IDEC

Think Automation and beyond...

ø30mm Series
Switches & Pilot Lights

IDEC CORPORATION

ø30 ø30 Series Switches & Pilot Lights (Selection Guide)

Function	XN Series Emergency Stop Switch				HN Series Emergency Stop Switch
Category	Plastic Bezel		Flush Bezel	Padlockable	–
	Pushlock Pull/Turn Reset		Pushlock Pull/Turn Reset	Pushlock Turn Reset	Pushlock Turn Reset
Shape		ø60mm Mushroom			
Model	XN1E-BV4 XN1E-LV4 XN1E-TV4	XN1E-BV5	XN5E-BV4 XN5E-LV4 XN5E-TV4	XN4E-BL4 XN4E-LL4 XN4E-TL4	HN1E-BV4 HN1E-LV4
Page	7	7	8	9	14

Function	Pushbutton							
Category	Flush		Extended		Extended with Half Shroud		Extended with Full Shroud	
	Momentary/Maintained							
Shape								
Model	ABN1 AON1	(Diecast) ABD1 AOD1	ABN2 AON2	(Diecast) ABD2 AOD2	ABN2G AON2G	(Diecast) ABGD2 AOGD2	ABN2F AON2F	(Diecast) ABFD2 AOFD2
Page	22	82	22	82	22	82	22	82

Function	Pushbutton									
Category	Mushroom		Mushroom with Full Shroud		Palm Mushroom		Jumbo Mushroom with Shallow Shroud		Jumbo Mushroom with Deep Shroud	
	Momentary/Maintained				Momentary					
Shape										
Model	ABN3 AON3	(Diecast) ABD3 AOD3	ABN3G	(Diecast) ABGD3 AOGD3	ABN4	(Diecast) ABD4	ABN4G	(Diecast) ABGD4	ABN4F	(Diecast) ABFD4
Page	23	83	23	83	23	83	23	83	23	83

Function	Pushbutton						
Category	Key ON/OFF Lock	Mushroom Pushlock Turn Reset		Mushroom Push Turn Lock		Mushroom Pushlock Key Reset	Jumbo Mushroom Push-lock Key Reset
Shape							
Model	ABN5	AVN3	(Diecast) AVD3	AJN3	(Diecast) AJD3	ABN3K	ABN4K
Page	24	24	84	24	84	24	24

Function	Pushbutton							
Category	Toggle Lever	Pin Lock		Mushroom Pull		Mushroom Push-Pull		Square Flush Momentary
Shape								
Model	ATN4	ABN8P	(Diecast) ABD8P	ATN23	(Diecast) AZD3	ATN21 ATN22	(Diecast) AYD31	UBQN1
Page	24	25	84	25	84	25	84	23

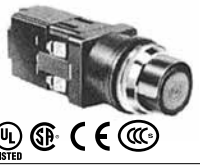
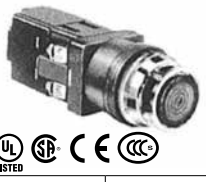
Function	Pushbutton		Twin Maintained Pushbutton		
Category	Square Extended Momentary	Square Twin Momentary	Square Twin Maintained	Flush Twin Maintained	Mushroom Twin Maintained
Shape					
Model	UBQN2	UWQN1	UWQN2	ABBN11	ABBN33
Page	23	26	26	26	26

Function	Pilot Light (LED)			
Category	Dome		Square	Rectangular (Marking)
Shape				
Model	APN1 APNE1	(Diecast) APD1 APDE1	UPQN3B	UPQN4 UPQNE4
Page	27	85	28	28

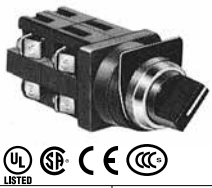
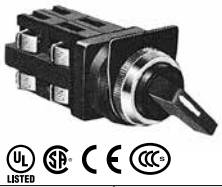
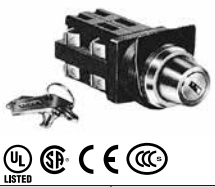
Function	Pilot Light (Incandescent)						
Category	Dome (1W)		Dome (2W)		Rectangular (Marking) (1W/2W)	Square Flush (1W)	Dome (1W) Push-to-Check
Shape							
Model	APN1	(Diecast) APD1	APN1 APNE1	(Diecast) APD1 APDE1	UPQN4 UPQNE4	UPQN3B	APN1∗P
Page	27	85	27	85	28	28	30

ø30 ø30 Series Switches & Pilot Lights (Selection Guide)

Function	Illuminated Pushbutton (LED)								
Category	Extended		Extended with Half Shroud	Extended with Full Shroud		Mushroom		Mushroom Pushlock Turn Reset	
	Momentary/Maintained								
Shape									
Model	ALN2 ALNE2 AOLN2 AOLNE2	(Diecast) ALD2 AOLD2	ALGN2 ALGNE2 AOLGN2 AOLGNE2	ALFN2 ALFNE2 AOLFN2 AOLFNE2	(Diecast) ALFD2 AOLFD2	ALN3 ALNE3 AOLN3 AOLNE3	(Diecast) ALD3 AOLD3	AVLN3 AVLNE3	(Diecast) AVLD3 AVLDE3
Page	31	86	33	35	87	37	88	40	89

Function	Illuminated Pushbutton (LED)	Illuminated Pushbutton (Incandescent)					
Category	Mushroom Push Turn Lock	Extended		Extended with Half Shroud	Extended with Full Shroud		Square Flush
		Momentary/Maintained		Momentary	Momentary/Maintained		
Shape							
Model	AJLN3	ALN ALNE AOLN AOLNE	(Diecast) ALD2 AOLD2	ALN□G ALNE□G	ALN□F ALNE□F AOLN□F AOLNE□F	(Diecast) ALFD2 AOLFD2	ULQN UOLQN
Page	40	32	86	34	36	87	38

Function	Illuminated Pushbutton (Incandescent)				
Category	Rectangular	Turn Lock	Mushroom Pushlock Turn Reset		Mushroom Push Turn Lock
	Momentary/Maintained				
Shape					
Model	ULQN□B UOLQN□B	ALN□L	AVLN3 AVLNE3	(Diecast) AVLD3 AVLDE3	AJLN3
Page	38	39	41	89	41

Function	Selector Switch						Illuminated Selector Switch (LED/Incandescent)	
Category	Knob		Lever		Key		Knob	
Shape								
Model	ASN ASTN	(Diecast) ASD	ASN□L ASTN□L	(Diecast) ASD□L	ASN□K ASTN□K	(Diecast) ASD□K	ASLN	(Diecast) ASLD
Page	42, 49	90	44, 50	91	46, 51	92	52	93

Function	Selector Pushbutton				Mono-Lever Switch	
Category	Ring		Lever		Standard	Interlocking
Shape						
Model	ABN	(Diecast) ASBD2	ABN□L	(Diecast) ASBD2L	ARN ARNS	ARNL
Page	54	95	54	95	56	56

Function	Cam Switch			
Category	Knob	Key	Enclosed	Spring Return Enclosed
Shape	(ACSNO only)	(ACSNK only)		
Model	ACSNO ACSSO	ACSNK ACSSK	UCSQO	UCSQM
Page	59	59	59	59

ø30 XN Series Emergency Stop Switches

ø30 mm, 4-contact Emergency Stop Switch. Padlockable and flush bezel are available.

- Padlockable, flush bezel, ø60mm jumbo mushroom, illuminated, LED push-on are available.
- IDEC's original "Safe break action" and reverse energy structure ensure the highest level of safety.
- Safety lock mechanism (IEC 60947-5-5, 6.2)
- Direct opening action mechanism (IEC 60947-5-5, 5.2, IEC60947-5-1, Annex K)
- Short depth behind the panel – only 47.7 mm for 4-contact, illuminated (flush bezel: 60.4 mm, padlockable: 61.4 mm)
- Padlockable can be locked using padlocks when latched (main contact: OFF). The rugged aluminum diecast shroud allows for installing a maximum of 20 padlocks using a hasp (total weight: 1500g maximum).
- Gold-plated silver contacts.
- Red (Munsell 5R4/12) or bright red (Munsell 7.5R4.5/14) colors are available.

Standards

Applicable Standards	Mark	File No. or Organization
UL508 CSA C22.2 No. 14	c UL us LISTED	UL/c-UL File No. E68961 (padlockable only)
IEC60947-5-5 UL991 NFPA79	UL LISTED EMERGENCY STOP DEVICE	UL Listing File No. E305148
EN60947-5-5	TÜV	TÜV SÜD
	CE	EU Low Voltage Directive
GB14048.5	CCC	CCC No. 2008010305290010

Contact Ratings

NC main contacts (black)/NO monitor contacts (blue)

Rated Insulation Voltage (Ui)				250V		
Rated Thermal Current (Ith)				5A		
Rated Operating Voltage (Ue)				30V	125V	250V
Rated Operating Current	Main Contacts	AC 50/60 Hz	Resistive Load (AC-12)	–	5A	3A
			Inductive Load (AC-15)	–	3A	1.5A
		DC	Resistive Load (DC-12)	2A	0.4A	0.2A
			Inductive Load (DC-13)	1A	0.22A	0.1A
	Monitor Contacts	AC 50/60 Hz	Resistive Load (AC-12)	–	1.2A	0.6A
			Inductive Load (AC-14)	–	0.6A	0.3A
		DC	Resistive Load (DC-12)	2A	0.4A	0.2A
			Inductive Load (DC-13)	1A	0.22A	0.1A
Contact Material				Gold-plated Silver		

- Minimum applicable load: 5V AC/DC, 1 mA (reference value) (May vary depending on the operating conditions and load types.)
- The rated operating currents are measured at resistive/inductive load types specified in IEC 60947-5-1.

Illumination Ratings (LED)

Rated Voltage	Operating Voltage	Rated Current
24V AC/DC	24V AC/DC ±10%	15 mA

Specifications

Applicable Standards	IEC60947-5-1, EN60947-5-1 IEC60947-5-5, EN60947-5-5 JIS C8201-5-1, UL508, UL991, NFPA79 CSA C22.2 No. 14, GB14048.5
Operating Temperature	Non-illuminated: –25 to +60°C (no freezing) Illuminated: –25 to +55°C (no freezing)
Storage Temperature	–45 to +80°C
Operating Humidity	45 to 85% RH (no condensation)
Minimum Force Required for Direct Opening Action	80N
Minimum Operator Stroke Required for Direct Opening Action	4.0 mm
Maximum Operator Stroke	4.5 mm
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Overvoltage Category	II
Impulse Withstand Voltage	2.5 kV
Pollution Degree	3
Operating Frequency	900 operations/hour
Shock Resistance	Operating extremes: 150 m/s² Damage limits: 1000 m/s²
Vibration Resistance	Operating extremes: 10 to 500 Hz, amplitude 0.35 mm, acceleration 50 m/s² Damage limits: 10 to 500 Hz, amplitude 0.35 mm, acceleration 50 m/s²
Durability (at 900 operations/h, on-duration 40%)	Mechanical: 250,000 operations minimum Electrical: 100,000 operations minimum 250,000 operations minimum (24V AC/DC, 100 mA)
Degree of Protection	Operator: IP65 (IEC60529) Terminal: IP20 (when XW9Z-VL2MF is installed)
Short-circuit Protection	250V/10A fuse (Type aM, IEC60269-1/IEC60269-2)
Conditional Short-circuit Current	1000A
Terminal Style	M3 screw terminal
Recommended Tightening Torque for Terminal Screw	0.6 to 1.0 N·m
Recommended Tightening Torque for Locking Ring	2.5 N·m
Applicable Wire Size	0.75 to 1.25 mm² (AWG18 to 16)
Total Weight of a Hasp and Padlocks	1500g maximum (padlockable)
Reinforced Insulation (IEC 60664-1)	Between live part and metal bezel (flush bezel, padlockable)
Weight	83g (XN1E-LV404Q4MR) 93g (XN1E-BV504MR) 89g (XN5E-LV404Q4MR) 120g (XN4E-LL404Q4MR)

Plastic Bezel

Non-illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	NC Main Contact	NO Monitor Contact	Part No.		①Operator Color Code
			IP20 Fingersafe Terminal	w/Terminal Cover	
ø40mm Mushroom	1NC	—	XN1E-BV401MF①	XN1E-BV401M①	R: Red RH: Bright red
	2NC	—	XN1E-BV402MF①	XN1E-BV402M①	
	3NC	—	XN1E-BV403MF①	XN1E-BV403M①	
	4NC	—	XN1E-BV404MF①	XN1E-BV404M①	
	1NC	1NO	XN1E-BV411MF①	XN1E-BV411M①	
	2NC	1NO	XN1E-BV412MF①	XN1E-BV412M①	
	3NC	1NO	XN1E-BV413MF①	XN1E-BV413M①	
	2NC	2NO	XN1E-BV422MF①	XN1E-BV422M①	
ø60mm Jumbo Mushroom	1NC	—	XN1E-BV501MF①	XN1E-BV501M①	
	2NC	—	XN1E-BV502MF①	XN1E-BV502M①	
	3NC	—	XN1E-BV503MF①	XN1E-BV503M①	
	4NC	—	XN1E-BV504MF①	XN1E-BV504M①	
	1NC	1NO	XN1E-BV511MF①	XN1E-BV511M①	
	2NC	1NO	XN1E-BV512MF①	XN1E-BV512M①	
	3NC	1NO	XN1E-BV513MF①	XN1E-BV513M①	
	2NC	2NO	XN1E-BV522MF①	XN1E-BV522M①	

- Specify a color code in place of ① in the Part No.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
ø40mm Mushroom	LED	24V AC/DC	1NC	—	XN1E-LV401Q4MFR	XN1E-LV401Q4MR	Red only
			2NC	—	XN1E-LV402Q4MFR	XN1E-LV402Q4MR	
			3NC	—	XN1E-LV403Q4MFR	XN1E-LV403Q4MR	
			4NC	—	XN1E-LV404Q4MFR	XN1E-LV404Q4MR	
			1NC	1NO	XN1E-LV411Q4MFR	XN1E-LV411Q4MR	
			2NC	1NO	XN1E-LV412Q4MFR	XN1E-LV412Q4MR	
			3NC	1NO	XN1E-LV413Q4MFR	XN1E-LV413Q4MR	
			2NC	2NO	XN1E-LV422Q4MFR	XN1E-LV422Q4MR	

- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Push-ON Pushlock Pull/Turn Reset (Solder Terminal)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
ø40mm Mushroom	LED	24V AC/DC	2NC	—	XN1E-TV402Q4MFR	XN1E-TV402Q4MR	Red only
			3NC	—	XN1E-TV403Q4MFR	XN1E-TV403Q4MR	
			2NC	1NO	XN1E-TV412Q4MFR	XN1E-TV412Q4MR	

- Push-ON is illuminated when the operator is latched, and turns off when reset.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

Flush Bezel

Non-illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	NC Main Contact	NO Monitor Contact	Part No.		Operator Color Code
			IP20 Fingersafe Terminal	w/Terminal Cover	
ø40mm Mushroom	1NC	—	**XN5E-BV401MF①**	**XN5E-BV401M①**	R: Red RH: Bright red
	2NC	—	**XN5E-BV402MF①**	**XN5E-BV402M①**	
	3NC	—	**XN5E-BV403MF①**	**XN5E-BV403M①**	
	4NC	—	**XN5E-BV404MF①**	**XN5E-BV404M①**	
	1NC	1NO	**XN5E-BV411MF①**	**XN5E-BV411M①**	
	2NC	1NO	**XN5E-BV412MF①**	**XN5E-BV412M①**	
	3NC	1NO	**XN5E-BV413MF①**	**XN5E-BV413M①**	
	2NC	2NO	**XN5E-BV422MF①**	**XN5E-BV422M①**	

- Specify a color code in place of ① in the Part No.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
ø40mm Mushroom	LED	24V AC/DC	1NC	—	**XN5E-LV401Q4MFR**	**XN5E-LV401Q4MR**	Red only
			2NC	—	**XN5E-LV402Q4MFR**	**XN5E-LV402Q4MR**	
			3NC	—	**XN5E-LV403Q4MFR**	**XN5E-LV403Q4MR**	
			4NC	—	**XN5E-LV404Q4MFR**	**XN5E-LV404Q4MR**	
			1NC	1NO	**XN5E-LV411Q4MFR**	**XN5E-LV411Q4MR**	
			2NC	1NO	**XN5E-LV412Q4MFR**	**XN5E-LV412Q4MR**	
			3NC	1NO	**XN5E-LV413Q4MFR**	**XN5E-LV413Q4MR**	
			2NC	2NO	**XN5E-LV422Q4MFR**	**XN5E-LV422Q4MR**	

- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Push-ON Pushlock Pull/Turn Reset (Solder Terminal)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
ø40mm Mushroom	LED	24V AC/DC	2NC	—	**XN5E-TV402Q4MFR**	**XN5E-TV402Q4MR**	Red only
			3NC	—	**XN5E-TV403Q4MFR**	**XN5E-TV403Q4MR**	
			2NC	1NO	**XN5E-TV412Q4MFR**	**XN5E-TV412Q4MR**	

- Push-ON is illuminated when the operator is latched, and turns off when reset.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

Padlockable

Non-illuminated Pushlock Pull/Turn Reset (Padlockable)

Shape	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
			IP20 Fingersafe Terminal	w/Terminal Cover	
ø44mm Mushroom	1NC	—	**XN4E-BL401MFRH**	**XN4E-BL401MRH**	Bright red only
	2NC	—	**XN4E-BL402MFRH**	**XN4E-BL402MRH**	
	3NC	—	**XN4E-BL403MFRH**	**XN4E-BL403MRH**	
	4NC	—	**XN4E-BL404MFRH**	**XN4E-BL404MRH**	
	1NC	1NO	**XN4E-BL411MFRH**	**XN4E-BL411MRH**	
	2NC	1NO	**XN4E-BL412MFRH**	**XN4E-BL412MRH**	
	3NC	1NO	**XN4E-BL413MFRH**	**XN4E-BL413MRH**	
	2NC	2NO	**XN4E-BL422MFRH**	**XN4E-BL422MRH**	

- Only solid wires can be used on the IP20 fingersafe terminal switches.
- Padlocks and hasps are not supplied with the emergency stop switches and must be ordered separately. See page 12.

Illuminated Pushlock Pull/Turn Reset (Padlockable)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
ø44mm Mushroom	LED	24V AC/DC	1NC	—	**XN4E-LL401Q4MFR**	**XN4E-LL401Q4MR**	Red only
			2NC	—	**XN4E-LL402Q4MFR**	**XN4E-LL402Q4MR**	
			3NC	—	**XN4E-LL403Q4MFR**	**XN4E-LL403Q4MR**	
			4NC	—	**XN4E-LL404Q4MFR**	**XN4E-LL404Q4MR**	
			1NC	1NO	**XN4E-LL411Q4MFR**	**XN4E-LL411Q4MR**	
			2NC	1NO	**XN4E-LL412Q4MFR**	**XN4E-LL412Q4MR**	
			3NC	1NO	**XN4E-LL413Q4MFR**	**XN4E-LL413Q4MR**	
			2NC	2NO	**XN4E-LL422Q4MFR**	**XN4E-LL422Q4MR**	

- Only solid wires can be used on the IP20 fingersafe terminal switches.
- Padlocks and hasps are not supplied with the emergency stop switches and must be ordered separately. See page 12.

LED Push-ON Pushlock Pull/Turn Reset (Padlockable)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
ø44mm Mushroom	LED	24V AC/DC	2NC	—	**XN4E-TL402Q4MFR**	**XN4E-TL402Q4MR**	Red only
			3NC	—	**XN4E-TL403Q4MFR**	**XN4E-TL403Q4MR**	
			2NC	1NO	**XN4E-TL412Q4MFR**	**XN4E-TL412Q4MR**	

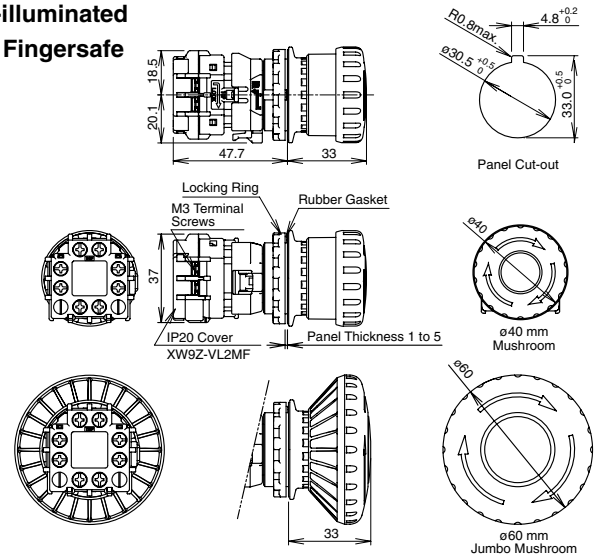
- Push-ON is illuminated when the operator is latched, and turns off when reset.
- Only solid wires can be used on the IP20 fingersafe terminal switches.
- Padlocks and hasps are not supplied with the emergency stop switches and must be ordered separately. See page 12.

Dimensions

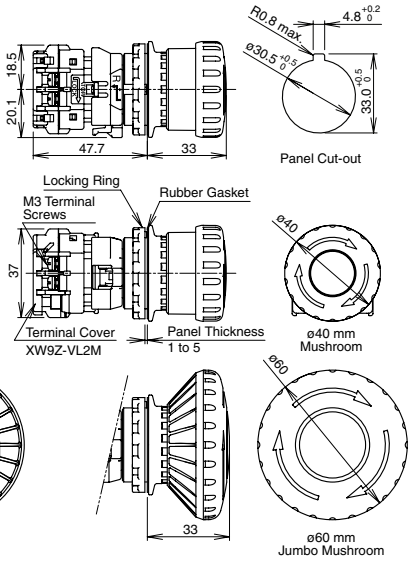
Plastic Bezel

Non-illuminated

IP20 Fingersafe

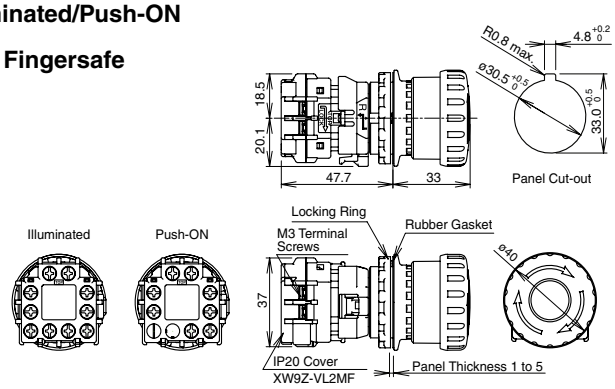


w/Terminal Cover

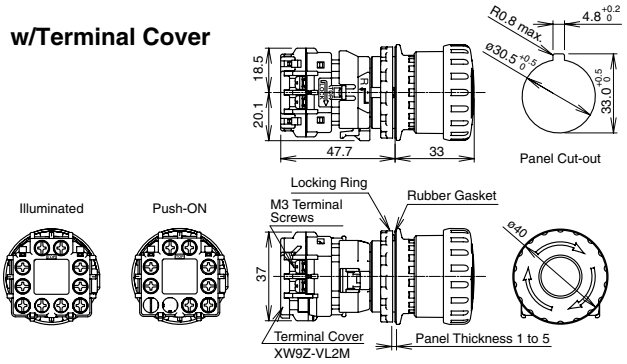


Illuminated/Push-ON

IP20 Fingersafe



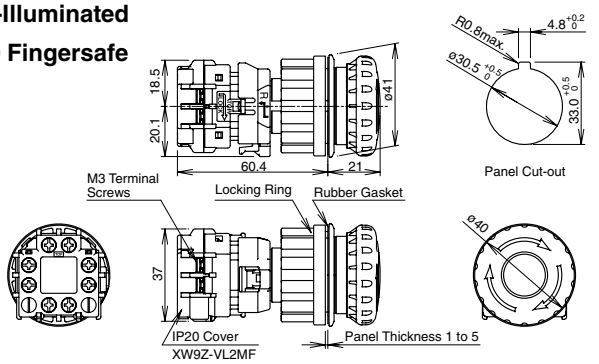
w/Terminal Cover



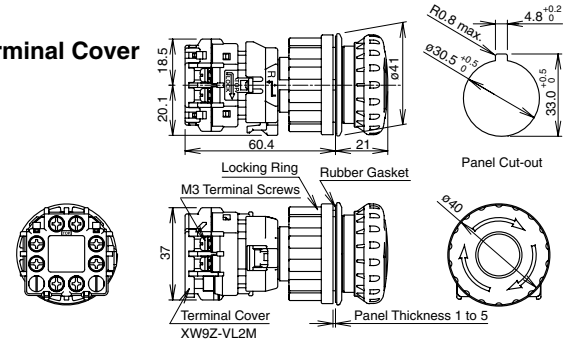
Flush Bezel

Non-Illuminated

IP20 Fingersafe

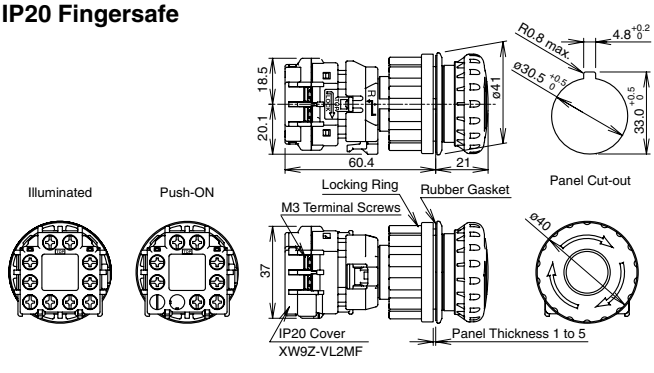


w/Terminal Cover

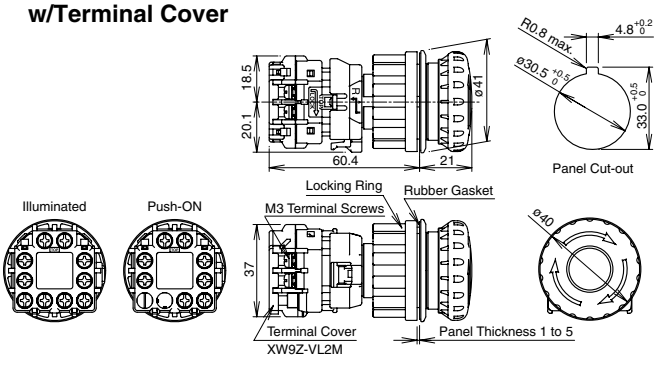


Illuminated/Push-ON

IP20 Fingersafe



w/Terminal Cover



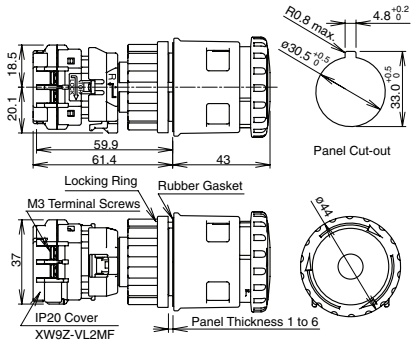
All dimensions in mm.

Dimensions

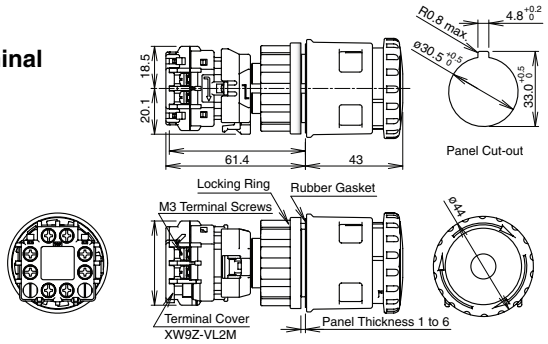
Padlockable

Non-illuminated

IP20 Fingersafe

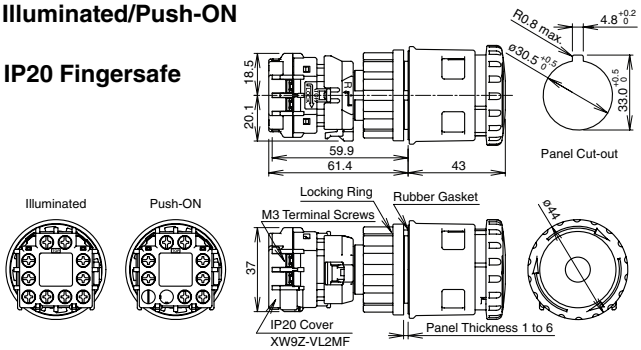


w/Terminal Cover

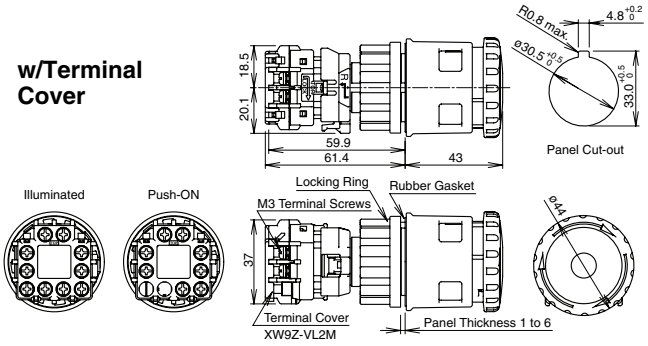


Illuminated/Push-ON

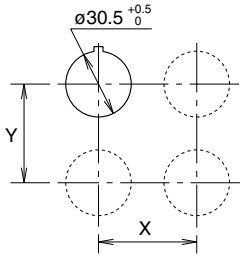
IP20 Fingersafe



w/Terminal Cover



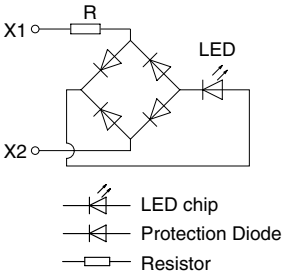
Mounting Hole Layout



	X	Y
Plastic Bezel	70 mm minimum	
Flush Bezel		

- The values shown above are the minimum dimensions for mounting with other ø30 mm pushbuttons. For other switches & pilot lights of different sizes and styles, determine the values according to the dimensions, operation, and wiring convenience.
- For padlockable, determine the values according to the size and number of padlocks and hasp.

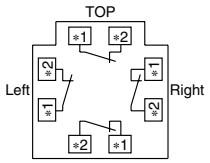
LED Unit Internal Circuit



Terminal Arrangement (Bottom View)

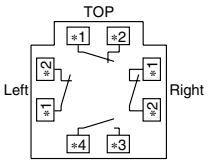
Non-illuminated

NC main contacts (black) only



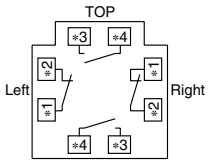
1NC: Terminals on right
2NC: Terminals on right and left
3NC: Terminals on right, left, and top

With 1NO monitor contact (blue)



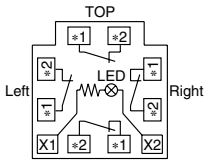
1NC: Terminals on top
2NC: Terminals on right and left

With 2NO monitor contacts (blue)



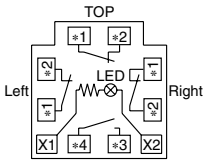
Illuminated

NC main contacts (black) only



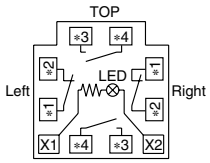
1NC: Terminals on right
2NC: Terminals on right and left
3NC: Terminals on right, left, and top

With 1NO monitor contact (blue)



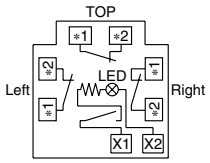
1NC: Terminals on top
2NC: Terminals on right and left

With 2NO monitor contacts (blue)



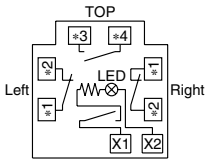
Push-ON

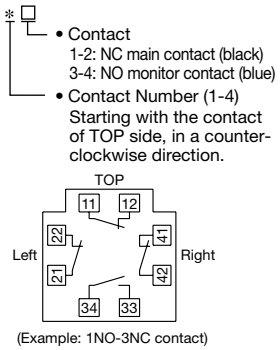
NC main contacts (black) only



2NC: Terminals on right and left
3NC: Terminals on right, left, and top

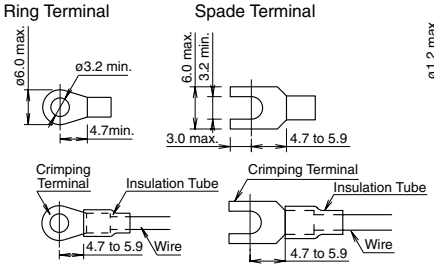
With 1NO monitor contact (blue)





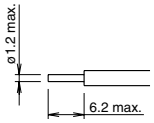
(Example: 1NO-3NC contact)

Applicable Crimping Terminal



- Be sure to install an insulating tube on the crimping terminal.

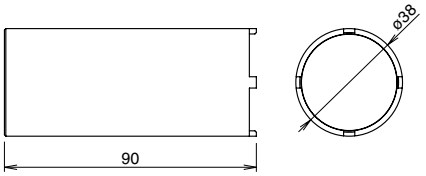
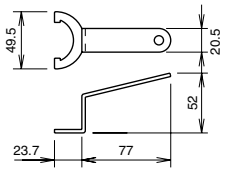
Solid Wire



Only solid wire can be used for IP20.

All dimensions in mm.

Accessories and Replacement Parts

Name & Shape	Material	Part No.	Ordering No.	Package Quantity	Remarks
Terminal Cover	PPE	**XW9Z-VL2M**	**XW9Z-VL2MPN02**	2	• Black • Used for screw terminals. • Attached to IP20 protection cover units.
IP20 Fingersafe Terminal Cover	Polyamide	**XW9Z-VL2MF**	**XW9Z-VL2MFPN02**	2	• Black • Used to change terminal cover to IP20 fingersafe terminal. • Only solid wires can be used. Once installed, IP20 terminal cover cannot be removed.
Ring Wrench	Brass	**XN9Z-T1**	**XN9Z-T1**	1	• Used to tighten the locking ring when installing the XN emergency stop switch onto a panel. 
Ring Wrench	Steel Trivalent chromate plating	**TWST-T1**	**TWST-T1**	1	• Used to tighten the locking ring when installing the XN emergency stop switch onto a panel. 

- The XN series emergency stop switches are supplied with either terminal cover or IP20 fingersafe terminal cover.
- Padlocks and hasps are not supplied and must be ordered separately.

Nameplates (for ø30 Emergency Stop Switches)

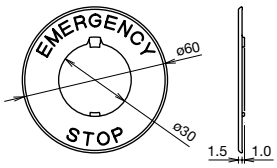
Description & Shape	Legend	Part No.	Package Quantity	Dimensions (mm)
	(blank)	HNAV-0	1	Polyamide Mounting panel thickness XN4E-□L4: 1.0 to 4.5 mm XN□E-□V4: 1.0 to3.5 mm 
	EMERGENCY STOP	HNAV-27		

Plate color: Yellow (Munsell 2.5Y 8/10 or equivalent),
Legend: Black

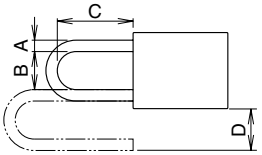
Padlock and Hasp

Padlocks and hasps of the following specifications can be used with padlockable emergency stop switches.

Padlock Size

A	B	C	D
7 mm maximum	19 mm minimum	39 mm minimum	15 mm minimum (Note)

Note: When the padlock is installed from the side of the bezel, dimension D requires a minimum of 6 mm. When the padlock is installed from the front of the button, dimension D requires a minimum of 15 mm.



Manufacturer	Part No.
PANDUIT CORP.	**PSL-HD3** **PSL-1A**
Master Lock	**420** **421**

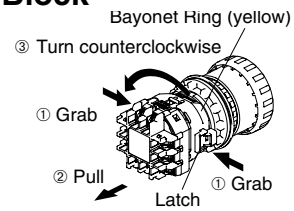
Use only padlocks or hasps that satisfy the specifications shown on the left. The maximum total weight for padlocks and hasps is 1500g.
Make sure that the total weight does not exceed 1500g, otherwise the XN emergency stop switch may be damaged.
Make sure that locking and unlocking of the padlock and hasp do not interfere with other devices.
Padlocks and hasps are available from the following manufacturers.

Manufacturer	URL
PANDUIT CORP.	http://www.panduit.com/
Master Lock® Company LLC	http://www.masterlock.com/

Operating Instructions

Removing the Contact Block

First unlock the operator button.
Grab the yellow bayonet ring ① and pull back the bayonet ring until the latch pin clicks ②, then turn the contact block counterclockwise and pull out ③.

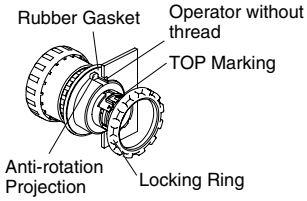


Notes for removing the contact block

1. Do not attempt to remove the contact block while the operator is latched, otherwise the switch may be damaged.
2. When the contact block is removed, the monitor contact (NO contact) is closed.
3. While removing the contact block, do not use excessive force, otherwise the switch may be damaged.
4. An LED lamp is built into the contact block for illuminated pushbuttons. When removing the contact block, pull the contact block straight to prevent damage to the LED lamp. If excessive force is used, the LED lamp may be damaged and fail to light.

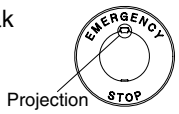
Panel Mounting

Remove the locking ring from the operator and check that the rubber gasket is in place. Insert the operator from panel front into the panel hole. Face the side without thread on the operator with TOP marking upward, and tighten the locking ring using ring wrench XN9Z-T1 or TWST-T1 to a torque of 2.5 N·m maximum.



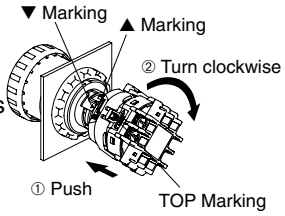
When using a nameplate

When using a nameplate HNAV-□, break the projection from the nameplate using pliers.



Installing the Contact Block

First unlock the operator button.
Align the small ▼ marking on the edge of the operator with the small ▲ marking on the yellow bayonet ring. Hold the contact block, not the bayonet ring. Press the contact block onto the operator and turn the contact block clockwise until the bayonet ring clicks.

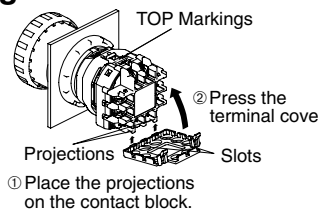


Notes for installing the contact block

1. Do not attempt to install the contact block when the operator is latched, otherwise the switch may be damaged.
2. Make sure that the bayonet ring is in the locked position.

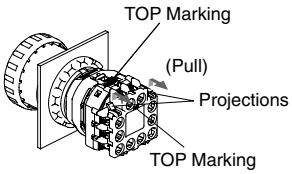
Installing & Removing Terminal Covers

To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.



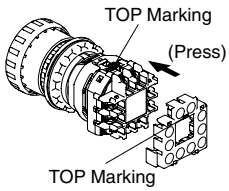
IP20 Fingersafe Terminal Cover XW9Z-VL2MF

To install the IP20 fingersafe terminal cover, align the TOP marking on the cover with the TOP marking on the contact block, and press the cover toward the contact block.



Notes:

1. Once installed, the XW9Z-VL2MF cannot be removed.
2. With the XW9Z-VL2MF installed, crimping terminals cannot be used. Use solid wires.
3. The XW9Z-VL2MF cannot be installed after wiring.
4. Make sure that the XW9Z-VL2MF is securely installed. IP20 cannot be achieved when installed loosely, and electric shocks may occur.



Notes for Operation

When using the XN emergency stop switches in safety-related part of a control system, observe safety standards and regulations of the relevant country or region. Also be sure to perform a risk assessment before operation.

Wiring

Tighten the M3 terminal screws to a torque of 0.6 to 1.0 N·m.

Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce.
When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).

LED Illuminated Switches

An LED lamp is built into the contact block and cannot be replaced.

Handling

Do not expose the switch to excessive shocks and vibrations, for example by operating the switch with tools. Otherwise the switch may be deformed or damaged, causing malfunction or operation failure.

Emergency Stop Switches (Unibody) Specifications

Standards

Applicable Standards	Mark	File No. or Organization
UL508 CSA C22.2 No. 14		UL Listing File No. E55996
EN60947-5-5		TÜV SÜD
	CE	EU Low Voltage Directive
GB14048.5		CCC No. 2013010305610376

Contact Ratings

Rated Insulation Voltage (Ui)			250V		
Rated Thermal Current (Ith)			10A		
Rated Operational Voltage (Ue)			24V	110V	220V
Rated Operational Current	AC 50/60 Hz	Resistive Load (AC-12)	6A	3A	3A
		Inductive Load (AC-15)	6A	3A	3A
	DC	Resistive Load (DC-12)	6A	2A	1A
		Inductive Load (DC-13)	1.5A	0.3A	0.15A

Note: The operational current represents the classification by making and breaking currents (IEC 60947-5-1).
Minimum applicable load (reference value): 3V AC/DC, 5 mA (Applicable range may vary with operating conditions and load types.)

LED Lamp Ratings

Rated Operating Voltage of Unit	LED Lamp		
	Part No.	Rated Voltage	Rated Current
24V AC/DC	**LSTD-2R**	24V AC/DC ±10%	10 mA

Incandescent Lamp Ratings

Unit Rated Operating Voltage	Incandescent Lamp	
	Part No.	Wattage
24V AC/DC	LS-3	1W (30V)

Specifications

Operating Temperature	–25 to +60°C (no freezing) Illuminated units: –25 to +55°C
Storage Temperature	–40 to +80°C
Operating Humidity	45 to 85% RH (no condensation)
Operating Force	50N
Minimum Force Required for Direct Opening Action	5.5 mm
Maximum Operator Stroke	10 mm
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead metal parts Contacts: 2,500V AC, 1 minute Illuminated parts: 1,000V AC, 1 minute
Vibration Resistance	Damage limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55 Hz, amplitude 0.5 mm
Shock Resistance	Damage limits: 1,000 m/s² Operating extremes: 100 m/s²
Operating Frequency	900 operations/h
Life	Mechanical: 250,000 operations minimum Electrical: 100,000 operations minimum
Degree of Protection	IP65
Terminal Style	M3.5 screw
Weight (approx.)	58g (HN1E-BV402R) 65g (HN1E-LV402Q4R)

Pushlock Turn Reset Switches (Unibody)

Shape	Contact	Part No.	Button Color
	1NO-1NC	**HN1E-BV411R**	Red only
	2NC	**HN1E-BV402R**	

- When pressed, the button is held depressed. The button is released by turning clockwise.
- Terminal cover HW-VL7 is supplied with the switch.

Illuminated Pushlock Turn Reset Switches (Unibody)

Shape	Lamp	Contact	Part No.	Lens Color
	Without Lamp	1NO-1NC	**HN1E-LV411Q0R**	Red only
		2NC	**HN1E-LV402Q0R**	

- When pressed, the button is held depressed. The button is released by turning clockwise.
- Terminal cover HW-VL7 is supplied with the switch.

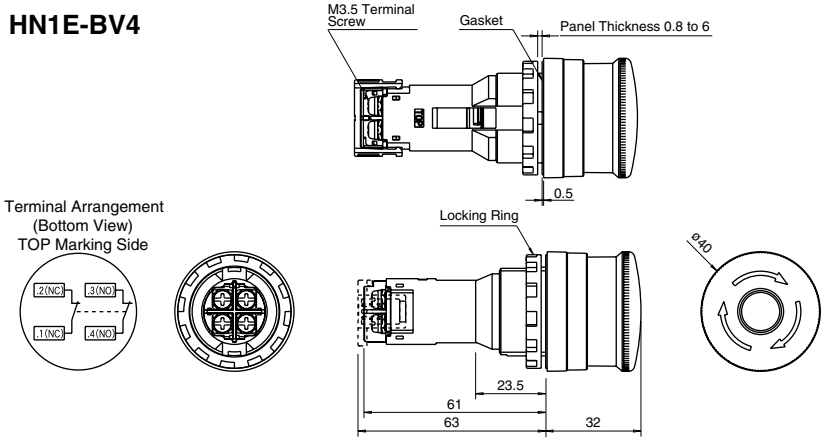
Maintenance Parts

Name	Part No.	Ordering No.	Package Quantity
Terminal Cover for HW1E	**HW-VL7**	**HW-VL7PN10**	10

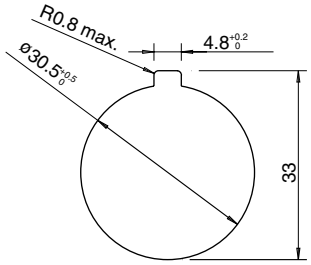
HN Series Emergency Stop Switches ø30

Dimensions

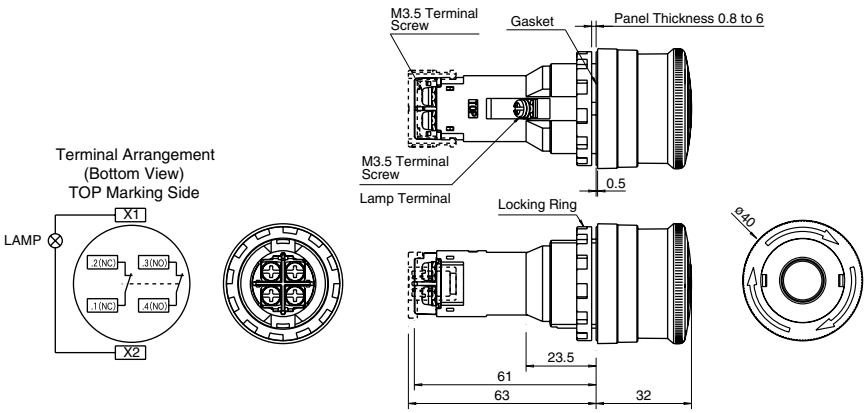
HN1E-BV4



Panel Cut-Out

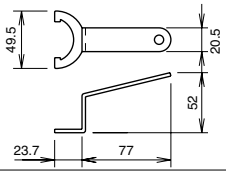
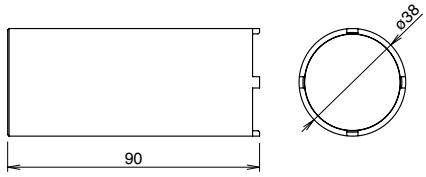


HN1E-LV4

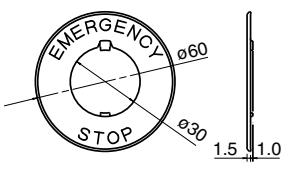


All dimensions in mm.

Accessory

Shape	Material	Part No.	Package Quantity	Remarks
Ring Wrench	Metal (zinc-plated)	**TWST-T1**	1	• Used for tightening the locking nut. • Tighten the locking nut to a torque of 2.0 to 2.5 N·m. 
Ring Wrench	Brass	**XN9Z-T1**	1	• Used to tighten the locking ring when installing the XN emergency stop switch onto a panel. 

Nameplates (for ø30 Emergency Stop Switches)

Shape	Part No.	Legend	Package Quantity	Remarks
	HNAV-0	(blank)	1	Background: Yellow Legend: Black Applicable panel thickness: 0.8 to 4.5 mm Material: Polyamide Legend "EMERGENCY STOP" is indicated outside a ø44mm circle. 
	HNAV-27	EMERGENCY STOP		

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)

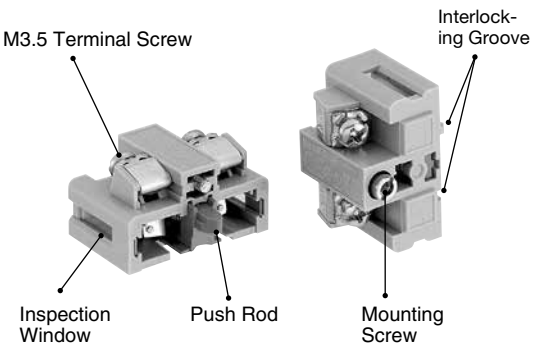
Characteristics

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	1EM (early make)	1LB (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

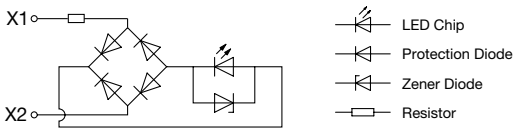
Unit	Color Code ②	Input	Operating Voltage	LED Lamp		
				Lamp Base	Part No.	Voltage
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	Full Voltage	6V AC/DC	BA9S/13	**LSTD-6**②	6V AC/DC ±10%
			12V AC/DC		**LSTD-1**②	12V AC/DC ±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: Use a pure white (PW) LED for yellow (Y) illumination.

Incandescent Illuminated Unit Specifications

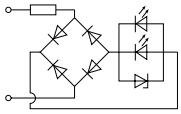
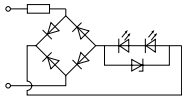
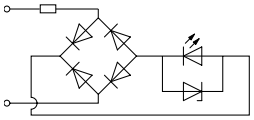
Unit	Color Code ②	Input	Operating Voltage	Incandescent Lamp		
				Lamp Base	Part No.	Rating
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber G: green O: orange R: red S: blue W: white	Full Voltage	6V AC/DC	BA9S/13	**LS-6**	1W (6.3V)
			12V AC/DC		**LS-8**	1W (18V)
			24V AC/DC		**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				

Note: Use a pure white (PW) LED for yellow (Y) illumination.

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	G, PW, S	A, G, PW, R, S, W	A, G, PW, R, S, W
	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), 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		A, R, W		A, R, W	
					
		G, PW, S			
					

Note: Use a pure white (PW) LED for yellow (Y) illumination.

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 AC 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 AC voltage)			

Specifications

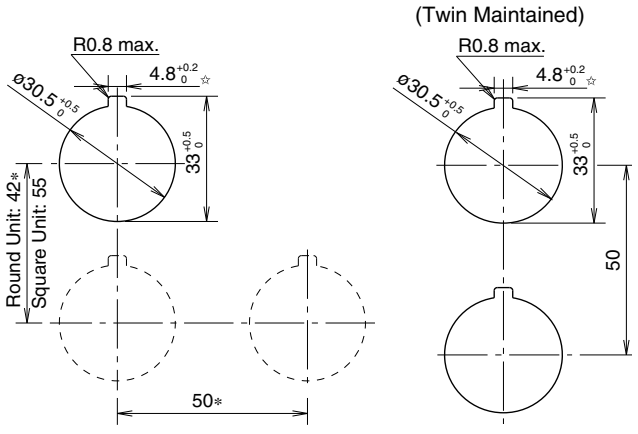
Operating Temperature	–25 to +50°C (no freezing)
Storage Temperature	–40 to +80°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Contact Resistance	50 mΩ maximum (initial value)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead metal parts: 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	IEC 60529
A∗∗∗∗	Pushbuttons, pilot lights, illuminated pushbuttons, selector switches, selector pushbuttons, mono-lever switches, and cam switches (ACSNO/ACSSO)	IP65
	Illuminated selector switches, key pushbuttons, key reset pushbuttons, key cam switches, and key selector switches	IP54
U∗∗∗∗	Square pushbuttons, square pilot lights, and cam switches (UC)	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 configuration

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 configuration

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 configuration
- 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 configuration
- Operating voltage code
- Number of positions

ø30 Series Key Selector Switch

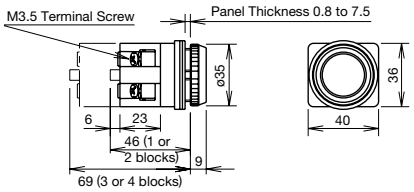
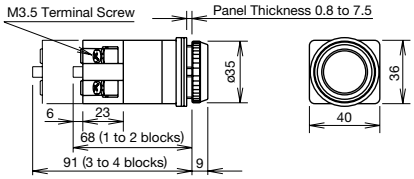
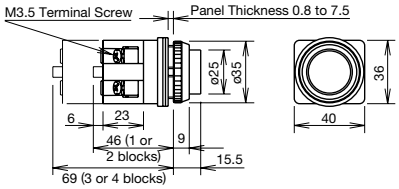
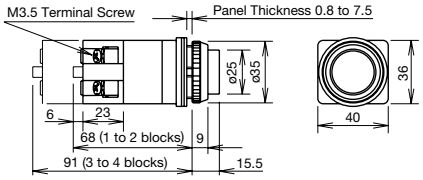
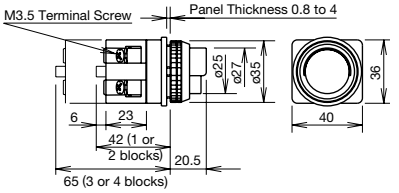
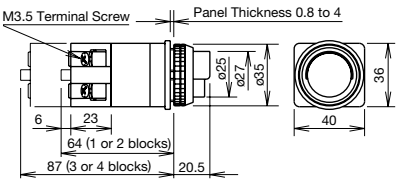
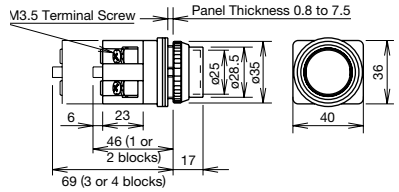
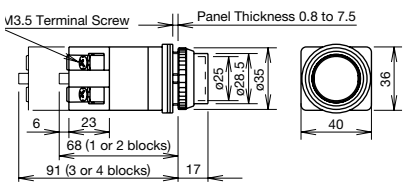
ASN 2 K 11 D - MAU

- 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 configuration
- Operator position code

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

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

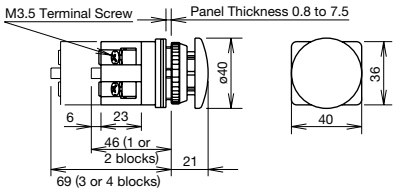
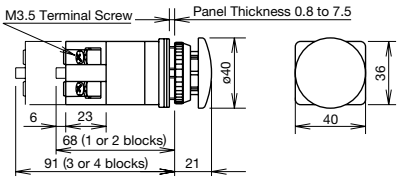
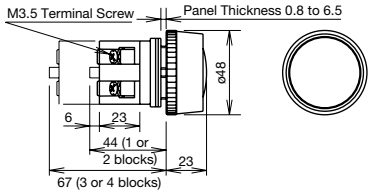
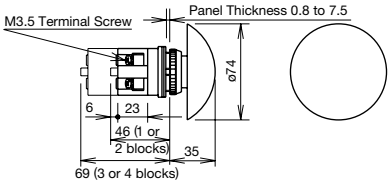
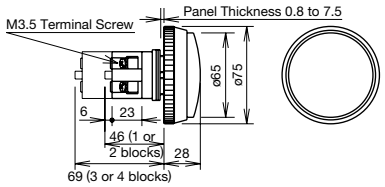
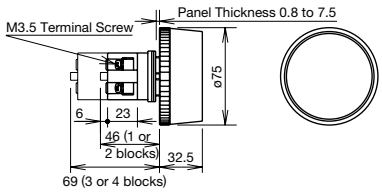
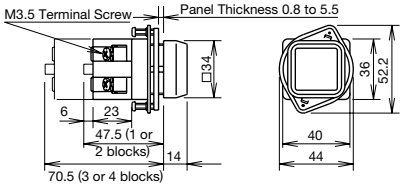
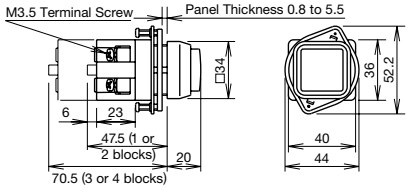
Package Quantity: 1

Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Flush ABN1 (nameplate sold separately)	Momentary	1NO	**ABN110①**	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	**ABN101①**		
		1NO-1NC	**ABN111①**		
		2NO	**ABN120①**		
		2NC	**ABN102①**		
		2NO-2NC	**ABN122①**		
Flush AON1 (nameplate sold separately)	Maintained	1NO	**AON110①**		
		1NC	**AON101①**		
		1NO-1NC	**AON111①**		
		2NO	**AON120①**		
		2NC	**AON102①**		
		2NO-2NC	**AON122①**		
Extended ABN2 (nameplate sold separately)	Momentary	1NO	**ABN210①**	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	**ABN201①**		
		1NO-1NC	**ABN211①**		
		2NO	**ABN220①**		
		2NC	**ABN202①**		
		2NO-2NC	**ABN222①**		
Extended AON2 (nameplate sold separately)	Maintained	1NO	**AON210①**		
		1NC	**AON201①**		
		1NO-1NC	**AON211①**		
		2NO	**AON220①**		
		2NC	**AON202①**		
		2NO-2NC	**AON222①**		
Extended with Half Shroud ABN2G (nameplate sold separately)	Momentary	1NO	**ABN2G10①**		
		1NC	**ABN2G01①**		
		1NO-1NC	**ABN2G11①**		
		2NO	**ABN2G20①**		
		2NC	**ABN2G02①**		
		2NO-2NC	**ABN2G22①**		
Extended with Half Shroud AON2G (nameplate sold separately)	Maintained	1NO	**AON2G10①**		
		1NC	**AON2G01①**		
		1NO-1NC	**AON2G11①**		
		2NO	**AON2G20①**		
		2NC	**AON2G02①**		
		2NO-2NC	**AON2G22①**		
Extended with Full Shroud ABN2F (nameplate sold separately)	Momentary	1NO	**ABN2F10①**		
		1NC	**ABN2F01①**		
		1NO-1NC	**ABN2F11①**		
		2NO	**ABN2F20①**		
		2NC	**ABN2F02①**		
		2NO-2NC	**ABN2F22①**		
Extended with Full Shroud AON2F (nameplate sold separately)	Maintained	1NO	**AON2F10①**		
		1NC	**AON2F01①**		
		1NO-1NC	**AON2F11①**		
		2NO	**AON2F20①**		
		2NC	**AON2F02①**		
		2NO-2NC	**AON2F22①**		

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

Mushroom / Jumbo Mushroom / Square Flush / Square Extended Pushbuttons

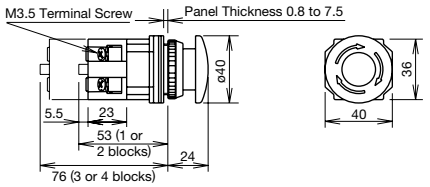
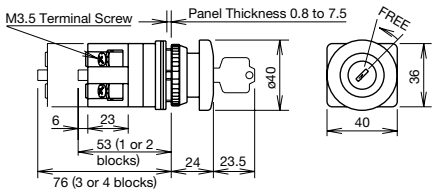
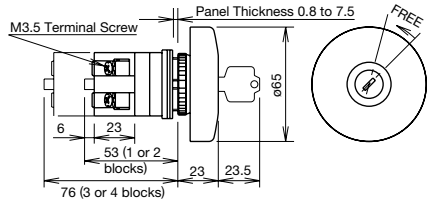
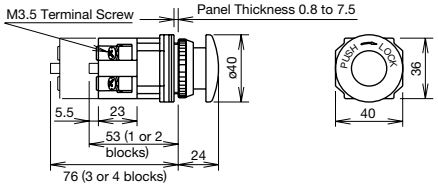
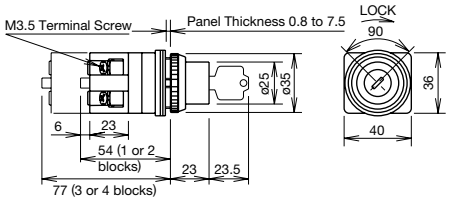
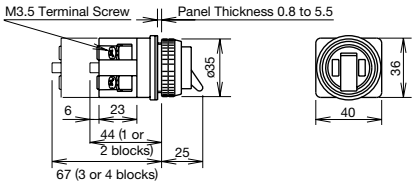
Package Quantity: 1

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 configurations 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 configurations 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).

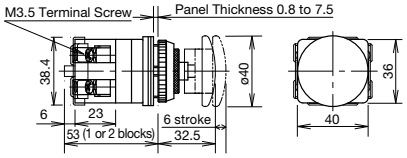
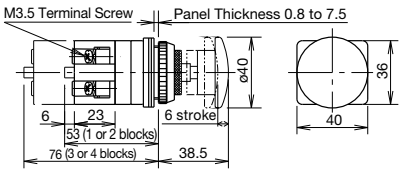
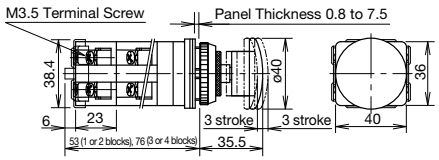
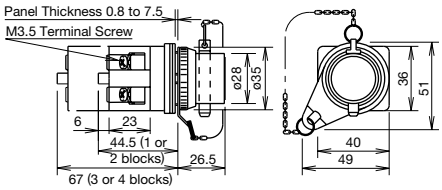
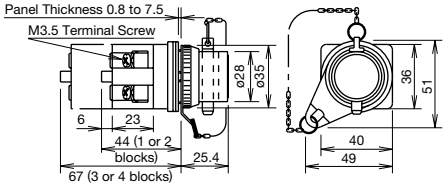
- **Pushlock Key Reset:** Button is maintained when pressed and is reset with a key. Key is removable from both depressed and reset positions. Two keys are supplied.

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 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 configurations and gold-plated silver contacts are also available. See page 20.
- **Pull:** Pulling the button operates the contacts, and releasing the button return the contacts. Suitable to prevent unintended operation when an object touches the pushbutton. Up to 2 contact blocks (1 layer) can be mounted on pull switches.
- **Push-Pull:** 2-position pushbutton. Pushing or pulling operates the contacts. 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 Return:** 3-position pushbutton. 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

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

Push-Pull Switch

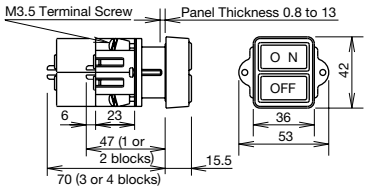
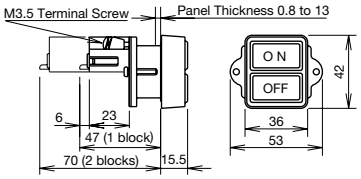
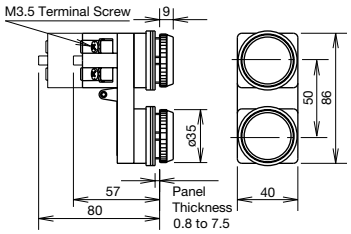
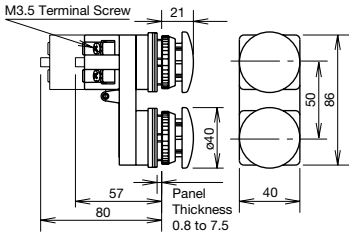
Contact	ATN21	
	Push	Pull
1NO-1NC		
2NO		
2NC		
2NO-2NC		

Push-Pull Return Switch

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 configurations 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	C: clear DNA: amber DNY: yellow G: green O: orange R: red S: blue W: white	See pages 17 and 18 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	
		E12	**APNE1**③**DN**②	A: amber G: green R: red S: blue W: white Y: yellow	
	Incandescent	BA9S	**APN1**③②	C: clear G: green O: orange R: red S: blue W: white	
		E12	**APN1**③②		

Operating Voltage Code

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

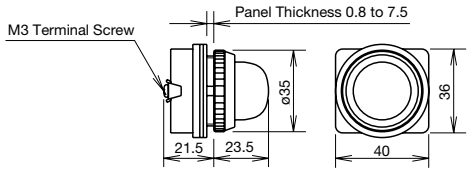
③ Operating Voltage Code			Input
LED	Incandescent (BA9S)	Incandescent (E12)	
66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC		Full Voltage
16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC 486: 480V AC	18: 100/110V AC 128: 120V AC 28: 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 (PW) LED for yellow (Y) illumination.

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

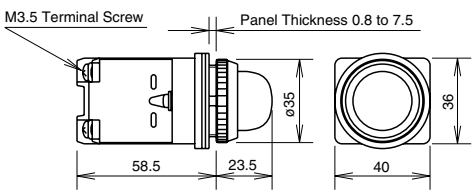
Dimensions

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 DY: yellow C: clear G: green O: orange R: red S: blue W: white	See pages 17 to 18 for lamps.
	LED	BA9S	**UPQN3B③D②**	A: amber G: green R: red S: blue W: white Y: yellow	
	Incandescent	BA9S	**UPQN3B③②**	C: clear G: green O: orange R: red S: blue W: white	
Rectangular (Marking) UPQN4 	Without Lamp	BA9S	**UPQN499②**	DA: amber DY: yellow G: green O: orange R: red S: blue W: white	
	LED	BA9S	**UPQN4③D②**	A: amber G: green R: red S: blue W: white Y: yellow	
	Incandescent	BA9S	**UPQN4③②**	G: green O: orange R: red S: blue W: white	
Rectangular (Marking) UPQNE4 UPQN4 	Without Lamp	E12	**UPQNE499②**	DA: amber DY: yellow G: green O: orange R: red S: blue W: white	
	LED	E12	**UPQNE4③D②**	A: amber G: green R: red S: blue W: white Y: yellow	
	Incandescent	E12	**UPQN4③②** (Note)	G: green O: orange R: red S: blue W: white	

Operating Voltage Code

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

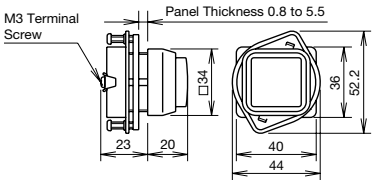
③ Operating Voltage Code			Input Type
LED	Incandescent (BA9S)	Incandescent (E12)	
66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC (Note) When ordering 6V, 12V, 24V AC/DC units, specify "E " before the operating voltage code. UPQN4E③②.	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 28: 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 (PW) LED for yellow (Y) illumination.
- 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

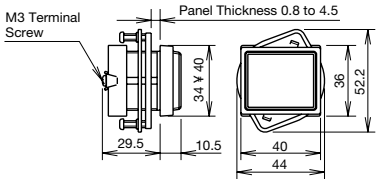
* DC-DC converter types are not approved by UL and CSA, and not CE compliant (operating voltage 90 to 140V DC).

Dimensions

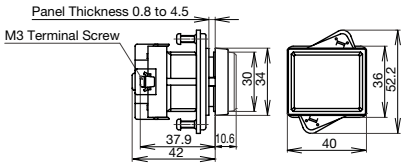
Square Full Voltage
UPQN3B



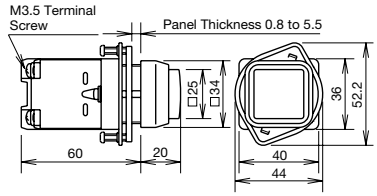
Rectangular Full Voltage
UPQN4



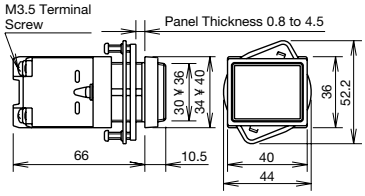
Rectangular Full Voltage
UPQNE4



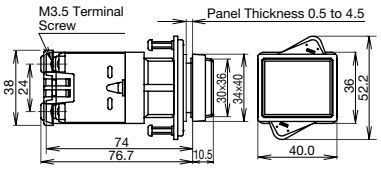
Square Transformer
Square DC-DC Converter
UPQN3B



Rectangular Transformer
Rectangular DC-DC Converter
UPQN4



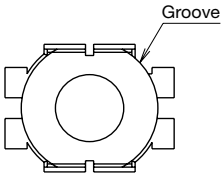
Rectangular Transformer
Rectangular DC-DC Converter
UPQNE4



All dimensions in mm.

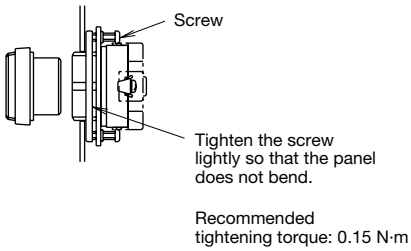
Reflector

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

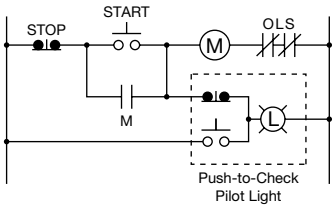
Shape	Lamp	Lamp Receptacle	Part No.	② Lens/LED Color Code	Applicable Lamp
Push-to-Check APN1∗P 	Without Lamp	BA9S	**APN199P**②	C: clear G: green O: orange R: red S: blue W: white	See pages 17 to 18 for lamps.
	Incandescent	BA9S	**APN1**③**P**②		

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

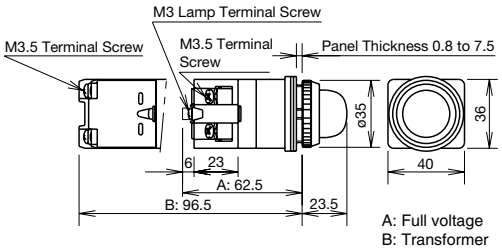
Circuit Example



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

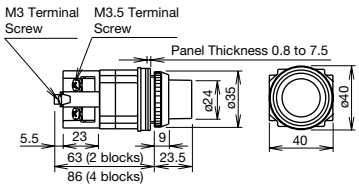
Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALN2 AOLN2 ALNE2 AOLNE2	BA9S	Momentary	Without Lamp	1NO-1NC	**ALN29911DN②**	See pages 17 to 18 for lamps.
				2NO	**ALN29920DN②**	
				2NC	**ALN29902DN②**	
			LED	1NO-1NC	**ALN2③11DN②**	
				2NO	**ALN2③20DN②**	
				2NC	**ALN2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLN29911DN②**	
				2NO	**AOLN29920DN②**	
				2NC	**AOLN29902DN②**	
			LED	1NO-1NC	**AOLN2③11DN②**	
				2NO	**AOLN2③20DN②**	
				2NC	**AOLN2③02DN②**	
	E12	Momentary	Without Lamp	1NO-1NC	**ALNE29911DN②**	
				2NO	**ALNE29920DN②**	
				2NC	**ALNE29902DN②**	
			LED	1NO-1NC	**ALNE2③11DN②**	
				2NO	**ALNE2③20DN②**	
				2NC	**ALNE2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLNE29911DN②**	
				2NO	**AOLNE29920DN②**	
				2NC	**AOLNE29902DN②**	
			LED	1NO-1NC	**AOLNE2③11DN②**	
				2NO	**AOLNE2③20DN②**	
				2NC	**AOLNE2③02DN②**	

Color Code and Operating Voltage Code

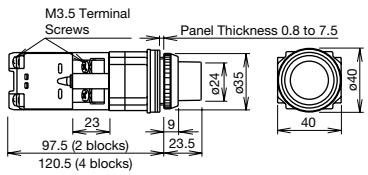
② Lens/LED Color Code	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green PW: pure white R: red S: blue W: white Y: yellow Use a pure white (PW) LED for yellow (Y) illumination.	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V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

Dimensions

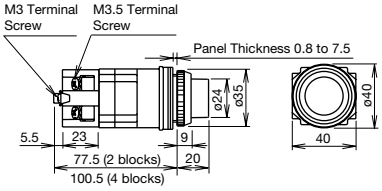
ALN2/AOLN2
BA9S/Full Voltage



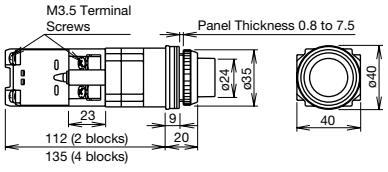
ALN2/AOLN2
BA9S/Transformer



ALNE2/AOLNE2
E12/Full Voltage



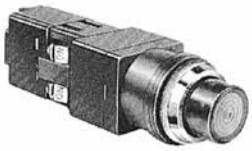
ALNE2/AOLNE2
E12/Transformer



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 pages 17 to 18 for lamps.
				2NO	**ALN9920**②	
				2NC	**ALN9902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
		Maintained	Without Lamp	1NO-1NC	**AOLN9911**②	
				2NO	**AOLN9920**②	
				2NC	**AOLN9902**②	
			Incandescent	1NO-1NC	**AOLN**③**11**②	
				2NO	**AOLN**③**20**②	
				2NC	**AOLN**③**02**②	
AOLN AOLNE 	E12	Momentary	Without Lamp	1NO-1NC	**ALNE9911**②	
				2NO	**ALNE9920**②	
				2NC	**ALNE9902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
		Maintained	Without Lamp	1NO-1NC	**AOLNE9911**②	
				2NO	**AOLNE9920**②	
				2NC	**AOLNE9902**②	
			Incandescent	1NO-1NC	**AOLN**③**11**②	
				2NO	**AOLN**③**20**②	
				2NC	**AOLN**③**02**②	

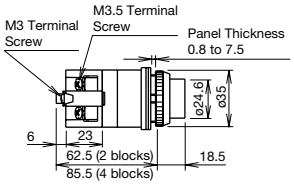
Color Code and Operating Voltage Code

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

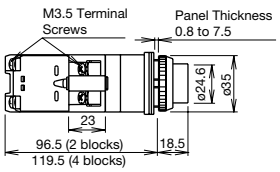
② Lens Color Code	③ Operating Voltage Code		Input
	Incandescent (BA9S)	Incandescent (E12)	
Specify a lens color code in place of ②. C: clear G: green O: orange R: red S: blue W: white	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	E66: 6V AC/DC E88: 12V AC/DC E33: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 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 28: 200/220V AC 248: 240V AC 388: 380V AC 48: 400/440V AC 488: 480V AC	Transformer

Dimensions

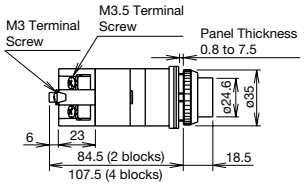
ALN Momentary BA9S/Full Voltage



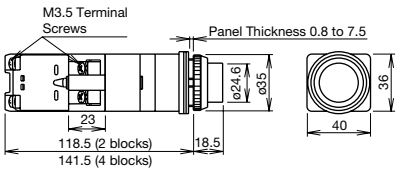
ALN Momentary BA9S/Transformer



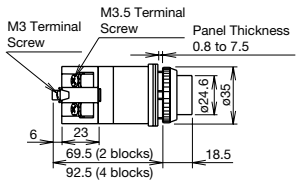
AOLN Maintained BA9S/Full Voltage



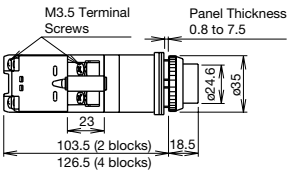
AOLN Maintained BA9S/Transformer



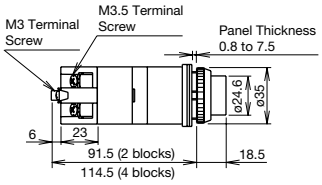
ALNE Momentary E12/Full Voltage



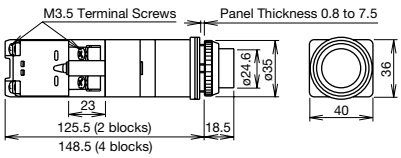
ALNE Momentary E12/Transformer



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 pages 17 to 18 for lamps.
				2NO	**ALGN29920DN②**	
				2NC	**ALGN29902DN②**	
			LED	1NO-1NC	**ALGN2③11DN②**	
				2NO	**ALGN2③20DN②**	
				2NC	**ALGN2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLGN29911DN②**	
				2NO	**AOLGN29920DN②**	
				2NC	**AOLGN29902DN②**	
			LED	1NO-1NC	**AOLGN2③11DN②**	
				2NO	**AOLGN2③20DN②**	
				2NC	**AOLGN2③02DN②**	
	E12	Momentary	Without Lamp	1NO-1NC	**ALGNE29911DN②**	
				2NO	**ALGNE29920DN②**	
				2NC	**ALGNE29902DN②**	
			LED	1NO-1NC	**ALGNE2③11DN②**	
				2NO	**ALGNE2③20DN②**	
				2NC	**ALGNE2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLGNE29911DN②**	
				2NO	**AOLGNE29920DN②**	
				2NC	**AOLGNE29902DN②**	
			LED	1NO-1NC	**AOLGNE2③11DN②**	
				2NO	**AOLGNE2③20DN②**	
				2NC	**AOLGNE2③02DN②**	

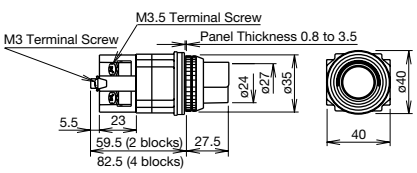
Color Code and Operating Voltage Code

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

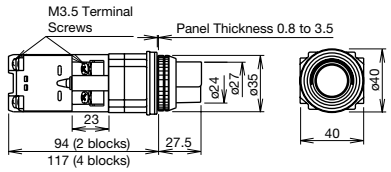
② Lens/LED Color Code	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green PW: pure white R: red S: blue W: white Y: yellow Use a pure white (PW) LED for yellow (Y) illumination.	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V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

Dimensions

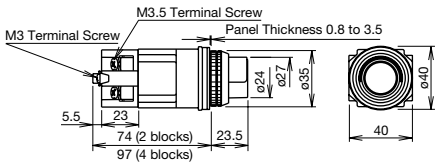
ALGN2/AOLGN2
BA9S/Full Voltage



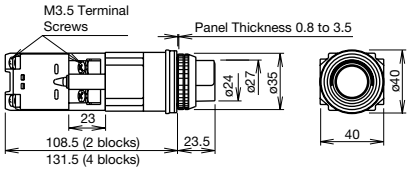
ALGN2/AOLGN2
BA9S/Transformer



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 pages 17 to 18 for lamps.
				2NO	**ALN9G920**②	
				2NC	**ALN9G902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
	E12	Momentary	Without Lamp	1NO-1NC	**ALNE9G911**②	
				2NO	**ALNE9G920**②	
				2NC	**ALNE9G902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	

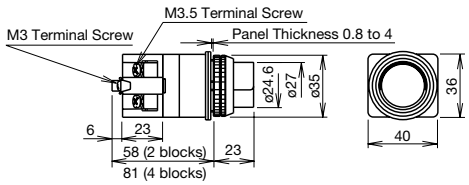
Color Code and Operating Voltage Code

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

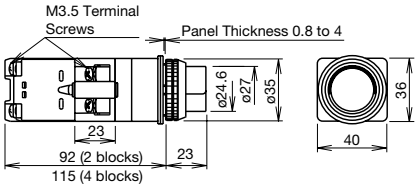
② Lens Color Code	③ Operating Voltage Code		Input
	Incandescent (BA9S)	Incandescent (E12)	
Specify a lens color code in place of ②. C: clear G: green O: orange R: red S: blue W: white	6G6: 6V AC/DC 8G8: 12V AC/DC 3G3: 24V AC/DC	E6G6: 6V AC/DC E8G8: 12V AC/DC E3G3: 24V AC/DC	Full voltage
	1G6: 100/110V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

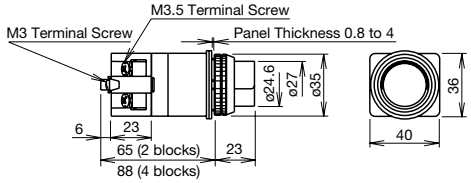
ALN∗G Momentary
BA9S/Full Voltage



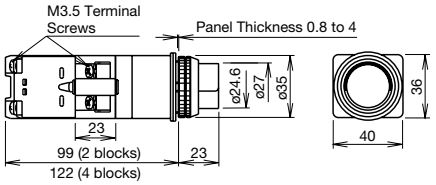
ALN∗G Momentary
BA9S/Transformer



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 pages 17 to 18 for lamps.
				2NO	**ALFN29920DN②**	
				2NC	**ALFN29902DN②**	
			LED	1NO-1NC	**ALFN2③11DN②**	
				2NO	**ALFN2③20DN②**	
				2NC	**ALFN2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLFN29911DN②**	
				2NO	**AOLFN29920DN②**	
				2NC	**AOLFN29902DN②**	
			LED	1NO-1NC	**AOLFN2③11DN②**	
				2NO	**AOLFN2③20DN②**	
				2NC	**AOLFN2③02DN②**	
	E12	Momentary	Without Lamp	1NO-1NC	**ALFNE29911DN②**	
				2NO	**ALFNE29920DN②**	
				2NC	**ALFNE29902DN②**	
			LED	1NO-1NC	**ALFNE2③11DN②**	
				2NO	**ALFNE2③20DN②**	
				2NC	**ALFNE2③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLFNE29911DN②**	
				2NO	**AOLFNE29920DN②**	
				2NC	**AOLFNE29902DN②**	
			LED	1NO-1NC	**AOLFNE2③11DN②**	
				2NO	**AOLFNE2③20DN②**	
				2NC	**AOLFNE2③02DN②**	

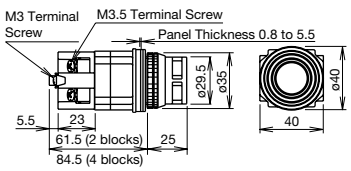
Color Code and Operating Voltage Code

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

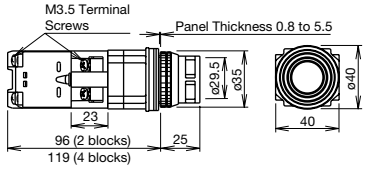
② Lens/LED Color Code LED	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green PW: pure white R: red S: blue W: white Y: yellow Use a pure white (PW) LED for yellow (Y) illumination.	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V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

Dimensions

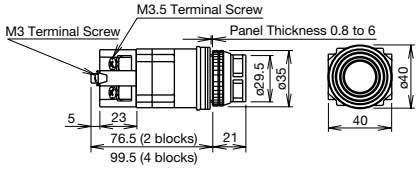
ALFN2/AOLFN2
BA9S/Full Voltage



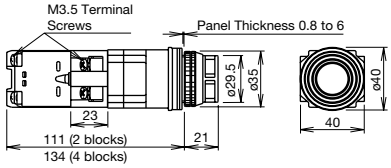
ALFN2/AOLFN2
BA9S/Transformer



ALFNE2/AOLFNE2
E12/Full Voltage



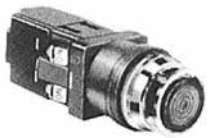
ALFNE2/AOLFNE2
E12/Transformer



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	**ALN9F911**②	See pages 17 to 18 for lamps.
				2NO	**ALN9F920**②	
				2NC	**ALN9F902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
		Maintained	Without Lamp	1NO-1NC	**AOLN9F911**②	
				2NO	**AOLN9F920**②	
				2NC	**AOLN9F902**②	
			Incandescent	1NO-1NC	**AOLN**③**11**②	
				2NO	**AOLN**③**20**②	
				2NC	**AOLN**③**02**②	
AOLN□F AOLNE□F 	E12	Momentary	Without Lamp	1NO-1NC	**ALNE9F911**②	
				2NO	**ALNE9F920**②	
				2NC	**ALNE9F902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	
		Maintained	Without Lamp	1NO-1NC	**AOLNE9F911**②	
				2NO	**AOLNE9F920**②	
				2NC	**AOLNE9F902**②	
			Incandescent	1NO-1NC	**AOLN**③**11**②	
				2NO	**AOLN**②**20**②	
				2NC	**AOLN**③**02**②	

Color Code and Operating Voltage Code

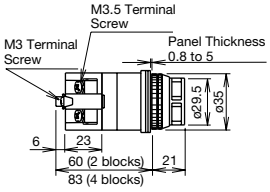
Specify a code in place of ② or ③ in the Part No.

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	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

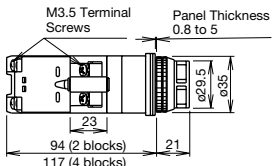
Dimensions

All dimensions in mm.

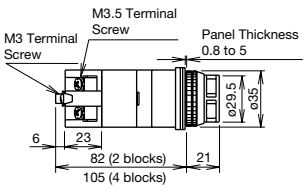
ALN∗F Momentary BA9S/Full Voltage



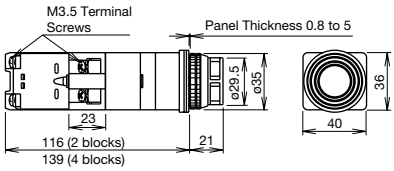
ALN∗F Momentary BA9S/Transformer



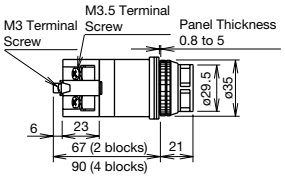
AOLN∗F Maintained BA9S/Full Voltage



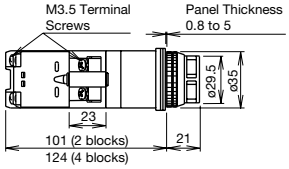
ALON∗F Maintained BA9S/Transformer



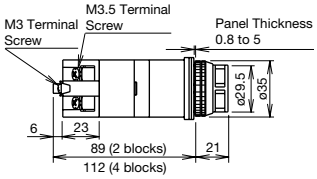
ALNE∗F Momentary E12/Full Voltage



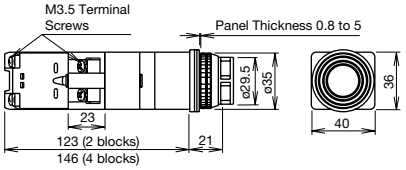
ALN∗F Momentary E12/Transformer



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	**ALN39911DN②**	See pages 17 to 18 for lamps.
				2NO	**ALN39920DN②**	
				2NC	**ALN39902DN②**	
			LED	1NO-1NC	**ALN3③11DN②**	
				2NO	**ALN3③20DN②**	
				2NC	**ALN3③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLN39911DN②**	
				2NO	**AOLN39920DN②**	
				2NC	**AOLN39902DN②**	
			LED	1NO-1NC	**AOLN3③11DN②**	
				2NO	**AOLN3③20DN②**	
				2NC	**AOLN3③02DN②**	
	E12	Momentary	Without Lamp	1NO-1NC	**ALNE39911DN②**	
				2NO	**ALNE39920DN②**	
				2NC	**ALNE39902DN②**	
			LED	1NO-1NC	**ALNE3③11DN②**	
				2NO	**ALNE3③20DN②**	
				2NC	**ALNE3③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLNE39911DN②**	
				2NO	**AOLNE39920DN②**	
				2NC	**AOLNE39902DN②**	
			LED	1NO-1NC	**AOLNE3③11DN②**	
				2NO	**AOLNE3③20DN②**	
				2NC	**AOLNE3③02DN②**	

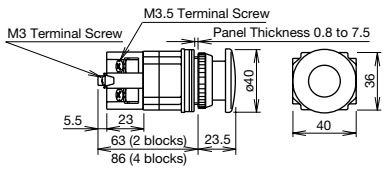
Color Code and Operating Voltage Code

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

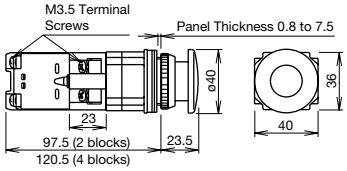
② Lens/LED Color Code	③ Operating Voltage Code	Input
Specify a lens/LED color code in place of ②. A: amber G: green R: red S: blue W: white Y: yellow Use a pure white (PW) LED for yellow (Y) illumination.	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V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

Dimensions

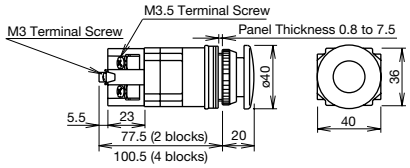
ALN3/AOLN3
BA9S/Full Voltage



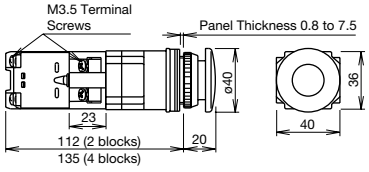
ALN3/AOLN3
BA9S/Transformer



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 pages 17 to 18 for lamps.
				2NO	**ULQN9920**②	
				2NC	**ULQN9902**②	
			Incandescent	1NO-1NC	**ULQN**③**11**②	
				2NO	**ULQN**③**20**②	
				2NC	**ULQN**③**02**②	
UOLQN		Maintained	Without Lamp	1NO-1NC	**UOLQN9911**②	
				2NO	**UOLQN9920**②	
				2NC	**UOLQN9902**②	
			Incandescent	1NO-1NC	**UOLQN**③**11**②	
				2NO	**UOLQN**③**20**②	
				2NC	**UOLQN**③**02**②	
Rectangular (Marking) ULQN□B	BA9S	Momentary	Without Lamp	1NO-1NC	**ULQN9B911**②	
				2NO	**ULQN9B920**②	
				2NC	**ULQN9B902**②	
			Incandescent	1NO-1NC	**ULQN**③**11**②	
				2NO	**ULQN**③**20**②	
				2NC	**ULQN**③**02**②	
UOLQN□B		Maintained	Without Lamp	1NO-1NC	**UOLQN9B911**②	
				2NO	**UOLQN9B920**②	
				2NC	**UOLQN9B902**②	
			Incandescent	1NO-1NC	**UOLQN**③**11**②	
				2NO	**UOLQN**③**20**②	
				2NC	**UOLQN**③**02**②	

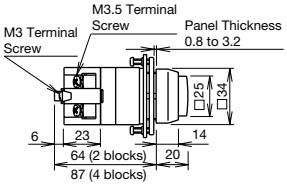
Color Code and Operating Voltage Code

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

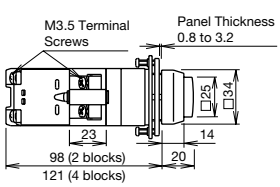
② Lens Color Code	③ Operating Voltage Code		Input
	Square Extended	Rectangular Marking	
Specify a lens color code in place of ②. C: clear (square units only) G: green O: orange R: red S: blue W: white Clear lens is not available for rectangular units.	66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	6B6: 6V 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

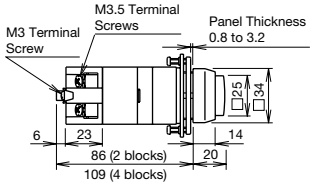
ULQN Momentary BA9S/Full Voltage



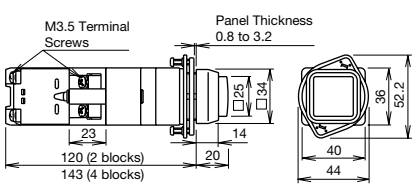
ULQN Momentary BA9S/Transformer



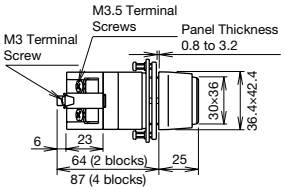
UOLQN Maintained BA9S/Full Voltage



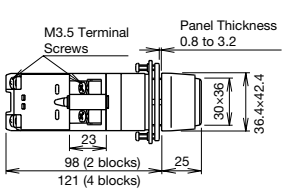
UOLQN Maintained BA9S/Transformer



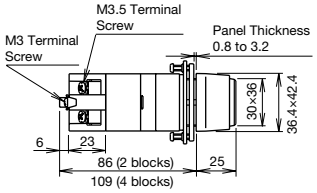
ULQN∗B Momentary BA9S/Full Voltage



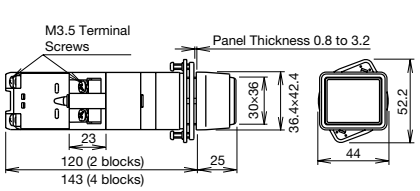
ULQN∗B Momentary BA9S/Transformer



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 pages 17 to 18 for lamps.
				2NO	**ALN9L920**②	
				2NC	**ALN9L902**②	
			Incandescent	1NO-1NC	**ALN**③**11**②	
				2NO	**ALN**③**20**②	
				2NC	**ALN**③**02**②	

Color Code and Operating Voltage Code

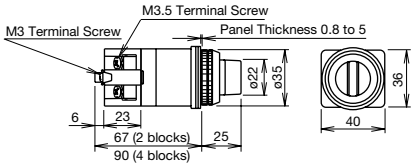
Specify a code in place of ② or ③ in the Part No.

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

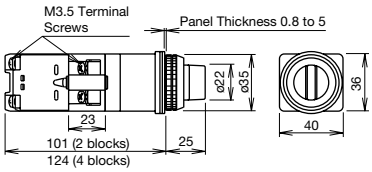
• **Push Turn Lock:** Knob is maintained when turned clockwise in the depressed position and is reset when turned counterclockwise.

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 pages 17 to 18 for lamps.
				2NO	**AVLN39920DNR**	
				2NC	**AVLN39902DNR**	
			LED	1NO-1NC	**AVLN3③11DNR**	
				2NO	**AVLN3③20DNR**	
				2NC	**AVLN3③02DNR**	
	E12	Pushlock Turn Reset	Without Lamp	1NO-1NC	**AVLNE39911DNR**	
				2NO	**AVLNE39920DNR**	
				2NC	**AVLNE39902DNR**	
			LED	1NO-1NC	**AVLNE3③11DNR**	
				2NO	**AVLNE3③20DNR**	
				2NC	**AVLNE3③02DNR**	
ø40 Mushroom Push Turn Lock AJLN3	BA9S	Push Turn Lock	Without Lamp	1NO-1NC	**AJLN39911DN②**	
				2NO	**AJLN39920DN②**	
				2NC	**AJLN39902DN②**	
			LED	1NO-1NC	**AJLN3③11DN②**	
				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

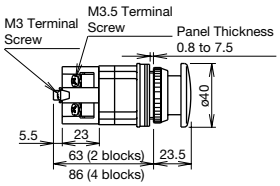
- **Pushlock Turn Reset:** Lens is maintained when pressed and is reset when turned clockwise. Red lens only.

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).

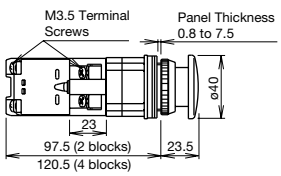
- **Push Turn Lock:** Lens is maintained when turned clockwise in the depressed position and is reset when turned counterclockwise.

Dimensions

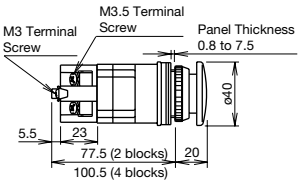
AVLN3
BA9S/Full Voltage



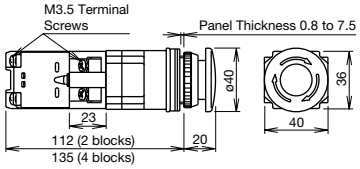
AVLN3
BA9S/Transformer



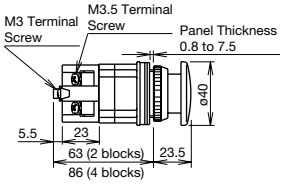
AVLNE3
E12/Full Voltage



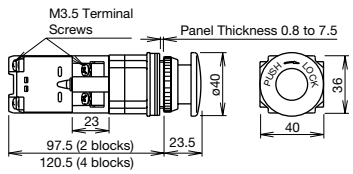
AVLNE3
E12/Transformer



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 pages 17 to 18 for lamps.
				2NO	**AVLN39920NR**	
				2NC	**AVLN39902NR**	
			Incandescent	1NO-1NC	**AVLN3③11NR**	
				2NO	**AVLN3③20NR**	
				2NC	**AVLN3③02NR**	
	E12	Pushlock Turn Reset	Without Lamp	1NO-1NC	**AVLNE39911NR**	
				2NO	**AVLNE39920NR**	
				2NC	**AVLNE39902NR**	
			Incandescent	1NO-1NC	**AVLNE3③11NR**	
				2NO	**AVLNE3③20NR**	
				2NC	**AVLNE3③02NR**	
ø40 Mushroom Push Turn Lock AJLN3	BA9S	Push Turn Lock	Without Lamp	1NO-1NC	**AJLN39911N②**	
				2NO	**AJLN39920N②**	
				2NC	**AJLN39902N②**	
			Incandescent	1NO-1NC	**AJLN3③11N②**	
				2NO	**AJLN3③20N②**	
				2NC	**AJLN3③02N②**	

Color Code and Operating Voltage Code

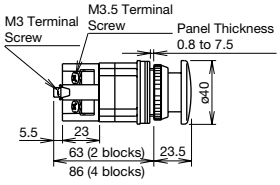
Specify a code in place of ② or ③ in the Part No.

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. A: amber G: green 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 28: 200/220V AC 248: 240V AC 388: 380V AC 48: 400/440V AC 488: 480V AC	Transformer

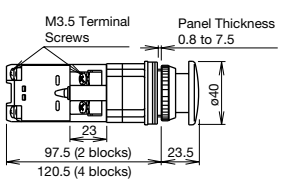
- **Pushlock Turn Reset:** Lens is maintained when pressed and is reset when turned clockwise. Red lens only.
  Note: AVNL3 and AVNLE3 pushlock turn reset switches cannot be used as emergency stop switches. When emergency stop switches are required, use XN or HN series emergency stop switches (ISO 13850 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

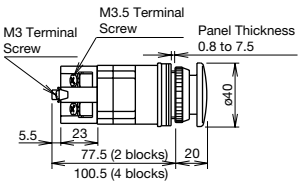
AVLN3
BA9S/Full Voltage



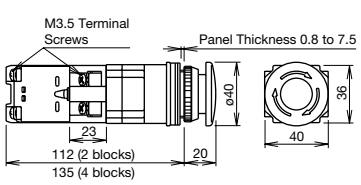
AVLN3
BA9S/Transformer



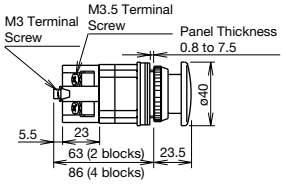
AVLNE3
E12/Full Voltage



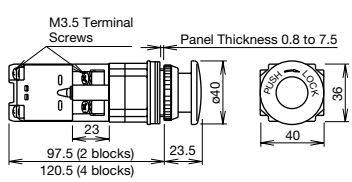
AVLNE3
E12/Transformer



AJLN3
BA9S/Full Voltage



AJLN3
BA9S/Transformer



All dimensions in mm.

ASN Selector Switches (Knob Operator)

Package Quantity: 1

ASN

- Knob: Black
- Round bezel (metal): Chrome-plated
- Units marked with ★ differ in shape. See page 48 for dimensions.
- When a terminal cover is required, order an applicable terminal cover referring to page 67.
- Nameplates are ordered separately.

90° 2-position

Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: R	Maintained	Spring Return from Right	Maintained	Spring Return from Left
			L R	L R	L R	L R	L R	L R
1NO	1	NO		●	**ASN310**	**ASN410**		
	2	—	—					
1NO-1NC	1	NO		●	**ASN311**	**ASN411**		
	2	NC	●					
2NO	1	NO		●	**ASN320**	**ASN420**		
	2	NO		●				
2NO-2NC	1	NO		●	**ASN322**	**ASN422**		
	2	NC	●					
	3	NO		●				
	4	NC	●					
1EM-1LB	1	EM		●	**ASN37S** (Note)	**ASN47S** (Note)		
	2	LB	●					
1NO	1	NO	●				**ASN3010**	**ASN4010**
	2	—	—					
1NO-1NC	1	NO	●				**ASN3011**	**ASN4011**
	2	NC		●				
2NO	1	NO	●				**ASN3020**	**ASN4020**
	2	NO	●					
2NO-2NC	1	NO	●				**ASN3022**	**ASN4022**
	2	NC		●				
	3	NO	●					
	4	NC		●				
1EM-1LB	1	EM	●				**ASN307S** (Note)	**ASN407S** (Note)
	2	LB		●				

45° 3-position

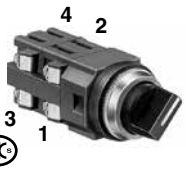
Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained	Spring Return from Left	Maintained	Spring Return from Right
			L C R	L C R	L C R	L C R	L C R	L C R	L C R
1NO-1NC	1	NO	●			**ASN111**	**ASN211**		
	2	NC			●				
2NO-2NC	1	NO	●			**ASN122**	**ASN222**		
	2	NC			●				
	3	NO	●						
	4	NC			●				
2NO-2NC	1	NO	●			**ASN15S** ★	**ASN25S** ★		
	2	NO			●				
	3	NC			●				
	4	NC	●						
2NC	1	NC	●			**ASN17S** ★	**ASN27S** ★		
	2	NC			●				
4NC	1	NC	●			**ASN18S** ★	**ASN28S** ★		
	2	NC			●				
	3	NC	●						
	4	NC			●				
1NO-1NC	1	NO			●			**ASN1011**	**ASN2011**
	2	NC	●						
2NO-2NC	1	NO			●			**ASN1022**	**ASN2022**
	2	NC	●						
	3	NO			●				
	4	NC	●						
2NO-2NC	1	NO			●			**ASN105S** ★	**ASN205S** ★
	2	NO	●						
	3	NC	●						
	4	NC			●				
2NC	1	NC			●			**ASN107S** ★	**ASN207S** ★
	2	NC	●						
4NC	1	NC			●			**ASN108S** ★	**ASN208S** ★
	2	NC	●						
	3	NC			●				
	4	NC	●						

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

ASN-T Selector Switches (Knob Operator) [Twin Rod Type]

Package Quantity: 1

ASN-T



- Knob: Black
- Round bezel (metal): Chrome-plated
- When a terminal cover is required, order an applicable terminal cover referring to page 67.
- Nameplates are ordered separately.

	Contact Configuration	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
45° 3-position	2NO	1	NO	●			ASN120-T	ASN220-T		
		2	NO			●				
	4NO	1	NO	●			ASN140-T	ASN240-T		
		2	NO			●				
		3	NO	●						
		4	NO			●				
	2NO	1	NO			●				ASN2020-T
		2	NO	●						
	4NO	1	NO			●				ASN2040-T
		2	NO	●						
		3	NO			●				
		4	NO	●						

ASN-T are twin-rod units.

ASN□L Selector Switches (Lever Operator)

Package Quantity: 1

ASN□L

- Lever: Black
- Round bezel (metal): Chrome-plated
- Units marked with ★ differ in shape. See page 48 for dimensions.
- When a terminal cover is required, order an applicable terminal cover referring to page 67.
- Nameplates are ordered separately.

	Contact Configuration	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
90° 2-position	1NO	1	NO		●		**ASN3L10**	**ASN4L10**		
		2	—	—						
	1NO-1NC	1	NO		●		**ASN3L11**	**ASN4L11**		
		2	NC	●						
	2NO	1	NO		●		**ASN3L20**	**ASN4L20**		
		2	NO		●					
	2NO-2NC	1	NO		●		**ASN3L22**	**ASN4L22**		
		2	NC	●						
		3	NO		●					
		4	NC	●						
	1EM-1LB	1	EM		▬		**ASN3L7S** (Note)	**ASN4L7S** (Note)		
		2	LB	▬						
	1NO	1	NO	●					**ASN30L10**	**ASN40L10**
		2	—	—						
	1NO-1NC	1	NO	●					**ASN30L11**	**ASN40L11**
		2	NC		●					
	2NO	1	NO	●					**ASN30L20**	**ASN40L20**
		2	NO	●						
	2NO-2NC	1	NO	●					**ASN30L22**	**ASN40L22**
		2	NC		●					
		3	NO	●						
		4	NC		●					
	1EM-1LB	1	EM	▬					**ASN30L7S** (Note)	**ASN40L7S** (Note)
		2	LB		▬					

	Contact Configuration	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
45° 3-position	1NO-1NC	1	NO	●				**ASN1L11**	**ASN2L11**		
		2	NC			●					
	2NO-2NC	1	NO	●				**ASN1L22**	**ASN2L22**		
		2	NC			●					
		3	NO	●							
		4	NC			●					
	2NO-2NC	1	NO	●				**ASN1L5S** ★	**ASN2L5S** ★		
		2	NO			●					
		3	NC			▬					
		4	NC	▬							
	2NC	1	NC	▬				**ASN1L7S** ★	**ASN2L7S** ★		
		2	NC			▬					
	4NC	1	NC	▬				**ASN1L8S** ★	**ASN2L8S** ★		
		2	NC			▬					
		3	NC	▬							
		4	NC			▬					
	1NO-1NC	1	NO			●				**ASN10L11**	**ASN20L11**
		2	NC	●							
	2NO-2NC	1	NO			●				**ASN10L22**	**ASN20L22**
		2	NC	●							
		3	NO			●					
		4	NC	●							
	2NO-2NC	1	NO			●				**ASN10L5S** ★	**ASN20L5S** ★
		2	NO	●							
		3	NC	▬							
		4	NC			▬					
	2NC	1	NC			▬				**ASN10L7S** ★	**ASN20L7S** ★
		2	NC	▬							
	4NC	1	NC			▬				**ASN10L8S** ★	**ASN20L8S** ★
		2	NC	▬							
		3	NC			▬					
		4	NC	▬							

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

ASN□L-T Selector Switches (Lever Operator) [Twin Rod Type]

Package Quantity: 1

ASN□L-T

- Lever: Black
- Round bezel (metal): Chrome-plated
- When a terminal cover is required, order an applicable terminal cover referring to page 67.
- Nameplates are ordered separately.

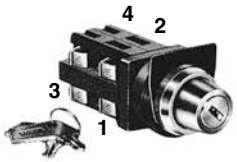
	Contact Configuration	Contact Block		Operator Position			Maintained	Spring Return from Left	Maintained	Spring Return from Right
		Mounting Position	Contact	L	C	R	L C R	L C R	L C R	L C R
45° 3-position	2NO	1	NO	●			ASN1L20-T	ASN2L20-T		
		2	NO			●				
	4NO	1	NO	●			ASN1L40-T	ASN2L40-T		
		2	NO			●				
		3	NO	●						
		4	NO			●				
	2NO	1	NO			●				ASN20L20-T
		2	NO	●						
	4NO	1	NO			●				ASN20L40-T
		2	NO	●						
		3	NO			●				
		4	NO	●						

ASN□-T are twin-rod units.

ASN□K Key Selector Switches

Package Quantity: 1

ASN□K



- Cylinder: Chrome-plated
- Round bezel (metal): Chrome-plated
- On spring-returned types, the keys can be released only from the maintained position. On 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.
- When a terminal cover is required, order an applicable terminal cover referring to page 67.
- Nameplates are ordered separately.

	Contact Configuration	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
90° 2-position	1NO	1	NO		●		ASN3K10	ASN4K10		
		2	—	—						
	1NO-1NC	1	NO		●		ASN3K11	ASN4K11		
		2	NC	●						
	2NO	1	NO		●		ASN3K20	ASN4K20		
		2	NO		●					
	2NO-2NC	1	NO		●		ASN3K22	ASN4K22		
		2	NC	●						
		3	NO		●					
		4	NC	●						
	1EM-1LB	1	EM		▬		ASN3K7S (Note)	ASN4K7S (Note)		
		2	LB	▬						
	1NO	1	NO	●					ASN30K10	ASN40K10
		2	—	—						
	1NO-1NC	1	NO	●					ASN30K11	ASN40K11
		2	NC		●					
	2NO	1	NO	●					ASN30K20	ASN40K20
		2	NO	●						
	2NO-2NC	1	NO	●					ASN30K22	ASN40K22
		2	NC		●					
		3	NO	●						
		4	NC		●					
	1EM-1LB	1	EM	▬					ASN30K7S (Note)	ASN40K7S (Note)
		2	LB		▬					

	Contact Configuration	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
45° 3-position	1NO-1NC	1	NO	●				ASN1K11	ASN2K11		
		2	NC			●					
	2NO-2NC	1	NO	●				ASN1K22	ASN2K22		
		2	NC			●					
		3	NO	●							
		4	NC			●					
	1NO-1NC 1EM-1LB	1	NO	●				ASN1K5S	ASN2K5S		
		2	NC			●					
		3	EM	▬							
		4	LB		▬						
	1EM-1LB	1	EM	▬				ASN1K7S	ASN2K7S		
		2	LB		▬						
	2EM-2LB	1	EM	▬				ASN1K8S	ASN2K8S		
		2	LB		▬						
		3	EM	▬							
		4	LB		▬						
	1NO-1NC	1	NO			●				ASN10K11	ASN20K11
		2	NC	●							
	2NO-2NC	1	NO			●				ASN10K22	ASN20K22
		2	NC	●							
		3	NO			●					
		4	NC	●							
	1NO-1NC 1EM-1LB	1	NO			●				ASN10K5S	ASN20K5S
		2	NC	●							
		3	EM		▬						
		4	LB	▬							
	1EM-1LB	1	EM		▬					ASN10K7S	ASN20K7S
		2	LB	▬							
	2EM-2LB	1	EM		▬					ASN10K8S	ASN20K8S
		2	LB	▬							
		3	EM		▬						
		4	LB	▬							

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

ASN□K-T Key Selector Switches [Twin Rod Type]

Package Quantity: 1

ASN□K-T

- Cylinder: Chrome-plated
- Round bezel (metal): Chrome-plated
- On spring-returned types, the keys can be released only from the maintained position. On 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.
- When a terminal cover is required, order an applicable terminal cover referring to page 67.
- Nameplates are ordered separately.

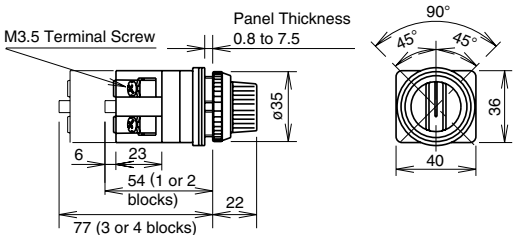
	Contact Configuration	Contact Block		Operator Position			Maintained	Spring Return from Right	Maintained	Spring Return from Left
		Mounting Position	Contact	L	R		L R	L R	L R	L R
90° 2-position	1NO	1	NO		●		ASN3K10-T	ASN4K10-T		
		2	—	—						
	1NO-1NC	1	NO		●		ASN3K11-T	ASN4K11-T		
		2	NC	●						
	2NO	1	NO		●		ASN3K20-T	ASN4K20-T		
		2	NO		●					
	2NO-2NC	1	NO		●		ASN3K22-T	ASN4K22-T		
		2	NC	●						
		3	NO		●					
		4	NC	●						
	1EM-1LB	1	EM		▬		ASN3K7S-T	ASN4K7S-T		
		2	LB	▬						
	1NO	1	NO	●						ASN40K10-T
		2	—	—						
	1NO-1NC	1	NO	●						ASN40K11-T
		2	NC		●					
	2NO	1	NO	●						ASN40K20-T
		2	NO	●						
	2NO-2NC	1	NO	●						ASN40K22-T
		2	NC		●					
		3	NO	●						
		4	NC		●					
	1EM-1LB	1	EM	▬						ASN40K7S-T
		2	LB		▬					

	Contact Configuration	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
45° 3-position	2NO	1	NO	●				ASN1K20-T	ASN2K20-T		
		2	NO			●					
	4NO	1	NO	●				ASN1K40-T	ASN2K40-T		
		2	NO			●					
		3	NO	●							
		4	NO			●					
	2NO-2NC	1	NO	●				ASN1K5S-T	ASN2K5S-T		
		2	NO			●					
		3	NC			▬					
		4	NC	▬							
	2NC	1	NC	▬				ASN1K7S-T	ASN2K7S-T		
		2	NC			▬					
	4NC	1	NC	▬				ASN1K8S-T	ASN2K8S-T		
		2	NC			▬					
		3	NC	▬							
		4	NC			▬					
	2NO	1	NO			●					ASN20K20-T
		2	NO	●							
	4NO	1	NO			●					ASN20K40-T
		2	NO	●							
		3	NO			●					
		4	NO	●							
	2NO-2NC	1	NO			●					ASN20K5S-T
		2	NO	●							
		3	NC	▬							
		4	NC			▬					
	2NC	1	NC			▬					ASN20K7S-T
		2	NC	▬							
	4NC	1	NC			▬					ASN20K8S-T
		2	NC	▬							
		3	NC			▬					
		4	NC	▬							

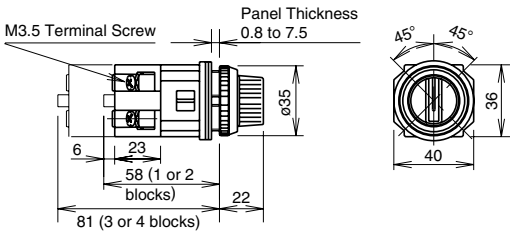
ASN-T are twin-rod units.

Dimensions

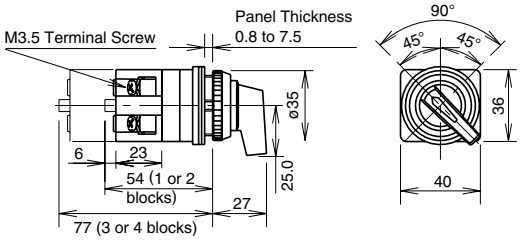
Knob Operator



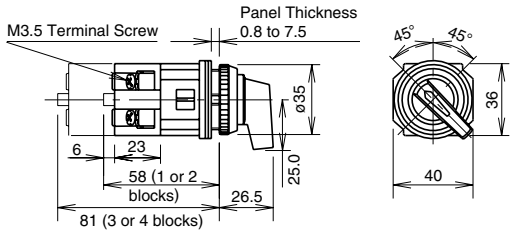
Dimensions of knob operator marked with ★ or "-T" in the Part No.



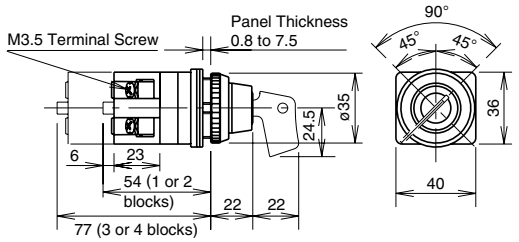
Lever Operator



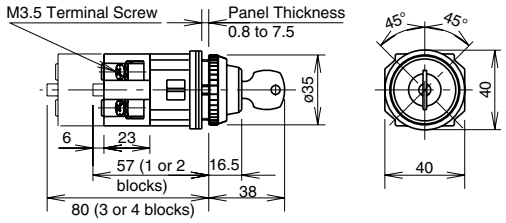
Dimensions of lever operator marked with ★ or "-T" in the Part No.



Key Selector



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



All dimensions in mm.

Contact Block Mounting Position and Contact Configuration Chart

		Left (L)	Center (C)	Right (R)
1	NO	●		
2	NO			●
3	NC		▬	
4	NC	▬		

Operator position

ASTN Selector Switches (Knob Operator)

Package Quantity: 1

No. of Positions

ASTN

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

90° 2-position

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

45° 3-position

Contact Configuration	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
2NO	1	NO	●			—	—	—	**ASTN5120**
	2	NO			●				
2NO-2NC	1	NO	●			**ASTN1122**	**ASTN2122**	**ASTN20122**	**ASTN5122**
	2	NO			●				
	3	NC			▬				
	4	NC	▬						
2NO-2NC	1	NO	●		●	**ASTN1222**	**ASTN2222**	**ASTN20222**	**ASTN5222**
	2	NO			●				
	3	NC		●					
	4	NC	▬						
4NC	1	NO	●			**ASTN1340**	—	—	—
	2	NO			●				
	3	NO	●						
	4	NO			●				
2NO-2NC	1	NO	●			**ASTN1422**	—	**ASTN20422**	—
	2	NC	▬						
	3	NC			▬				
	4	NO			●				
2NO	1	NO			●	**ASTN1520**	—	**ASTN20520**	—
	2	NO	●						
4NO	1	NO			●	**ASTN1540**	—	**ASTN20540**	—
	2	NO	●						
	3	NO			●				
	4	NO	●						
1NO-1NC	1	NC		●		**ASTN1611**	—	—	—
	2	NO			●				
2NO-2NC	1	NC		●		**ASTN1622**	—	—	—
	2	NO			●				
	3	NC		●					
	4	NO			●				
1NO-1NC	1	NO	●			—	—	—	**ASTN5111**
	2	NC	▬						

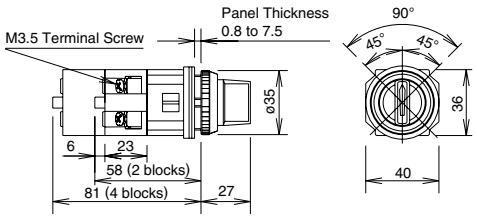
Notes:
1. The operator of the 2-way spring return unit may slightly deviate from the center position.
2. Turn the operator to each position accurately.

Contact Block Mounting Position and Contact Configuration Chart

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

Operator Position

Dimensions



ASTN□L Selector Switches (Lever Operator)

Package Quantity: 1

ASTN□L

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

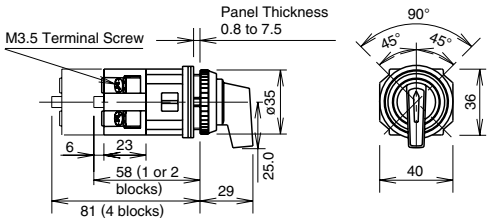
No. of Positions	Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained	Spring Return from Left	Spring Return from Right	Spring Return Two-way
									—	—
90° 2-position	1NO-1NC	1	NO		●		**ASTN32L11**	**ASTN42L11**	—	—
		2	NC	●						
	2NO-2NC	1	NO		●		**ASTN32L22**	**ASTN42L22**	—	—
		2	NO		●					
		3	NC	●						
		4	NC	●						
45° 3-position	2NO	1	NO	●			—	—	—	**ASTN51L20**
		2	NO			●				
	2NO-2NC	1	NO	●			**ASTN11L22**	**ASTN21L22**	**ASTN201L22**	**ASTN51L22**
		2	NO			●				
		3	NC			▬				
		4	NC	▬						
	2NO-2NC	1	NO	●		●	**ASTN12L22**	**ASTN22L22**	**ASTN202L22**	**ASTN52L22**
		2	NO			●				
		3	NC		●					
		4	NC	▬						
	4NC	1	NO	●			**ASTN13L40**	—	—	—
		2	NO			●				
		3	NO	●						
		4	NO			●				
	2NO-2NC	1	NO	●			**ASTN14L22**	—	**ASTN204L22**	—
		2	NC	▬						
		3	NC			▬				
		4	NO			●				
	2NO	1	NO			●	**ASTN15L20**	—	**ASTN205L20**	—
		2	NO	●						
	4NO	1	NO			●	**ASTN15L40**	—	**ASTN205L40**	—
		2	NO	●						
		3	NO			●				
		4	NO	●						
	1NO-1NC	1	NC		●		**ASTN16L11**	—	—	—
		2	NO			●				
	2NO-2NC	1	NC		●		**ASTN16L22**	—	—	—
		2	NO			●				
		3	NC		●					
		4	NO			●				
	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 Configuration Chart

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

Dimensions



ASTN□K Key Selector Switches

Package Quantity: 1

No. of Positions

ASTN□K

- 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 Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: R	Maintained	Spring Return from Right	—	—
			L R		L R	L R	—	—
1NO-1NC	1	NO		●	**ASTN32K11**	**ASTN42K11**	—	—
	2	NC	●					
2NO-2NC	1	NO		●	**ASTN32K22**	**ASTN42K22**		
	2	NO		●				
	3	NC	●					
	4	NC	●					

45° 3-position

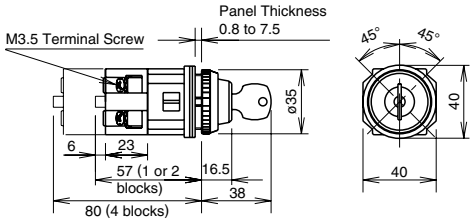
Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained	Spring Return from Left	Spring Return from Right	Spring Return Two-way
			L C R			L C R	L C R	L C R	L C R
2NO	1	NO	●			—	—	—	**ASTN51K20**
	2	NO			●				
2NO-2NC	1	NO	●			**ASTN11K22**	**ASTN21K22**	**ASTN201K22**	**ASTN51K22**
	2	NO			●				
	3	NC			▬				
	4	NC	▬						
2NO-2NC	1	NO	●		●	**ASTN12K22**	**ASTN22K22**	**ASTN202K22**	**ASTN52K22**
	2	NO			●				
	3	NC		●					
	4	NC	▬						
4NC	1	NO	●			**ASTN13K40**	—	—	—
	2	NO			●				
	3	NO	●						
	4	NO			●				
2NO-2NC	1	NO	●			**ASTN14K22**	—	**ASTN204K22**	—
	2	NC	▬						
	3	NC			▬				
	4	NO			●				
2NO	1	NO			●	**ASTN15K20**	—	**ASTN205K20**	—
	2	NO	●						
4NO	1	NO			●	**ASTN15K40**	—	**ASTN205K40**	—
	2	NO	●						
	3	NO			●				
	4	NO	●						
1NO-1NC	1	NC		●		**ASTN16K11**	—	—	—
	2	NO			●				
2NO-2NC	1	NC		●		**ASTN16K22**	—	—	—
	2	NO			●				
	3	NC		●					
	4	NO			●				
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 Configuration Chart

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

Dimensions



ASLN Illuminated Selector Switches

90° 2-position

Package Quantity: 1

ASLN (Base BA9S)

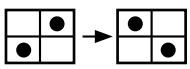
Contact Configuration	Contact Block		Operator Position		Lamp	Maintained	Spring Return from Right	Spring Return from Left
	Mounting Position	Contact	L	R				
1NO-1NC	1	NO		●	Without Lamp	**ASLN29911N②**	**ASLN219911N②**	**ASLN229911N② ∗**
	2	NC	●		LED	**ASLN2③11DN②**	**ASLN21③11DN②**	**ASLN22③11DN② ∗**
					Incandescent	**ASLN2③11N②**	**ASLN21③11N②**	**ASLN22③11N② ∗**
2NO	1	NO		●	Without Lamp	**ASLN29920N②**	**ASLN219920N②**	**ASLN229920N② ∗**
	2	NO		●	LED	**ASLN2③20DN②**	**ASLN21③20DN②**	**ASLN22③20DN② ∗**
					Incandescent	**ASLN2③20N②**	**ASLN21③20N②**	**ASLN22③20N② ∗**
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

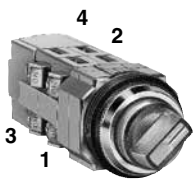
Specify a code in place of ② or ③ in the Part No.

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 (PW) LED for yellow (Y) 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] 

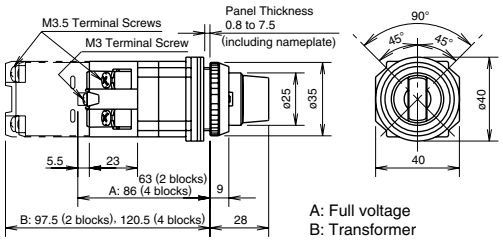
Contact Block Mounting Position and Contact Configuration Chart



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

Operator Position

Dimensions



ASLN Illuminated Selector Switches

45° 3-position

Package Quantity: 1

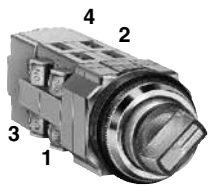
Contact Configuration	Contact Block		Operator Position			Lamp	Maintained	Spring Return from Right	Spring Return from left	Spring Return Two-way
	Mounting Position	Contact	L	C	R		L C R	L C R	L C R	L C R
2NO	1	NO	●			Without Lamp	**ASLN39920N②**	**ASLN319920N②**	**ASLN329920N②**	**ASLN339920N②**
	2	NO			●	LED	**ASLN3③20DN②**	**ASLN31③20DN②**	**ASLN32③20DN②**	**ASLN33③20DN②**
						Incandescent	**ASLN3③20N②**	**ASLN31③20N②**	**ASLN32③20N②**	**ASLN33③20N②**
2NC	1	NC		▬		Without Lamp	**ASLN39902N②**	**ASLN319902N②**	**ASLN329902N②**	**ASLN339902N②**
	2	NC	▬			LED	**ASLN3③02DN②**	**ASLN31③02DN②**	**ASLN32③02DN②**	**ASLN33③02DN②**
						Incandescent	**ASLN3③02N②**	**ASLN31③02N②**	**ASLN32③02N②**	**ASLN33③02N②**
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**
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**
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**

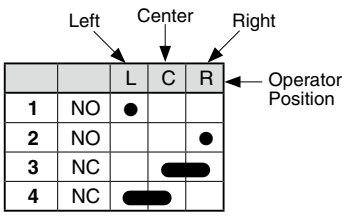
Color Code and Operating Voltage Code

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

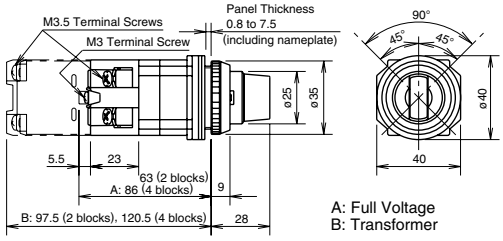
② Lens/LED Color Code		③ Operating Voltage Code		Input
LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow Use a pure white (PW) LED for yellow (Y) illumination.	A: amber G: green R: red S: blue W: white	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 12V 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 Configuration Chart



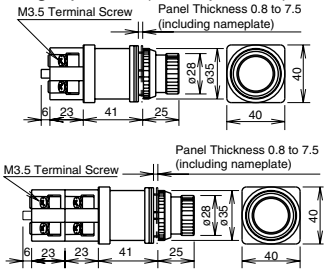
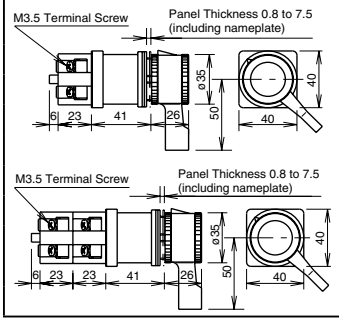


Dimensions



ABN Ring Operator / ABN□L Lever Operator Selector Pushbuttons

Package Quantity: 1

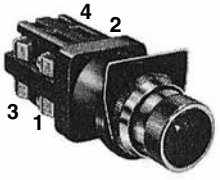
Shape	Contact Cofigura-tion	Circuit Code	Contact Block		Ring/Lever				Ring Operator	Lever Operator	① Button Color Code
					Pushbutton				Part No.	Part No.	
			Mounting Position	Con-tact	Normal	Push	Normal	Push			
ABN Ring Operator (90° 2-position) 	1NO-1NC	A	1	NO		●		●	**ABN6111①**	**ABN6L111①**	B: black G: green R: red Y: yellow
			2	NC	●						
		I	1	NC	●				**ABN6411①**	**ABN6L411①**	
			2	NO		●	▬				
		G	1	NO		Blocked		●	**ABN9111①**	**ABN9L111①**	
			2	NC	●		●				
	2NO	D	1	NO		●			**ABN7120①**		
			2	NO				●			
	2NO-2NC	B	1	NC	●				**ABN6122①**	**ABN6L122①**	
			2	NC	●						
			3	NO		●		●			
			4	NO		●		●			
ABN□L Lever Operator (90° 2-position) 		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

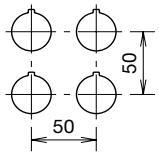
Notes

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.

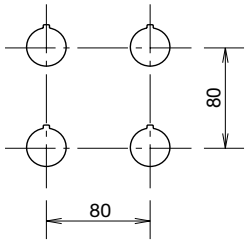
Contact Block Mounting Position



Mounting Hole Layout



Ring Operator



Lever Operator

ø30 ARN/ARNS Series Mono-lever Switches

Single lever offers up to four directions of control

Mono-lever switches operate in four directions using a single lever. Switch contacts are actuated in the direction in which the lever is pushed, enabling quick and accurate control in any desired direction. Ideal for machine tools and industrial machines. The lever action can be maintained or spring-returned in any combination.
Also available with interlock mechanism to prevent inadvertent actuation.

Applicable Standards	Mark	File No. or Organization
UL 508	UL LISTED	UL Listing File No. E68961
CSA C22.2 No.14	SP	CSA File No. LR21451
GB14048.5	CCC	CCC No.2013010305661112

Specifications and Ratings

Contact Ratings

Contact Block	BR
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	4A	2A	—	1.1A	0.6A	—

Note: The operational current represents the classification by making and breaking currents (IEC 60947-5-1).

Specifications

Contact Configuration	Double-break slow action Each contact block contains two independent contacts (2NO, 1NO-1NC, 2NC) Up to four contact blocks can be mounted
Operating Temperature	–25 to +50°C (no freezing)
Storage Temperature	–35 to +80°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Insulation Resistance	100 MΩ minimum (500V DC megger)
Dielectric Strength	Between live and dead parts: 2,500V AC, 1 minute
Mechanical Life	500,000 operations minimum (Interlocking: 250,000 operations minimum)
Electrical Life	
Lever Knob	Black
Weight (approx.)	276g (ARN4-1111-20202020)

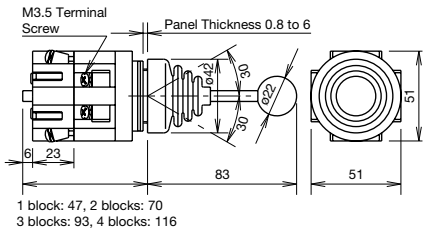
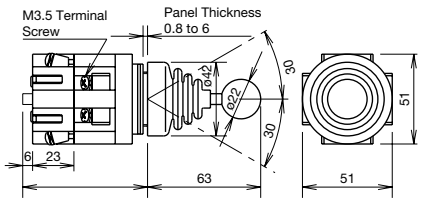
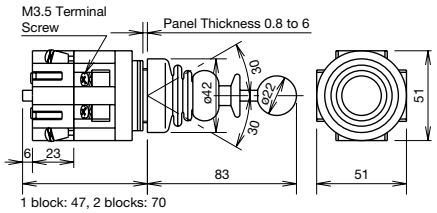
BR Contact Block

The contact block is made of nylon resin. Each contact block contains two pairs of double-break silver contacts. There are three types as shown in the diagram below and up to four contact blocks can be mounted in any direction. A wide variety of circuits allows diverse combinations of control.

Control Mechanism

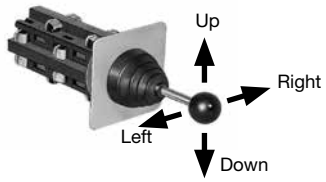
When the operator lever is pushed to about 30° in each direction from the neutral position, the contact in that direction activates. The lever can operate in two, three, or four directions, and combinations of maintained or spring-return from any position are possible.

Mono-lever Switches

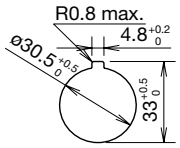
Operator	Position	Lever Action	Part No.	Dimensions (mm)
ARN (Long Lever)	2-position (Up-Down)	Maintained	**ARN2-1010-④B**	 1 block: 47, 2 blocks: 70 3 blocks: 93, 4 blocks: 116 Minimum horizontal/vertical mounting centers: 110
		Spring return	**ARN2-2020-④B**	
	2-position (Left-Right)	Maintained	**ARN2-0101-④B**	
		Spring return	**ARN2-0202-④B**	
	4-position (Up-Down-Left-Right)	Maintained	**ARN4-1111-④B**	
		Spring return	**ARN4-2222-④B**	
ARNS (Short Lever)	2-position (Up-Down)	Maintained	**ARNS2-1010-④B**	 1 block: 47, 2 blocks: 70 3 blocks: 93, 4 blocks: 116 Minimum horizontal/vertical mounting centers: 70
		Spring return	**ARNS2-2020-④B**	
	2-position (Left-Right)	Maintained	**ARNS2-0101-④B**	
		Spring return	**ARNS2-0202-④B**	
	4-position (Up-Down-Left-Right)	Maintained	**ARNS4-1111-④B**	
		Spring return	**ARNS4-2222-④B**	
ARNL (Interlocking) The operator lever is locked only in the center position.	2-position (Up-Down)	Maintained	**ARNL2-1010-④B**	 1 block: 47, 2 blocks: 70 3 blocks: 93, 4 blocks: 116 Minimum horizontal/vertical mounting centers: 110
		Spring return	**ARNL2-2020-④B**	
	2-position (Left-Right)	Maintained	**ARNL2-0101-④B**	
		Spring return	**ARNL2-0202-④B**	
	4-position (Up-Down-Left-Right)	Maintained	**ARNL4-1111-④B**	
		Spring return	**ARNL4-2222-④B**	

Specify Contact Configuration from the table below in place of ④.
Terminal covers are ordered separately.

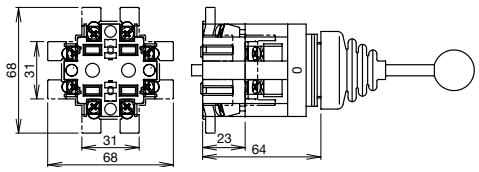
Lever Operator Position



Panel Cut-Out



Mono-Lever with Terminal Cover



Ordering Information

When ordering, specify items ① to ⑤ according to the following example.

[Example] ① ARN ② 4 – ③ 1012 – ④ 20 00 02 11 ⑤ B
(Up, Right, Down, Left)

① Model	② No. of Contact Blocks	③ Lever Action	④ Contact Arrangement	⑤ Lever Knob Color
ARN ARNS ARNL	1: 1 block 2: 2 blocks 3: 3 blocks 4: 4 blocks	Order of Entry: Up→Right→ Down→Left 1: Maintained 2: Spring return 0: Blocked	Order of Entry: Up→Right→ Down→Left 10: 1NO 01: 1NC 11: 1NO-1NC 20: 2NO 02: 2NC 00: Blocked	B: black

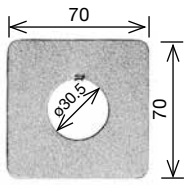
Contact Block Position	Terminal No.	Direction of Lever Operation / Lever Operation Mode 1: Maintained 2: Spring return 0: Blocked				Terminal No.	Contact Block Type
		1	0	1	2		
1	1	NO	–	–	–	2	BR-2E
	3	–	–	NC	–	4	
2	5	–	NO *	–	–	6	BR-1E
	7	–	–	–	NO	8	
3	9	NO	–	–	–	10	BR-2E
	11	–	–	NC	–	12	
4	13	–	NC *	–	–	14	BR-3E
	15	–	–	–	NC	16	

*: Contacts marked with * do not operate.

- To calculate the number of contact blocks required, add the number of NO and NC contacts on each pair of adjoining positions (up + right, right + down, down + left, and left + up). The largest of the four sums is the number of contact blocks required. Up to four contact blocks can be mounted.
- When UL and CSA markings are required on the mono-lever switch, specify as shown below.
  [Example] ARN4-1012-20000211B-U

ARN/ARNS Series Accessories and Replacement Parts ø30

Accessories and Maintenance Parts

Shape	Specification	Part No.	Ordering No.	Package Quantity	Description
Nameplate		**MLO**	**MLO**	1	Chrome-plated brass (matte surface)
			MLOPN10	10	
Terminal Cover		**ARN-VL2**	**ARN-VL2**	1	Terminal covers are ordered separately. When ordering, specify the Part No. and the required quantity. Order 2 pieces for each contact block.
Contact Block (BR)		**BR-1E**	**BR-1E**	1	2NO contact
		BR-2E	**BR-2E**	1	1NO-1NC contact
		BR-3E	**BR-3E**	1	2NC contact
Bellows		**ARN-BL**	**ARN-BL**	1	For ARN/ARNS (Locking ring not included)
Bellows (Interlocking)		**ARNL-BL**	**ARNL-BL**	1	For ARNL (Locking ring not included)
Knob		**ARNB-①**	**ARNB-①**	1	Specify a color code in place of ①. B (black), G (green), R (red) For ARN/ARNS

ø30/ø25 CS Series Cam Switches

71 standard circuits to choose from

- Wide variety of heavy-duty oiltight cam switches
- Operators available up to 12 positions
- Contact blocks rated at 600V, 10A
- Ideal for ammeter/voltmeter applications
- UL listed and CSA approved

Applicable Standards	Mark	File No. or Organization
GB14048.5		CCC No.2012010305525956 (ACSNO, ACSNK) No.2013010305604910 (ACSSO, ACSSK) No.2013010305600565 (UCSQO, UCSQM)

(except ACSSO and ACSSK)

Specifications and Ratings

Contact Ratings

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	110V	220V	440V
Operational Current	AC 50/60 Hz	AC-12 Control of resistive loads and solid state loads	—	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72 VA)	—	5A	3A	1A
	DC	DC-12 Control of resistive loads and solid state loads	8A	3A	1A	0.4A
		DC-13 Control of electromagnets	5A	1.2A	0.45A	0.2A

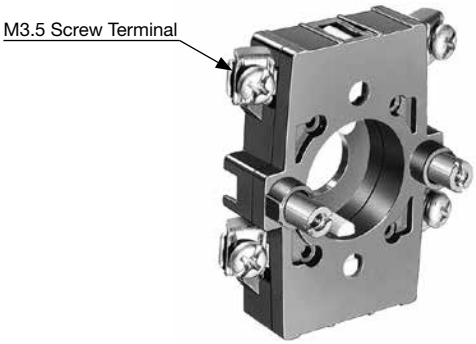
Note: The operational current represents the classification by making and breaking currents (IEC 60947-5-1).

Specifications

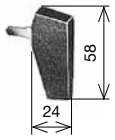
Contact Configuration	Double-break slow action contacts Two contacts in one deck Up to 6 decks available (Spring-return: Up to 3 decks)	
Operation	Maintained	Spring return
Angle	30°, 45°, 60°, 90°	45°
Operator Positions	2 to 12	2, 3, 4
Operating Temperature	–20 to +50°C (no freezing)	
Storage Temperature	–40 to +80°C (no freezing)	
Operating Humidity	45 to +85% RH (no condensation)	
Insulation Resistance	100 MΩ (500V DC megger)	
Dielectric Strength	2500V AC, 1 minute (between live and dead parts)	
Mechanical Life	1 to 3 decks: 500,000 operations 4 to 6 decks: 200,000 operations	
Electrical Life	200,000 operations minimum	
Degree of Protection	ACSNO, ACSSO: IP65 (IEC 60529) ACSNK, ACSSK: IP54 (IEC 60529) UCS: IP40 (IEC 60529)	
Weight (approx.)	319g (ACSNO-663-S2B)	

CSB Contact Block

The CSB contact block contains two poles of double-break contacts. The contacts are operated by a cam designed to perform a required contact operation. Up to six contact blocks can be mounted on a maintained-action operator base, and up to three contact blocks on a spring return operator base.



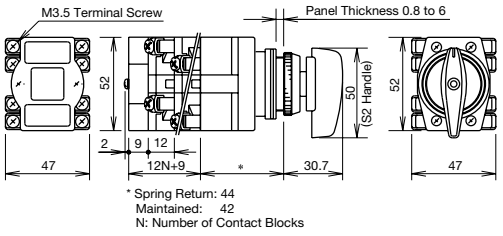
Cam Switches

① Model		② Contact Block Decks	③ Positions	④ Angle	⑤ Spring Return	⑥ Handle	⑦ Contact Arrangement	Nameplate
ø30 Series	ø25 Series							
ACSNO	**ACSSO**	Maintained: 1 to 6 decks Spring return: 1 to 3 decks	Maintained: 2 to 12 positions Spring return: 2 to 4 positions	Maintained: 30°, 45°, 60°, 90° Spring return: 45° only	Spring return from right Spring return from left Spring return two-way	Y2, S2, P2, F2, 25S2 (25S2 is for ACSSO only) (one specified handle supplied)	See page 63 to 65.	See page 69. (ordered separately)
(Photo: ACSNO with Y2 handle)								
ACSNK	**ACSSK**	Maintained: 1 to 6 decks Spring return: 1 to 3 decks	Maintained: 2 to 8 positions Spring return: 2 to 4 positions	Maintained: 45°, 90° Spring return: 45° only	Spring return from right Spring return from left Spring return two-way	Two standard keys are supplied. When the H2 key handle is required, specify H2.		
Standard Key (2 keys supplied)	H2 Handle Key (black) 							
UCSQO	**(Enclosed)**	Maintained: 1 to 6 decks Spring return: 1 to 3 decks	Maintained: 2 to 12 positions Spring return: 2 to 4 positions	Maintained: 30°, 45°, 60°, 90° Spring return: 45° only	Spring return from right Spring return from left Spring return two-way	Y2, S2, F2, P2 (one specified handle supplied)		Type CQ See page 68.
(Photo: With Y2 handle)								
UCSQM	**(Enclosed)**	Spring return: 1 to 3 decks	Spring return: 3 positions	Spring return: 45° only	Spring return two-way		C1007 C1008 C1009 C1010 C1018 C2006 C2007 C2021 See page 63 to 65.	Type CQM See page 68.

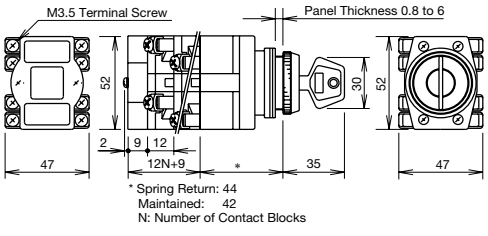
For handles and accessories, see page 60 and 61.

Dimensions

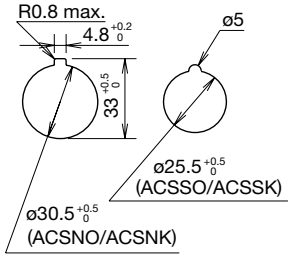
ACSNO/ACSSO



ACSNK/ACSSK

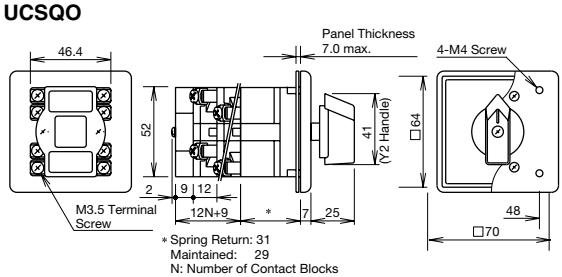


Panel Cut-out

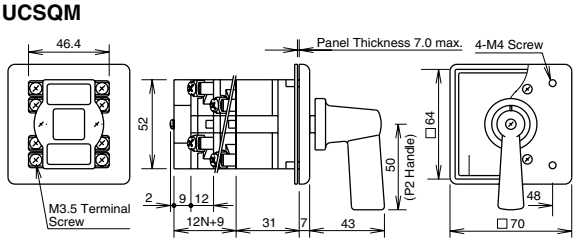


- Minimum horizontal/vertical mounting centers
  With P2 handle: 125
  With other handles: 70

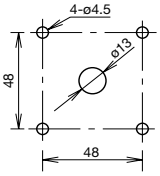
UCSQO



UCSQM



Panel Cut-out



- Minimum horizontal/vertical mounting centers
  With P2 handle: 125
  With other handles: 70

All dimensions in mm.

Ordering Information

When ordering, specify items ① through ⑦ as the designation example below.

①	②	③	④	⑤	⑥	⑦	⑧
Model	Contact Block Decks	Positions	Angle	Spring Return	Handle	Key irremovable position	Circuit No.

①	②		③		④		⑤		⑥	⑦	⑧
	Decks	Code	Positions	Code	Angle	Code	Return	Code			
ACSNO ACSNK ACSSO ACSSK UCSQO UCSQM	1 deck 2 decks 3 decks 4 decks 5 decks 6 decks	1 2 3 4 5 6	2 positions 3 positions 4 positions 5 positions 6 positions 7 positions 8 positions 9 positions 10 positions 11 positions 12 positions	2 3 4 5 6 7 8 9 10 11 12	30° 45° 60° 90°	3 4 6 9	Spring return from left Spring return from right Spring return two-way	RO OR RR	(Code) Y2, S2, P2, F2, H2, 25S2 (Color) B: Black See table below.	For ACSNK/ ACSSK, specify the code(s) of irremovable position(s) in numerical order.	For standard contact configurations, use designation code on pages 63 to 65. For custom contact configurations, use the Custom Contact Configuration Specification Sheet on page 66.
	Spring return: 1 to 3 decks only		Spring return: 2 to 4 positions only		ACSNK/ ACSSK: 45° and 90° only Spring return: 45° only		Spring return code is required only for spring return.		25S2 is for ACSSO only. Standard ACSNK/ ACSSK: no specification required		

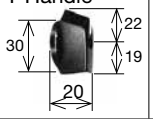
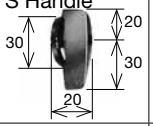
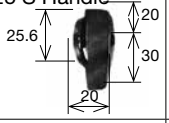
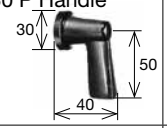
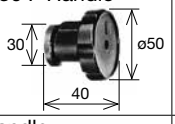
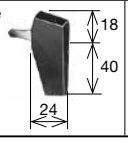
Designation Example

UCSQO - 2 3 4 RR - S2B - C2006
① ②③④ ⑤ ⑥ ⑧

ACSNO - 2 3 4 RR - Y2B - MAU-C2006-ZT2
① ②③④ ⑤ ⑥ ⑧

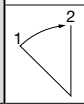
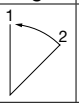
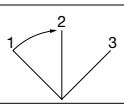
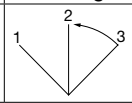
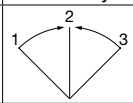
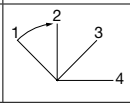
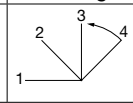
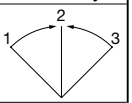
1. When a special contact configuration is required, specify the contact configuration using the Custom Contact Configuration Specification Sheet on page 66.
2. A specified handle is attached.
3. Accessories such as nameplates and jumpers are separately ordered.
4. The key of the key operated cam switch is removable at every position unless otherwise specified. The key is irremovable at return position. The return and irremovable positions must be specified in Part No. Positions at 180° from irremovable positions are also irremovable.
   Example: 4-positions, spring return from right, irremovable at positions 3 and 4
   ACSNK-344OR-134-C3012

Handle Designation Code

Shape	Code	Color	Applicable Cam Switch
ø25, ø30 Y Handle 	Y2	B: black	ACSNO ACSSO UCSQO UCSQM
ø25, ø30 S Handle 	S2		
ø25, ø25 S Handle 	25S2		ACSSO
ø25, ø30 P Handle 	P2		ACSNO ACSSO UCSQO UCSQM
ø25, ø30 F Handle 	F2		
Key Handle 	H2		ACSNK ACSSK

Spring Return Operation

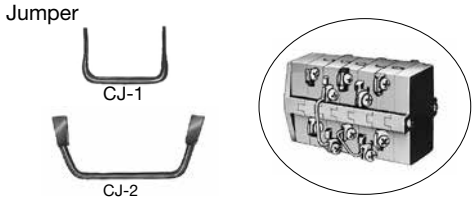
Available combinations of operator positions, angles, and return directions are listed in the table below.

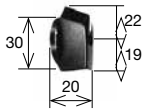
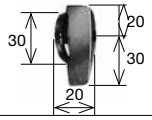
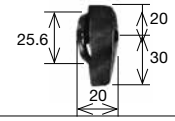
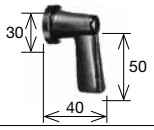
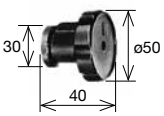
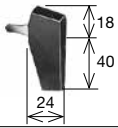
Positions	2-position		3-position			4-position		3-position
	From Left	From Right	From Left	From Right	Two-way	From Left	From Right	Two-way
Return Direction								
③ ④ ⑤ Codes	24RO	24OR	34RO	34OR	34RR	44RO	44OR	34RR
Applicable Cam Switches	ACSNO, ACSSO, ACSNK, ACSSK, UCSQO							UCSQM
Contact Block Decks	1 to 3 decks							

Note: Maintained do not require spring return code ⑤.

CS Series Accessories and Replacement Parts ø30/ø25

Accessories and Replacement Parts

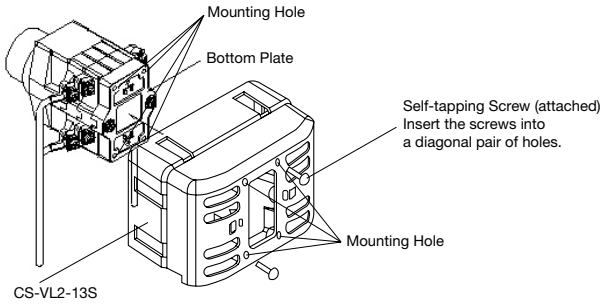
Shape	Material	Part No.	Ordering No.	Package Quantity	Remarks
Jumper 	Metal (copper)	**CJ-1**	**CJ-1PN10**	10	For connecting terminals of adjoining contact blocks
		CJ-2	**CJ-2PN10**	10	For connecting terminals of the same contact block
Rubber Boot	Nitril rubber	**CR-1**	**CR-1**	1	For preventing ingress of dust into the contact blocks Not applicable for the UCSQO and UCSQM
Terminal Cover Supplied with 2 self-tapping screws for mounting	Plastic (PPE)	**CS-VL2-13S**	**CS-VL2-13S**	1	For 1 to 3 decks of contact blocks
		CS-VL2-46S	**CS-VL2-46S**	1	For 4 to 6 decks of contact blocks

Shape	Material (Color)	Part No.	Ordering No.	Package Quantity
ø25, ø30 Y Handle 	Polybutylene terephthalate (Black)	**CSH-YB**	**CSH-YB**	1
ø25, ø30 S Handle 	Polybutylene terephthalate (Black)	**CSH-SB**	**CSH-SB**	1
ø25 S Handle 	Phenol resin (Black)	**CSH-25SB**	**CSH-25SB**	1
ø25, ø30 P Handle 	Phenol resin (Black)	**CSH-PB**	**CSH-PB**	1
ø25, ø30 F Handle 	Bakelite (Black)	**CSH-FB**	**CSH-FB**	1
Key Handle 	Phenol resin (Black)	**CSH-H2B**	**CSH-H2B**	1
Spare Keys	Metal (brass nickel-plated)	**CSH-K301**	**CSH-K301PN02**	2
Handle Shaft	Polyamide	**CS-HF2C**	**CS-HF2CPN05**	5
Handle Screw	For Y, ø30 S, and ø25 S handles M3 × 12	**CS-SCW-M3-12**	**CS-SCW-M3-12PN10**	10
Handle Screw	For P and F handles M3 × 25	**CS-SCW-M3-25**	**CS-SCW-M3-25PN10**	10

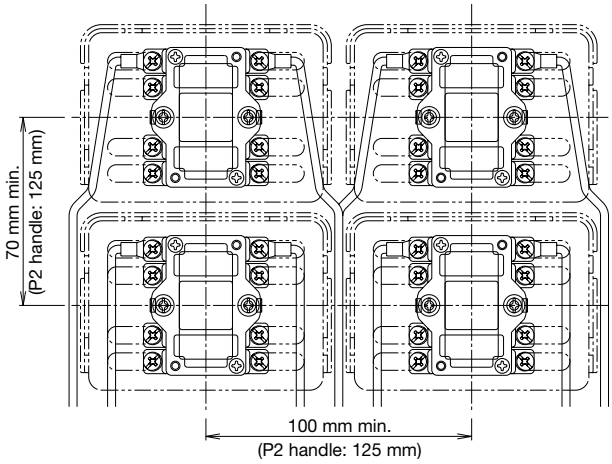
Instructions

Installing the Terminal Cover for the CS series Cam Switches

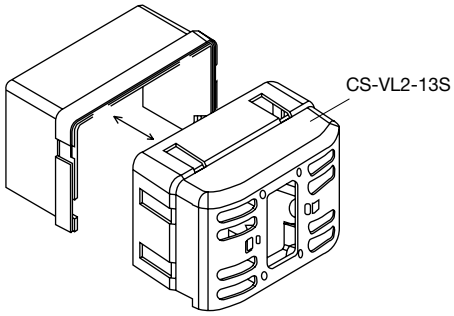
- Complete wiring before installing the terminal cover on the bottom plate of the contact block.
- The terminal cover has six holes. Of the four round holes at four corners, use two diagonal pair of holes to install the terminal cover. Either pair can be used.
- Insert the attached self-tapping screws into the pair of holes and tighten the screws to a torque of 0.8 to 1.0 N·m.
- For 1 through 3 decks of contact blocks, use terminal cover CS-VL2-13S.
- For 4 through 6 decks of contact blocks, use terminal cover CS-VL2-46S.
- The CS-VL2-46S consists of the CS-VL2-13S and a terminal cover for the fourth through sixth decks. Combine the two parts together as shown. Note that once combined, the two parts cannot be separated.



Minimum Mounting Centers for Installing the Terminal Cover

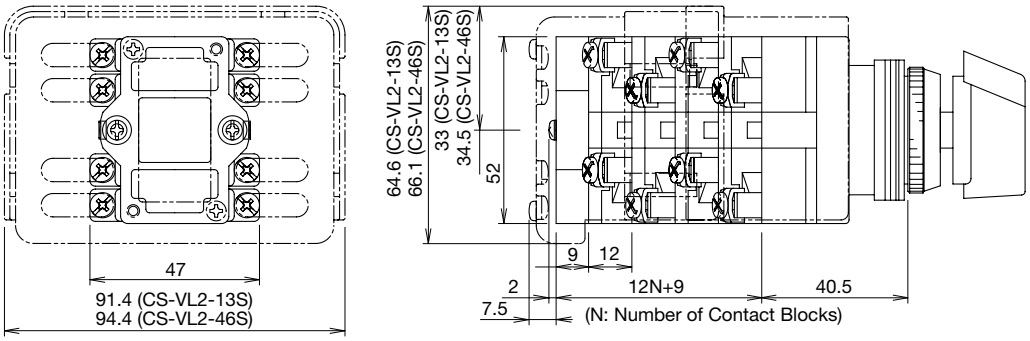


- Although the minimum mounting centers are 100 mm horizontally and 70 mm vertically, determine the mounting centers in consideration of convenience of wiring. For the P2 handle, the minimum mounting centers are 125 mm horizontally and vertically.



For 4 through 6 decks of contact blocks (CS-VL2-46S)

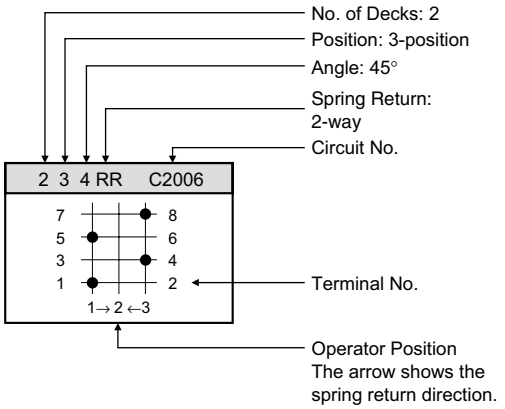
Terminal Cover Dimensions



All dimensions in mm.

Standard Contact Configurations

- The following table lists 76 standard contact configurations for easy designation of required cam switch operation.
- When other contact configurations are required, specify the number of contact block decks, operator positions, angles, and contact operation using the Custom Contact Configuration Specification Sheet on page 66.



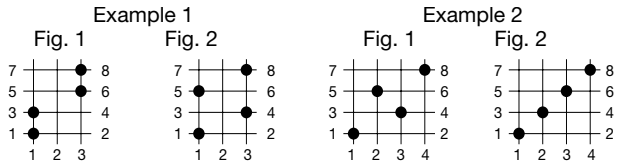
Symbol	Contact Operation
●	Contacts closed.
▬	Contacts remain closed between two operator positions.
	Overlapping Contacts Contacts of different decks are both closed at one point while the handle is turned to the next position.
	Residual Contacts When the handle is returned to the center, the contacts remain closed. The contacts are opened when the handle is turned to the opposite direction.

Listing Order of the Table

The 76 standard contact configurations are listed in the order of the circuit number.

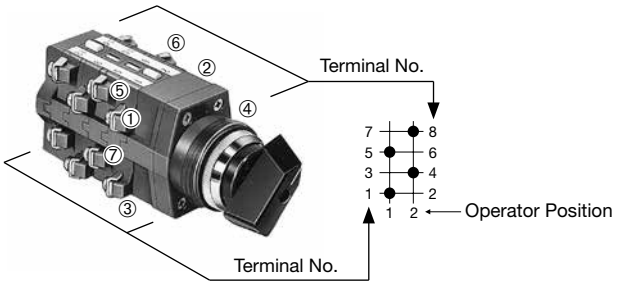
Same Circuits

Shown in the following examples, circuits of Fig. 1 and Fig. 2 have the same functions. When ordering, examine the standard contact configurations. Your requirements may be satisfied simply by changing external wiring of the standard contact configurations.

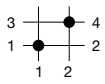
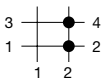
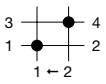
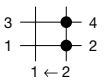
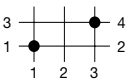


Terminal Numbers

- The terminal numbers on the contact blocks correspond with the numbers shown in the chart as shown below.



Standard Contact Configuration Chart

1 2 9 C1001	1 2 9 C1002	1 2 4 OR C1003	1 2 4 OR C1004	1 3 4 C1005
				
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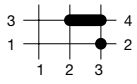	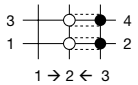	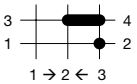	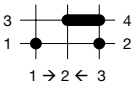	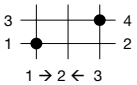
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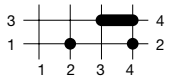	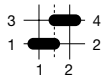	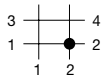	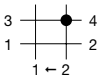	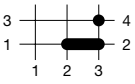
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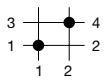	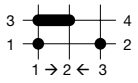	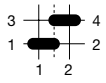		
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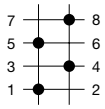	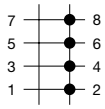	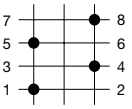	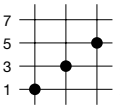	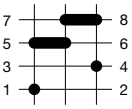

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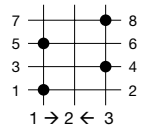	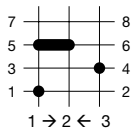	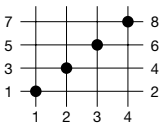	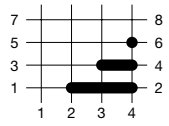	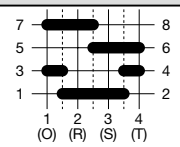
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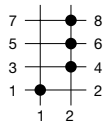	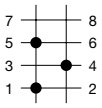	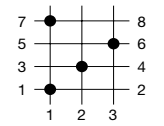	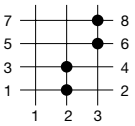	
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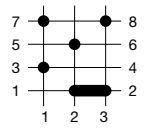	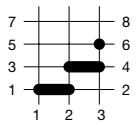	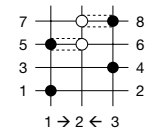	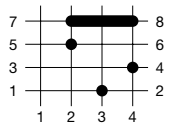	
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		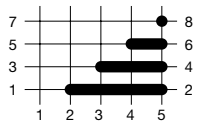	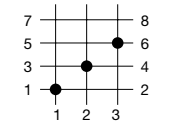	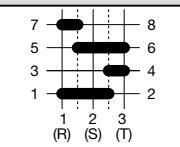
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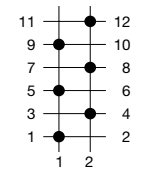	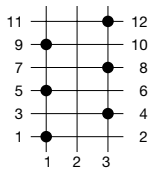	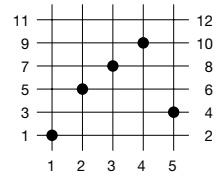	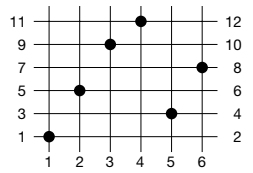	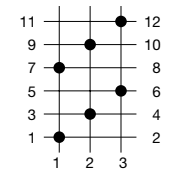
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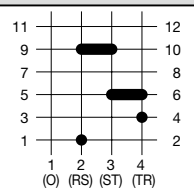	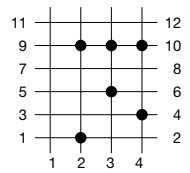	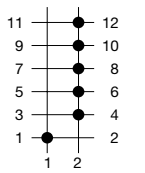	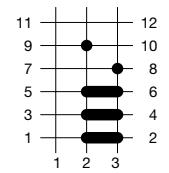	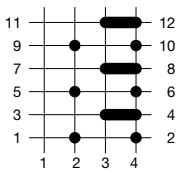
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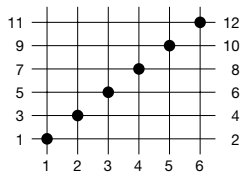
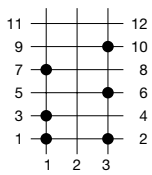
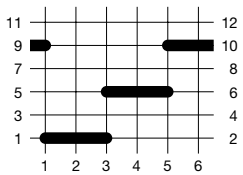
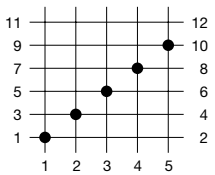
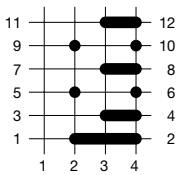
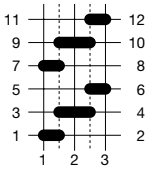
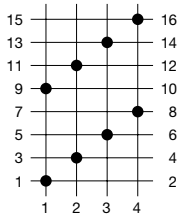
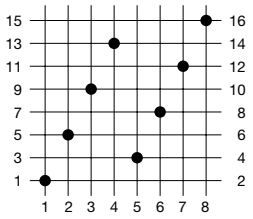
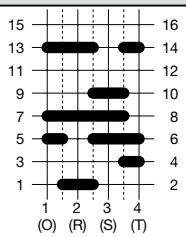
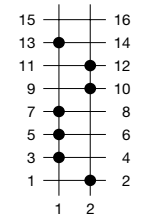
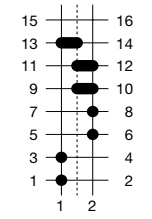
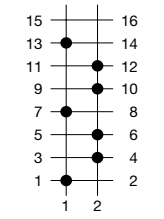
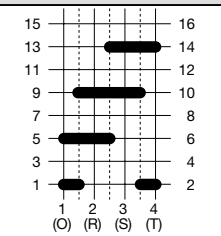
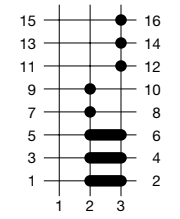
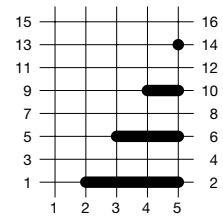
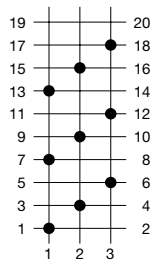
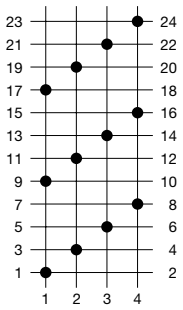
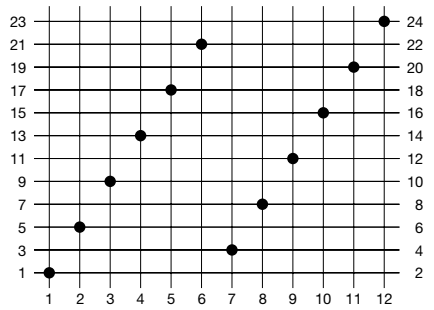
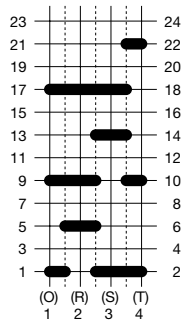
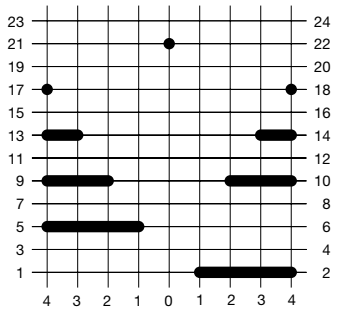
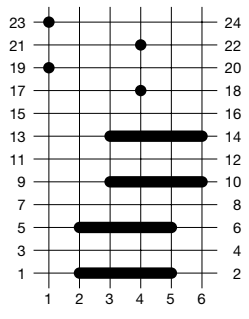
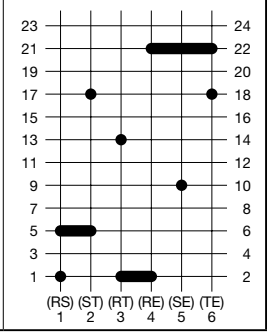
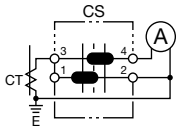
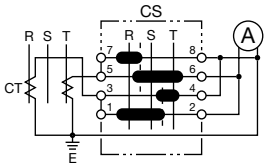
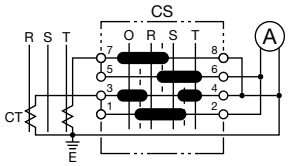
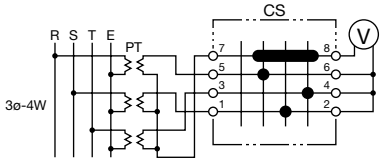
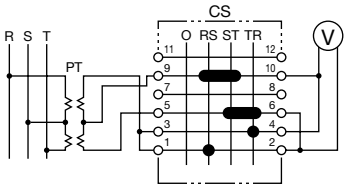
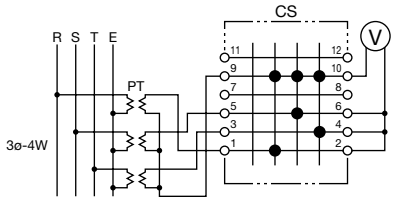
				
3 3 6 C3018		**4 4 4 C4001**	**4 8 4 C4002**	**4 4 9 C4003**
				
4 2 4 C4004	**4 2 9 C4005**	**4 2 9 C4006**	**4 4 9 C4007**	**4 3 4 C4008**
				

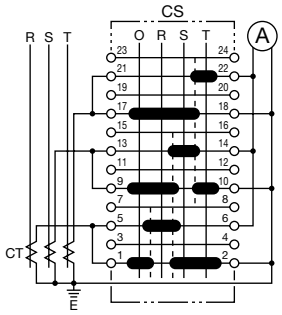
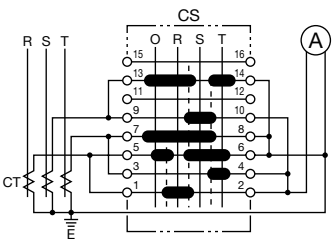
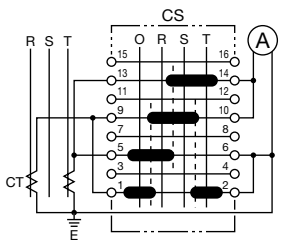
4 5 4 C4009	5 3 4 C5001	6 4 4 C6001	6 12 3 C6002
			

6 4 9 C6003	6 9 3 C6004	6 6 6 C6005	6 6 4 C6006
			

Application Examples (Voltmeter and Ammeter Circuits)

1 2 6 C1019 (ammeter switching, 1CT circuit)	2 3 6 C2029 (ammeter switching, 2CT circuit)	2 4 9 C2011 (ammeter switching, 2CT circuit)
		

2 4 4 C2022 (voltmeter switching, 3PT circuit)	3 4 9 C3008 (voltmeter switching, 2PT circuit)	3 4 9 C3009 (voltmeter switching, 3PT circuit)
		

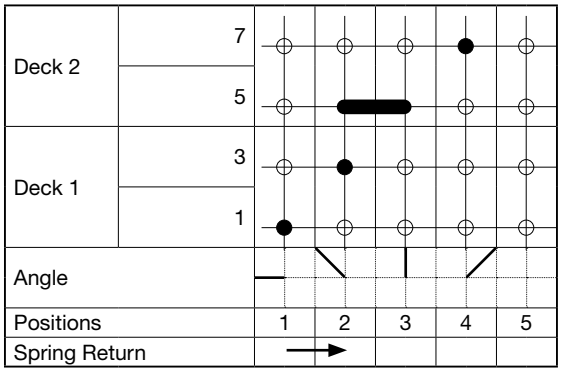
6 4 9 C6003 (ammeter switching, 3CT circuit)	4 4 9 C4003 (ammeter switching, 3CT circuit)	4 4 9 C4007 (ammeter switching, 2CT circuit)
		

Custom Contact Configurations Specification Sheet

- The preceding pages provide 76 standard contact configurations. When other contact configurations are required, specify the number of contact block decks, operator positions, angles, and contact operation using the Custom Contact Configuration Specification Sheet shown below.
- For available number of contact blocks and operator positions, see the Ordering Information on page 60.

1. Specify operator positions

Indicate the operator positions starting at the first position. When spring return operation is required, mark an arrow between two operator positions to indicate the spring return direction.



2. Specify contact operation at each operator position

Indicate the required operation of all contacts at each operator position using the following symbols.

Symbol	Contact Operation
●	Contacts closed.
▬	Contacts remain closed between two operator positions.
	Overlapping Contacts Contacts of different decks are both closed at one point while the handle is turned to the next position. Overlapping contacts are not available for handle angles of 30° and 45°.
	Residual Contacts When the handle is returned to the center, the contacts remain closed. The contacts are opened when the handle is turned to the opposite direction.

- One deck of contact block contains two poles of contacts and four terminals. When the handle is made to turn 180° or more, special attention is needed. Since one cam operates the two poles of contacts on opposite positions, the same contact operation repeats on the other pole of contacts when the handle is turned 180°. When different contact operation is needed for handle angles of 180° or more, use another deck of contact block.

CS Series Cam Switch Custom Contact Configuration Specification Sheet

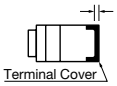
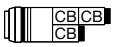
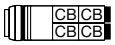
Part No.: ① Model ② Decks ③ Positions ④ Angle ⑤ Spring Return ⑥ Handle

Quantity:_____

Deck	Terminal No.	Contact Configuration Chart	Terminal No.
Deck 6	23		24
	21		22
Deck 5	19		20
	17		18
Deck 4	15		16
	13		14
Deck 3	11		12
	9		10
Deck 2	7		8
	5		6
Deck 1	3		4
	1		2
Angle			
Positions		1 2 3 4 5 6 7 8 9 10 11 12	
Spring Return			

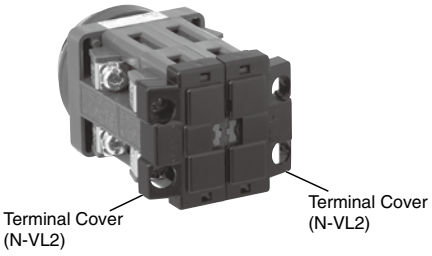
ø30 Series Accessories and Replacement Parts ø30

Terminal Covers

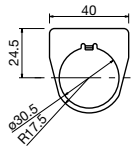
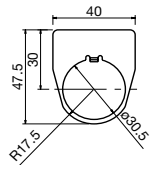
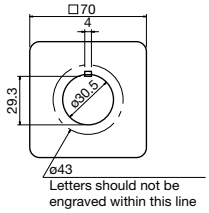
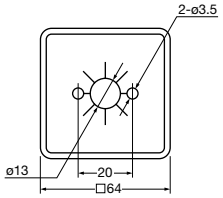
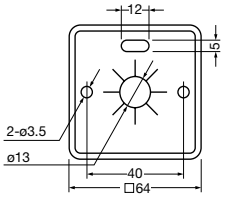
ø30 Series Switches & Pilot Lights / Terminal Cover		N-VL2 38.4H × 22W	N-VL3 38H × 30.4W	N-VL4 38.4H × 24W	APN-PVL 38H × 46W	APD-PVL 37H × 44W	Use of terminal covers increases the depth by the dimensions below. 
Pilot Light APN, APNE, UPQN, UPQNE	Full Voltage				X		+5.0 mm
Pilot Light APD, APDE						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.

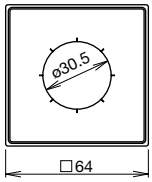
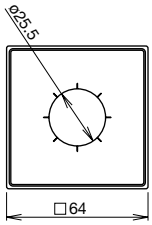


Nameplates

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

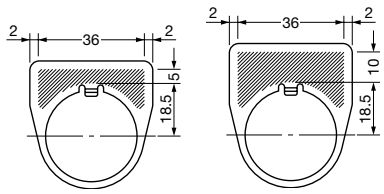
Model	Legend	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)	Applicable Unit
CQN	Blank	Aluminium 0.5 mm thick White letters on black background	**CQN-0**	**CQN-0**	1	• With adhesive tapes on the back 	ACSNO, ACSNK Cam Switches ø30 mm Selector Switches
				CQN-0PN10	10		
	With Legend (Legend 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

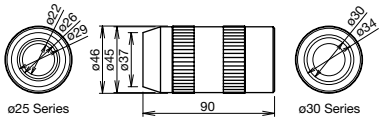
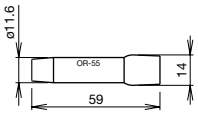
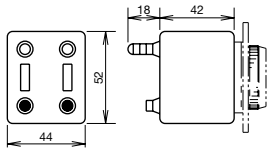
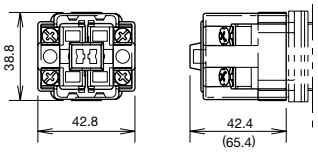
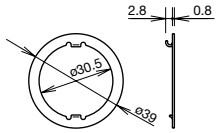
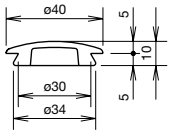
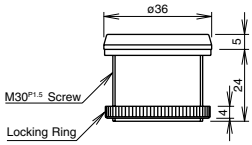
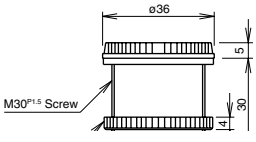
Large
Type NALO

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

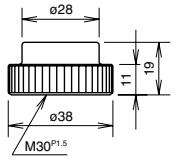
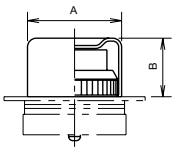
The above example is when the letter is 4 mm tall.

Accessories

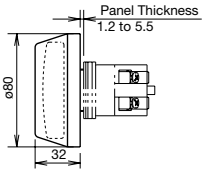
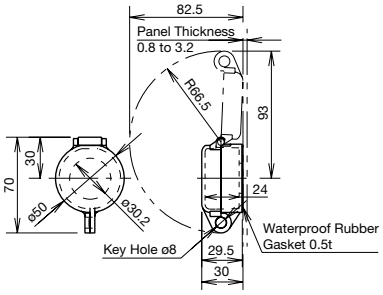
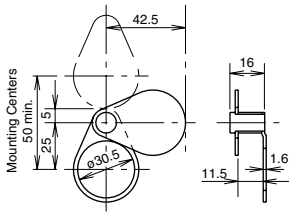
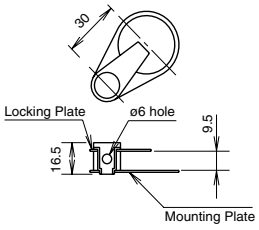
Shape	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
Locking Ring Wrench	Nitril rubber	**OR-12**	**OR-12**	1	• Used to tighten the locking ring when installing the ø30 or ø25 switch onto a panel. 
Lamp Holder Tool	Nitril rubber	**OR-55**	**OR-55**	1	• Used to install and remove the LED/incandescent lamps. See page 75. 
Contact Rubber Boot For momentary 1 layer of contact blocks (2 contact blocks)	Nitril rubber (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)	Silicone 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 (diecast) (zinc-plated)	**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	Nitril 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) Plug: ABS Gasket: Chloroprene rubber	**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	Nitril rubber	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	EPDM rubber	**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	

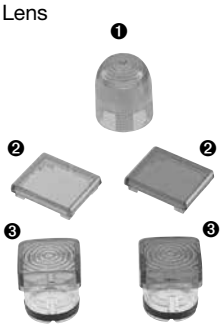
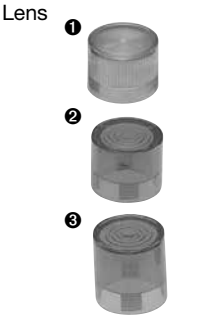
	A	B
OC-121	37	16
OC-122	37	16

Dust-proof Rubber Cover for Jumbo Mushrooms	Nitril rubber (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 brass)	**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 brass)	**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	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	Acrylic (clear)	**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	Polycarbonate (clear)	**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. • Specify a color code in place of ∗. B (black), G (green), R (red), W (white), Y (yellow)
Marking Plate	Polyacetal	**TN-0∗**	**TN-0∗PN10**	10	

Maintenance Parts

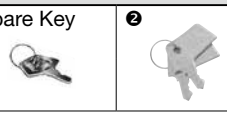
Shape	Description	Material	Part No.	Ordering No.	Package Quantity	Color	
Contact Block (BS: Dark gray)	NO contact		**BS010E**	**BS010E**	1	• Push rod color: Green • -MAU has gold contacts	
			BS010E-MAU	**BS010E-MAU**			
	NC contact		**BS001E**	**BS001E**	1	• Push rod color: Red • -MAU has gold contacts	
			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)	NO 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**			
	NC 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	AS resin	**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 (PW) 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)	AS resin	**ALN2L-②**	**ALN2L-②PN05**	5	C (clear), 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 (PW) 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	Polyacetal	**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)	Urea-formaldehyde resin	**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)	Polyacetal	**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.

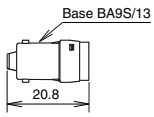
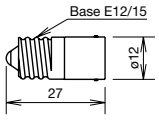
Maintenance Parts

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	Acrylic	**UPQN406N-W**	**UPQN406N-WPN05**	5	
Rubber Washer (3.0mm thick)		Synthetic soft vinyl	**OW-12**	**OW-12PN10**	10	
Rubber Washer (1.5mm thick)			**OW-11**	**OW-11PN10**	10	
Shroud	❶ Half shroud (for pushbuttons)	Metal (zinc diecast)	**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)

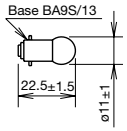
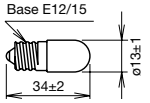
Maintenance Parts

Shape	Description	Material	Part No.	Ordering No.	Package Quantity	Remarks
Spare Key ❶ ❷ 	❶ASN3K/4K,ABN5	Metal (nickel plated brass)	**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

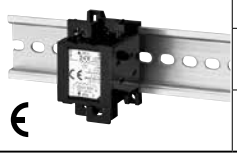
Dimensions	Operating Voltage	Current Draw AC	Current Draw DC	Part No.	Ordering No.	② Illumination Color Code	Package Quantity	Base
	6V AC/DC ±10%	8 mA	7 mA (A, R, W) 5.5 mA (G, PW, S)	**LSTD-6②**	**LSTD-6②**	A: amber G: green PW: pure white R: red S: blue W: white Use a pure white (PW) LED lamp for yellow (Y) illumination.	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) 8 mA (G, PW, S)	14 mA (A, R, W) 5.5 mA (G, PW, S)	**LETD-6②**	**LETD-6②**	A: amber G: green PW: pure white R: red S: blue W: white Use a pure white (PW) LED for yellow (Y) illumination.	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.

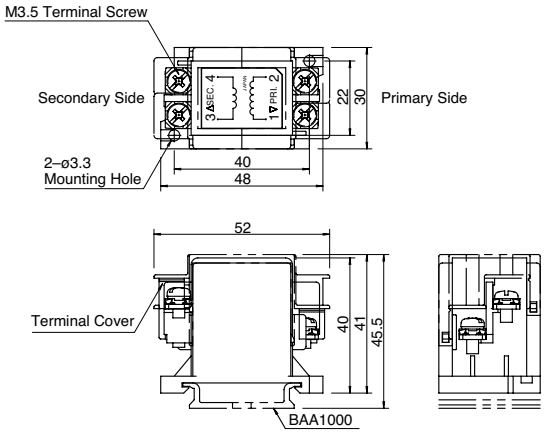
Transformer

DIN Rail Mount	Primary Voltage	Secondary Voltage	Part No.	Applicable Load
For 6V	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 18V	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**	
For 24V LED 	100/110V AC	23V	**TWR512**	One full voltage pilot light or illuminated switch containing LSTD-2②, LETD-2② LED lamp (24V AC/DC)
	200/220V AC		**TWR522**	
	400/440V AC		**TWR542**	

Specifications

Part No.	TWR5□6	TWR5□2
Operating Voltage	100/110V AC, 200/220V AC, 400/440V 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

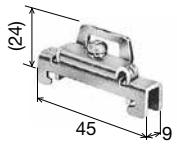


Accessories

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	

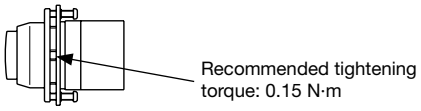
Safety Precautions

- 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.

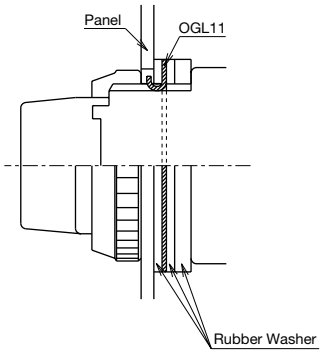
How to Install

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.

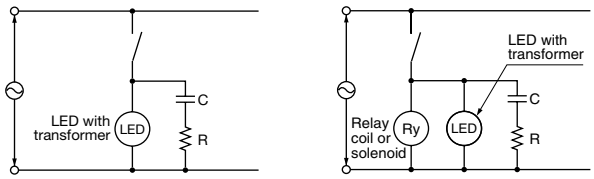
DC Power

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

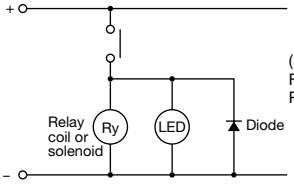
LED elements deteriorate due to extraneous noise, resulting in significant decrease in luminance, hue change, or failure of lighting. When such effects are anticipated, take a protection measure shown below, such as RC elements or a surge absorber.

[Protection Example 1] For AC circuit



(Reference values) R: 120Ω
C: 0.1 μF

[Protection Example 2] For DC circuit



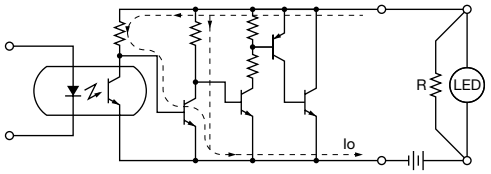
(Reference values of the diode)
Forward current: More than the Ry coil current
Reverse withstand voltage: Ry coil current ¥ 10

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

ø30 Series Diecast Zinc Switches & Pilot Lights

Heavy duty switches for tough industrial usage

- Degree of protection: IP65 (IEC 60529)
- 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. 200501030514650

Specifications and Ratings

Contact Ratings

Pushbuttons Illuminated Pushbuttons Selector Switches Illuminated Selector Switches Selector Pushbuttons	Contact Block	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)

Weight (Examples)

Weight (approx.)	135g (ABD 122N)
	71g (APD122DN)
	116g (ALD22211DN)
	125g (ASD222N)
	168g (ASD2K22N)
	147g (ALSD22222DN)
	116g (ASBD211N-A03)

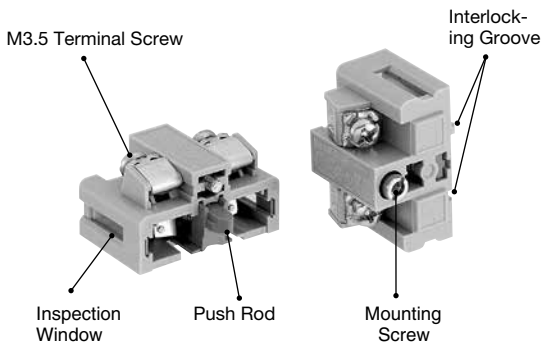
Characteristics

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)

BST Contact Block (Light Gray)



Contact Blocks

Contact		Single-pole Contact Block			
		1NO	1NC	1EM (early make)	1LB (late break)
Part No.	BST	**BST010**	**BST001**	**BST010S**	**BST001S**
Push Rod		Green	Red	Black	White

Note: BST contact blocks are not interchangeable with dark gray BS contact blocks used for ø30 switches & pilot lights.

Specifications, ratings, and mounting hole layouts are the same as ø30 switches & pilot lights.
See “ø30 Series Switches & Pilot Lights” on page 16.

Ordering Information

Standard Units

- Specify an operator or lens color code in the Part No.
- Black, green, and red colored buttons are included with flush pushbuttons.
- 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 & pilot lights other than those listed on the following pages.

ø30 Series Diecast Zinc Pushbuttons

ABD2 11 N R

- R: Button color code
- 11: Contact Configuration

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

Note:
- Mushroom pull AZD3 can have a maximum of two contact blocks.
- Mushroom push pull AYD31 can have a maximum of two contact blocks.

ø30 Series Diecast Zinc Illuminated Pushbuttons

ALDE 2 16 11 D N R

- R: Lens color code
- 11: Contact configuration

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

- 16: Operating voltage code
- E: Lamp receptacle
  - E: E12 (LETD-6② LED or 2W incandescent lamps)
  - (blank): BA9S (LSTD-6② LED or 1W incandescent lamps)

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

ø30 Series Diecast Zinc Pilot Lights

APDE 1 99 D N R

- R: Lens color code
- 99: Operating voltage code
- E: Lamp receptacle:
  - E: E12 (LETD-6② LED or 2W incandescent lamps)
  - (blank): BA9S (LSTD-6② LED or 1W incandescent lamps)

ø30 Series Diecast Zinc Selector Switch

ASD 2 L 11 N

- Contact configuration
- Operator
  - (blank): Knob
  - L: Lever
- Number of positions

ø30 Series Diecast Zinc Illuminated Selector Switch

ASLD 2 16 22 D N R

- Lens color code
- Contact configuration
- Operating voltage code
- Number of positions

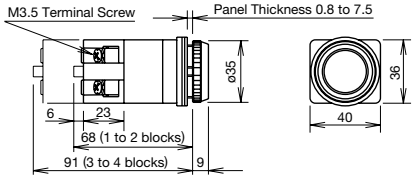
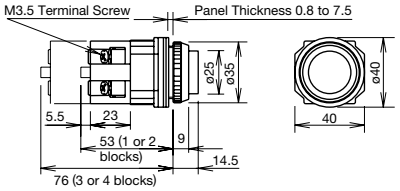
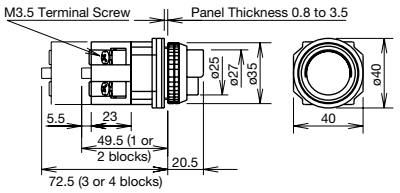
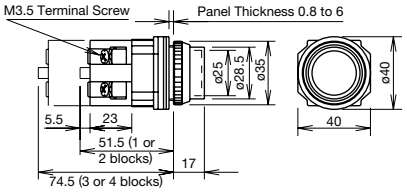
ø30 Series Diecast Zinc Key Selector Switch

ASD 2 K 20 N B

- 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 configuraion
- Number of positions

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

Flush / Extended / Extended with Half Shroud / Extended with Full Shroud

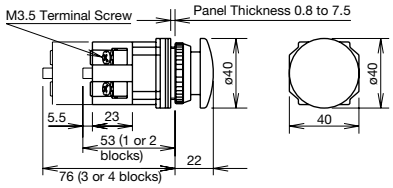
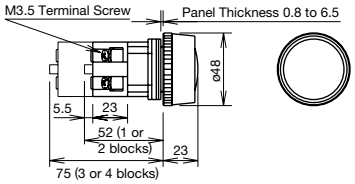
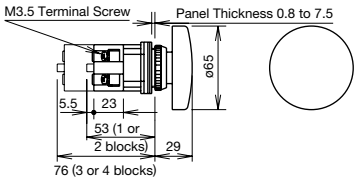
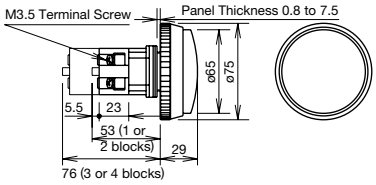
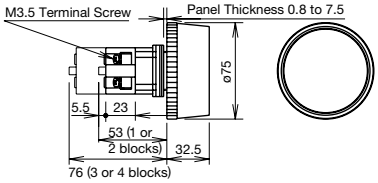
Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Flush ABD1	Momentary	1NO	**ABD110N**①	Black (B), green (G), and red (R) buttons are supplied with each unit. Specify S, Y, or W when a blue, yellow, or white button is required.	
		1NC	**ABD101N**①		
		1NO-1NC	**ABD111N**①		
		2NO	**ABD120N**①		
		2NC	**ABD102N**①		
		2NO-2NC	**ABD122N**①		
Flush AOD1	Maintained	1NO	**AOD110N**①		
		1NC	**AOD101N**①		
		1NO-1NC	**AOD111N**①		
		2NO	**AOD120N**①		
		2NC	**AOD102N**①		
		2NO-2NC	**AOD122N**①		
Extended ABD2	Momentary	1NO	**ABD210N**①		
		1NC	**ABD201N**①		
		1NO-1NC	**ABD211N**①		
		2NO	**ABD220N**①		
		2NC	**ABD202N**①		
		2NO-2NC	**ABD222N**①		
Extended AOD2	Maintained	1NO	**AOD210N**①		
		1NC	**AOD201N**①		
		1NO-1NC	**AOD211N**①		
		2NO	**AOD220N**①		
		2NC	**AOD202N**①		
		2NO-2NC	**AOD222N**①		
Extended with Half Shroud ABGD2	Momentary	1NO	**ABGD210N**①		
		1NC	**ABGD201N**①		
		1NO-1NC	**ABGD211N**①		
		2NO	**ABGD220N**①		
		2NC	**ABGD202N**①		
		2NO-2NC	**ABGD222N**①		
Extended with Half Shroud AOGD2	Maintained	1NO	**AOGD210N**①		
		1NC	**AOGD201N**①		
		1NO-1NC	**AOGD211N**①		
		2NO	**AOGD220N**①		
		2NC	**AOGD202N**①		
		2NO-2NC	**AOGD222N**①		
Extended with Full Shroud ABFD2	Momentary	1NO	**ABFD210N**①		
		1NC	**ABFD201N**①		
		1NO-1NC	**ABFD211N**①		
		2NO	**ABFD220N**①		
		2NC	**ABFD202N**①		
		2NO-2NC	**ABFD222N**①		
Extended with Full Shroud AOFD2	Maintained	1NO	**AOFD210N**①		
		1NC	**AOFD201N**①		
		1NO-1NC	**AOFD211N**①		
		2NO	**AOFD220N**①		
		2NC	**AOFD202N**①		
		2NO-2NC	**AOFD222N**①		

- Round bezel and shroud (metal): Chrome-plated
- Pushbuttons with one or three contact blocks contain a dummy block
- Other contact configurations are also available. See page 80.

Specify a button color code in place of ① in the Part No.

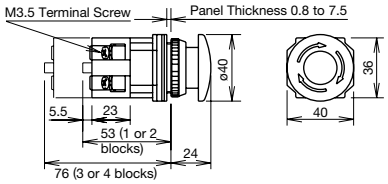
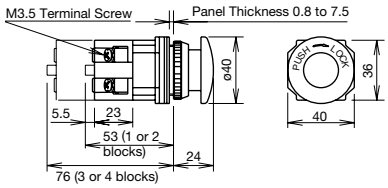
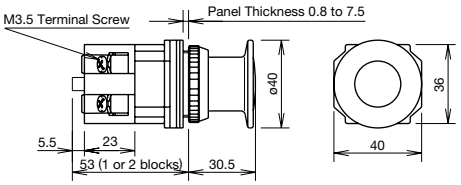
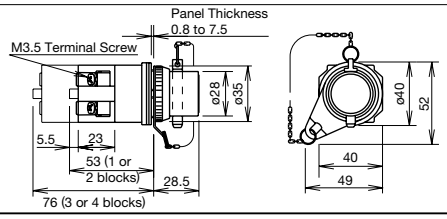
B: black
G: green
R: red
S: blue
W: white
Y: yellow

Mushroom / Jumbo Mushroom Pushbuttons

Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)
Mushroom ABD3	Momentary	1NO	**ABD310N**①	B: black G: green R: red W: white Y: yellow	
		1NC	**ABD301N**①		
		1NO-1NC	**ABD311N**①		
		2NO	**ABD320N**①		
		2NC	**ABD302N**①		
		2NO-2NC	**ABD322N**①		
Mushroom AOD3	Maintained	1NO	**AOD310N**①		
		1NC	**AOD301N**①		
		1NO-1NC	**AOD311N**①		
		2NO	**AOD320N**①		
		2NC	**AOD302N**①		
		2NO-2NC	**AOD322N**①		
Mushroom with Full Shroud ABGD3	Momentary	1NO	**ABGD310N**①		
		1NC	**ABGD301N**①		
		1NO-1NC	**ABGD311N**①		
		2NO	**ABGD320N**①		
		2NC	**ABGD302N**①		
		2NO-2NC	**ABGD322N**①		
Mushroom with Full Shroud AOGD3	Maintained	1NO	**AOGD310N**①		
		1NC	**AOGD301N**①		
		1NO-1NC	**AOGD311N**①		
		2NO	**AOGD320N**①		
		2NC	**AOGD302N**①		
		2NO-2NC	**AOGD322N**①		
Jumbo Mushroom ABD4	Momentary	1NO	**ABD410N**①		
		1NC	**ABD401N**①		
		1NO-1NC	**ABD411N**①		
		2NO	**ABD420N**①		
		2NC	**ABD402N**①		
		2NO-2NC	**ABD422N**①		
Jumbo Mushroom with Shallow Shroud ABGD4	Momentary	1NO	**ABGD410N**①	B: black DG: dark green DR: dark red G: green R: red Y: yellow	
		1NC	**ABGD401N**①		
		1NO-1NC	**ABGD411N**①		
		2NO	**ABGD420N**①		
		2NC	**ABGD402N**①		
		2NO-2NC	**ABGD422N**①		
Jumbo Mushroom with Deep Shroud ABFD4	Momentary	1NO	**ABFD410N**①		
		1NC	**ABFD401N**①		
		1NO-1NC	**ABFD411N**①		
		2NO	**ABFD420N**①		
		2NC	**ABFD402N**①		
		2NO-2NC	**ABFD422N**①		

- Specify a button color code in place of ① in the Part No.
- Round bezel and shroud (metal): Chrome-plated
- Pushbuttons with one or three contact blocks contain a dummy block
- Other contact configurations are also available. See page 80.

Pushlock Turn Reset / Push Turn Lock / Pull / Push-Pull / Pin Lock Pushbuttons

Shape	Contact	Part No.	① Button Color Code	Dimensions (mm)
Mushroom Pushlock Turn Reset AVD3	1NO	**AVD310N**①	R: red Y: yellow	
	1NC	**AVD301N**①		
	1NO-1NC	**AVD311N**①		
	2NO	**AVD320N**①		
	2NC	**AVD302N**①		
	2NO-2NC	**AVD322N**①		
Mushroom Push Turn Lock AJD3	1NO	**AJD310N**①	B: black G: green R: red Y: yellow	
	1NC	**AJD301N**①		
	1NO-1NC	**AJD311N**①		
	2NO	**AJD320N**①		
	2NC	**AJD302N**①		
	2NO-2NC	**AJD322N**①		
Mushroom Pull AZD3	1NO	**AZD310N**①		
	1NO-1NC	**AZD311N**①		
	2NO	**AZD320N**①		
	2NC	**AZD302N**①		
Mushroom Push-Pull AYD31	1NO-1NC	**AYD3111N**①	B: black G: green R: red S: blue Y: yellow	
	2NO	**AYD3120N**①		
	2NC	**AYD3102N**①		
Pin Lock ABD8P	1NO	**ABD8P10N**①		
	1NC	**ABD8P01N**①		
	1NO-1NC	**ABD8P11N**①		
	2NO	**ABD8P20N**①		
	2NC	**ABD8P02N**①		
	2NO-2NC	**ABD8P22N**①		

- Specify a button color code in place of ① in the Part No.
- Round bezel (metal): Chrome-plated
- Pushbuttons with one or three contact blocks contain a dummy block.
- Other contact configurations are also available. See page 80.
- **Pushlock Turn Reset:** Button is maintained when pressed and is reset when turned clockwise. Red buttons only.

Note: AVD3 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:** Button is locked when turned clockwise in the depressed position and is reset when turned counterclockwise.
- **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. Up to 2 contact blocks (1 layer) can be mounted on AYD31 push-pull switches.

Note: AYD31 push-pull switches cannot be used as emergency stop switches. When emergency stop switches are required, use the HN1E series emergency stop switches (ISO 13850 and IEC 60947-5-5 compliant).

- **Pin Lock:** Button can be locked in either depressed or reset position by inserting the pin. Pad lock with a ø5mm pin can also be used to lock the button.

Contact Operation

Pull Switch (Spring Return)

Contact	AZD3	
	Normal	Pull
1NO		
1NC		
1NO-1NC		
2NO		
2NC		

Push-Pull Switch (Maintained)

Contact	AYD31	
	Push	Pull
1NO-1NC		
2NO		
2NC		

Note: Pull and push-pull switches can have a maximum of two contact blocks.

APD1 / APDE1 Dome Pilot Lights

Shape	Lamp	Lamp Receptacle		Part No.	② Lens/LED Color Code	Applicable Lamp
Dome APD1 APDE1 	Without Lamp	BA9S		**APD199N②**	A: amber C: clear G: green R: red S: blue W: white DNY: yellow	See pages 17 and 18 for lamps.
		E12		**APDE199N②**		
	LED	BA9S		**APD1③DN②**	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	
		E12		**APDE1③DN②**	A: amber G: green R: red S: blue W: white Y: yellow	
	Incandescent	BA9S	Full Voltage Transformer	**APD1③N②**	A: amber C: clear G: green R: red S: blue W: white	
		E12	Full Voltage	**APDE④N②**		
			Transformer	**APD④N②**		

Operating Voltage Code

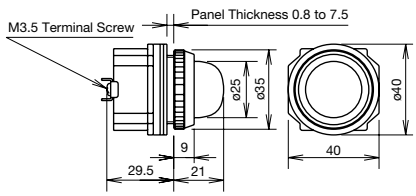
Specify an operating voltage code in place of ③ in the Part No.

③ or ④ Operating Voltage Code			Input
③ LED	③ Incandescent (BA9S)	④ 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	166: 6V AC/DC 188: 12V AC/DC 133: 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	118: 100/110V AC 1128: 120V AC 128: 200/220V AC 1248: 240V AC 1388: 380V AC 148: 400/440V AC 1488: 480V AC	Transformer

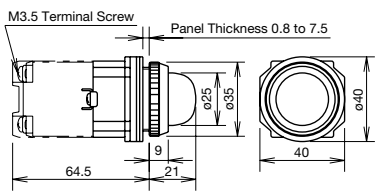
- Specify a lens/LED color code in place of ② in the Part No.
- Use a pure white (PW) LED for yellow (Y) illumination..

Dimensions

Full Voltage



Transformer



All dimensions in mm.

ALD2 / AOLD2 Round Extended Illuminated Pushbuttons

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended ALD2 AOLD2 	BA9S	Momentary	Without Lamp	1NO-1NC	**ALD29911N②**	See pages 17 and 18 for lamps.
				2NO	**ALD29920N②**	
				2NC	**ALD29902N②**	
			LED	1NO-1NC	**ALD2③11DN②**	
				2NO	**ALD2③20DN②**	
				2NC	**ALD2③02DN②**	
			Incandescent	1NO-1NC	**ALD2③11N②**	
				2NO	**ALD2③20N②**	
				2NC	**ALD2③02N②**	
		Maintained	Without Lamp	1NO-1NC	**AOLD29911N②**	
				2NO	**AOLD29920N②**	
				2NC	**AOLD29902N②**	
			LED	1NO-1NC	**AOLD2③11DN②**	
				2NO	**AOLD2③20DN②**	
				2NC	**AOLD2③02DN②**	
			Incandescent	1NO-1NC	**AOLD2③11N②**	
				2NO	**AOLD2③20N②**	
				2NC	**AOLD2③02N②**	

Color Code and Operating Voltage Code

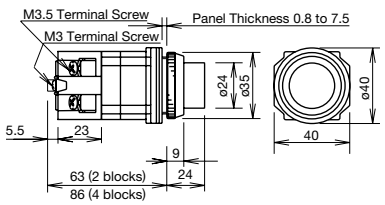
Specify a code in place of ② and ③ in the Part No.

② Lens/LED Color Code			③ Operating Voltage Code		Input
Without Lamp	LED	Incandescent	LED	Incandescent (BA9S)	
A: amber C: clear G: green R: red S: blue W: white DNY: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber C: clear 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 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	Transformer

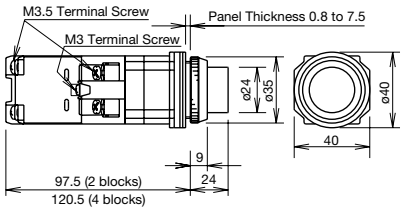
• Use a pure white (PW) LED for yellow (Y) illumination..

Dimensions

ALD2/AOLD2
Full Voltage



ALD2/AOLD2
BA9S/Transformer



All dimensions in mm.

ø30 Diecast Zinc Series Illuminated Pushbuttons ø30

ALFD2 / AOLFD2 Round Extended with Full Shroud Illuminated Pushbuttons

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
Round Extended with Full Shroud ALFD2 AOLFD2 	BA9S	Momentary	Without Lamp	1NO-1NC	**ALFD29911N②**	See pages 17 and 18 for lamps.
				2NO	**ALFD29920N②**	
				2NC	**ALFD29902N②**	
			LED	1NO-1NC	**ALFD2③11DN②**	
				2NO	**ALFD2③20DN②**	
				2NC	**ALFD2③02DN②**	
			Incandescent	1NO-1NC	**ALFD2③11N②**	
				2NO	**ALFD2③20N②**	
				2NC	**ALFD2③02N②**	
		Maintained	Without Lamp	1NO-1NC	**AOLFD29911N②**	
				2NO	**AOLFD29920N②**	
				2NC	**AOLFD29902N②**	
			LED	1NO-1NC	**AOLFD2③11DN②**	
				2NO	**AOLFD2③20DN②**	
				2NC	**AOLFD2③02DN②**	
			Incandescent	1NO-1NC	**AOLFD2③11N②**	
				2NO	**AOLFD2③20N②**	
				2NC	**AOLFD2③02N②**	

Color Code and Operating Voltage Code

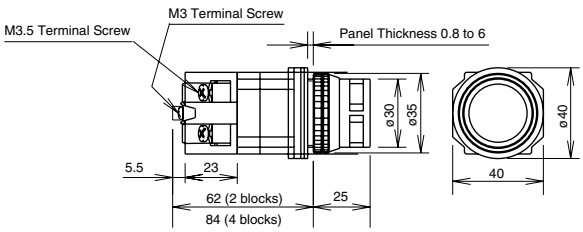
Specify a code in place of ② and ③ in the Part No.

② Lens/LED Color Code			③ Operating Voltage Code		Input
Without Lamp	LED	Incandescent	LED	Incandescent (BA9S)	
A: amber C: clear G: green R: red S: blue W: white DNY: yellow	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	A: amber C: clear 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 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	Transformer

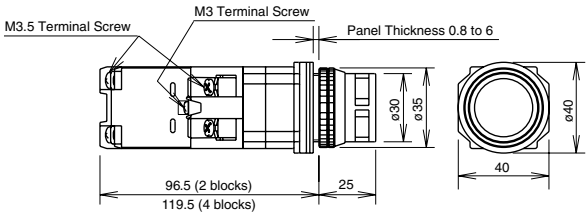
• Use a pure white (PW) LED for yellow (Y) illumination..

Dimensions

ALFD2/AOLFD2
Full Voltage



ALFD2/AOLFD2
Transformer



All dimensions in mm.

ALD3 / AOLD3 Mushroom (ø40) Illuminated Pushbuttons

Shape	Lamp Receptacle	Operation	Lamp	Contact	Part No.	Applicable Lamp
ø40 Mushroom ALD3 AOLD3 	BA9S	Momentary	Without Lamp	1NO-1NC	**ALD39911DN②**	See pages 17 and 18 for lamps.
				2NO	**ALD39920DN②**	
				2NC	**ALD39902DN②**	
			LED	1NO-1NC	**ALD3③11DN②**	
				2NO	**ALD3③20DN②**	
				2NC	**ALD3③02DN②**	
		Maintained	Without Lamp	1NO-1NC	**AOLD39911DN②**	
				2NO	**AOLD39920DN②**	
				2NC	**AOLD39902DN②**	
			LED	1NO-1NC	**AOLD3③11DN②**	
				2NO	**AOLD3③20DN②**	
				2NC	**AOLD3③02DN②**	

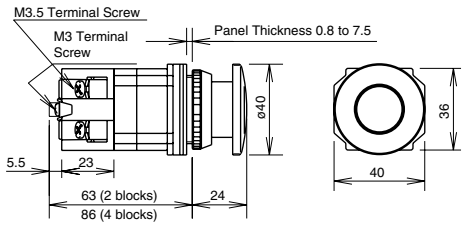
Color Code and Operating Voltage Code

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

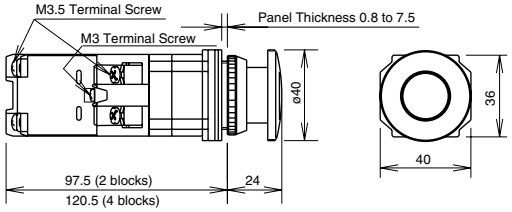
② Lens/LED Color Code	③ Operating Voltage Code	Input
A: amber G: green R: red W: white Y: yellow Use a pure white (PW) LED for yellow (Y) illumination..	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	Full Voltage
	16: 100/110V AC 126: 120V AC 26: 200/220V AC 246: 240V AC 386: 380V AC 46: 400/440V AC	Transformer

Dimensions

ALD3/AOLD3
Full Voltage



ALD3/AOLD3
Transformer



All dimensions in mm.

AVLD3/ AVLDE3 Mushroom Pushlock Turn Reset Illuminated Pushbuttons

Shape	Lamp Receptacle	Lamp	Contact	Part No.	Applicable Lamp
Mushroom Pushlock Turn Reset AVLD3 AVLDE3 	BA9S	Without Lamp	1NO-1NC	**AVLD39911NR**	See pages 17 and 18 for lamps.
			2NO	**AVLD39920NR**	
			2NC	**AVLD39902NR**	
		LED	1NO-1NC	**AVLD3③11DNR**	
			2NO	**AVLD3③20DNR**	
			2NC	**AVLD3③02DNR**	
		Incandescent	1NO-1NC	**AVLD3③11NR**	
			2NO	**AVLD3③20NR**	
			2NC	**AVLD3③02NR**	
	E12	Without Lamp	1NO-1NC	**AVLDE39911NR**	
			2NO	**AVLDE39920NR**	
			2NC	**AVLDE39902NR**	
		LED	1NO-1NC	**AVLDE3③11DNR**	
			2NO	**AVLDE3③20DNR**	
			2NC	**AVLDE3③02DNR**	
		Incandescent	1NO-1NC	**AVLD3③11NR** (Note)	
			2NO	**AVLD3③20NR** (Note)	
			2NC	**AVLD3③02NR** (Note)	

Color Code and Operating Voltage Code

Specify a code in place of ② and 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	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 28: 200/220V AC 248: 240V AC 388: 380V AC 48: 400/440V AC 488: 480V AC	Transformer

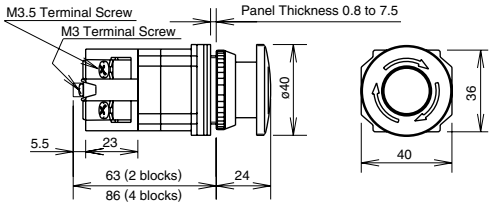
Note: When ordering 6V, 12V, 24V AC/DC units, specify "E " before the operating voltage code.
Example: AVLDE3③11NR

- Color code: R (red)
- **Pushlock Turn Reset:** Lens is maintained when pressed and is reset when turned clockwise. Red lens only.

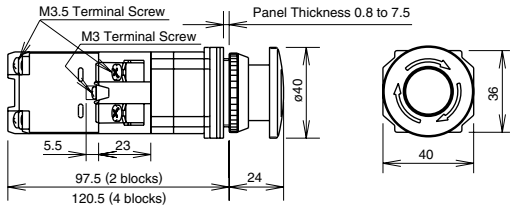
Note: AVLD3 and AVLDE3 pushlock turn reset switches cannot be used as emergency stop switches. When emergency stop switches are required, use XN or HN series emergency stop switches (ISO 13850 and IEC 60947-5-5 compliant).

Dimensions

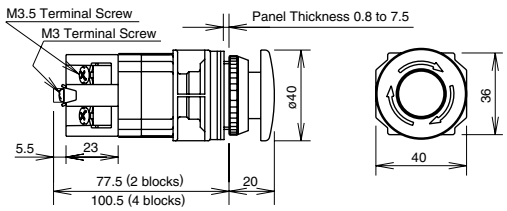
AVLD3
BA9S/Full Voltage



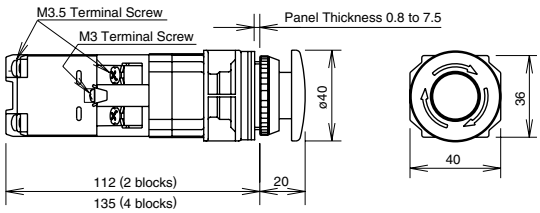
AVLD3
BA9S/Transformer



AVLDE3
E12/Full Voltage



AVLD3/AVLDE3
E12/Transformer



All dimensions in mm.

ASD Selector Switches (Knob Operator)

No. of Positions: ASD

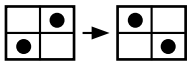
90° 2-position

Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: R	Maintained	Spring Return from Right	Spring Return from Left	
			L R	L R	L R	L R	L R	
1NO	1	NO		●	**ASD210N**	**ASD2110N**	**ASD2210N** ∗	—
	2	Dummy						
1NO-1NC	1	NO		●	**ASD211N**	**ASD2111N**	**ASD2211N** ∗	
	2	NC	●					
2NO	1	NO		●	**ASD220N**	**ASD2120N**	**ASD2220N** ∗	
	2	NO		●				
2NO-2NC	1	NO		●	**ASD222N**	**ASD2122N**	**ASD2222N** ∗	
	2	NC	●					
	3	NO		●				
	4	NC	●					

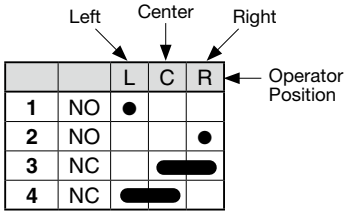
45° 3-position

Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
			L C R	L C R	L C R	L C R	L C R	L C R	L C R
2NO	1	NO	●			**ASD320N**	**ASD3120N**	**ASD3220N**	**ASD3320N**
	2	NO			●				
4NO	1	NO	●			**ASD340N**	**ASD3140N**	**ASD3240N**	**ASD3340N**
	2	NO			●				
	3	NO	●						
	4	NO			●				
2NO-2NC	1	NO	●			**ASD322N**	**ASD3122N**	**ASD3222N**	**ASD3322N**
	2	NO			●				
	3	NC		▬					
	4	NC	▬						
2NC	1	NC		▬		**ASD302N**	**ASD3102N**	**ASD3202N**	**ASD3302N**
	2	NC	▬						
4NC	1	NC		▬		**ASD304N**	**ASD3104N**	**ASD3204N**	**ASD3304N**
	2	NC	▬						
	3	NC		▬					
	4	NC	▬						

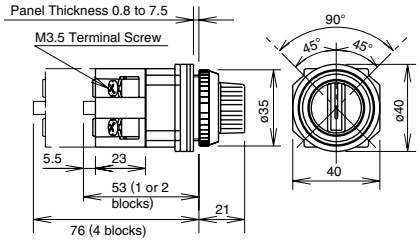
- Knob: Black
- Round bezel (metal): Chrome-plated
- Selector switches with one contact block contain a dummy block.
- On the 2-position selector switches marked with ∗ above, the contact operation is reversed as follows.

[Example] 

Contact Block Mounting Position and Contact Configuration Chart



Dimensions



All dimensions in mm.

ø30 Diecast Zinc Series Selector Switches ø30

ASD□L Selector Switches (Lever Operator)

No. of Positions

ASD□L

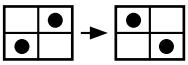
90° 2-position

Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: R	Maintained	Spring Return from Right	Spring Return from Left	
			L R	L R	L R	L R	L R	
1NO	1	NO		●	ASD2L10N	ASD21L10N	ASD22L10N ∗	—
	2	Dummy						
1NO-1NC	1	NO		●	ASD2L11N	ASD21L11N	ASD22L11N ∗	
	2	NC	●					
2NO	1	NO		●	ASD2L20N	ASD21L20N	ASD22L20N ∗	
	2	NO		●				
2NO-2NC	1	NO		●	ASD2L22N	ASD21L22N	ASD22L22N ∗	
	2	NC	●					
	3	NO		●				
	4	NC	●					

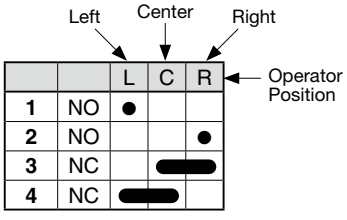
45° 3-position

Contact Configuration	Contact Block: Mounting Position	Contact Block: Contact	Operator Position: L	Operator Position: C	Operator Position: R	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
			L C R	L C R	L C R	L C R	L C R	L C R	L C R
2NO	1	NO	●			ASD3L20N	ASD31L20N	ASD32L20N	ASD33L20N
	2	NO			●				
4NO	1	NO	●			ASD3L40N	ASD31L40N	ASD32L40N	ASD33L40N
	2	NO			●				
	3	NO	●						
	4	NO			●				
2NO-2NC	1	NO	●			ASD3L22N	ASD31L22N	ASD32L22N	ASD33L22N
	2	NO			●				
	3	NC		▬					
	4	NC	▬						
2NC	1	NC		▬		ASD3L02N	ASD31L02N	ASD32L02N	ASD33L02N
	2	NC	▬						
4NC	1	NC		▬		ASD3L04N	ASD31L04N	ASD32L04N	ASD33L04N
	2	NC	▬						
	3	NC		▬					
	4	NC	▬						

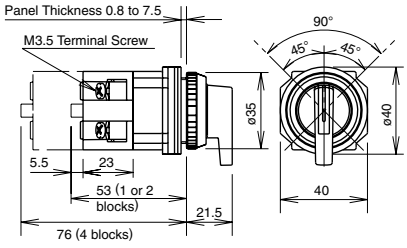
- Lever: Black
- Round bezel (metal): Chrome-plated
- Selector switches with one contact block contain a dummy block.
- On the 2-position selector switches marked with ∗ above, the contact operation is reversed as follows.

[Example] 

Contact Block Mounting Position and Contact Configuration Chart



Dimensions



All dimensions in mm.

ASD□K Key Selector Switches

No. of Positions

ASD□K

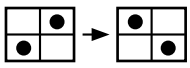
90° 2-position

Contact Configuration	Contact Block		Operator Position			Maintained	Spring Return from Right	Spring Return from Left	
	Mounting Position	Contact	L	R		L R	L R	L R	
1NO	1	NO		●		**ASD2K10N**	**ASD21K10N**	**ASD22K10N** ∗	—
	2	Dummy							
1NO-1NC	1	NO		●		**ASD2K11N**	**ASD21K11N**	**ASD22K11N** ∗	
	2	NC	●						
2NO	1	NO		●		**ASD2K20N**	**ASD21K20N**	**ASD22K20N** ∗	
	2	NO		●					
2NO-2NC	1	NO		●		**ASD2K22N**	**ASD21K22N**	**ASD22K22N** ∗	
	2	NC	●						
	3	NO		●					
	4	NC	●						

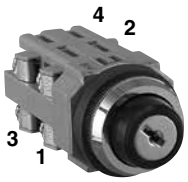
45° 3-position

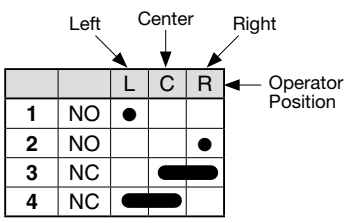
Contact Configuration	Contact Block		Operator Position			Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
	Mounting Position	Contact	L	C	R	L C R	L C R	L C R	L C R
2NO	1	NO	●			**ASD3K20N**	**ASD31K20N**	**ASD32K20N**	**ASD33K20N**
	2	NO			●				
4NO	1	NO	●			**ASD3K40N**	**ASD31K40N**	**ASD32K40N**	**ASD33K40N**
	2	NO			●				
	3	NO	●						
	4	NO			●				
2NO-2NC	1	NO	●			**ASD3K22N**	**ASD31K22N**	**ASD32K22N**	**ASD33K22N**
	2	NO			●				
	3	NC		▬					
	4	NC	▬						
2NC	1	NC		▬		**ASD3K02N**	**ASD31K02N**	**ASD32K02N**	**ASD33K02N**
	2	NC	▬						
4NC	1	NC		▬		**ASD3K04N**	**ASD31K04N**	**ASD32K04N**	**ASD33K04N**
	2	NC	▬						
	3	NC		▬					
	4	NC	▬						

- Cylinder: Black
- Round bezel (metal): Chrome-plated
- On the spring-returned, the keys can be released only from the maintained positions. On the maintained, the key can be released from every position. Key retained positions are also available. See page 81.
- Key selector switches are supplied with two standard keys.
- Key selector switches with one contact block contain a dummy block.
- On the 2-position selector switches marked with ∗ above, the contact operation is reversed as follows.

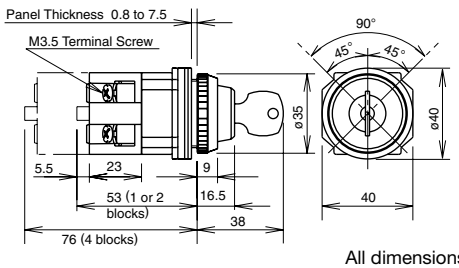
[Example] 

Contact Block Mounting Position and Contact Configuration Chart





Dimensions



All dimensions in mm.

ø30 Diecast Zinc Series Illuminated Selector Switches ø30

ASLD Illuminated Selector Switches

90° 2-position

ASLD (Base BA9S)

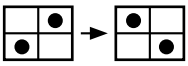
Contact Configu-ration	Contact Block		Operator Position		Lamp	Maintained	Spring Return from Right	Spring Return from Left
	Mounting Position	Contact	L	R				
1NO-1NC	1	NO		●	Without Lamp	**ASLD29911N②**	**ASLD219911N②**	**ASLD229911N② ∗**
	2	NC	●		LED	**ASLD2③11DN②**	**ASLD21③11DN②**	**ASLD22③11DN② ∗**
					Incandescent	**ASLD2③11N②**	**ASLD21③11N②**	**ASLD22③11N② ∗**
2NO	1	NO		●	Without Lamp	**ASLD29920N②**	**ASLD219920N②**	**ASLD229920N② ∗**
	2	NO		●	LED	**ASLD2③20DN②**	**ASLD21③20DN②**	**ASLD22③20DN② ∗**
					Incandescent	**ASLD2③20N②**	**ASLD21③20N②**	**ASLD22③20N② ∗**
2NO-2NC	1	NO		●	Without Lamp	**ASLD29922N②**	**ASLD219922N②**	**ASLD229922N② ∗**
	2	NC	●					
	3	NO		●	LED	**ASLD2③22DN②**	**ASLD21③22DN②**	**ASLD22③22DN② ∗**
	4	NC	●					
					Incandescent	**ASLD2③22N②**	**ASLD21③22N②**	**ASLD22③22N② ∗**

Color Code and Operating Voltage Code

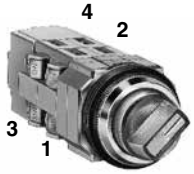
Specify a code in place of ② or ③ in the Part No.

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 (PW) LED for yellow (Y) 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] 

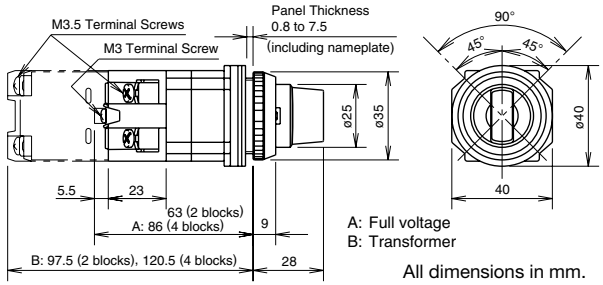
Contact Block Mounting Position and Contact Configuration Chart



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

Operator Position

Dimensions



All dimensions in mm.

ASLD Illuminated Selector Switches

45° 3-position

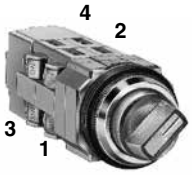
Contact Configu-ration	Contact Block		Operator Position			Lamp	Maintained	Spring Return from Right	Spring Return from left	Spring Return Two-way
	Mounting Position	Contact	L	C	R					
2NO	1	NO	●			Without Lamp	**ASLD39920N②**	**ASLD319920N②**	**ASLD329920N②**	**ASLD339920N②**
	2	NO			●	LED	**ASLD3③20DN②**	**ASLD31③20DN②**	**ASLD32③20DN②**	**ASLD33③20DN②**
						Incandescent	**ASLD3③20N②**	**ASLD31③20N②**	**ASLD32③20N②**	**ASLD33③20N②**
2NC	1	NC		▬		Without Lamp	**ASLD39902N②**	**ASLD319902N②**	**ASLD329902N②**	**ASLD339902N②**
	2	NC	▬			LED	**ASLD3③02DN②**	**ASLD31③02DN②**	**ASLD32③02DN②**	**ASLD33③02DN②**
						Incandescent	**ASLD3③02N②**	**ASLD31③02N②**	**ASLD32③02N②**	**ASLD33③02N②**
2NO-2NC	1	NO	●			Without Lamp	**ASLD39922N②**	**ASLD319922N②**	**ASLD329922N②**	**ASLD339922N②**
	2	NO			●					
	3	NC		▬		LED	**ASLD3③22DN②**	**ASLD31③22DN②**	**ASLD32③22DN②**	**ASLD33③22DN②**
	4	NC	▬							
						Incandescent	**ASLD3③22N②**	**ASLD31③22N②**	**ASLD32③22N②**	**ASLD33③22N②**
4NO	1	NO	●			Without Lamp	**ASLD39940N②**	**ASLD319940N②**	**ASLD329940N②**	**ASLD339940N②**
	2	NO			●					
	3	NO	●			LED	**ASLD3③40DN②**	**ASLD31③40DN②**	**ASLD32③40DN②**	**ASLD33③40DN②**
	4	NO			●					
						Incandescent	**ASLD3③40N②**	**ASLD31③40N②**	**ASLD32③40N②**	**ASLD33③40N②**
4NC	1	NC		▬		Without Lamp	**ASLD39904N②**	**ASLD319904N②**	**ASLD329904N②**	**ASLD339904N②**
	2	NC	▬							
	3	NC		▬		LED	**ASLD3③04DN②**	**ASLD31③04DN②**	**ASLD32③04DN②**	**ASLD33③04DN②**
	4	NC	▬							
						Incandescent	**ASLD3③04N②**	**ASLD31③04N②**	**ASLD32③04N②**	**ASLD33③04N②**

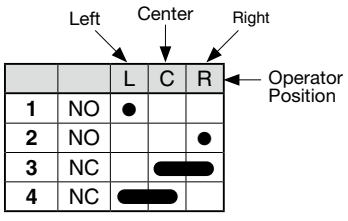
Color Code and Operating Voltage Code

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

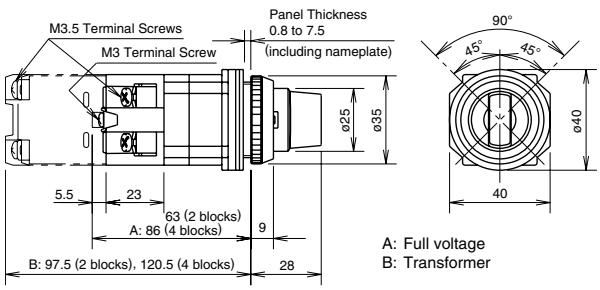
② Lens/LED Color Code		③ Operating Voltage Code		Input Type
LED	Incandescent	LED	Incandescent	
A: amber G: green R: red S: blue W: white Y: yellow Use a pure white (PW) LED for yellow (Y) illumination.	A: amber G: green R: red S: blue W: white	66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC	66: 6V AC/DC 88: 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 Configuration Chart





Dimensions



A: Full voltage
B: Transformer

All dimensions in mm.

ø30 Diecast Zinc Series Selector Pushbuttons ø30

ASBD2 Ring Operator / ASBD2L Lever Operator Selector Pushbuttons

Shape	Contact Configuration	Circuit Code	Contact Block		Ring/Lever				Ring Operator	Lever Operator	Color
					Pushbutton				Part No.	Part No.	
			Mounting Position	Contact	Normal	Push	Normal	Push			
Ring Operator (90° 2-Position) ASBD2	1NO-1NC	A03	1	NO		●		●	**ASBD211N-A03①**	**ASBD2L11N-A03①**	B: black G: green R: red Y: yellow
			2	NC	●						
		G03	1	NO		●		Blocked	**ASBD211N-G03①**	**ASBD2L11N-G03①**	
			2	NC	●		●				
	2NO-2NC	A08	1	NO		●		●	**ASBD222N-A08①**	**ASBD2L22N-A08①**	
			2	NC	●						
			3	NO		●		●			
			4	NC	●						
		C10	1	NO		●		●	**ASBD222N-C10①**	**ASBD2L22N-C10①**	
			2	NO				●			
			3	NC	●						
			4	NC	▬	▬					
Lever Operator (90° 2-Position) ASBD2L		D10	1	NO		●			**ASBD222N-D10①**	**ASBD2L22N-D10①**	
			2	NO				●			
			3	NC	●		▬	▬			
			4	NC	▬	▬	●				
		E10	1	NO		●			**ASBD222N-E10①**	**ASBD2L22N-E10①**	
			2	NO				●			
			3	NC							
			4	NC	▬	▬	▬	▬			
		F10	1	NO				●	**ASBD222N-F10①**	**ASBD2L22N-F10①**	
			2	NO		●					
			3	NC			●				
			4	NC	●						
		G10	1	NO		●		Blocked	**ASBD222N-G10①**	**ASBD2L22N-G10①**	
			2	NO		●					
			3	NC	●		●				
			4	NC	●		●				

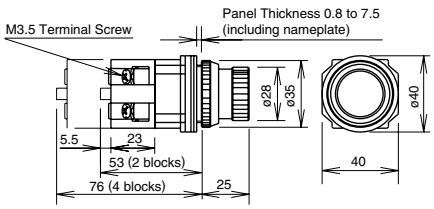
- Specify a button color code in place of ① in the Part No.
- Ring/Lever (Metal): Chrome-plated

Notes:
1. Circuit Code G: The pushbutton does not operate when the ring or lever operator is turned to the right position.
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. When using the selector pushbutton, do not turn the ring or lever operator with the pushbutton depressed. Otherwise, damage or failure may be caused.
4. When installing the lever operator, make sure that the lever is not in the horizontal position. Otherwise, shock resistance may be degraded.

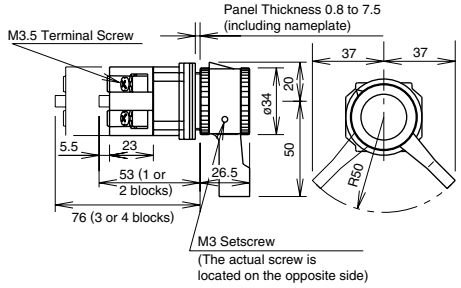
Contact Block Mounting Position

Dimensions

Ring Operator (90° 2-position) ASBD2



Lever Operator (90° 2-position) ASBD2L



ø30 ø30 Diecast Zinc Series Accessories and Replacement Parts

Accessories (For Diecast Zinc Series Only)

For other accessories, see pages 67 to 76.

Shape	Material	Part No.	Ordering No.	Package Quantity	Description
Metal Bezel Flush (Octagonal) Extended (Octagonal)	Chrome-plated	OG-81	OG-81PN02	2	• Cannot be used with half-shrouds.
		OG-82	OG-82	1	
Spare Key	Metal	TW-SK-0	TW-SK-0PN02	2	• For key selector switches

Maintenance Parts (For Diecast Zinc Series Only)

Shape	Specification		Part No.	Ordering No.	Package Quantity	Description
Button ❶Flush ❸Mushroom ❷Extended ❹Jumbo Mushroom	Polyacetal	❶	ABN1BN-①	ABN1BN-①PN05	5	Specify a color code in place of ①. B (black), G (green), R (red), S (blue), W (white), Y (yellow) • Above colors are used for ø30 diecast zinc switches & pilot lights (light colored operator units).
		❷	ABN2BN-①	ABN2BN-①PN05	5	
		❸	ABN3BN-①	ABN3BN-①PN02	2	
		❹	ABN4BN-①	ABN4BN-①	1	Specify a color code in place of ①. B (black), G (green), R (red), S (blue), Y (yellow)
Dummy Block	Polyamide		BST-D	BST-DPN10	10	• Used for 1NO or 1NC contact blocks. • Snaps on to the operator unit.
Selector Operator ❶Knob ❷Lever ❸Color Insert	Polyacetal	❶	ASNHT-①	ASNHT-①PN02	2	Specify a color code in place of ①. B (blue), G (green), R (red)
		❷	ASNHL-①	ASNHL-①PN02		
		❸	TW-HC1①	TW-HC1①PN05	5	Specify a color code in place of ①. B (black), G (green), R (red), S (blue), W (white), Y (yellow)

Safety Precautions

- Turn off the power to the ø30 diecast zinc switches & pilot lights before starting installation, removal, wiring, maintenance, and starting installation, removing, 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

Tightening Torque for Terminal Screws

Tighten the M3.5 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.

Installation of LED Illuminated Units

- When using full voltage LED illuminated units, provide protection against electrical noise, if necessary. See page 78 for notes on LED illuminated units.

OR-55

Specifications and other descriptions in this brochure are subject to change without notice.

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