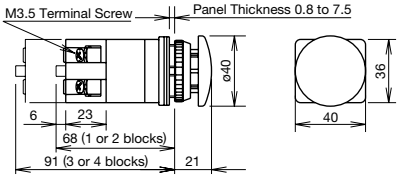
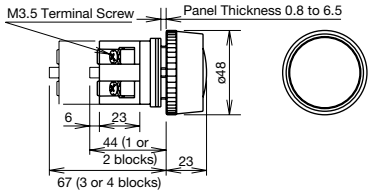
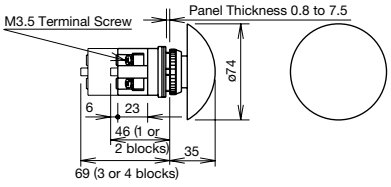
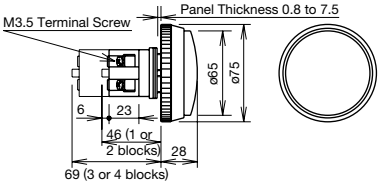
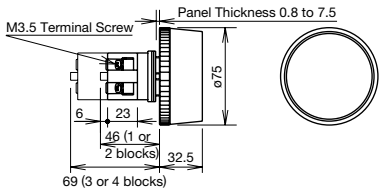
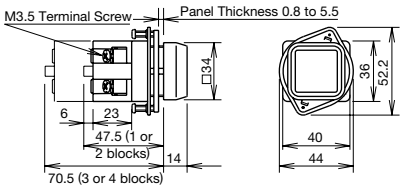
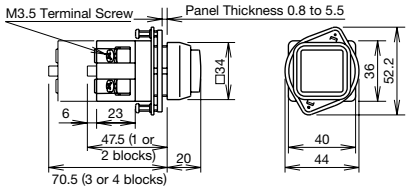
Package Quantity: 1

Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Flush ABN1  (nameplate sold separately)	Momentary	1NO	**ABN110**①	Black (B), green (G), and red (R) buttons are supplied with each unit. Specify S, W, or Y when a blue, white, or yellow button is required.	
		1NC	**ABN101**①		
		1NO-1NC	**ABN111**①		
		2NO	**ABN120**①		
		2NC	**ABN102**①		
		2NO-2NC	**ABN122**①		
Flush AON1  (nameplate sold separately)	Maintained	1NO	**AON110**①		
		1NC	**AON101**①		
		1NO-1NC	**AON111**①		
		2NO	**AON120**①		
		2NC	**AON102**①		
		2NO-2NC	**AON122**①		
Extended ABN2  (nameplate sold separately)	Momentary	1NO	**ABN210**①		
		1NC	**ABN201**①		
		1NO-1NC	**ABN211**①		
		2NO	**ABN220**①		
		2NC	**ABN202**①		
		2NO-2NC	**ABN222**①		
Extended AON2  (nameplate sold separately)	Maintained	1NO	**AON210**①		
		1NC	**AON201**①		
		1NO-1NC	**AON211**①		
		2NO	**AON220**①		
		2NC	**AON202**①		
		2NO-2NC	**AON222**①		
Extended with Half Shroud ABN2G  (nameplate sold separately)	Momentary	1NO	**ABN2G10**①		
		1NC	**ABN2G01**①		
		1NO-1NC	**ABN2G11**①		
		2NO	**ABN2G20**①		
		2NC	**ABN2G02**①		
		2NO-2NC	**ABN2G22**①		
Extended with Half Shroud AON2G  (nameplate sold separately)	Maintained	1NO	**AON2G10**①	Specify a button color code in place of ① in the Part No. B: black G: green R: red S: blue W: white Y: yellow	
		1NC	**AON2G01**①		
		1NO-1NC	**AON2G11**①		
		2NO	**AON2G20**①		
		2NC	**AON2G02**①		
		2NO-2NC	**AON2G22**①		
Extended with Full Shroud ABN2F  (nameplate sold separately)	Momentary	1NO	**ABN2F10**①		
		1NC	**ABN2F01**①		
		1NO-1NC	**ABN2F11**①		
		2NO	**ABN2F20**①		
		2NC	**ABN2F02**①		
		2NO-2NC	**ABN2F22**①		
Extended with Full Shroud AON2F  (nameplate sold separately)	Maintained	1NO	**AON2F10**①		
		1NC	**AON2F01**①		
		1NO-1NC	**AON2F11**①		
		2NO	**AON2F20**①		
		2NC	**AON2F02**①		
		2NO-2NC	**AON2F22**①		

- Round bezel and shroud (metal): Chrome-plated
- Other contact arrangements and gold-plated silver contacts are also available. See page 20.

Mushroom / Jumbo Mushroom / Square Flush / Square Extended Pushbuttons

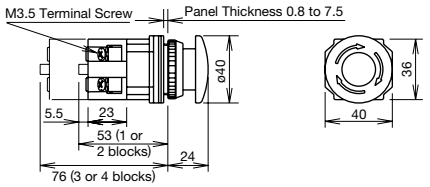
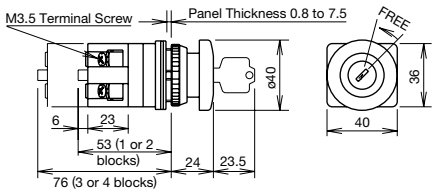
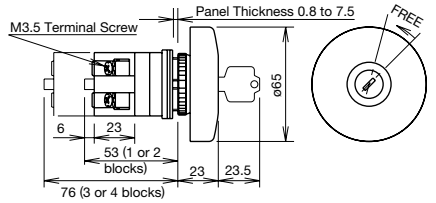
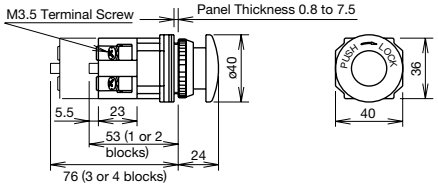
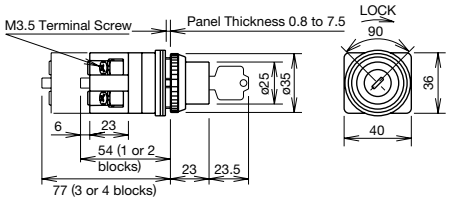
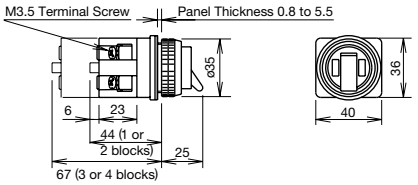
Package Quantity: 1

Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Mushroom ABN3  (nameplate sold separately)	Momentary	1NO	**ABN310**①	B: black G: green R: red S: blue W: white Y: yellow	
		1NC	**ABN301**①		
		1NO-1NC	**ABN311**①		
		2NO	**ABN320**①		
		2NC	**ABN302**①		
		2NO-2NC	**ABN322**①		
Mushroom AON3  (nameplate sold separately)	Maintained	1NO	**AON310**①		
		1NC	**AON301**①		
		1NO-1NC	**AON311**①		
		2NO	**AON320**①		
		2NC	**AON302**①		
		2NO-2NC	**AON322**①		
Mushroom with Full Shroud ABN3G 	Momentary	1NO	**ABN3G10**①		
		1NC	**ABN3G01**①		
		1NO-1NC	**ABN3G11**①		
		2NO	**ABN3G20**①		
		2NC	**ABN3G02**①		
		2NO-2NC	**ABN3G22**①		
Palm Mushroom ABN4 	Momentary	1NO	**ABN410**①		
		1NC	**ABN401**①		
		1NO-1NC	**ABN411**①		
		2NO	**ABN420**①		
		2NC	**ABN402**①		
		2NO-2NC	**ABN422**①		
Jumbo Mushroom with Shallow Shroud ABN4G 	Momentary	1NO	**ABN4G10**①	B: black G: green R: red	
		1NC	**ABN4G01**①		
		1NO-1NC	**ABN4G11**①		
		2NO	**ABN4G20**①		
		2NC	**ABN4G02**①		
		2NO-2NC	**ABN4G22**①		
Jumbo Mushroom with Deep Shroud ABN4F 	Momentary	1NO	**ABN4F10**①		
		1NC	**ABN4F01**①		
		1NO-1NC	**ABN4F11**①		
		2NO	**ABN4F20**①		
		2NC	**ABN4F02**①		
		2NO-2NC	**ABN4F22**①		
Square Flush UBQN1 	Momentary	1NO	**UBQN110**①	B: black G: green R: red Y: yellow	
		1NC	**UBQN101**①		
		1NO-1NC	**UBQN111**①		
		2NO	**UBQN120**①		
		2NC	**UBQN102**①		
		2NO-2NC	**UBQN122**①		
Square Extended UBQN2 	Momentary	1NO	**UBQN210**①		
		1NC	**UBQN201**①		
		1NO-1NC	**UBQN211**①		
		2NO	**UBQN220**①		
		2NC	**UBQN202**①		
		2NO-2NC	**UBQN222**①		

- Specify a button color code in place of ① in the Part No.
- Round/square bezel and shroud (metal): Chrome-plated
- Other contact arrangements and gold-plated silver contacts are also available. See page 20.

Pushlock Turn Reset / Pushlock Key Reset / Push Turn Lock / Key ON/OFF Lock / Toggle Lever Pushbuttons

Package Quantity: 1

Shape	Contact	Part No.	① Button Color Code	Dimensions (mm)
Mushroom Pushlock Turn Reset AVN3 	1NO	**AVN310N①**	R: red Y: yellow	
	1NC	**AVN301N①**		
	1NO-1NC	**AVN311N①**		
	2NO	**AVN320N①**		
	2NC	**AVN302N①**		
	2NO-2NC	**AVN322N①**		
Mushroom Pushlock Key Reset ABN3K  (nameplate sold separately)	1NO	**ABN3K10①**	B: black G: green R: red Y: yellow	
	1NC	**ABN3K01①**		
	1NO-1NC	**ABN3K11①**		
	2NO	**ABN3K20①**		
	2NC	**ABN3K02①**		
	2NO-2NC	**ABN3K22①**		
Jumbo Mushtoon Pushlock Key Reset ABN4K 	1NO	**ABN4K10①**	B: black G: green R: red	
	1NC	**ABN4K01①**		
	1NO-1NC	**ABN4K11①**		
	2NO	**ABN4K20①**		
	2NC	**ABN4K02①**		
	2NO-2NC	**ABN4K22①**		
Pushlock Push Turn Lock AJN3 	1NO	**AJN310N①**	B: black G: green R: red Y: yellow	
	1NC	**AJN301N①**		
	1NO-1NC	**AJN311N①**		
	2NO	**AJN320N①**		
	2NC	**AJN302N①**		
	2NO-2NC	**AJN322N①**		
Key ON/OFF Lock ABN5  (nameplate sold separately)	1NO	**ABN510**	–	
	1NC	**ABN501**		
	1NO-1NC	**ABN511**		
	2NO	**ABN520**		
	2NC	**ABN502**		
	2NO-2NC	**ABN522**		
Toggle Lever ATN4  (nameplate sold separately)	1NO	**ATN410**	Lever: black	
	1NC	**ATN401**		
	1NO-1NC	**ATN411**		
	2NO	**ATN420**		
	2NC	**ATN402**		
	2NO-2NC	**ATN422**		

- Specify a button color code in place of ① in the Part No.
- Round bezel (metal): Chrome-plated
- Cylinder (metal): Chrome-plated
- Other contact arrangements and gold-plated silver contacts are also available. See page 20.
- **Pushlock Turn Reset:** Button is maintained when pressed and is reset when turned clockwise. Red buttons only.

Note: ø30 pushlock turn reset switches cannot be used as emergency stop switches. When emergency stop switches are required, use XN or HN series emergency stop switches (ISO 13850 and IEC 60947-5-5 compliant).

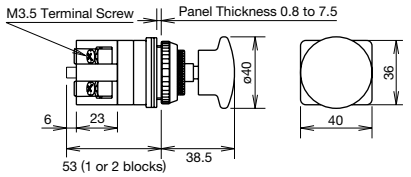
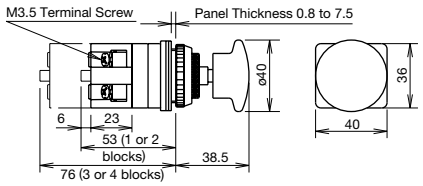
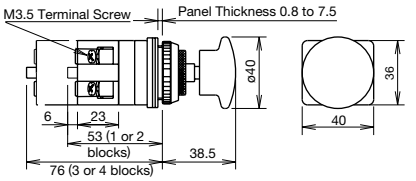
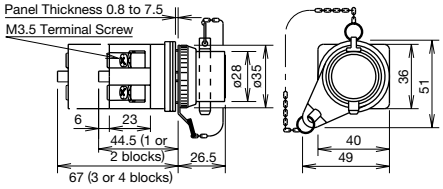
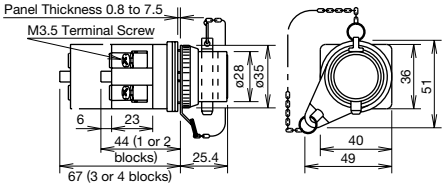
- **Pushlock Key Reset:** Button is maintained when pressed and is reset with a key. Key is removable from both depressed and reset positions. Two keys are supplied.

Note: ø30 pushlock key reset switches cannot be used as emergency stop switches. When emergency stop switches are required, use HW series emergency stop switches with a HW9Z-A30 ring adapter (ISO 13850 and IEC 60947-5-5 compliant).

- **Push Turn Lock:** Button is locked when turned clockwise in the depressed position and is reset when turned counterclockwise.
- **Key ON/OFF Lock:** Button can be locked in both depressed and reset positions.
- **Toggle Lever:** ON and OFF are indicated on the cap.

Pull / Push-Pull / Pin Lock Pushbuttons

Package Quantity: 1

Shape	Contact	Part No.	① Button Color Code	Dimensions (mm)
Mushroom Pull ATN23  (nameplate sold separately)	1NO	**ATN2310①**	B: black G: green R: red Y: yellow	
	1NO-1NC	**ATN2311①**		
	2NO	**ATN2320①**		
	2NC	**ATN2302①**		
Mushroom Push-Pull ATN21  (nameplate sold separately)	1NO-1NC	**ATN2111①**		
	2NO	**ATN2120①**		
	2NC	**ATN2102①**		
	2NO-2NC	**ATN2122①**		
Mushroom Push-Pull (Spring Return) ATN22  (nameplate sold separately)	1NO-1NC	**ATN2211①**		
	2NO-2NC	**ATN2222①**		
Pin Lock ABN8P  (nameplate sold separately)	1NO	**ABN8P10**	–	
	1NC	**ABN8P01**		
	1NO-1NC	**ABN8P11**		
	2NO	**ABN8P20**		
	2NC	**ABN8P02**		
	2NO-2NC	**ABN8P22**		
Pin Lock (ON Lock) ABN8P**-TK231-1 	1NO	**ABN8P10-TK231-1**	–	
	1NC	**ABN8P01-TK231-1**		
	1NO-1NC	**ABN8P11-TK231-1**		
	2NO	**ABN8P20-TK231-1**		
	2NC	**ABN8P02-TK231-1**		
	2NO-2NC	**ABN8P22-TK231-1**		

- Specify a button color code in place of ① in the Part No.
- Round bezel and shroud (metal): Chrome-plated
- Square bezel (metal): Chrome-plated
- Other contact arrangements and gold-plated silver contacts are also available. See page 20.
- **Pull:** Pulling the button operates the contacts. Up to 2 contact blocks (1 layer) can be mounted on pull switches.
- **Push-Pull:** Button is maintained in both depressed and reset positions.

Note: ø30 push pull switches cannot be used as emergency stop switches. When emergency stop switches are required, use XN series emergency stop switches (ISO 13850 and IEC 60947-5-5 compliant).

- **Push-Pull (Spring Return):** Pushing or pulling the button operates the contacts. Button is spring-returned to the center position.
- **Pin Lock:** Button can be locked in either depressed or reset position by inserting the pin. Pad lock with a ø6mm pin can also be used to lock the button.
- **Pin Lock (ON Lock):** Button is locked in the depressed position by inserting the pin. Button cannot be locked in the reset position.

Contact Operation

Pull Switch (Spring Return)

Contact	ATN23	
	Normal	Pull
1NO		
1NC		
1NO-1NC		
2NO		
2NC		

Push-Pull Switch (Maintained)

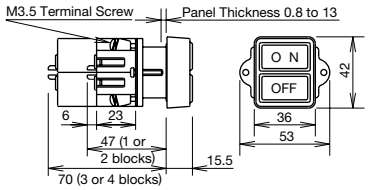
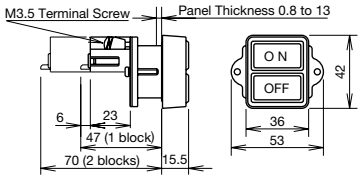
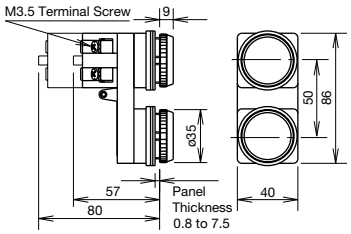
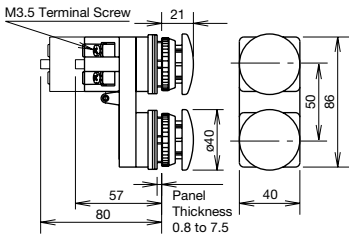
Contact	ATN21	
	Push	Pull
1NO-1NC		
2NO		
2NC		
2NO-2NC		

Push-Pull (Spring Return)

Contact	ATN22		
	Push	Normal	Pull
1NO-1NC			
2NO-2NC			

Square Twin / Twin Maintained Pushbuttons

Package Quantity: 1

Shape	Contact		Part No.	Button Color	Dimensions (mm)
Square Twin (Momentary) UWQN1  (nameplate sold separately)	**ON**	**OFF**		ON: Black OFF: Red	
	1NO	1NO	**UWQN11010**		
	1NO	1NC	**UWQN11001**		
	2NO	2NC	**UWQN12002**		
Square Twin (Maintained) UWQN2  (nameplate sold separately)	**ON**	**OFF**		ON: Black OFF: Red	
	1NO	–	**UWQN21000**		
	1NC	–	**UWQN20100**		
	1NO-1NC	–	**UWQN21100**		
	2NO	–	**UWQN22000**		
	2NC	–	**UWQN20200**		
Flush Twin Maintained ABBN11  (nameplate sold separately)	**Top**	**Bottom**		Black (B), green (G), and red (R) buttons are supplied with each unit.	
	1NO	–	**ABBN1110**		
	1NC	–	**ABBN1101**		
	1NO-1NC	–	**ABBN1111**		
	2NO	–	**ABBN1120**		
	2NC	–	**ABBN1102**		
	2NO-2NC	–	**ABBN1122**		
Mushroom Twin Maintained (Without buttons) ABBN33  (nameplate sold separately)	**Top**	**Bottom**			
	1NO	–	**ABBN3310**		
	1NC	–	**ABBN3301**		
	1NO-1NC	–	**ABBN3311**		
	2NO	–	**ABBN3320**		
	2NC	–	**ABBN3302**		
	2NO-2NC	–	**ABBN3322**		

- Round bezel (metal): Chrome-plated
- Other contact arrangements and gold-plated silver contacts are also available. See page 20.
- **Square Twin (Momentary):** Two independent momentary switches are contained in one unit, each operated by ON or OFF button. With the ø30 adapter removed from the sleeve, the unit can mount in a ø25.5mm mounting hole for the ø25 series.
- **Square Twin (Maintained):** The contact operates when ON button is pressed and is maintained in the depressed position. The button is reset by pressing the OFF button.
- **Twin Maintained:** The contact operates when the top button is pressed and is maintained in the depressed position. The button is reset by pressing the bottom button.
  Different combinations of flush, extended HW9Z-A30 buttons, and colors are available (ABN1B-∗, ABN2B-∗). See page 73.
  Mushroom buttons for the ABBN33 are ordered separately. Specify the color code (ABN3B-∗). See page 73.

Dome Pilot Lights

Package Quantity: 1

Shape	Lamp	Lamp Receptacle	Part No.	② Lens/LED Color Code	Applicable Lamp
Dome APN1 APNE1   UL CSA CE EAC	Without Lamp	BA9S	**APN199**②	DNA: amber C: clear G: green O: orange R: red S: blue W: white DNY: yellow	See page 75 for lamps.
		E12	**APNE199**②		
	LED	BA9S	**APN1**③**DN**②	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	LSTD-∗②
		E12	**APNE1**③**DN**②	A: amber G: green R: red S: blue W: white Y: yellow	LETD-∗②
	Incandescent	BA9S	**APN1**③②	C: clear G: green O: orange R: red S: blue W: white	LS-∗
		E12	**APN1**③②		LE-∗

Operating Voltage Code

Specify an operating voltage code in place of ③ in the Part No.

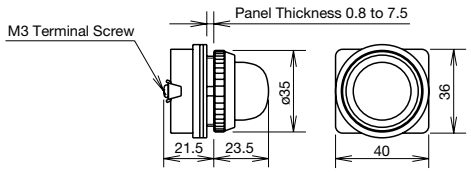
③ Operating Voltage Code			Input
LED	Incandescent (BA9S)	Incandescent (E12)	
66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC		Full Voltage
16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	18: 100/110V AC 128: 120V AC 238: 200/220V AC 248: 240V AC 388: 380V AC 48: 400/440V AC 488: 480V AC	Transformer
16D: 110V DC			DC-DC Converter ∗

- Specify a lens/LED color code in place of ② in the Part No.
- Use a white lens for LED pure white illumination (LSTD).
- Use a pure white LED lamp for yellow illumination.

∗ DC-DC converter types are not approved by UL and CSA, and not CE compliant (operating voltage 90 to 140V DC).

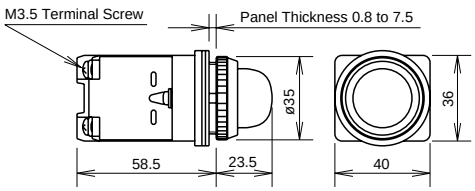
Dimensions

Full Voltage



Transformer

DC-DC Converter



All dimensions in mm.

Square / Rectangular (Marking) Pilot Lights

Package Quantity: 1

Shape	Lamp	Lamp Receptacle	Part No.	② Lens/LED Color Code	Applicable Lamp
Square UPQN3B 	Without Lamp	BA9S	**UPQN3B99②**	DA: amber C: clear G: green O: orange R: red S: blue W: white DY: yellow	See page 75 for lamps.
	LED	BA9S	**UPQN3B③D②**	A: amber G: green R: red S: blue W: white Y: yellow	LSTD-∗②
	Incandescent	BA9S	**UPQN3B③②**	C: clear G: green O: orange R: red S: blue W: white	LS-∗
Rectangular (Marking) UPQN4 	Without Lamp	BA9S	**UPQN499②**	DA: amber G: green O: orange R: red S: blue W: white DY: yellow	See page 75 for lamps.
	LED	BA9S	**UPQN4③D②**	A: amber G: green R: red S: blue W: white Y: yellow	LSTD-∗②
	Incandescent	BA9S	**UPQN4③②**	G: green O: orange R: red S: blue W: white	LS-∗
Rectangular (Marking) UPQNE4 UPQN4 	Without Lamp	E12	**UPQNE499②**	DA: amber G: green O: orange R: red S: blue W: white DY: yellow	See page 75 for lamps.
	LED	E12	**UPQNE4③D②**	A: amber G: green R: red S: blue W: white Y: yellow	LETD-∗②
	Incandescent	E12	**UPQN4③②** (Note)	G: green O: orange R: red S: blue W: white	LE-∗

Operating Voltage Code

Specify an operating voltage code in place of ③ in the Part No.

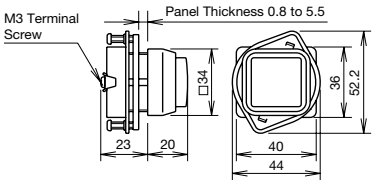
③ Operating Voltage Code			Input Type
LED	Incandescent (BA9S)	Incandescent (E12)	
66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC (Note) When ordering 6V, 12V, 24V AC/DC units, specify "E " before the operating voltage code. UPQN4E③②.	Full Voltage
16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	18: 100/110V AC 128: 120V AC 238: 200/220V AC 248: 240V AC 388: 380V AC 48: 400/440V AC 488: 480V AC	Transformer
16D: 110V DC			DC-DC Converter ∗

- Specify a lens/LED color code in place of ② in the Part No.
- Use a pure white LED lamp for yellow illumination (LSTD)
- On the rectangular marking pilot light, a clear lens and a color marking plate are used for white illumination.
  Marking plate: 24 × 30 mm, 2 mm thick

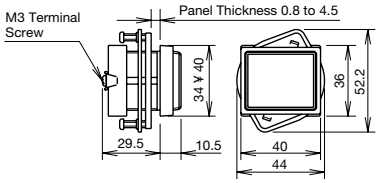
∗ DC-DC converter types are not approved by UL and CSA, and not CE compliant (operating voltage 90 to 140V DC).

Dimensions

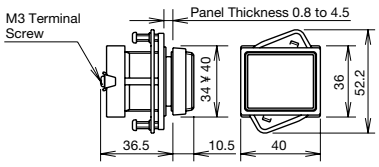
Square Full Voltage
UPQN3B



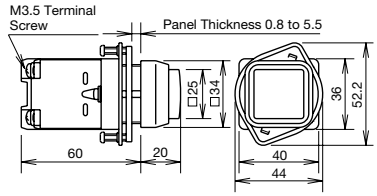
Rectangular Full Voltage
UPQN4



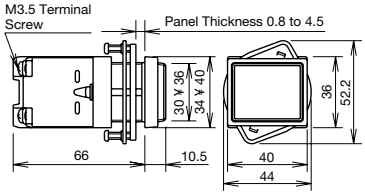
Rectangular Full Voltage
UPQNE4



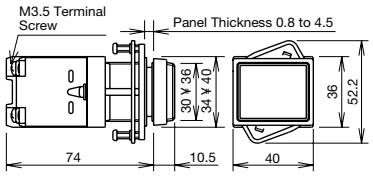
Square Transformer
Square DC-DC Converter
UPQN3B



Rectangular Transformer
Rectangular DC-DC Converter
UPQN4



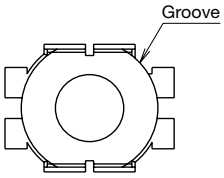
Rectangular Transformer
Rectangular DC-DC Converter
UPQNE4



All dimensions in mm.

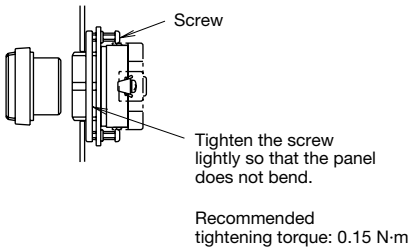
Reflector

1. The lamp housing of the square LED illuminated pilot lights has a built-in reflector.
2. Make sure that the reflector does not fall off when removing the lens or marking plate.
3. When replacing the LED lamp of UPQNE4 (rectangular), use a lamp holder tool (OR-55).
4. To remove the reflector, insert a flat screwdriver inside the groove of the reflector and lightly push out.



Panel Mounting

1. Tighten the square ring to the operator and position the ring correctly.
2. Lightly tighten the screw to secure the pilot light onto the panel.



Incandescent | Push-to-Check Pilot Lights (1W)

Package Quantity: 1

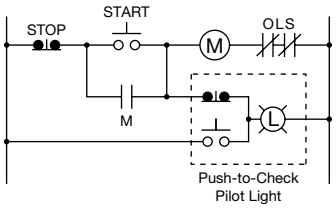
Shape	Lamp	Lamp Receptacle	Part No.	② Lens/LED Color Code	Applicable Lamp
Push-to-Check APN1∗P 	Without Lamp	BA9S	**APN199P**②	C: clear G: green O: orange R: red S: blue W: white	See page 75 for lamps.
	Incandescent	BA9S	**APN1**③**P**②		LS-∗

Operating Voltage Code

Specify an operating voltage code in place of ③ in the Part No.

③ Operating Voltage Code	Input
66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	Full voltage
16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	Transformer

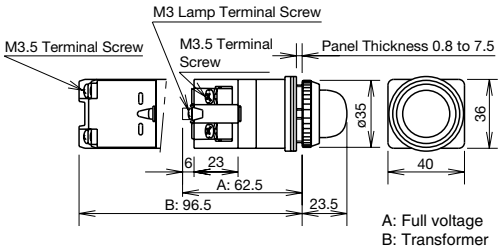
Circuit Example



Note: The lamp of the push-to-check pilot light is not connected to the contact terminal. To connect, refer to the diagram on the left.

Dimensions

Push-to-Check
APN1∗P



All dimensions in mm.

LED | Round Extended Illuminated Pushbuttons

Package Quantity: 1

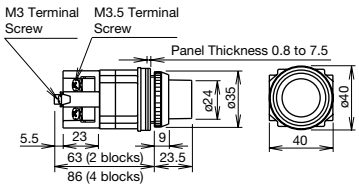
Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALN2 AOLN2 ALNE2 AOLNE2	BA9S	Momentary	Without Lamp	1NO-1NC	**ALN29911DN②**	See page 75 for lamps.
				2NO	**ALN29920DN②**	
				2NC	**ALN29902DN②**	
			LED	1NO-1NC	**ALN2③11DN②**	LSTD-∗②
				2NO	**ALN2③20DN②**	
				2NC	**ALN2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLN29911DN②**	See page 75 for lamps.
				2NO	**AOLN29920DN②**	
				2NC	**AOLN29902DN②**	
			LED	1NO-1NC	**AOLN2③11DN②**	LSTD-∗②
				2NO	**AOLN2③20DN②**	
				2NC	**AOLN2③02DN②**	
	E12	Momentary	Without Lamp	1NO-1NC	**ALNE29911DN②**	See page 75 for lamps.
				2NO	**ALNE29920DN②**	
				2NC	**ALNE29902DN②**	
			LED	1NO-1NC	**ALNE2③11DN②**	LETD-∗②
				2NO	**ALNE2③20DN②**	
				2NC	**ALNE2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLNE29911DN②**	See page 75 for lamps.
				2NO	**AOLNE29920DN②**	
				2NC	**AOLNE29902DN②**	
			LED	1NO-1NC	**AOLNE2③11DN②**	LETD-∗②
				2NO	**AOLNE2③20DN②**	
				2NC	**AOLNE2③02DN②**	

Color Code and Operating Voltage Code

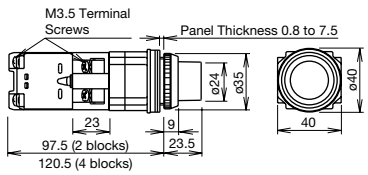
② Lens/LED Color Code	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green PW: pure white (LSTD only) R: red S: blue W: white Y: yellow A pure white LED lamp is used for yellow illumination.	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	Transformer

Dimensions

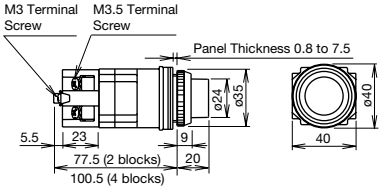
ALN2/AOLN2
BA9S/Full Voltage



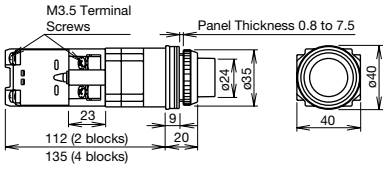
ALN2/AOLN2
BA9S/Transformer



ALNE2/AOLNE2
E12/Full Voltage



ALNE2/AOLNE2
E12/Transformer



All dimensions in mm.

Incandescent | Round Extended Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALN ALNE 	BA9S	Momentary	Without Lamp	1NO-1NC	**ALN9911**②	See page 75 for lamps.
				2NO	**ALN9920**②	
				2NC	**ALN9902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	LS-∗
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
		Maintained	Without Lamp	1NO-1NC	**AOLN9911**②	See page 75 for lamps.
				2NO	**AOLN9920**②	
				2NC	**AOLN9902**②	
			Incandescent	1NO-1NC	**AOLN**③**11**②	LS-∗
				2NO	**AOLN**③**20**②	
				2NC	**AOLN**③**02**②	
AOLN AOLNE 	E12	Momentary	Without Lamp	1NO-1NC	**ALNE9911**②	See page 75 for lamps.
				2NO	**ALNE9920**②	
				2NC	**ALNE9902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	LE-∗
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
		Maintained	Without Lamp	1NO-1NC	**AOLNE9911**②	See page 75 for lamps.
				2NO	**AOLNE9920**②	
				2NC	**AOLNE9902**②	
			Incandescent	1NO-1NC	**AOLN**③**11**②	LE-∗
				2NO	**AOLN**③**20**②	
				2NC	**AOLN**③**02**②	

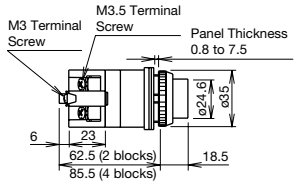
Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

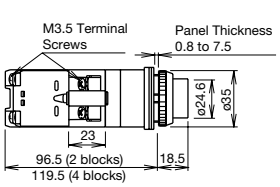
② Lens Color Code	③ Operating Voltage Code		Input
	Incandescent (BA9S)	Incandescent (E12)	
Specify a lens color code in place of ②. C: clear G: green O: orange R: red S: blue W: white	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	E66: 6V AC/DC E88: 12V AC/DC E33: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	18: 100/110V AC 128: 120V AC 238: 200/220V AC 248: 240V AC 388: 380V AC 48: 400/440V AC 488: 480V AC	Transformer

Dimensions

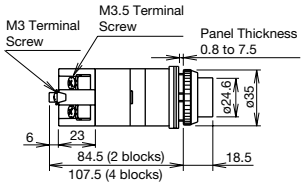
ALN Momentary BA9S/Full Voltage



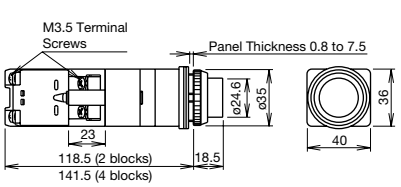
ALN Momentary BA9S/Transformer



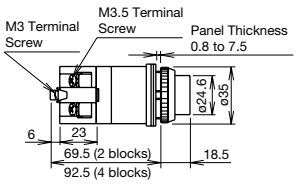
AOLN Maintained BA9S/Full Voltage



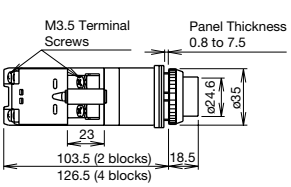
AOLN Maintained BA9S/Transformer



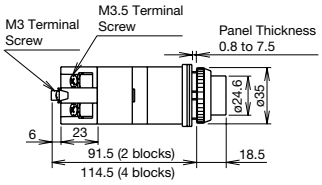
ALNE Momentary E12/Full Voltage



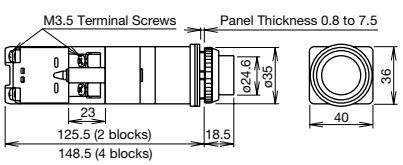
ALNE Momentary E12/Transformer



AOLNE Maintained E12/Full Voltage



AOLNE Maintained E12/Transformer



LED | Round Extended with Half Shroud Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALGN2 AOLGN2 ALGNE2 AOLGNE2	BA9S	Momentary	Without Lamp	1NO-1NC	**ALGN29911DN②**	See page 75 for lamps.
				2NO	**ALGN29920DN②**	
				2NC	**ALGN29902DN②**	
			LED	1NO-1NC	**ALGN2③11DN②**	LSTD-∗②
				2NO	**ALGN2③20DN②**	
				2NC	**ALGN2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLGN29911DN②**	See page 75 for lamps.
				2NO	**AOLGN29920DN②**	
				2NC	**AOLGN29902DN②**	
			LED	1NO-1NC	**AOLGN2③11DN②**	LSTD-∗②
				2NO	**AOLGN2③20DN②**	
				2NC	**AOLGN2③02DN②**	
	E12	Momentary	Without Lamp	1NO-1NC	**ALGNE29911DN②**	See page 75 for lamps.
				2NO	**ALGNE29920DN②**	
				2NC	**ALGNE29902DN②**	
			LED	1NO-1NC	**ALGNE2③11DN②**	LETD-∗②
				2NO	**ALGNE2③20DN②**	
				2NC	**ALGNE2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLGNE29911DN②**	See page 75 for lamps.
				2NO	**AOLGNE29920DN②**	
				2NC	**AOLGNE29902DN②**	
			LED	1NO-1NC	**AOLGNE2③11DN②**	LETD-∗②
				2NO	**AOLGNE2③20DN②**	
				2NC	**AOLGNE2③02DN②**	

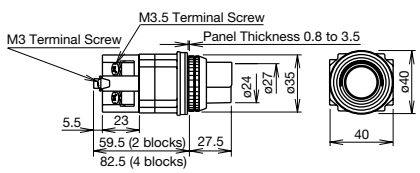
Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

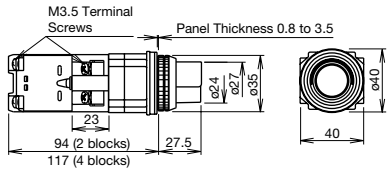
② Lens/LED Color Code	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green PW: pure white (LSTD only) R: red S: blue W: white Y: yellow Use a pure white LED lamp for yellow illumination	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	Transformer

Dimensions

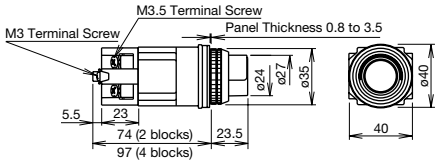
ALGN2/AOLGN2
BA9S/Full Voltage



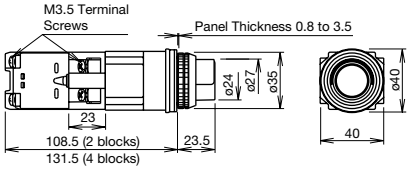
ALGN2/AOLGN2
BA9S/Transformer



ALGNE2/AOLGNE2
E12/Full Voltage



ALGNE2/AOLGNE2
E12/Transformer



All dimensions in mm.

Incandescent | Round Extended with Half Shroud Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALN□G ALNE□G 	BA9S	Momentary	Without Lamp	1NO-1NC	**ALN9G911**②	See page 75 for lamps.
				2NO	**ALN9G920**②	
				2NC	**ALN9G902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	LS-∗
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
	E12	Momentary	Without Lamp	1NO-1NC	**ALNE9G911**②	See page 75 for lamps.
				2NO	**ALNE9G920**②	
				2NC	**ALNE9G902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	LE-∗
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	

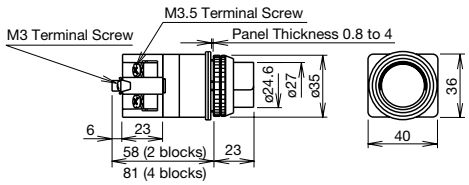
Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

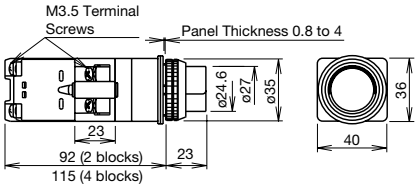
② Lens Color Code	③ Operating Voltage Code		Input
	Incandescent (BA9S)	Incandescent (E12)	
Specify a lens color code in place of ②. C: clear G: green O: orange R: red S: blue W: white	6G6: 6V AC/DC 8G8: 12V AC/DC 3G3: 24V AC/DC	E6G6: 6V AC/DC E8G8: 12V AC/DC E3G3: 24V AC/DC	Full voltage
	1G6: 100/110V AC 12G6: 120V AC 2G6: 200/220V AC 24G6: 240V AC 38G6: 380V AC 4G6: 400/440V AC 48G6: 480V AC	1G8: 100/110V AC 12G8: 120V AC 2G8: 200/220V AC 24G8: 240V AC 38G8: 380V AC 4G8: 400/440V AC 48G8: 480V AC	Transformer

Dimensions

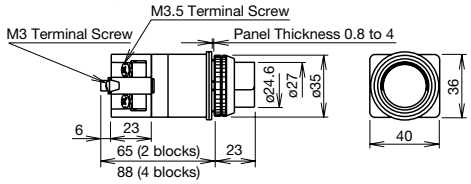
ALN∗G Momentary
BA9S/Full Voltage



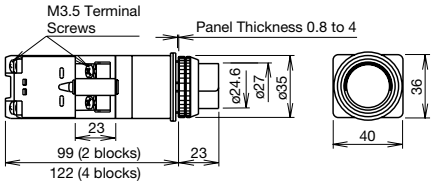
ALN∗G Momentary
BA9S/Transformer



ALNE∗G Momentary
E16/Full Voltage



ALNE∗G Momentary
E16/Transformer



All dimensions in mm.

LED — Round Extended with Full Shroud Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALFN2 AOLFN2 ALFNE2 AOLFNE2	BA9S	Momentary	Without Lamp	1NO-1NC	**ALFN29911DN②**	See page 75 for lamps.
				2NO	**ALFN29920DN②**	
				2NC	**ALFN29902DN②**	
			LED	1NO-1NC	**ALFN2③11DN②**	LSTD-∗②
				2NO	**ALFN2③20DN②**	
				2NC	**ALFN2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLFN29911DN②**	See page 75 for lamps.
				2NO	**AOLFN29920DN②**	
				2NC	**AOLFN29902DN②**	
			LED	1NO-1NC	**AOLFN2③11DN②**	LSTD-∗②
				2NO	**AOLFN2③20DN②**	
				2NC	**AOLFN2③02DN②**	
	E12	Momentary	Without Lamp	1NO-1NC	**ALFNE29911DN②**	See page 75 for lamps.
				2NO	**ALFNE29920DN②**	
				2NC	**ALFNE29902DN②**	
			LED	1NO-1NC	**ALFNE2③11DN②**	LETD-∗②
				2NO	**ALFNE2③20DN②**	
				2NC	**ALFNE2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLFNE29911DN②**	See page 75 for lamps.
				2NO	**AOLFNE29920DN②**	
				2NC	**AOLFNE29902DN②**	
			LED	1NO-1NC	**AOLFNE2③11DN②**	LETD-∗②
				2NO	**AOLFNE2③20DN②**	
				2NC	**AOLFNE2③02DN②**	

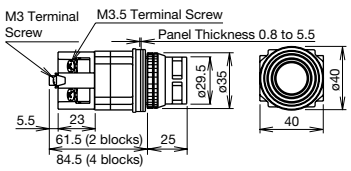
Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

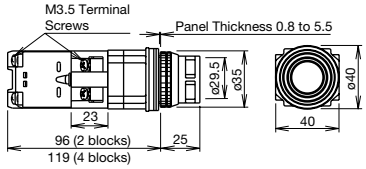
② Lens/LED Color Code LED	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green PW: pure white (LSTD only) R: red S: blue W: white Y: yellow Use a pure white LED lamp for yellow illumination	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	Transformer

Dimensions

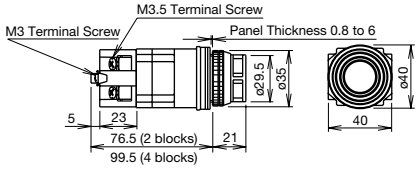
ALFN2/AOLFN2
BA9S/Full Voltage



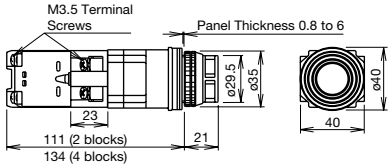
ALFN2/AOLFN2
BA9S/Transformer



ALFNE2/AOLFNE2
E12/Full Voltage



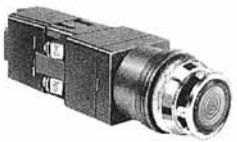
ALFNE2/AOLFNE2
E12/Transformer



All dimensions in mm.

Incandescent | Round Extended with Full Shroud Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALN□F ALNE□F 	BA9S	Momentary	Without Lamp	1NO-1NC	**ALN9F911②**	See page 75 for lamps.
				2NO	**ALN9F920②**	
				2NC	**ALN9F902②**	
			Incandescent	1NO-1NC	**ALN③11②**	LS-∗
				2NO	**ALN③20②**	
				2NC	**ALN③02②**	
		Maintained	Without Lamp	1NO-1NC	**AOLN9F911②**	See page 75 for lamps.
				2NO	**AOLN9F920②**	
				2NC	**AOLN9F902②**	
			Incandescent	1NO-1NC	**AOLN③11②**	LS-∗
				2NO	**AOLN③20②**	
				2NC	**AOLN③02②**	
AOLN□F AOLNE□F 	E12	Momentary	Without Lamp	1NO-1NC	**ALNE9F911②**	See page 75 for lamps.
				2NO	**ALNE9F920②**	
				2NC	**ALNE9F902②**	
			Incandescent	1NO-1NC	**ALN③11②**	LE-∗
				2NO	**ALN③20②**	
				2NC	**ALN③02②**	
		Maintained	Without Lamp	1NO-1NC	**AOLNE9F911②**	See page 75 for lamps.
				2NO	**AOLNE9F920②**	
				2NC	**AOLNE9F902②**	
			Incandescent	1NO-1NC	**AOLN③11②**	LE-∗
				2NO	**AOLN②20②**	
				2NC	**AOLN③02②**	

Color Code and Operating Voltage Code

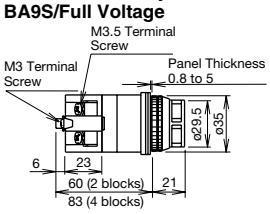
Specify a code in place of ② or ③ in the Part No.

② Lens Color Code	③ Operating Voltage Code		Input
	Incandescent (BA9S)	Incandescent (E12)	
Specify a lens color code in place of ②. C: clear G: green O: orange R: red S: blue W: white	6F6: 6V AC/DC 8F8: 12V AC/DC 3F3: 24V AC/DC	E6F6: 6V AC/DC E8F8: 12V AC/DC E3F3: 24V AC/DC	Full voltage
	1F6: 100/110V AC 12F6: 120V AC 2F6: 200/220V AC 24F6: 240V AC 38F6: 380V AC 4F6: 400/440V AC 48F6: 480V AC	1F8: 100/110V AC 12F8: 120V AC 2F8: 200/220V AC 24F8: 240V AC 38F8: 380V AC 4F8: 400/440V AC 48F8: 480V AC	Transformer

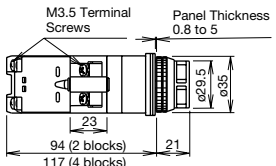
Dimensions

All dimensions in mm.

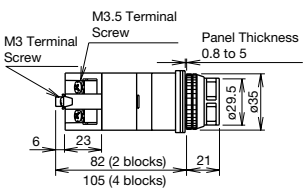
ALN∗F Momentary BA9S/Full Voltage



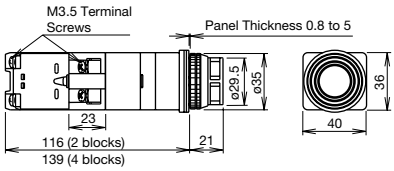
ALN∗F Momentary BA9S/Transformer



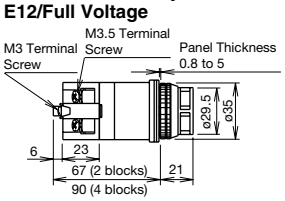
AOLN∗F Maintained BA9S/Full Voltage



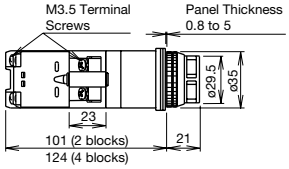
ALON∗F Maintained BA9S/Transformer



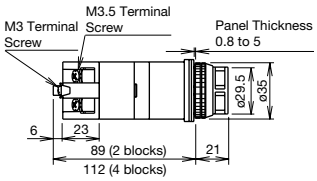
ALNE∗F Momentary E12/Full Voltage



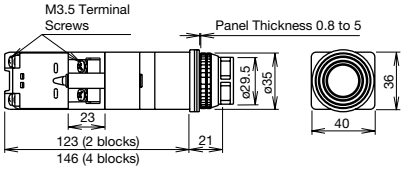
ALN∗F Momentary E12/Transformer



AOLNE∗F Maintained E12/Full Voltage



AOLN∗F Maintained E12/Transformer



LED | Mushroom (ø40) Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
ø40 Mushroom ALN3 AOLN3 ALNE3 AOLNE3	BA9S	Momentary	Without Lamp	1NO-1NC	**ALN39911DN**②	See page 75 for lamps.
				2NO	**ALN39920DN**②	
				2NC	**ALN39902DN**②	
			LED	1NO-1NC	**ALN3**③**11DN**②	LSTD-∗②
				2NO	**ALN3**③**20DN**②	
				2NC	**ALN3**③**02DN**②	
		Maintained	Without Lamp	1NO-1NC	**AOLN39911DN**②	See page 75 for lamps.
				2NO	**AOLN39920DN**②	
				2NC	**AOLN39902DN**②	
			LED	1NO-1NC	**AOLN3**③**11DN**②	LSTD-∗②
				2NO	**AOLN3**③**20DN**②	
				2NC	**AOLN3**③**02DN**②	
	E12	Momentary	Without Lamp	1NO-1NC	**ALNE39911DN**②	See page 75 for lamps.
				2NO	**ALNE39920DN**②	
				2NC	**ALNE39902DN**②	
			LED	1NO-1NC	**ALNE3**③**11DN**②	LETD-∗②
				2NO	**ALNE3**③**20DN**②	
				2NC	**ALNE3**③**02DN**②	
		Maintained	Without Lamp	1NO-1NC	**AOLNE39911DN**②	See page 75 for lamps.
				2NO	**AOLNE39920DN**②	
				2NC	**AOLNE39902DN**②	
			LED	1NO-1NC	**AOLNE3**③**11DN**②	LETD-∗②
				2NO	**AOLNE3**③**20DN**②	
				2NC	**AOLNE3**③**02DN**②	

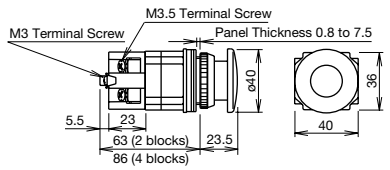
Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

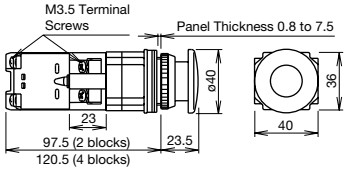
② Lens/LED Color Code	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green R: red S: blue W: white Y: yellow Use a pure white LED lamp for yellow illumination (LSTD only)	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	Transformer

Dimensions

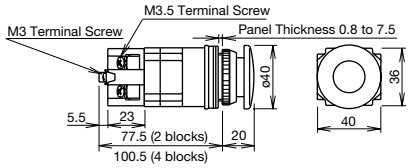
ALN3/AOLN3
BA9S/Full Voltage



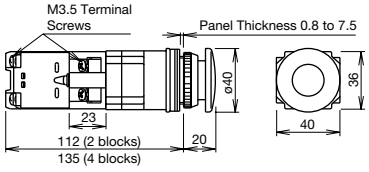
ALN3/AOLN3
BA9S/Transformer



ALNE3/AOLNE3
E12/Full Voltage



ALNE3/AOLNE3
E12/Transformer



All dimensions in mm.

Incandescent | Square and Rectangular Extended Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Square Extended ULQN 	BA9S	Momentary	Without Lamp	1NO-1NC	**ULQN9911**②	See page 75 for lamps.
				2NO	**ULQN9920**②	
				2NC	**ULQN9902**②	
			Incandescent	1NO-1NC	**ULQN**③**11**②	LS-∗
				2NO	**ULQN**③**20**②	
				2NC	**ULQN**③**02**②	
UOLQN 		Maintained	Without Lamp	1NO-1NC	**UOLQN9911**②	See page 75 for lamps.
				2NO	**UOLQN9920**②	
				2NC	**UOLQN9902**②	
			Incandescent	1NO-1NC	**UOLQN**③**11**②	LS-∗
				2NO	**UOLQN**③**20**②	
				2NC	**UOLQN**③**02**②	
Rectangular (Marking) ULQN□B 	BA9S	Momentary	Without Lamp	1NO-1NC	**ULQN9B911**②	See page 75 for lamps.
				2NO	**ULQN9B920**②	
				2NC	**ULQN9B902**②	
			Incandescent	1NO-1NC	**ULQN**③**11**②	LS-∗
				2NO	**ULQN**③**20**②	
				2NC	**ULQN**③**02**②	
UOLQN□B 		Maintained	Without Lamp	1NO-1NC	**UOLQN9B911**②	See page 75 for lamps.
				2NO	**UOLQN9B920**②	
				2NC	**UOLQN9B902**②	
			Incandescent	1NO-1NC	**UOLQN**③**11**②	LS-∗
				2NO	**UOLQN**③**20**②	
				2NC	**UOLQN**③**02**②	

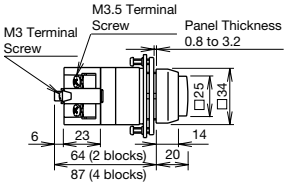
Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

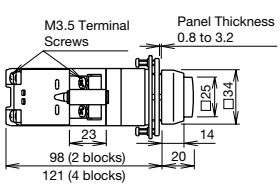
② Lens Color Code	③ Operating Voltage Code		Input
	Square Extended	Rectangular Marking	
Specify a lens color code in place of ②. C: clear (square units only) G: green O: orange R: red S: blue W: white Clear lens is not available for rectangular units.	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	6B6: 6V AC/DC 8B8: 12V AC/DC 3B3: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	1B6: 100/110V AC 12B6: 120V AC 2B6: 200/220V AC 24B6: 240V AC 38B6: 380V AC 4B6: 400/440V AC 48B6: 480V AC	Transformer

Dimensions

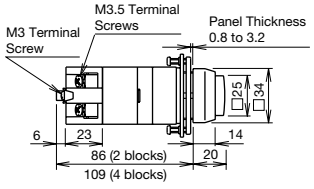
ULQN Momentary BA9S/Full Voltage



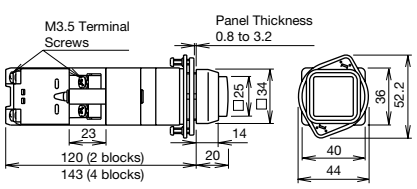
ULQN Momentary BA9S/Transformer



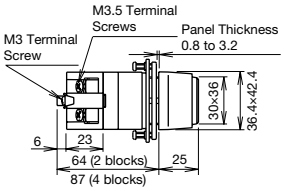
UOLQN Maintained BA9S/Full Voltage



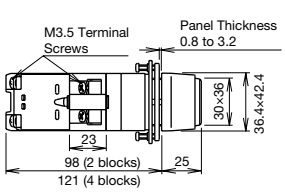
UOLQN Maintained BA9S/Transformer



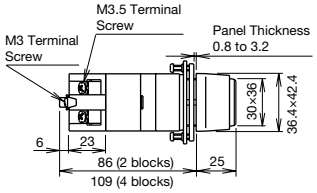
ULQN∗B Momentary BA9S/Full Voltage



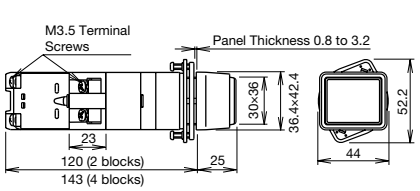
ULQN∗B Momentary BA9S/Transformer



UOLQN∗B Maintained BA9S/Full Voltage



UOLQN∗B Maintained BA9S/Transformer



All dimensions in mm.

Incandescent | Push Turn Lock Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
ALN□L 	BA9S	Push Turn Lock	Without Lamp	1NO-1NC	**ALN9L911**②	See page 75 for lamps.
				2NO	**ALN9L920**②	
				2NC	**ALN9L902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	LS-∗
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	

Color Code and Operating Voltage Code

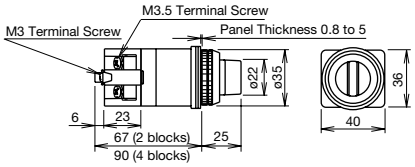
Specify a code in place of ② or ③ in the Part No.

② Lens Color Code	③ Operating Voltage Code	Input
Specify a lens color code in place of ②. G: green O: orange R: red S: blue W: white	6L6: 6V AC/DC 8L8: 12V AC/DC 3L3: 24V AC/DC	Full voltage
	1L6: 100/110V AC 12L6: 120V AC 2L6: 200/220V AC 24L6: 240V AC 38L6: 380V AC 4L6: 400/440V AC 48L6: 480V AC	Transformer

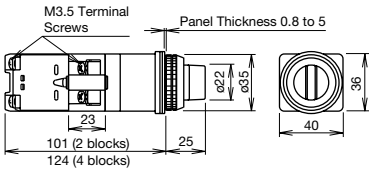
• **Push Turn Lock:** Knob is maintained when turned clockwise in the depressed position and is reset when turned counterclockwise.

Dimensions

ALN∗L
BA9S/Full Voltage



ALN∗L
BA9S/Transformer



All dimensions in mm.

LED | Pushlock Turn Reset/Push Turn Lock Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
ø40 Mushroom Pushlock Turn Reset AVLN3 AVLNE3 	BA9S	Pushlock Turn Reset	Without Lamp	1NO-1NC	**AVLN39911DNR**	See page 75 for lamps.
				2NO	**AVLN39920DNR**	
				2NC	**AVLN39902DNR**	
			LED	1NO-1NC	**AVLN3③11DNR**	LSTD-∗②
				2NO	**AVLN3③20DNR**	
				2NC	**AVLN3③02DNR**	
	E12	Pushlock Turn Reset	Without Lamp	1NO-1NC	**AVLNE39911DNR**	See page 75 for lamps.
				2NO	**AVLNE39920DNR**	
				2NC	**AVLNE39902DNR**	
			LED	1NO-1NC	**AVLNE3③11DNR**	LETD-∗②
				2NO	**AVLNE3③20DNR**	
				2NC	**AVLNE3③02DNR**	
ø40 Mushroom Push Turn Lock AJLN3 	BA9S	Push Turn Lock	Without Lamp	1NO-1NC	**AJLN39911DN②**	See page 75 for lamps.
				2NO	**AJLN39920DN②**	
				2NC	**AJLN39902DN②**	
			LED	1NO-1NC	**AJLN3③11DN②**	LSTD-∗②
				2NO	**AJLN3③20DN②**	
				2NC	**AJLN3③02DN②**	

Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

② Lens/LED Color Code	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green R: red W: white Y: yellow	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	Transformer

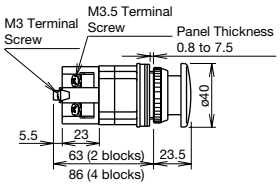
• **Pushlock Turn Reset:** Lens is maintained when pressed and is reset when turned clockwise. Red lens only.

Note: AVNL3 and AVNLE3 pushlock turn reset switches cannot be used as emergency stop switches. When emergency stop switches are required, use XN or HN series emergency stop switches (ISO 13850 and IEC 60947-5-5 compliant).

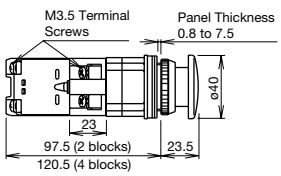
• **Push Turn Lock:** Lens is maintained when turned clockwise in the depressed position and is reset when turned counterclockwise.

Dimensions

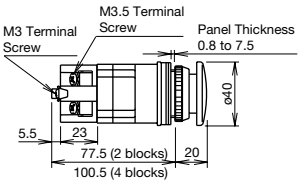
AVLN3
BA9S/Full Voltage



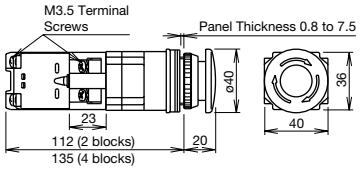
AVLN3
BA9S/Transformer



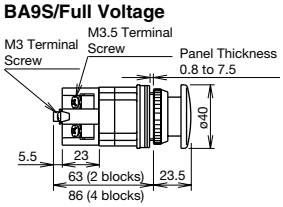
AVLNE3
E12/Full Voltage



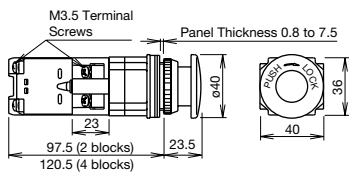
AVLNE3
E12/Transformer



AJLN3
BA9S/Full Voltage



AJLN3
BA9S/Transformer



All dimensions in mm.

Incandescent | Pushlock Turn Reset/Push Turn Lock Illuminated Pushbuttons

Package Quantity: 1

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
ø40 Mushroom Pushlock Turn Reset AVLN3 AVLNE3 	BA9S	Pushlock Turn Reset	Without Lamp	1NO-1NC	**AVLN39911NR**	See page 75 for lamps.
				2NO	**AVLN39920NR**	
				2NC	**AVLN39902NR**	
			Incandescent	1NO-1NC	**AVLN3③11NR**	LS-∗
				2NO	**AVLN3③20NR**	
				2NC	**AVLN3③02NR**	
	E12	Pushlock Turn Reset	Without Lamp	1NO-1NC	**AVLNE39911NR**	See page 75 for lamps.
				2NO	**AVLNE39920NR**	
				2NC	**AVLNE39902NR**	
			Incandescent	1NO-1NC	**AVLNE3③11NR**	LE-∗
				2NO	**AVLNE3③20NR**	
				2NC	**AVLNE3③02NR**	
ø40 Mushroom Push Turn Lock AJLN3 	BA9S	Push Turn Lock	Without Lamp	1NO-1NC	**AJLN39911N②**	See page 75 for lamps.
				2NO	**AJLN39920N②**	
				2NC	**AJLN39902N②**	
			Incandescent	1NO-1NC	**AJLN3③11N②**	LS-∗
				2NO	**AJLN3③20N②**	
				2NC	**AJLN3③02N②**	

Color Code and Operating Voltage Code

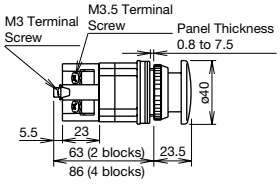
Specify a code in place of ② or ③ in the Part No.

② Lens Color Code	③ Operating Voltage Code		Input
	Incandescent (BA9S)	Incandescent (E12)	
Specify a lens color code in place of ② in the Part No. G: green O: orange R: red	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC		Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	18: 100/110V AC 128: 120V AC 238: 200/220V AC 248: 240V AC 388: 380V AC 48: 400/440V AC 488: 480V AC	Transformer

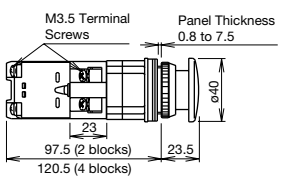
- **Pushlock Turn Reset:** Lens is maintained when pressed and is reset when turned clockwise. Red lens only.
  Note: AVNL3 and AVNLE3 pushlock turn reset switches cannot be used as emergency stop switches. When emergency stop switches are required, use XN or HN series emergency stop switches (ISO 13850 and IEC 60947-5-5 compliant).
- **Push Turn Lock:** Lens is maintained when turned clockwise in the depressed position and is reset when turned counterclockwise.

Dimensions

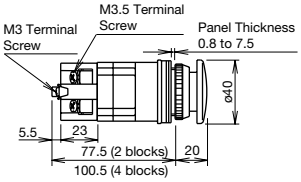
AVLN3
BA9S/Full Voltage



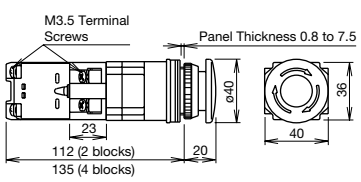
AVLN3
BA9S/Transformer



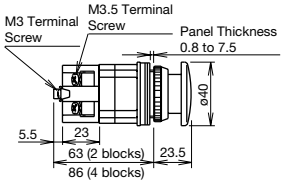
AVLNE3
E12/Full Voltage



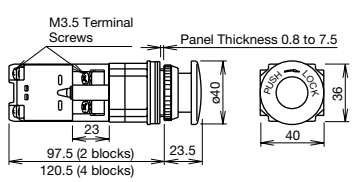
AVLNE3
E12/Transformer



AJLN3
BA9S/Full Voltage



AJLN3
BA9S/Transformer



All dimensions in mm.

ASN Selector Switches (Knob Operator)

90° 2-position

Package Quantity: 1

Shape

Contact Arrangement Chart

ASN

- Knob: Black
- Round bezel (metal): Chrome-plated
- Units marked with ★ and part numbers with "-T" differ in shape.
  See page 48 for dimensions.
- Nameplates are ordered separately.

Contact Code	Contact Block		Operator Position		Maintained	Spring Return from Right	Maintained	Spring Return from Left
	Mounting Position	Contact	L	R	L R	L R	L R	L R
10 (1NO)	1	NO		●	**ASN310**	**ASN410**		
	2	Dummy						
11 (1NO-1NC)	1	NO		●	**ASN311**	**ASN411**		
	2	NC	●					
20 (2NO)	1	NO		●	**ASN320**	**ASN420**		
	2	NO		●				
22 (2NO-2NC)	1	NO		●	**ASN322**	**ASN422**		
	2	NC	●					
	3	NO		●				
	4	NC	●					
7S (1$\overline{NO}$-1$\overline{NC}$)	1	$\overline{NO}$		▬	**ASN37S** (Note)	**ASN47S** (Note)		
	2	$\overline{NC}$	▬					
10 (1NO)	1	NO	●				**ASN3010**	**ASN4010**
	2	Dummy						
11 (1NO-1NC)	1	NO	●				**ASN3011**	**ASN4011**
	2	NC		●				
20 (2NO)	1	NO	●				**ASN3020**	**ASN4020**
	2	NO	●					
22 (2NO-2NC)	1	NO	●				**ASN3022**	**ASN4022**
	2	NC		●				
	3	NO	●					
	4	NC		●				
7S (1$\overline{NO}$-1$\overline{NC}$)	1	$\overline{NO}$	▬				**ASN307S** (Note)	**ASN407S** (Note)
	2	$\overline{NC}$		▬				

Note: The overlapping time is shorter for left to right than right to left. Take overlapping time into consideration.

ASN Selector Switches (Knob Operator)

45° 3-position

Package Quantity: 1

Shape

Contact Arrangement Chart

ASN

- Knob: Black
- Round bezel (metal): Chrome-plated
- Units marked with ★and part numbers with "-T" differ in shape. See page 48 for dimensions.
- Nameplates are ordered separately.

Contact Code	Contact Block		Operator Position			Maintained	Spring Return from Left	Maintained	Spring Return from Right
	Mounting Position	Contact	L	R	C	L C R	L C R	L C R	L C R
11 (1NO-1NC)	1	NO	●			∗ASN111	∗ASN211		
	2	NC			●				
20 (2NO)	1	NO	●			ASN120-T	ASN220-T		
	2	NO			●				
22 (2NO-2NC)	1	NO	●			∗ASN122	∗ASN222		
	2	NO			●				
	3	NC	●						
	4	NC			●				
40 (4NO)	1	NO	●			ASN140-T	ASN240-T		
	2	NO			●				
	3	NO	●						
	4	NO			●				
22 (2NO-2NC)	1	NO	●			ASN15S ★	ASN25S ★		
	2	NO			●				
	3	NC		▬					
	4	NC	▬						
02 (2NC)	1	NC	▬			ASN17S ★	ASN27S ★		
	2	NC		▬					
04 (4NC)	1	NC	▬			ASN18S ★	ASN28S ★		
	2	NC		▬					
	3	NC	▬						
	4	NC		▬					
11 (1NO-1NC)	1	NO			●			∗ASN1011	∗ASN2011
	2	NC	●						
02 (2NC)	1	NC			●			—	ASN2002-T
	2	NC	●						
22 (2NO-2NC)	1	NO			●			∗ASN1022	∗ASN2022
	2	NC	●						
	3	NO			●				
	4	NC	●						
04 (4NC)	1	NC			●			—	ASN2004-T
	2	NC	●						
	3	NC			●				
	4	NC	●						
22 (2NO-2NC)	1	NO			●			ASN105S ★	ASN205S ★
	2	NO	●						
	3	NC	▬						
	4	NC		▬					
02 (2NC)	1	NC		▬				ASN107S ★	ASN20L7S ★
	2	NC	▬						
04 (4NC)	1	NC		▬				ASN108S ★	ASN208S ★
	2	NC	▬						
	3	NC		▬					
	4	NC	▬						

ASN-T are twin-rod units. Single rods are available for the same circuit (marked with ∗) but different contacts are used.

ASN□L Selector Switches (Lever Operator)

90° 2-position

Package Quantity: 1

Shape

Contact Arrangement Chart

ASN□L

- Lever: Black
- Round bezel (metal): Chrome-plated
- Units marked with ★ and part numbers with "-T" differ in shape.
  See page 48 for dimensions.
- Nameplates are ordered separately.

Contact Code	Contact Block		Operator Position		Maintained	Spring Return from Right	Maintained	Spring Return from Left
	Mounting Position	Contact	L	R	L R	L R	L R	L R
10 (1NO)	1	NO		●	**ASN3L10**	**ASN4L10**		
	2	Dummy						
11 (1NO-1NC)	1	NO		●	**ASN3L11**	**ASN4L11**		
	2	NC	●					
20 (2NO)	1	NO		●	**ASN3L20**	**ASN4L20**		
	2	NO		●				
22 (2NO-2NC)	1	NO		●	**ASN3L22**	**ASN4L22**		
	2	NC	●					
	3	NO		●				
	4	NC	●					
7S (1$\overline{NO}$-1$\overline{NC}$)	1	$\overline{NO}$		▬	**ASN3L7S** (Note)	**ASN4L7S** (Note)		
	2	$\overline{NC}$	▬					
10 (1NO)	1	NO	●				**ASN30L10**	**ASN40L10**
	2	Dummy						
11 (1NO-1NC)	1	NO	●				**ASN30L11**	**ASN40L11**
	2	NC		●				
20 (2NO)	1	NO	●				**ASN30L20**	**ASN40L20**
	2	NO	●					
22 (2NO-2NC)	1	NO	●				**ASN30L22**	**ASN40L22**
	2	NC		●				
	3	NO	●					
	4	NC		●				
7S (1$\overline{NO}$-1$\overline{NC}$)	1	$\overline{NO}$	▬				**ASN30L7S** (Note)	**ASN40L7S** (Note)
	2	$\overline{NC}$		▬				

Note: The overlapping time is shorter for left to right than right to left. Take overlapping time into consideration.

ASN□L Selector Switches (Lever Operator)

45° 3-position

Package Quantity: 1

Shape

Contact Arrangement Chart

ASNL

- Lever: Black
- Round bezel (metal): Chrome-plated
- Units marked with ★ and part numbers with "-T" differ in shape.
  See page 48 for dimensions.
- Nameplates are ordered separately.

Contact Code	Contact Block		Operator Position			Maintained	Spring Return from Left	Maintained	Spring Return from Right
	Mounting Position	Contact	L	R	C	L C R	L C R	L C R	L C R
11 (1NO-1NC)	1	NO	●			∗ASNL111	∗ASNL211		
	2	NC			●				
20 (2NO)	1	NO	●			ASNL120-T	ASNL220-T		
	2	NO			●				
22 (2NO-2NC)	1	NO	●			∗ASN1L22	∗ASN2L22		
	2	NO			●				
	3	NC	●						
	4	NC			●				
40 (4NO)	1	NO	●			ASN1L40-T	ASN2L40-T		
	2	NO			●				
	3	NO	●						
	4	NO			●				
22 (2NO-2NC)	1	NO	●			ASN1L5S ★	ASN2L5S ★		
	2	NO			●				
	3	NC		■	■				
	4	NC	■	■					
02 (2NC)	1	NC	■	■		ASN1L7S ★	ASN2L7S ★		
	2	NC		■	■				
04 (4NC)	1	NC	■	■		ASN1L8S ★	ASN2L8S ★		
	2	NC		■	■				
	3	NC	■	■					
	4	NC		■	■				
11 (1NO-1NC)	1	NO			●			∗ASN10L11	∗ASN20L11
	2	NC	●						
02 (2NC)	1	NC			●			—	ASN20L02-T
	2	NC	●						
22 (2NO-2NC)	1	NO			●			∗ASN10L22	∗ASN20L22
	2	NC	●						
	3	NO			●				
	4	NC	●						
04 (4NC)	1	NC			●			—	ASN20L04-T
	2	NC	●						
	3	NC			●				
	4	NC	●						
22 (2NO-2NC)	1	NO			●			ASN10L5S ★	ASN20L5S ★
	2	NO	●						
	3	NC	■	■					
	4	NC		■	■				
02 (2NC)	1	NC		■	■			ASN10L7S ★	ASN20L7S ★
	2	NC	■	■					
04 (4NC)	1	NC		■	■			ASN10L8S ★	ASN20L8S ★
	2	NC	■	■					
	3	NC		■	■				
	4	NC	■	■					

ASN□-T are twin-rod units. Single rods are available for the same circuit (marked with ∗) but different contacts are used.

ASN□K Key Selector Switches

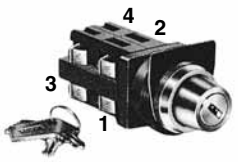
90° 2-position

Package Quantity: 1

Shape

Contact Arrangement Chart

ASNK



- Cylinder: Chrome-plated
- Round bezel (metal): Chrome-plated
- On the spring-returned, the keys can be released only from the maintained position. On the maintained, the key can be released from every position. Key retained positions are also available. See page 21.
- Key selector switch is supplied with two standard keys. Two different keys are available upon request.
- Part numbers with "-T" differ in shape.
- See page 48 for dimensions.
- Nameplates are ordered separately.

Contact Code	Contact Block		Operator Position		Maintained	Spring Return from Right	Maintained	Spring Return from Left
	Mounting Position	Contact	L	R	L R	L R	L R	L R
10 (1NO)	1	NO		●	**ASN3K10-T** ***ASN3K10**	**ASN4K10-T** ***ASN4K10**		
	2	—	—					
11 (1NO-1NC)	2	NO		●	**ASN3K11-T** ***ASN3K11**	**ASN4K11-T** ***ASN4K11**		
	2	NC	●					
20 (2NO)	1	NO		●	**ASN3K20-T** ***ASN3K20**	**ASN4K20-T** ***ASN4K20**		
	2	NO		●				
22 (2NO-2NC)	1	NO		●	**ASN3K22-T** ***ASN3K22**	**ASN4K22-T** ***ASN4K22**		
	2	NC	●					
	3	NO		●				
	4	NC	●					
7S (1NO-1NC)	1	NO		▬	**ASN3K7S-T** ***ASN3K7S** (Note)	**ASN4K7S-T** ***ASN4K7S** (Note)		
	2	NC	▬					
10 (1NO)	1	NO	●				***ASN30K10**	***ASN40K10**
	2	—	—					
01 (1NC)	1	NC	●				—	**ASN40K01-T**
	2	—	—					
11 (1NO-1NC)	1	NO	●				***ASN30K11**	**ASN40K11-T** ***ASN40K11**
	2	NO		●				
20 (2NO)	1	NC	●				***ASN30K20**	**ASN40K20**
	2	NC	●					
02 (2NC)	1	NC	●				—	**ASN40K02-T**
	2	NC	●					
22 (2NO-2NC)	1	NC	●				***ASN30K22**	**ASN40K22-T** ***ASN40K22**
	2	NO		●				
	3	NC	●					
	4	NO		●				
7S (1NO-1NC)	1	NO	▬				***ASN30K7S** (Note)	**ASN40K7S-T** ***ASN40K7S** (Note)
	2	NC		▬				

Note: The overlapping time is shorter for left to right than right to left. Take overlapping time into consideration.

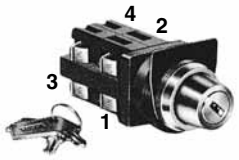
ASNK Key Selector Switches

45° 3-position

Package Quantity: 1

Shape

ASN□K



- Cylinder: Chrome-plated
- Round bezel (metal): Chrome-plated
- On the spring-returned types, the keys can be released only from the maintained position. On the maintained types, the key can be released from every position. Key retained positions are also available. See page 21.
- Key selector switch is supplied with two standard keys. Two different keys are available upon request.
- See page 48 for dimensions.
- Nameplates are ordered separately.

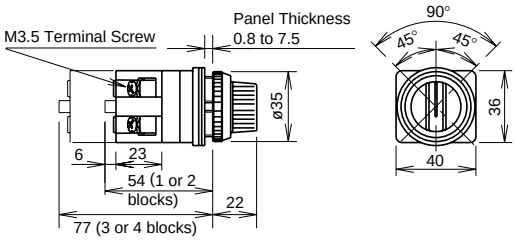
Contact Arrangement Chart

Contact Code	Contact Block		Operator Position			Maintained	Spring Return from Left	Maintained	Spring Return from Right
	Mounting Position	Contact	L	C	R	L C R	L C R	L C R	L C R
11 (1NO-1NC)	1	NO	●			*ASN1K11	*ASN2K11		
	2	NC			●				
20 (2NO)	1	NO	●			ASN1K20-T	ASN2K20-T		
	2	NO			●				
22 (2NO-2NC)	1	NO	●			*ASN1K22	*ASN2K22		
	2	NC			●				
	3	NO	●						
	4	NC			●				
40 (2NO)	1	NO	●			ASN1K40-T	ASN2K40-T		
	2	NO			●				
	3	NO	●						
	4	NO			●				
5S (2NO-2NC)	1	NO	●			*ASN1K5S	*ASN2K5S		
	2	NC			●				
	3	NO		■					
	4	NC	■						
	1	NO	●			ASN1K5S-T	ASN2K5S-T		
	2	NO			●				
	3	NC	■						
	4	NC		■					
7S (2NC)	1	NO	■			*ASN1K7S	*ASN2K7S		
	2	NC		■					
	1	NC	■			ASN1K7S-T	ASN2K7S-T		
	2	NC		■					
8S (4NC)	1	NO	■			*ASN1K8S	*ASN2K8S		
	2	NC		■					
	3	NO	■						
	4	NC		■					
	1	NC	■			ASN1K8S-T	ASN2K8S-T		
	2	NC		■					
	3	NC	■						
	4	NC		■					
11 (1NO-1NC)	1	NO			●			*ASN10K11	*ASN20K11
	2	NC	●						
20 (2NC)	1	NC			●			—	ASN20K02-T
	2	NC	●						
22 (2NO-2NC)	1	NO			●			*ASN10K22	*ASN20K22
	2	NC	●						
	3	NO			●				
	4	NC	●						
04 (4NC)	1	NC			●			—	ASN20K04-T
	2	NC	●						
	3	NC			●				
	4	NC	●						
5S (2NO-2NC)	1	NO			●			*ASN10K5S	*ASN20K5S
	2	NC	●						
	3	NO		■					
	4	NC	■						
	1	NO			●			—	ASN20K5S-T
	2	NO	●						
	3	NC	■						
	4	NC		■					
7S (2NC)	1	NO		■				*ASN10K7S	*ASN20K7S
	2	NC	■						
	1	NC		■				—	ASN20K7S-T
	2	NC	■						
8S (4NC)	1	NO		■				*ASN10K8S	*ASN20K8S
	2	NC	■						
	3	NO		■					
	4	NC	■						
	1	NC		■				—	ASN20K8S-T
	2	NC	■						
	3	NC		■					
	4	NC	■						

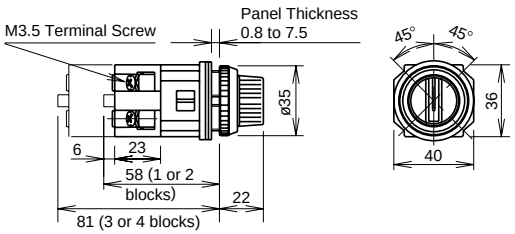
ASN-T are twin-rod units. Single rods are available for the same circuit (marked with *) but different contacts are used.

Dimensions

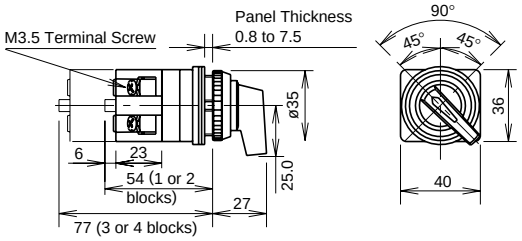
Knob Operator



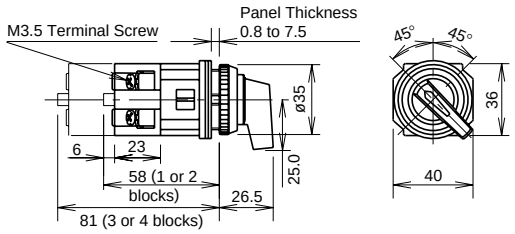
Dimensions of knob operator marked with ★ or "-T" in the Part No.



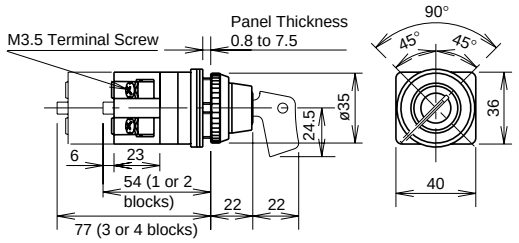
Lever Operator



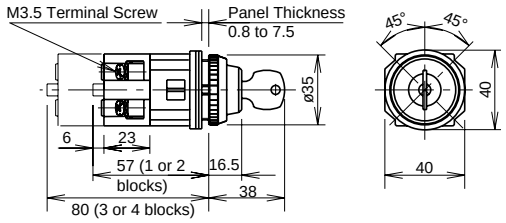
Dimensions of lever operator marked with ★ or "-T" in the Part No.



Key Selector

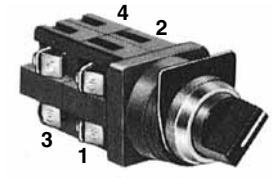


Dimensions of key selector switches marked with "-T" in the Part No.



All dimensions in mm.

Contact Block Mounting Position and Contact Arrangement Chart



		Left L	Center C	Right R	Operator position
1	NO	●			
2	NO			●	
3	NC		▬		
4	NC	▬			

ASTN Selector Switches (Knob Operator)

Package Quantity: 1

No. of Positions | Shape | Contact Arrangement Chart

ASTN

- Knob operator: Black
- Round bezel (metal): Chrome-plated

90° 2-position

Contact Code	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: R	Maintained	Spring Return from Right	—	—
					L R	L R	—	—
11 (1NO-1NC)	1	NO		●	**ASTN3211**	**ASTN4211**	—	—
	2	NC	●					
22 (2NO-2NC)	1	NO		●	**ASTN3222**	**ASTN4222**		
	2	NO		●				
	3	NC	●					
	4	NC	●					

45° 3-position

Contact Code	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained	Spring Return from Left	Spring Return from Right	Spring Return Two-way
						L C R	L C R	L C R	L C R
20 (2NO)	1	NO	●			—	—	—	**ASTN5120**
	2	NO			●				
22 (2NO-2NC)	1	NO	●			**ASTN1122**	**ASTN2122**	**ASTN20122**	**ASTN5122**
	2	NO			●				
	3	NC			▬				
	4	NC	▬						
22 (2NO-2NC)	1	NO	●		●	**ASTN1222**	**ASTN2222**	**ASTN20222**	**ASTN5222**
	2	NO			●				
	3	NC		●					
	4	NC	▬						
40 (4NC)	1	NO	●			**ASTN1340**	—	—	—
	2	NO			●				
	3	NO	●						
	4	NO			●				
22 (2NO-2NC)	1	NO	●			**ASTN1422**	—	**ASTN20422**	—
	2	NC	▬						
	3	NC		▬					
	4	NO			●				
20 (2NO)	1	NO			●	**ASTN1520**	—	**ASTN20520**	—
	2	NO	●						
40 (4NO)	1	NO			●	**ASTN1540**	—	**ASTN20540**	—
	2	NO	●						
	3	NO			●				
	4	NO	●						
11 (1NO-1NC)	1	NC		●		**ASTN1611**	—	—	—
	2	NO			●				
22 (2NO-2NC)	1	NC		●		**ASTN1622**	—	—	—
	2	NO			●				
	3	NC		●					
	4	NO			●				
11 (1NO-1NC)	1	NO	●			—	—	—	**ASTN5111**
	2	NC	▬						

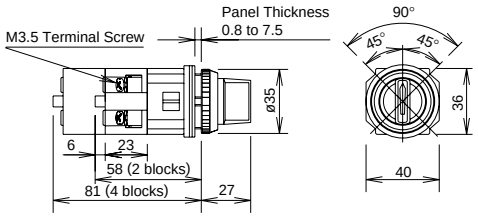
Notes:
1. The operator of the 2-way spring return unit may slightly deviate from the center position.
2. Turn the operator to each position accurately.

Contact Block Mounting Position and Contact Arrangement Chart

Left Center Right

		L	C	R	Operator Position
1	NO	●			
2	NO			●	
3	NC			▬	
4	NC	▬			

Dimensions



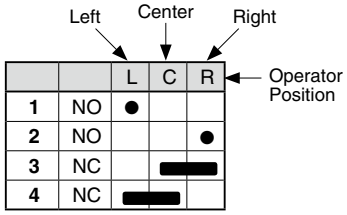
ASTN□L Selector Switches (Lever Operator)

Package Quantity: 1

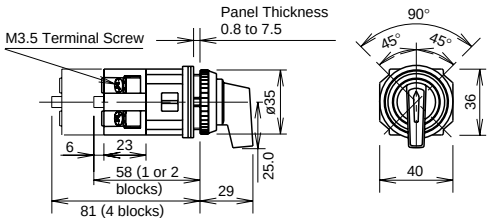
No. of Positions	Shape / Contact Arrangement Chart					ASTN□L  • Lever operator: Black • Round bezel (metal): Chrome-plated			
90° 2-position	Contact Code	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: R	Maintained 	Spring Return from Right 	—	—
	11 (1NO-1NC)	1	NO		●	**ASTN32L11**	**ASTN42L11**	—	—
		2	NC	●					
	22 (2NO-2NC)	1	NO		●	**ASTN32L22**	**ASTN42L22**		
		2	NO		●				
		3	NC	●					
		4	NC	●					
45° 3-position	Contact Code	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained 	Spring Return from Left 	Spring Return from Right 	Spring Return Two-way 
	20 (2NO)	1	NO	●			—	—	—	**ASTN51L20**
		2	NO			●				
	22 (2NO-2NC)	1	NO	●			**ASTN11L22**	**ASTN21L22**	**ASTN201L22**	**ASTN51L22**
		2	NO			●				
		3	NC			▬				
		4	NC	▬						
	22 (2NO-2NC)	1	NO	●			**ASTN12L22**	**ASTN22L22**	**ASTN202L22**	**ASTN52L22**
		2	NO			●				
		3	NC		●					
		4	NC	▬						
	40 (4NC)	1	NO	●			**ASTN13L40**	—	—	—
		2	NO			●				
		3	NO	●						
		4	NO			●				
	22 (2NO-2NC)	1	NO	●			**ASTN14L22**	—	**ASTN204L22**	—
		2	NC	▬						
		3	NC			▬				
		4	NO			●				
	20 (2NO)	1	NO			●	**ASTN15L20**	—	**ASTN205L20**	—
		2	NO	●						
	40 (4NO)	1	NO			●	**ASTN15L40**	—	**ASTN205L40**	—
		2	NO	●						
		3	NO			●				
		4	NO	●						
	11 (1NO-1NC)	1	NC		●		**ASTN16L11**	—	—	—
		2	NO			●				
	22 (2NO-2NC)	1	NC		●		**ASTN16L22**	—	—	—
		2	NO			●				
		3	NC		●					
		4	NO			●				
	11 (1NO-1NC)	1	NO	●			—	—	—	**ASTN51L11**
		2	NC	▬						

Notes:
1. The operator of the 2-way spring return unit may slightly deviate from the center position.
2. Turn the operator to each position accurately.

Contact Block Mounting Position and Contact Arrangement Chart



Dimensions



ASTN□K Key Selector Switches

Package Quantity: 1

No. of Positions	Shape	ASTNK	
	Contact Arrangement Chart		• Cylinder: Chrome-plated • Round bezel (metal): Chrome-plated • On the spring-returned, the keys can be released only from the maintained position. • On the maintained, the key can be released from every position. Key retained positions are also available. See page 21.

90° 2-position

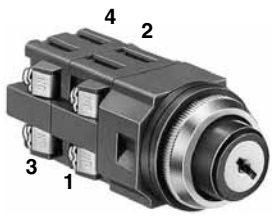
Contact Code (ASTN)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: R	Maintained	Spring Return from Right	—	—
			L R	L R				
11 (1NO-1NC)	1	NO		●	ASTN32K11	ASTN42K11	—	—
	2	NC	●					
22 (2NO-2NC)	1	NO		●	ASTN32K22	ASTN42K22		
	2	NO		●				
	3	NC	●					
	4	NC	●					

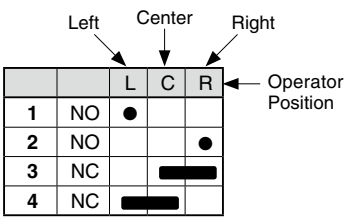
45° 3-position

Contact Code (ASTN)	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained	Spring Return from Left	Spring Return from Right	Spring Return Two-way
			L C R	L C R	L C R				
20 (2NO)	1	NO	●			—	—	—	ASTN51K20
	2	NO			●				
22 (2NO-2NC)	1	NO	●			ASTN11K22	ASTN21K22	ASTN201K22	ASTN51K22
	2	NO			●				
	3	NC		▬					
	4	NC	▬						
22 (2NO-2NC)	1	NO	●		●	ASTN12K22	ASTN22K22	ASTN202K22	ASTN52K22
	2	NO			●				
	3	NC		●					
	4	NC	▬						
40 (4NC)	1	NO	●			ASTN13K40	—	—	—
	2	NO			●				
	3	NO	●						
	4	NO			●				
22 (2NO-2NC)	1	NO	●			ASTN14K22	—	ASTN204K22	—
	2	NC	▬						
	3	NC		▬					
	4	NO			●				
20 (2NO)	1	NO			●	ASTN15K20	—	ASTN205K20	—
	2	NO	●						
40 (4NO)	1	NO			●	ASTN15K40	—	ASTN205K40	—
	2	NO	●						
	3	NO			●				
	4	NO	●						
11 (1NO-1NC)	1	NC		●		ASTN16K11	—	—	—
	2	NO			●				
22 (2NO-2NC)	1	NC		●		ASTN16K22	—	—	—
	2	NO			●				
	3	NC		●					
	4	NO			●				
11 (1NO-1NC)	1	NO	●			—	—	—	ASTN51K11
	2	NC	▬						

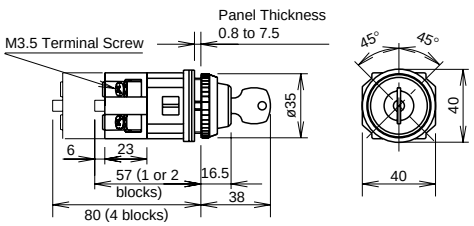
Notes:
1. The operator of the 2-way spring return unit may slightly deviate from the center position.
2. Turn the operator to each position accurately.

Contact Block Mounting Position and Contact Arrangement Chart





Dimensions



ASLN Illuminated Selector Switches

90° 2-position

Package Quantity: 1

Shape

ASLN (Base BA9S)

Contact Arrangement Chart

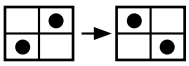
Contact Code	Contact Block		Operator Position		Lamp	Maintained	Spring Return from Right	Spring Return from Left
	Mounting Position	Contact	L	R				
11 (1NO-1NC)	1	NO		●	Without Lamp	**ASLN29911N②**	**ASLN219911N②**	**ASLN229911N② ∗**
	2	NC	●		LED	**ASLN2③11DN②**	**ASLN21③11DN②**	**ASLN22③11DN② ∗**
					Incandescent	**ASLN2③11N②**	**ASLN21③11N②**	**ASLN22③11N② ∗**
20 (2NO)	1	NO		●	Without Lamp	**ASLN29920N②**	**ASLN219920N②**	**ASLN229920N② ∗**
	2	NO		●	LED	**ASLN2③20DN②**	**ASLN21③20DN②**	**ASLN22③20DN② ∗**
					Incandescent	**ASLN2③20N②**	**ASLN21③20N②**	**ASLN22③20N② ∗**
22 (2NO-2NC)	1	NO		●	Without Lamp	**ASLN29922N②**	**ASLN219922N②**	**ASLN229922N② ∗**
	2	NC	●					
	3	NO		●	LED	**ASLN2③22DN②**	**ASLN21③22DN②**	**ASLN22③22DN② ∗**
	4	NC	●					
					Incandescent	**ASLN2③22N②**	**ASLN21③22N②**	**ASLN22③22N② ∗**

Color Code and Operating Voltage Code

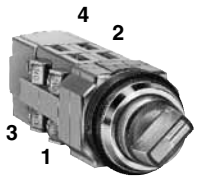
Specify a code in place of ② or ③ in the Part No.

② Lens/LED Color Code		③ Operating Voltage Code		Input
LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow Use a pure white LED lamp for yellow illumination	A: amber G: green R: red S: blue W: white	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	Full voltage
		16: 100/110V AC 136: 120V AC 26: 200/220V AC 256: 240V AC 386: 380V AC 46: 400/440V AC	16: 100/110V AC 136: 120V AC 26: 200/220V AC 256: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	Transformer

On the 2-position selector switches marked with ∗ above, the contact operation is reversed as follows.

[Example] 

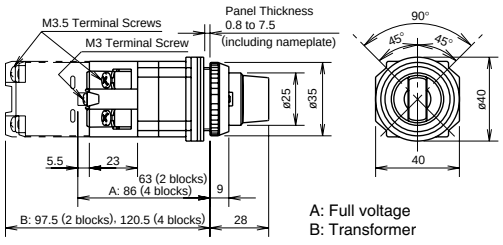
Contact Block Mounting Position and Contact Arrangement Chart



		Left	Right
1	NO		●
2	NO	●	
3	NC		●
4	NC	●	

Operator Position

Dimensions



ASLN Illuminated Selector Switches

45° 3-position

Package Quantity: 1

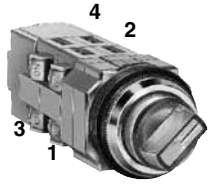
Contact Code	Contact Block		Operator Position			Lamp	Maintained	Spring Return from Right	Spring Return from left	Spring Return Two-way
	Mounting Position	Contact	L	C	R					
20 (2NO)	1	NO	●			Without Lamp	**ASLN39920N②**	**ASLN319920N②**	**ASLN329920N②**	**ASLN339920N②**
	2	NO			●	LED	**ASLN3③20DN②**	**ASLN31③20DN②**	**ASLN32③20DN②**	**ASLN33③20DN②**
						Incandescent	**ASLN3③20N②**	**ASLN31③20N②**	**ASLN32③20N②**	**ASLN33③20N②**
02 (2NC)	1	NC		▬		Without Lamp	**ASLN39902N②**	**ASLN319902N②**	**ASLN329902N②**	**ASLN339902N②**
	2	NC	▬			LED	**ASLN3③02DN②**	**ASLN31③02DN②**	**ASLN32③02DN②**	**ASLN33③02DN②**
						Incandescent	**ASLN3③02N②**	**ASLN31③02N②**	**ASLN32③02N②**	**ASLN33③02N②**
22 (2NO-2NC)	1	NO	●			Without Lamp	**ASLN39922N②**	**ASLN319922N②**	**ASLN329922N②**	**ASLN339922N②**
	2	NO			●					
	3	NC		▬		LED	**ASLN3③22DN②**	**ASLN31③22DN②**	**ASLN32③22DN②**	**ASLN33③22DN②**
	4	NC	▬							
						Incandescent	**ASLN3③22N②**	**ASLN31③22N②**	**ASLN32③22N②**	**ASLN33③22N②**
40 (4NO)	1	NO	●			Without Lamp	**ASLN39940N②**	**ASLN319940N②**	**ASLN329940N②**	**ASLN339940N②**
	2	NO			●					
	3	NO	●			LED	**ASLN3③40DN②**	**ASLN31③40DN②**	**ASLN32③40DN②**	**ASLN33③40DN②**
	4	NO			●					
						Incandescent	**ASLN3③40N②**	**ASLN31③40N②**	**ASLN32③40N②**	**ASLN33③40N②**
04 (4NC)	1	NC		▬		Without Lamp	**ASLN39904N②**	**ASLN319904N②**	**ASLN329904N②**	**ASLN339904N②**
	2	NC	▬							
	3	NC		▬		LED	**ASLN3③04DN②**	**ASLN31③04DN②**	**ASLN32③04DN②**	**ASLN33③04DN②**
	4	NC	▬							
						Incandescent	**ASLN3③04N②**	**ASLN31③04N②**	**ASLN32③04N②**	**ASLN33③04N②**

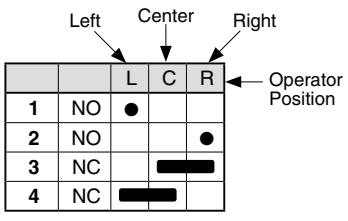
Color Code and Operating Voltage Code

Specify a code in place of ② or ③ in the Part No.

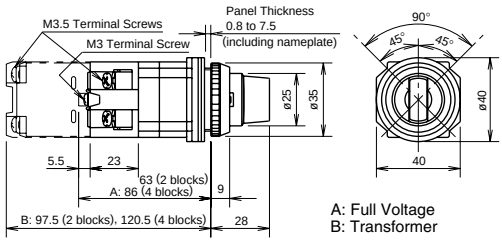
② Lens/LED Color Code		③ Operating Voltage Code		Input
LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow Use a pure white LED lamp for yellow illumination	A: amber G: green R: red S: blue W: white	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	Full voltage
		16: 100/110V AC 136: 120V AC 26: 200/220V AC 256: 240V AC 386: 380V AC 46: 400/440V AC	16: 100/110V AC 136: 120V AC 26: 200/220V AC 256: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	Transformer

Contact Block Mounting Position and Contact Arrangement Chart



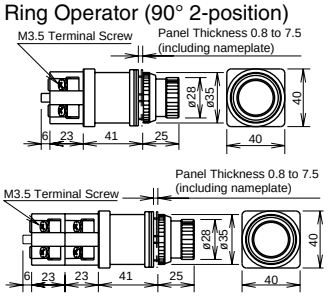
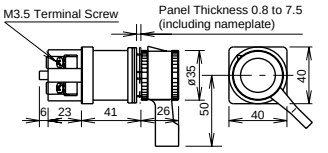
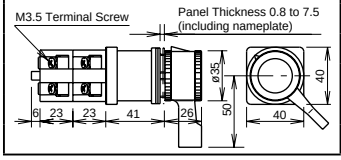


Dimensions



ABN Ring Operator / ABN□L Lever Operator Selector Pushbuttons

Package Quantity: 1

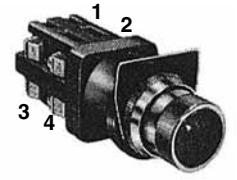
Shape	Contact Code	Circuit Code	Contact Block		Ring/Lever				Ring Operator	Lever Operator	① Button Color Code
					Pushbutton				Part No.	Part No.	
			Mounting Position	Con-tact	Normal	Push	Normal	Push			
ABN  Ring Operator (90° 2-position)  ABN□L  Lever Operator (90° 2-position)   	11 (1NO-1NC)	A	1	NO		●		●	**ABN6111①**	**ABN6L111①**	B: black G: green R: red Y: yellow
			2	NC	●						
		I	1	NC	●				**ABN6411①**	**ABN6L411①**	
			2	NO		●	▬	▬			
		G	1	NO		Blocked		●	**ABN9111①**	**ABN9L111①**	
			2	NC	●		●				
	20 (2NO)	D	1	NO		●			**ABN7120①**		
			2	NO				●			
	22 (2NO-2NC)	B	1	NC	●				**ABN6122①**	**ABN6L122①**	
			2	NC	●						
			3	NO		●		●			
			4	NO		●		●			
		C	1	NC	●				**ABN6222①**	**ABN6L222①**	
			2	NC	▬	▬					
			3	NO		●		●			
			4	NO				●			
		I	1	NC	●				**ABN6422①**	**ABN6L422①**	
			2	NC	●						
			3	NO		●	▬	▬			
			4	NO		●	▬	▬			
		D	1	NC	●		▬	▬	**ABN7122①**	**ABN7L122①**	
			2	NC	▬	▬	●				
			3	NO		●					
			4	NO				●			
		E	1	NC			▬	▬	**ABN7222①**	**ABN7L222①**	
			2	NC	▬	▬					
			3	NO		●					
			4	NO				●			
		F	1	NC			●		**ABN7322①**	**ABN7L322①**	
			2	NC	●						
			3	NO		●					
			4	NO				●			
		H	1	NC	●	Blocked	●		**ABN9122①**	**ABN9L122①**	
			2	NC	●		●				
			3	NO				●			
			4	NO				●			

- Specify a button color code in place of ① in the Part No.
- Ring/Lever (metal): Chrome-plated

Notes

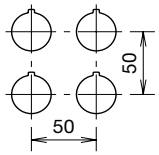
1. Circuit Codes A, B, C, and I: When the ring or lever operator is turned, the button is pushed in.
2. Circuit Codes E and F: The right and left NC contact blocks on circuit code E or F may overlap each other while turning the ring or lever operator. The NO and NC contact blocks on circuit code F may overlap each other while pressing the button.
3. Circuit Codes G and H: The pushbutton does not operate when the ring or lever operator is turned to the left position.
4. When using the selector pushbutton, do not turn the ring or lever operator with the pushbutton depressed. Otherwise, damage or failure may be caused.

Contact Block Mounting Position and Contact Arrangement Chart

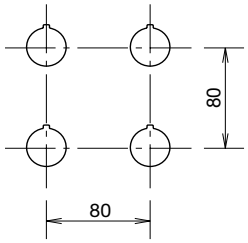


	Normal	Push
1	●	
2	●	
3		●
4		●

Mounting Hole Layout

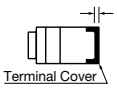
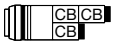
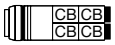


Ring Operator



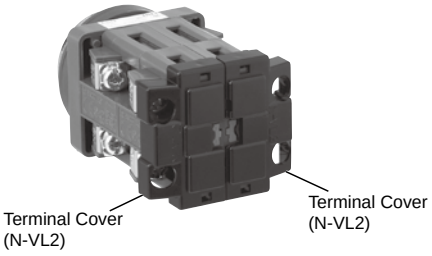
Lever Operator

Terminal Covers

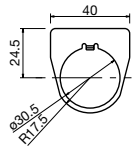
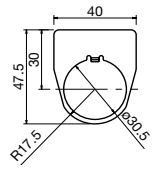
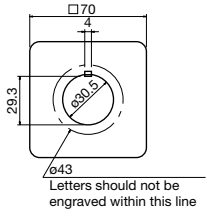
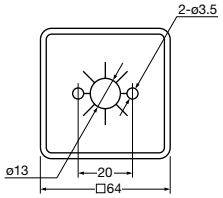
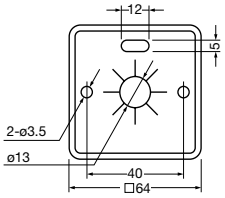
Terminal Cover / ø30 Series Switches & Pilot Lights		N-VL2	N-VL3	N-VL4	APN-PVL	APD-PVL	Use of terminal covers increases the depth by the dimensions below.
		 38.4H × 22W	 38H × 30.4W	 38.4H × 24W	 38H × 46W	 37H × 44W	 Terminal Cover
Pilot Light APN, APNE, UPQN, UPQNE	Full Voltage				X		+5.0 mm
Pilot Light APD, APDE	Full Voltage					X	+5.2 mm
Pilot Light APN, APNE, APD, APDE, UPQN, UPQNE	Transformer DC-DC Converter		X				+2.7 mm
Pushbutton ABN, ABD, AON, AOD, AVN, ABGD, AJN, ABFD, ATN, AOFD, UBQN, AVD, UOQN, AJD, UWQN, AZD, ABBN, AYD, ABBS (ø25) Selector Switch ASN, ASD, ASTN Selector Pushbutton ABN, ASBD	1 contact block Terminal Cover 	X					+0 mm
	2 contact blocks 	X 2 pieces					
	3 contact blocks 	X 2 pieces					
	4 contact blocks 	X 2 pieces					
Illuminated Pushbutton ALN, ALD, ALNE, ALDE, AOLN, AOLD, AOLNE, AOLDE, ALGN, ALGD, ALGNE, ALGDE, AOLGN, AOLGDE, ALFN, ALFD, ALFNE, ALFDE, AOLFN, AOLFD, AOLFNE, AOLFDE, AVLN, AVLD, AVLNE, AVLDE, AJLN, AJLD, AJLNE, AJLDE, ULQN, UOLQN Illuminated Selector Switch ASLN, ASLD Push-to-Check Pilot Light APN1**P	Full Voltage			X 2 pieces			+4.5 mm
	Transformer DC-DC Converter		X				+1.5 mm

Ordering Terminal Covers

• When ordering terminal covers, specify the Part No. and the quantity.

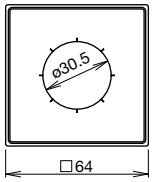
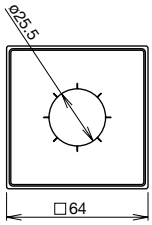


Nameplates

Model	Legend	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)	Applicable Unit
NA	Blank	Aluminium 1.2 mm thick White letters on black background	**NA-0**	**NA-0**	1		ø30 switches & pilot lights
				NA-0PN10	10		
	With Legend		**NA-∗**	**NA-∗**	1		
				NA-∗PN10	10		
NALO	Blank	Aluminium 1.2 mm thick Black	**NALO**	**NALO**	1		
				NALOPN10	10		
MLO	Blank	Brass (chrome-plated) 1.0 mm thick Matte	**MLO**	**MLO**	1		ARN/ARNS Mono-Lever
				MLOPN10	10		
CQ	Blank	Aluminium 0.5 mm thick White letters on black background	**CQ-0**	**CQ-0**	1	• With adhesive tapes on the back 	UCSQO Cam Switch
				CQ-0PN10	10		
	With Legend (Legend Codes 31 and 53 only)		**CQ-∗**	**CQ-∗**	1		
				CQ-∗PN10	10		
CQM	Blank	Aluminium 0.5 mm thick White letters on black background	**CQM-0**	**CQM-0**	1	• With adhesive tapes on the back 	UCSQM Cam Switch
				CQM-0PN10	10		
	With Legend (Legend Code 31 only)		**CQM-∗**	**CQM-∗**	1		
				CQM-∗PN10	10		

• Specify a legend code in place of ∗ in the Ordering No.

Nameplates

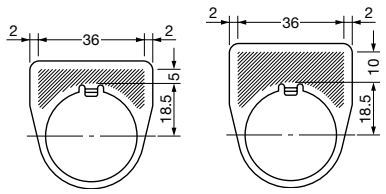
Model	Legend	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)	Applicable Unit
CQN	Blank	Aluminium 0.5 mm thick White letters on black background	**CQN-0**	**CQN-0**	1	• With adhesive tapes on the back 	ACSNO, ACSNK Cam Switches ø30 mm Selector Switches
				CQN-0PN10	10		
	With Legend (Legend Codes 31, 35, and 53 only)		**CQN-∗**	**CQN-∗**	1		
				CQN-∗PN10	10		
CQS	Blank	Aluminium 0.5 mm thick White letters on black background	**CQS-0**	**CQS-0**	1	• With adhesive tapes on the back 	ACSSO, ACSSK Cam Switches ø25 mm Selector Switches
				CQS-0PN10	10		
	With Legend (Legend Code 53 only)		**CQS-∗**	**CQS-∗**	1		
				CQS-∗PN10	10		

• Specify a legend code in place of ∗ in the Ordering No.

Legends

Code	Legend
0	(blank)
1	ON
2	OFF
3	START
4	STOP
31	OFF-ON
35	HAND-AUTO
53	HAND-OFF-AUTO

Shape and Engraving Area



Standard
Type NA

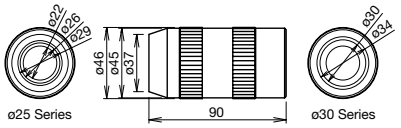
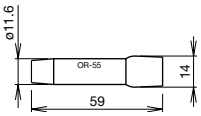
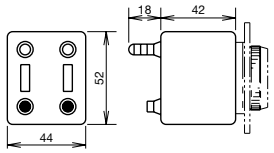
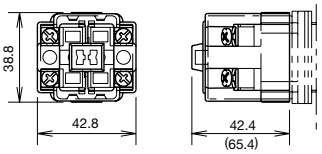
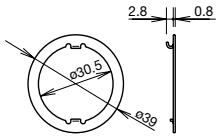
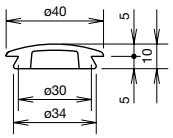
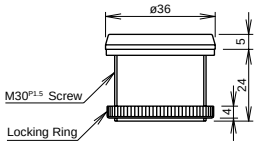
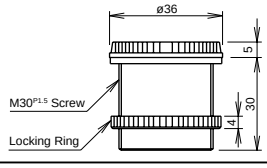
Large
Type NALO

Example

Shape	Engraving Area		Max. No. of Lines	No. of Letters on 1 Line
	Height	Width		
Standard	5	36	1	14
Large	10	36	2	14

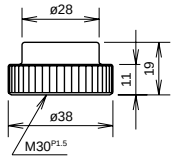
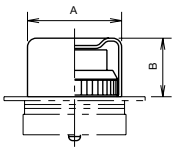
The above example is when the letter is 4 mm tall.

Accessories

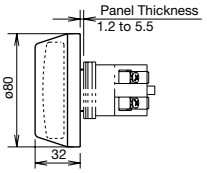
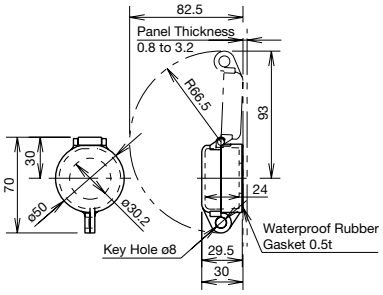
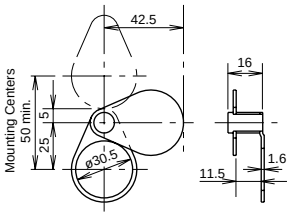
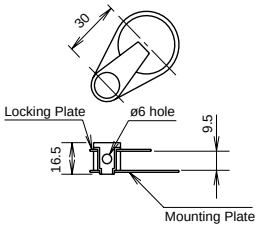
Shape		Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
Locking Ring Wrench 		Rubber	**OR-12**	**OR-12**	1	• Used to tighten the locking ring when installing the ø30 or ø25 switch onto a panel. 
Lamp Holder Tool 		Rubber	**OR-55**	**OR-55**	1	• Used to install and remove the LED/incandescent lamps. See page 75. 
Contact Rubber Boot For momentary 1 layer of contact blocks (2 contact blocks) 		Rubber (nitryl) (black)	**OC-99**	**OC-99**	1	• Rubber boot used to prevent oil and dirt from entering into the contact block. • Temperature range: –5 to +60°C • Cannot be used for zinc diecast switches & pilot lights. 
Contact Rubber Boot 	For 1 layer of contact blocks (2 contact blocks)	Rubber (translucent)	**OC-90**	**OC-90**	1	• Applicable to AVN3 and AJN3. • Applicable to ø30 diecast zinc pushbuttons and selector switches. 
	For 2 layers of contact blocks (4 contact blocks)		**OC-290**	**OC-290**	1	
Anti-rotation Ring 		Metal	**OGL-11**	**OGL-11PN10**	10	• Used to prevent the operator from turning. Generally used when using no nameplates on selector switches and selector pushbuttons. 
Rubber Mounting Hole Plug 		Rubber (black)	**OB-13B**	**OB-13BPN05**	5	• Used to plug unused ø30mm mounting holes. • Gray also available. Ordering No.: OB-13PN05 
Plastic Mounting Hole Plug 		Plastic (gray)	**OBP-11**	**OBP-11**	1	• Tightening torque: 1.2 N·m. • Degree of protection: IP65 
Metallic Mounting Hole Plug 		Metal (diecast) (zinc-plated)	**OB-11**	**OB-11**	1	• Tightening torque: 1.2 N·m. • Degree of protection: IP65 

ø30 Series Accessories and Replacement Parts ø30

Accessories

Shape	Material	Part No.		Ordering No.	Package Quantity	Dimensions (mm)
Button Cover for Extended Pushbuttons 	Rubber (nitryl)	Color	Part No.	–	–	• Metallic bezels covered with a rubber boot to enhance waterproof characteristics. • Button is not included. Applicable to extended pushbuttons only. 
		Black	**OC-11B**	**OC-11B**	1	
		Green	**OC-11R**	**OC-11R**		
		Red	**OC-11G**	**OC-11G**		
		Yellow	**OC-11Y**	**OC-11Y**		
Button Clear Boot 	For flush pushbuttons	Rubber (EPDM)	**OC-121**	**OC-121**	1	• Used to cover and protect pushbuttons where units are subject to water splash. Not suitable for outdoor use or where the units are subject to oil splash. 
	For extended pushbuttons		**OC-122**	**OC-122**	1	

	A	B
OC-121	37	16
OC-122	37	16

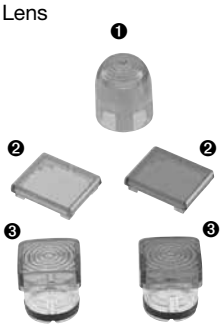
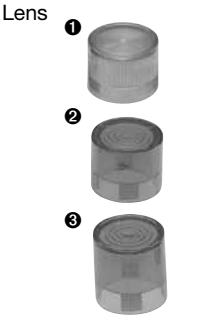
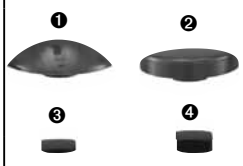
Dust-proof Rubber Cover for Jumbo Mushrooms 		Rubber (nitryl) black	**OC-4GN**	**OC-4GN**	1	• Used for ABN4G pushbuttons. 
Padlock Cover 		Polyarylate (gasket: nitryl rubber)	**OL-KL1**	**OL-KL1**	1	• Used to protect pushbuttons, illuminated push-buttons, and selector switches (knob operator). 
Metal Protector 		Metal (zinc-plated)	**OL-C**	**OL-C**	1	• Used to protect flush pushbuttons from inadvertent operation. • Can be easily attached using the locking ring. 
Locking Attachmentt 		Metal (zinc-plated)	**OL-H**	**OL-H**	1	• Used to lock an extended pushbutton in the depressed position. • Can be easily attached using the locking ring. 

Maintenance Parts

Shape	Specification	Part No.	Ordering No.	Package Quantity	Remarks
Metallic Bezel 	Metal (zinc diecast: chrome-plated)	**OG-11**	**OG-11PN02**	2	• Cannot be used with pin lock, selector pushbuttons, and mono-lever units.
Plastic Bezel 	Plastic (polycarbonate)	**OGP-11∗**	**OGP-11∗PN02**	2	Specify a color code in place of ∗. B (black), G (green), R (red), W (white), Y (yellow) • Cannot be used with pin lock, selector pushbuttons, and mono-lever units.
Clear Plastic Bezel for Flush Pushbuttons 	Clear Plastic (acrylic)	**OGP-13**	**OGP-13PN02**	2	• Clear plastic bezel and full shroud. • OGP-1411 cannot be used with LED illumination units and diecast units.
Clear Plastic Bezel for Extended Pushbuttons 		**OGP-14**	**OGP-14PN02**	2	
Clear Plastic Bezel for Illuminated Pushbuttons 		**OGP-1411**	**OGP-1411**	1	
Metal Bezel for Illuminated Pushbuttons 	Metal (zinc diecast)	**OL-11**	**OL-11PN05**	5	
Clear Button Cover 	Clear Plastic (polycarbonate)	**ABN1B-C**	**ABN1B-CPN05**	5	• Used on flush and extended pushbuttons to indicate a mark or a symbol engraved on the marking plate. The clear button cover holds the marking plate. The ø30 series marking chip can only be used on the ABN1 and AON1.
Marking Plate 	Plastic (polyacetal)	**TN-0∗**	**TN-0∗PN10**	10	• Specify a color code in place of ∗. B (black), G (green), R (red), W (white), Y (yellow)

ø30 Series Accessories and Replacement Parts ø30

Maintenance Parts

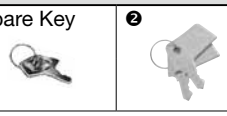
Shape	Description	Material	Part No.	Ordering No.	Package Quantity	Color	
Contact Block (BS: Dark gray) 	1NO contact		**BS010E**	**BS010E**	1	• Push rod color: Green • -MAU has gold contacts	
			BS010E-MAU	**BS010E-MAU**			
	1NC contact		**BS001E**	**BS001E**	1	• Push rod color: Red • -MAU has gold contacts	
			BS001E-MAU	**BS001E-MAU**			
	EM contact (early make)		**BS010SE**	**BS010SE**	1	• Push rod color: Black • -MAU has gold contacts	
			BS010SE-MAU	**BS010SE-MAU**			
	LB contact (late break)		**BS001SE**	**BS001SE**	1	• Push rod color: White • -MAU has gold contacts	
			BS001SE-MAU	**BS001SE-MAU**			
Contact Block (BST: Light gray) 	1NO contact		**BST010**	**BST010**	1	• Push rod color: Green	• -MAU has gold contacts Applicable Units: • Pushlock Turn Reset • Push Turn Lock • LED Illuminated Pushbutton • LED Illuminated Selector Switch • Incandescent Illuminated Selector Switch
			BST010-MAU	**BST010-MAU**			
	1NC contact		**BST001**	**BST001**	1	• Push rod color: Red	
			BST001-MAU	**BST001-MAU**			
	EM contact (early make)		**BST010S**	**BST010S**	1	• Push rod color: Black	
	LB contact (late break)		**BST001S**	**BST001S**	1	• Push rod color: White	
Lens 	❶ Used for APN(E)1	Plastic	**APN106LN-②**	**APN106LN-②PN05**	5	A (amber), C (clear), G (green), R (red), S (blue), W (white), Y (yellow) • Use the white (W) lens for pure white illumination	
	❷ Used for UPQNE4 U(O)LQN∗B		**UPQN406L-②**	**UPQN406L-②PN05**	5	C (clear), G (green), R (red), S (blue) • Use the clear (C) lens for white illumination.	
			UPQN406LD-②	**UPQN406LD-②PN05**		A (amber), Y (yellow) • Use the amber (A) lens for orange illumination.	
	❸ Used for UPQN3B U(O)LQN		**ULQN06L-②**	**ULQN06L-②PN05**	5	C (clear), G (green), R (red), S (blue)	
			UPQN06LD-②	**UPQN06LD-②PN05**		A (amber), W (white), Y (yellow) • Use the amber (A) lens for orange illumination.	
Lens 	❶ Used for ALN, AOLN (LED)	Plastic	**ALN2L-②**	**ALN2L-②PN05**	5	G (green), R (red), S (blue)	
			ALN2LD-②	**ALN2LD-②PN05**	5	A (amber), W (white), Y (yellow) • Use the white (W) lens for pure white illumination	
	❷ Used for ALN, AOLN (incandescent) (1W)		**ALN06L-②**	**ALN06L-②PN05**	5	C (clear), G (green), R (red), S (blue)	
			ALN06LD-②	**ALN06LD-②PN05**	5	A (amber), W (white) • Use the amber (A) lens for orange illumination.	
	❸ Used for ALN, AOLN (incandescent) (2W)		**ALN08L-②**	**ALN08L-②PN05**	5	C (clear), G (green), R (red), S (blue)	
			ALN08LD-②	**ALN08LD-②PN05**	5	A (amber), W (white) • Use the amber (A) lens for orange illumination.	
Button 	Flush	Plastic	**ABN1B-①**	**ABN1B-①PN05**	5	G (green), R (red), Y (yellow) Above colors are used for ø30 switches & pilot lights (dark colored operator units). For black, use black buttons from light colored operator units.	
	Extended		**ABN2B-①**	**ABN2B-①PN05**	5		
	Mushroom		**ABN3B-①**	**ABN3B-①PN02**	2		
Button 	Flush		**ABN1BN-①**	**ABN1BN-①PN05**	5	B (black), G (green), R (red), S (blue), Y (yellow), W (white) Above colors are used for ø30 diecast zinc switches & pilot lights (light colored operator units).	
	Extended		**ABN2BN-①**	**ABN2BN-①PN05**	5		
	Mushroom		**ABN3BN-①**	**ABN3BN-①PN02**	2		
Button 	❶ Mushroom (ABN4)	Plastic	**ABN4B-①**	**ABN4B-①**	1	B (black), G (green), R (red), Y (yellow)	
	❷ Mushroom (ABN4G/ ABN4F)		**ABN4GB-①**	**ABN4GB-①**	1		
	❸ Square Flush (UBQN1)		**UBQN1B-①**	**UBQN1B-①PN02**	2		
	❹ Square Extended (UBQN2)		**UBQN2B-①**	**UBQN2B-①PN02**	2		

Note: Specify a button color code or lens color code in place of ① or ② in the Ordering No.

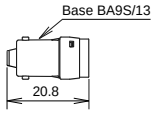
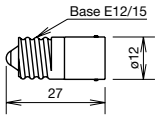
Maintenance Parts

Shape	Description	Material	Part No.	Ordering No.	Package Quantity	Remarks
Button 	For ø40 pushlock turn reset pushbuttons (for AVN3)	AS resin	**AVN3B-②**	**AVN3B-②**	1	R (red), Y (yellow)
Lens 	For ø40 pushlock turn reset pushbuttons (for AVLN3, AVLNE3)	AS resin	**AVLN3L-R**	**AVLN3L-RPN02**	2	Red only
Lens 	For ø40 pushlock turn reset pushbuttons (for AJN3)	AS resin	**AJN3B-②**	**AJN3B-②**	1	B (black), G (green), R (red), Y (yellow)
Lens 	For ø40 pushlock turn reset pushbuttons (for AJLN3)	AS resin	**AJLN3L-②**	**AJLN3L-②**	1	-G (green), -R (red), L-Y (yellow), L-A (amber), L-W (white)
Marking Plate 	For UPQN4	Plastic	**UPQN406N-W**	**UPQN406N-WPN05**	5	
Rubber Washer (3.0mm thick) 		Rubber	**OW-12**	**OW-12PN10**	10	
Rubber Washer (1.5mm thick) 		Rubber	**OW-11**	**OW-11PN10**	10	
Shroud 	❶ Half shroud (for pushbuttons)	Metal	**ABN2G**	**ABN2G**	1	
	❷ Full shroud (for pushbuttons)		**ABN2F**	**ABN2F**	1	
	❸ Full shroud (for mushroom pushbuttons)		**ABN3G**	**ABN3G**	1	
	❹ Shallow shroud (for jumbo mush-rooms)		**ABN4G**	**ABN4G**	1	
	❺ Deep shroud (for jumbo mush-rooms)		**ABN4F**	**ABN4F**	1	
	❻ Half shroud (for illuminated pushbuttons)		**ALN1GL**	**ALN1GL**	1	• For incandescent/LED illuminated pushbuttons (E12 base)
			ALN2GL	**ALN2GL**	1	• For LED illuminated pushbuttons (BA9S base)
	❼ Full shroud (for illuminated pushbuttons)		**ALN1F**	**ALN1F**	1	• For incandescent/LED illuminated pushbuttons (E12 base)
			ALN2FL	**ALN2FL**	1	• For LED illuminated push-buttons (BA9S base)
Selector Knob 	Knob for Illuminated selector switch	AS resin	**ASLNH**	**ASLNH-***	1	G (green), R (red), S (blue)
			ASLNHD	**ASLNHD-***		A (amber), W (white), Y (yellow)

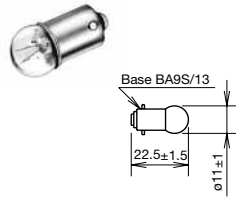
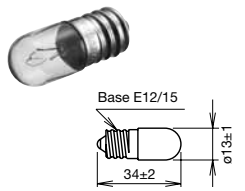
Maintenance Parts

Shape	Description	Material	Part No.	Ordering No.	Package Quantity	Remarks
Spare Key ❶ ❷ 	❶ASN3K/4K,ABN5	Metal	**ASN-T1SK-24401**	**ASN-T1SK-24401PN02**	2	• Applicable to ABN3K, ABN4K, ABN5
	❷ASN∗K		**ASN-SK-24401**	**ASN-SK-24401PN02**		
Spare Key 	ASN□K□-T ASN∗K		**TW-SK-0**	**TW-SK-0PN02**	2	
Transformer 	100/110V AC (for LED/1W incandescent lamps)		**TWR-016N**	**TWR-016N**	1	Mounting screws are not included.
	200/220V AC (for LED/1W incandescent lamps)		**TWR-026N**	**TWR-026N**	1	
Pin/Chain 	For ABN8P pinloock	Metal	**ABN8P-PIN**	**ABN8P-PIN**	1	Pin, chain, and plate for ABN8P

LED Lamps

Dimensions	Operating Voltage	Current Draw AC	Current Draw DC	Part No.	Ordering No.	② Illumination Color Code	Package Quantity	Base
 	6V AC/DC ±10%	8 mA	7 mA (A, R, W) 5.5 mA (G, PW, S)	**LSTD-6②**	**LSTD-6②**	A: amber G: green PW: pure white R: red S: blue W: white Use a pure white (PW) LED lamp with yellow (Y) lens.	1	BA9S/13
					LSTD-6②PN10		10	
	12V AC/DC ±10%	11 mA	10 mA	**LSTD-1②**	**LSTD-1②**		1	
					LSTD-1②PN10		10	
	24V AC/DC ±10%	11 mA	10 mA	**LSTD-2②**	**LSTD-2②**		1	
					LSTD-2②PN10		10	
 	6V AC/DC ±10%	17 mA (A, R, W, Y) 8 mA (G, PW, S)	14 mA (A, R, W, Y) 5.5 mA (G, PW, S)	**LETD-6②**	**LETD-6②**	A: amber G: green R: red S: blue W: white Y: yellow	1	E12/15
					LETD-6②PN10		10	
	12V AC/DC ±10%	7 mA	6.5 mA	**LETD-8②**	**LETD-8②**		1	
					LETD-8②PN10		10	
	24V AC/DC ±10%	11 mA	10 mA	**LETD-2②**	**LETD-2②**		1	
					LETD-2②PN10		10	

Incandescent Lamps

Dimensions	Rated Operating Voltage	Lamp Ratings	Part No.	Package Quantity	Life
	6V AC/DC	1W (6.3V)	**LS-6**	1	Approx. 1000 hours minimum (reference value)
	12V AC/DC	1W (18V)	**LS-8**		
	18V AC/DC	1W (24V)	**LS-2**		
	24V AC/DC	1W (30V)	**LS-3**		
	6V AC/DC	2W (6.3V)	**LE-6**	1	
	12V AC/DC	2W (18V)	**LE-8**		
	18V AC/DC	2W (24V)	**LE-2**		
	24V AC/DC	2W (30V)	**LE-3**		

• Specify a color code in place of ② in the Ordering No.

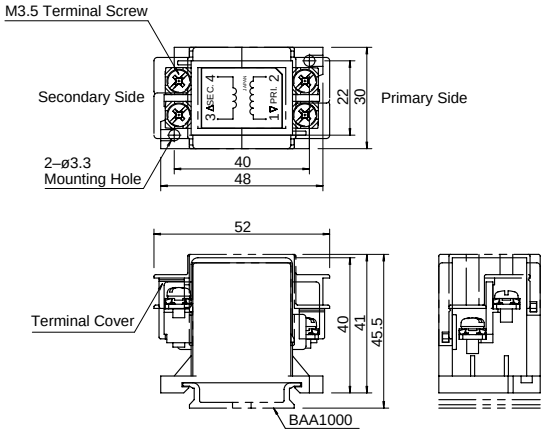
Transformer

DIN Rail Mount	Primary Voltage	Secondary Voltage	Part No.	Applicable Load
For 1W 	100/110V AC	5.5V	**TWR516**	One full voltage pilot light or illuminated switch containing LSTD-6②, LETD-6② LED lamp (6V AC/DC) or LS-6 incandescent lamp (6.3 V AC/DC, 1W)
	200/220V AC		**TWR526**	
	400/440V AC		**TWR546**	
For 2W 	100/110V AC	15V	**TWR518**	One full voltage pilot light or illuminated switch containing LE-8 incandescent lamp (18V AC/DC, 2W)
	200/220V AC		**TWR528**	
	400/440V AC		**TWR548**	

Specifications

Operating Voltage	100/110V AC, 115/120V AC, 200/220V AC, 230/240V AC, 380V AC, 400/440V AC, 480V AC (50/60Hz)
Current Draw	2.4 VA
Rated Insulation Voltage	600V
Insulation Resistance	100 MΩ minimum (500V DC megger)
Operating Temperature	–30 to +60°C (no freezing)
Storage Temperature	–40 to +80°C (no freezing)
Operating Humidity	35 to 85% RH (no condensation)
Vibration Resistance	Damage Limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Damage limits, Operating Extremes: 1,000 m/s^2
Dielectric Strength	2,500V AC, 1 minute
Terminal Screw	M3.5
Applicable Wire	2 mm^2 maximum, 2 wires maximum
Weight (approx.)	87g

Dimensions

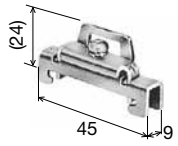


Accessories

DIN Rail

Part No.	Ordering No.	Length	Weight (approx.)	Material	Package Quantity
BAA1000	**BAA1000PN10**	1000 mm	200g	Aluminum	10
BAP1000	**BAP1000PN10**	1000 mm	320g	Steel	10

End Clip

Part No.	Ordering No.	Applicable DIN Rail	Weight (approx.)	Material	Package Quantity	Dimensions
BNL6	**BNL6PN10**	**BAA1000** **BAP1000**	15g	Steel (Zinc-plated)	10	

• Use plastic end clip BC9Z-E/NS35N when using 400/440V AC primary voltage transformers.

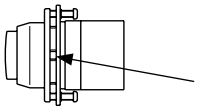
Safety Precautions

- Turn off the power to the ø30 series switches & pilot lights before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.
- For wiring, use wires of a proper size to meet the voltage and current requirements. Tighten the M3.5 terminal screws to a tightening torque of 1.0 to 1.3 N·m. Failure to tighten terminal screws may cause overheat and fire.

Instructions

Panel Mounting for Square Pushbuttons and Pilot Lights

1. Tighten the square ring to the operator and position the ring correctly.
2. Lightly tighten the screw to secure the pilot light onto the panel.



Tightening Torque for Terminal Screws

Tighten the terminal screws to a torque of 1.0 to 1.3 N·m.

Replacement of Lamps

Lamps can be replaced by using the lamp holder tool (OR-55) from the front of the panel.

How to Remove

To remove, slip the lamp holder tool onto the lamp head lightly. Then push slightly, and turn the lamp holder tool counterclockwise.

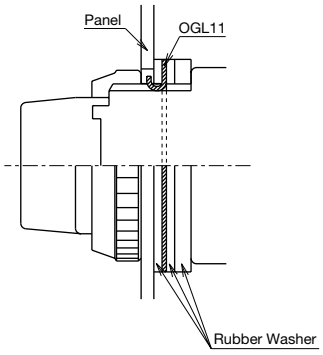
How to Install

To install, insert the lamp head into the lamp holder tool. Place the pins on the lamp base to the grooves in the lamp socket. Inset the lamp and turn it clockwise.

OR-55

Installing the Anti-rotation Ring

Anti-rotation rings are used on selector switches or pushbuttons which rotate and used when using no nameplates.
Insert a 1.5mm thick rubber washer between the panel and the anti-rotation ring as shown on the right.



Panel Thickness and Rubber Washer

Adjust the thickness of the rubber washers according to the panel thickness. Also, make sure to include the nameplate thickness when using a nameplate.

Applicable Models

- Extended Illuminated Pushbuttons with Half Shroud (LED)
- Extended Pushbuttons with Half Shroud (Diecast)
- Extended Illuminated Pushbuttons with Half Shroud (Diecast)

Panel Thickness (mm)	Rubber Washer	
	1.5mm	3.0mm
Supplied	1 piece	1 piece
0.8 to 1.8	–	1 piece
1.8 to 3.5	1 piece	–

Applicable Models

- Extended Illuminated Pushbuttons with Full Shroud (Incandescent)
- Extended Illuminated Pushbuttons with Full Shroud (LED)
- Extended Illuminated Pushbuttons with Full Shroud (Diecast)
- Mushroom Pushbuttons with Full Shroud

Panel Thickness (mm)	Rubber Washer	
	1.5mm	3.0mm
Supplied	2 pieces	1 piece
0.8 to 2.0	1 piece	1 piece
2.0 to 3.5	1 piece	1 piece
3.5 to 5.0	–	1 piece
5.0 to 6.0 (6.5)	1 piece	–

The number in brackets is for mushroom pushbuttons with full shroud. Extended illuminated pushbuttons with full shroud (incandescent) are 5.0 mm maximum.

Applicable Models

- Toggle Lever
- Knob Push Turn Lock Illuminated Pushbuttons

Panel Thickness (mm)	Rubber Washer	
	1.5mm	3.0mm
Supplied	1 piece	1 piece
0.8 to 2.0	1 piece	1 piece
2.0 to 3.5	–	1 piece
3.5 to 5.5 (5.0)	1 piece	–

The number in brackets is for knob push turn lock illuminated pushbuttons.

Applicable Models

- Extended Pushbuttons with Half Shroud
- Extended Illuminated Pushbuttons with Half Shroud (Incandescent)

Panel Thickness (mm)	Rubber Washer	
	1.5mm	3.0mm
Supplied	1 piece	1 piece
0.8	1 piece	1 piece
0.8 to 2.3	–	1 piece
2.3 to 4.0	1 piece	–

Applicable Models

- Extended Pushbuttons with Full Shroud

Panel Thickness (mm)	Rubber Washer	
	1.5mm	3.0mm
Supplied	3 pieces	1 piece
0.8 to 1.5	3 pieces	1 piece
1.5 to 3.0	2 pieces	1 piece
3.0 to 4.5	1 piece	1 piece
4.5 to 6.0	–	1 piece
6.0 to 7.5	1 piece	–

Applicable Models

- Extended Pushbuttons with Full Shroud (Diecast)

Panel Thickness (mm)	Rubber Washer	
	1.5mm	3.0mm
Supplied	2 pieces	1 piece
0.8 to 2.5	2 pieces	1 piece
2.5 to 4.0	1 pieces	1 piece
4.0 to 5.5	–	1 piece
5.5 to 6.0	1 piece	–

Applicable Models

- Other Models (Excluding Square)

Panel Thickness (mm)	Rubber Washer	
	1.5mm	3.0mm
Supplied	2 pieces	1 piece
0.8 to 3.5	2 pieces	1 piece
3.5 to 5.0	1 piece	1 piece
5.0 to 6.5	–	1 piece
6.5 to 7.5	1 piece	–

Installation of LED Illuminated Units

1. Note the polarity for wiring when connecting to DC-DC converter unit.

Terminal No.	Polarity
X1	Positive
X2	Negative

2. Transformer units are recommended for use in areas subjected to noise.

3. Notes for Pure White LED Lamps

- Do not use the pure white LED outdoors, otherwise it will lead to the degradation of brightness and color. Do not remove or apply shock to the cap on the pure white LED lamp, otherwise it may break or damage the cap.
- For the pure white LED, use a white lens. The illumination color will be dull if a different color is used.

Notes on LED Illuminated Units

LED lamps consist of semiconductors. If the applied voltage exceeds the rated voltage, LED elements may deteriorate due to overheat, resulting in significant decrease in luminance, hue change, or failure of lighting. Also, if an extraneous noise, transient voltage, or transient current is applied to the circuit, similar effects may occur. When using LED lamps, observe the following instructions.

Rated Voltage

The LED lamps are rated at 6V, 12V, or 24V AC/DC, and can be used within ±10% the rated voltage of either AC or DC.

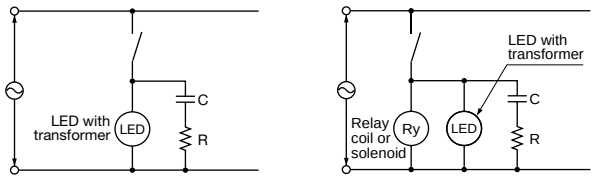
DC Power

1. Switching power supply
   Regulated voltage from switching power supply is best suited. Make sure to use within the rated voltage of the LED lamp.
2. Rechargeable battery
   Note that the battery voltage may exceed the rated voltage of the LED lamp while the battery is being charged and immediately after the charging is complete. Be sure to use the LED lamp on a voltage of ±10% the rated voltage.
3. Full-wave rectification
   Since the LED lamp is AC/DC compatible, a diode bridge for rectification is not necessary. If the LED lamp is used on a full-wave rectification current through a diode bridge, the rectifier diodes will reduce the voltage, resulting in lower luminance.
4. Single-phase half-wave rectification
   This is not suitable for the power source of LED lamps. Use constant-voltage DC power.

Noise

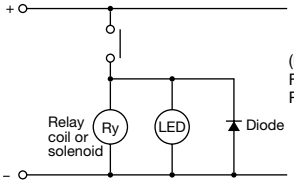
LED elements deteriorate due to extraneous noise, resulting in significant decrease in luminance, hue change, or failure of lighting. When such effects are anticipated, take a protection measure shown below, such as RC elements or a surge absorber.

[Protection Example 1] For AC circuit



(Reference values) R: 120Ω
C: 0.1 μF

[Protection Example 2] For DC circuit



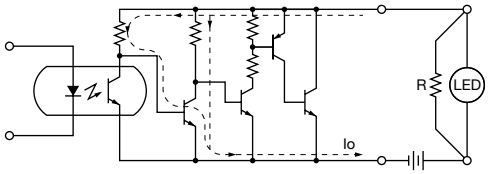
(Reference values of the diode)
Forward current: More than the Ry coil current
Reverse withstand voltage: Ry coil current ¥ 10

Countermeasures against Dim Lighting

1. Leakage currents through the transistors or a contact protection circuit may cause the LED lamp to illuminate dimly even when the output is off.
2. When the LED lamp is illuminated by a transistor output, take the following measure.

[Circuit Example]

Connect shunt resistor R in parallel with the LED lamp.



Io: Leakage current when the output is off
R: Shunt resistor