ø25mm TWS Series Control Units

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Flush Silhouette

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Display Lights

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Display Units

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AS-Interface

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Sockets

Circuit Protectors

Power Supplies

PLCs & SmartRelay

Operator Interfaces

Sensors

Control Stations

Explosion Protection

Ø25 TWS Series Control Units (Selection Guide)

Function		Pushbutton				
Category	Flush	Extended	Extended with Half Shroud	Extended with Full Shroud	Mushroom	
			Momentary/Maintained			
Shape	© © @ ≙ (€ @)	©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©©	© © @ ≙ (€ @)	© ▲ (€ @)	© © @ ≙ (€ @)	
Model	ABS1 AOS1	ABS2 AOS2	ABGS2 AOGS2	ABFS2 AOFS2	ABS3 AOS3	
Page	371	371	371	371	372	

Function	Pushbutton					
Category	Mushroom with Full Shroud	Full Shroud Mushroom Pushlock M		Mushroom Push-Pull		
	Momentary/Maintained	Tulli neset	Push Turn Lock			
Shape	Set A (€ @)					
Model	ABGS3 AOGS3	AVS3	AJS3	AYS3		
Page	372	372	372	373		

Function	Pushbutton				
Cotogony	Square Flush	Square Extended	Square Twin	Square Twin	
Category	Momentary	/Maintained	Momentary	Maintained	
Shape			0.1	2 6	
	∰ ∯ ≙ (€ @)	≞ € ≙ (€ @)			
Model	UBQS1 UOQS1	UBQS2	UWQN1	UWQN2	
Page	373	373	374	374	

Function	Pilot Light (LED/Incandescent)				
Category	Dome	Square (Marking) (Plastic Bezel)	Square (Marking) (Metal Bezel)	Rectangular (Marking) (Plastic Bezel)	Dome Push-to-Check
Shape			©©©© © ⊕ ≙ € € @©	© © © ⊕ ≙ (€ @)	
Model	APS1	UPQS1B	UPQMS1B	UPQS4B	APS1*PN
Page	375	375	375	375	375

TWS Series Control Units (Selection Guide) Ø25

Function		Illuminat	ted Pushbutton (LED/Incan	ndescent)		
Category	Extended (Non-marking)	Extended with Half Shroud	Extended with Full Shroud	ø35mm Mushroom (Non-marking)	Mushroom Pushlock Turn Reset	Flush Silhouette
		(Non-marking)	(Non-marking)			Switches &
	A CONTRACTOR	and the second second	1 million		A State	Pilot Lights
Shape						Display Lights
						LED
	∰ ∰ ≙ (€ @ ®	∰ ∰ ≙ (€ @)	∰ ∰ ≙ (€ @)	∰ ∰ ≙ (€ @)	(h) Letter (h)	Illumination Units
Model	ALS2	ALGS2	ALFS2	ALS3	AVLS3	Display
	AOLS2	AOLGS2	AOLFS2	AOLS3		Units
Page	377	378	379	380	380	_
						Safety
/					Illuminated Selector	Products

Function	Illuminated Pushbutton (LED/Incandescent)		Selector Switch	Switch (LED/Incandescent)	Terminal Blocks	
Category	Square Flush (Marking)	Knob	Lever	Кеу	Knob	
	A CONTRACT		1000 million		1 million	Comm. Terminals
Shape						AS-Interface
				A REAL		Relays &
	∰ ∰ ≙ (€ @)					Timers
Model	ULQS1B UOLQS1B	ASS	ASS□L	ASS□K	ASLS	Sockets
Page	381	383	384	385	386	Circuit

Circuit Protectors

Power Supplies

PLCs & SmartRelay

Operator Interfaces

Sensors

Control Stations

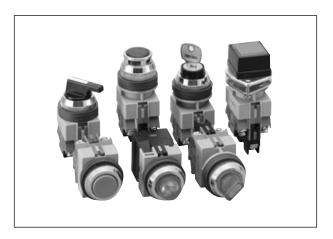
Explosion Protection

Ø25 TWS Series Control Units

Highly reliable heavy-duty control units Suitable for industrial use

- HW-C contact blocks are used.
- Degree of protection: IP65 (IEC 60529)
- UL and CSA approved, EN and CCC compliant

Applicable Standards	Mark	File No. or Organization			
UL508	UL	UL Listing File No. E68961			
CSA C22.2 No.14	S ₽°	CSA File No. LR21451			
EN60947-1	\triangle	TÜV Rheinland			
EN00947-1	CE	EU Low Voltage Directive			
GB14048.5	())	CCC No. 2007010305223156 (Pilot light: 2007010304226714)			



NC

Purple red

Red

NO (early make)

Blue

Black

NC (late break)

Purple red

White

Specifications and Ratings

Contact Ratings

	Rated Insulation Voltage	600V
Contact Block	Rated Continuous Current	10A
Contact Diock	Contact Ratings by Utilization Category	AC-15 (A600)
	IEC 60947-5-1	DC-13 (P600)

Characteristics

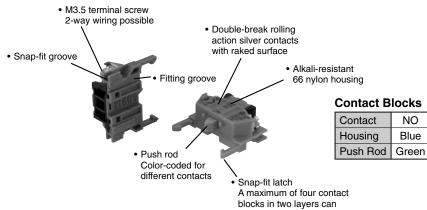
Contact Ratings by Utilization Category

Operational Voltage			24V	48V	50V	110V	220V	440V
	AC	AC-12 Control of resistive loads and solid state loads	10A	_	10A	10A	6A	2A
Operational 50/60 Hz AC-15 Control of electromagnetic loads (> 72 VA)		10A	_	7A	5A	ЗA	1A	
Current		DC-12 Control of resistive loads and solid state loads	8A	4A	_	2.2A	1.1A	—
DC DC-13 Control of electromagnets		4A	2A	—	1.1A	0.6A	—	

Minimum applicable load: 3V AC/DC, 5 mA (applicable range may vary with operating conditions and load types)

For the control units listed below, the rated current (load switching current) is reduced to a half of the rated operational current of the contact block. The rated insulation voltage (600V) and the rated thermal current (10A) remain unchanged. • Selector switches and illuminated selector switches with contact code 2R, 3S, 4S, or 4R.

HW-C (Contact Block)



mount on the operator.

Note: BS contact block is used for square twin pushbuttons UWQN1 and UWQN2.

TWS Series Control Units Ø25

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 m Ω 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 illuminated units: 2,000V 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/s ² Operating extremes: 100 m/s ²					
Mechanical Life (minimum operations)	Pushbuttons, Illuminated pushbuttonsMomentary:5,000,000Others:500,000Pushlock turn reset:250,000Selector switches:500,000Key selector switches:500,000Illuminated selector switches:500,000					
Electrical Life (minimum operations)	Pushbuttons:500,000*1Illuminated pushbuttons:500,000*1Pushlock turn reset:250,000*1Square twin maintained:500,000*2Selector switches:500,000*3Key selector switches:500,000*3Illuminated selector switches:250,000*3Others:500,000*1*1Switching frequency 1,800 operations/h, duty ratio 40%*2Switching frequency 1,200 operations/h, duty ratio 40%					
Wegiht (approx.)	72g (ABS122N) 36g (APS122DN) 97g (ALS22222DN 76g (ASS222N) 117g (ASS2K22N) 97g (ASLS22222DN)					

LED Illuminated Unit Specifications

Unit	Color Code 2 Input		Operating Voltage	LED Lamp			F	PLCs &
Unit	Color Code 2	Input	Operating Voltage	Lamp Base	Part No.	Voltage		SmartRelay
			6V AC/DC		LSTD-62	6V AC/DC ±10%		
		Full Voltage	12V AC/DC		LSTD-12	12V AC/DC ±10%		Operator
			24V AC/DC]	LSTD-22	24V AC/DC ±10%		Interfaces
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber G: green PW: pure white R: red S: blue W: white Y: yellow	Transformer	100/110V AC/DC 115V AC/DC 120V AC/DC 200/220V AC/DC	BA9S/13	LSTD-62	6V AC/DC ±10%	C	Sensors Control Stations
			240V AC/DC 380V AC/DC 400/440V AC/DC (50/60 Hz)				E	Explosion Protection
		DC-DC Converter	110V DC		LSTD-62	6V AC/DC ±10%		

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

Incandescent Illuminated Unit Specifications

Unit	Oslar Osda @	lanut	Operating Valtage	Incandescent Lamp			
Unit	Color Code 2	Input	Operating Voltage	Lamp Base	Part No.	Rating	
			6V AC/DC		LS-6	1W (6.3V)	
		Full Voltage	12V AC/DC	BA9S/13	LS-8	1W (18V)	
			24V AC/DC		LS-3	1W (30V)	
Pilot Light Illuminated Pushbutton Illuminated Selector Switch	A: amber C: clear G: green R: red S: blue W: white	Transformer	100/110V AC/DC 115V AC/DC 200/220V AC/DC 230V AC/DC 240V AC/DC 380V AC/DC 400/440V AC/DC 480V AC/DC (50/60 Hz)	BA9S/13	LS-6	1W (6.3V)	

Switches & Pilot Lights

Flush Silhouette

Illumination Units

Display Units

Safety Products

Terminal Blocks

Comm. Terminals

AS-Interface

Relays & Timers

Sockets

Circuit Protectors

Power Supplies

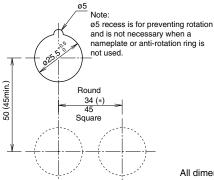
LED Lamp Ratings (LSTD)

Part No.		LSTD-6 [®]	LSTD-12	LSTD-22			
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%			
Al	С	8 mA	11 mA	11 mA			
Current Draw	С	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 (bl	ue), W (white)				
Lamp Base Color	r	Same as illumination color					
Voltage Marking		Die stamped on the base					
Life (reference va	alue)	Approx. 50,000 hours (The luminance is reduced to 5	50% the initial intensity whe	n used on complete DC.)			
Internal Circuit			LED Chi Protectic Constraints LED Chi Protectic Constraints Constraints LED Chi Protectic Constraints Constraint	on Diode iode			

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	Die stamped on the base					
Life (reference value)	Approx. 1,000 hours minimum (mean value when used on the rated voltage)						

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 are mounted, determine the minimum mounting centers in consideration of convenience for wiring.
 - ø35mm mushroom: 35 mm minimum
 - Mushroom with shroud: 42 mm minimum
 - 2-position, 3-position lever selector switch: 42 mm minimum
 - 4-position, 5-position lever selector switch: 50 mm minimum

All dimensions in mm.

Degree of Protection

Part No.	Unit	NEMA ICS 6-110	IEC 60529
A	Pushbuttons, pilot lights, illuminated pushbutons, and selector switches	Type 1, 2, 3, 3R, 4, 5, 12,13	IP65
A****	Illuminated selector switches and key selector switches	Type 1, 2, 3R, 5, 12, 13	IP54
U ****	Square pushbuttons, square pilot lights, and square illuminated pushbuttons	Type 1, 2	IP40

TWS Series Control Units (Ordering Information) Ø25

Ordering Information

Standard Units

pages.

Note:

Pilot Lights

APS1 116 D N R

Pushbuttons

ABS1 11 N R

- Specify an operator or lens color code in the Part No.
- Full voltage illuminated units are not supplied with a lamp. Order LED or incandescent lamps separately. Transformer and DC-DC converter illuminated units contain an LED or incandescent lamp.
- All standard units are UL, CSA, EN, and TÜV approved (except DC-DC converter).
- Terminal covers, nameplates, and accessories are ordered separately.

Button color code

10: 1NO

02: 2NC

40: 4NO

30: 3NO

• Push-pull AYS3 can have a maximum of two contact blocks.

Lens color code

(blank): Incandescent

Operating voltage code

-Lamp

D:

11: 1NO-1NC

13: 1NO-3NC

12: 1NO-2NC

Contact arrangement code

01: 1NC

20: 2NO

04: 4NC

03: 3NC

LED (Transformer only)

22: 2NO-2NC

31: 3NO-1NC

21: 2NO-1NC

Terminal Cover

• When a terminal cover is required, order an applicable terminal cover referring to page 391.

Display Lights

Switches &

Pilot Lights

Flush Silhouette

LED Illumination Units

Display Units

Safety Products

Terminal

Blocks

Comm. Terminals

AS-Interface

Timers

Relays &

Sockets

Circuit Protectors

Power Supplies

PLCs & SmartRelay

Operator Interfaces

Sensors

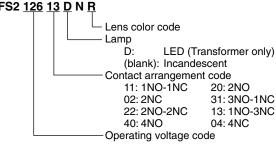
Control Stations

Explosion Protection

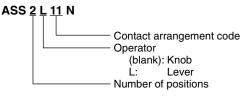
References



The Part No. development charts shown below can be used to specify control units other than those listed on the following



Selector Switch



Note:

• See pages 388 to 390 for contact arrangement codes.

Key Selector Switch

ASS <u>2</u> K <u>20</u> N <u>B</u>

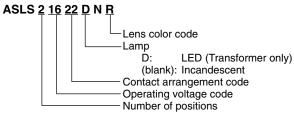
 Key removable position code 2-position Maintained (blank): Removable in all positions B: Removable in left only C: Removable in right only Spring return from right (blank): Removable in left only Spring return from left (blank): Removable in right only Spring return from left (blank): Removable in right only
 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 left only H: Removable in left only H: Removable in left and center D: Removable in right and left G: Removable in left only Spring return from right (blank): Removable in center only G: Removable in center only G: Removable in left only Spring return from left (blank): Removable in left and center D: Removable in left only Spring return from left (blank): Removable in right and center D: Removable in right only Spring return two-way (blank): Removable in center only H: Removable in center only H: Removable in center only M: Removable in center only Contact arrangement code

Note:

• See page 388 to 390 for contact arrangement codes.

• The key cannot be removed in the return position.

Illuminated Selector Switch



Note:

• See pages 388 to 390 for contact arrangement codes.

Flush Silhouette

TWS Series Pushbuttons Ø25

Flush / Extended Pushbuttons

					Package Quantity: 1	Silhouette
Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)	Switches & Pilot Lights
Flush		1NO	ABS110N1			
ABS1 AOS1		1NC	ABS101N1		M3.5 Terminal Screw Panel Thickness 0.8 to 6	Display Lights
AUGT	Momentary	1NO-1NC	ABS111N1	Black (B), green (G), and red (R)		
1 Aller	Womenary	2NO	ABS120N1	buttons are sup-		LED
ALL MAR		2NC	ABS102N1	plied with each		Illumination Units
Notes Contraction		2NO-2NC	ABS122N1	unit as standard.	41.5 (1 or 9 30	
		1NO	AOS110N1	One to O W or	41.5 (1 or 9 2 blocks) 10.3	Display Units
		1NC	AOS101N1	Specify S, W, or Y when a blue,	61.5 (3 or 4 blocks)	Units
	Maintained	1NO-1NC	AOS111N1	white, or yellow		Safety
		2NO	AOS120N1	button is required.	Note: The depth behind the panel of the	Products
∰ ∰ ≙ (€ @)		2NC	AOS102N①		maintained unit is 1.5mm longer than the	
		2NO-2NC	AOS122N1		momentary unit.	Terminal
Extended ABS2		1NO	ABS210N①		M0.5 Torminol	Blocks
ABS2 AOS2		1NC	ABS201N①		M3.5 Terminal Screw	Comm.
	Momentary	1NO-1NC	ABS211N1			Terminals
A State of the second s		2NO	ABS220N①			
13		2NC	ABS202N①			AS-Interface
		2NO-2NC	ABS222N①		41.5 (1 or 9 - 30 -	
	Maintained	1NO	AOS210N①	-	² blocks) 16.3 61.5 (3 or 4 blocks)	Relays &
\$ € € € € € €		1NC 1NO-1NC	AOS201N①			Timers
		2NO	AOS211N1			
		2NC	AOS220N1		Note: The depth behind the panel of the	Sockets
		2NO-2NC	AOS202N1 AOS222N1		maintained unit is 1.5mm longer than the momentary unit.	
Extended with Half Shroud		1NO	ABGS210N①	Specify a button color code in place of ① in the Part No. B: black G: green		Circuit
ABGS2		1NC	ABGS201N①		M3.5 Terminal	Protectors
AOGS2		1NO-1NC	ABGS211N ^①		Screw Panel Thickness 0.8 to 4 (Maintained 0.8 to 6)	
	Momentary	2NO	ABGS220N1			Power
A CONTRACT		2NC	ABGS202N1			Supplies
		2NO-2NC	ABGS222N1			PLCs &
		1NO	AOGS210N1		40 (1 or > 30 or > 33 or > 34	SmartRelay
		1NC	AOGS201N①	R: red	60 (3 or 4 blocks)	
		1NO-1NC	AOGS211N1	S: blue		Operator
	Maintained	2NO	AOGS220N①	W: white Y: yellow		Interfaces
∰ ∰ ≙ (€ @)		2NC	AOGS202N①		Note: The depth behind the panel of the maintained unit is 1.5mm longer than the	
		2NO-2NC	AOGS222N1		momentary unit.	Sensors
Extended with Full Shroud		1NO	ABFS210N1			
ABFS2		1NC	ABFS201N ^①		M3.5 Terminal Screw Panel Thickness 0.8 to 6	Control
AOFS2	Momentary	1NO-1NC	ABFS211N ^①			Stations
	womentary	2NO	ABFS220N ^①			Explosion
		2NC	ABFS202N①			Protection
		2NO-2NC	ABFS222N1			
		1NO	AOFS210N①		2 blocks) 17 Ø34	References
		1NC	AOFS201N①		62 (3 or 4 blocks)	
	Maintained	1NO-1NC	AOFS211N1			
		2NO	AOFS220N1		Note: The depth behind the panel of the	
				1		
∰ ∰ 		2NC 2NO-2NC	AOFS202N① AOFS222N①		maintained unit is 1.5mm longer than the momentary unit.	

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 arrangements are also available. See page 369.

Mushroom / Pushlock Turn Reset / Push Turn Lock Pushbuttons

					Package Quantity: 1		
Shape	Operation	Contact	Part No.	① Button Color Code	Dimensions (mm)		
Mushroom		1NO	ABS310N1				
ABS3		1NC	ABS301N1		M3.5 Terminal ScrewPanel Thickness 0.8 to 6		
AOS3	Momentery	1NO-1NC	ABS311N ^①				
	Momentary	2NO	ABS320N1				
		2NC	ABS302N1				
		2NO-2NC	ABS322N1		41.5 (1 or 9 30		
		1NO	AOS310N1		2 blocks) 25		
		1NC	AOS301N1	Specify a button	61.5 (3 or 4 blocks)		
	Maintained	1NO-1NC	AOS311N1	color code in			
	Maintaineu	2NO	AOS320N1	place of ① in the	Note: The depth behind the panel of the		
∰ ∰ ≙ (€ @)		2NC	AOS302N1	Part No.	maintained unit is 1.5mm longer than the		
		2NO-2NC	AOS322N1	B: black	momentary unit.		
Mushroom with Full Shroud		1NO	ABGS310N①	G: green			
ABGS3 AOGS3		1NC	ABGS301N①	R: red	M3.5 Terminal Screw Panel Thickness 0.8 to 6		
ACCOS	Momentary	1NO-1NC	ABGS311N①	S: blue W: white Y: yellow			
1- States		2NO	ABGS320N1				
		2NC	ABGS302N①				
		2NO-2NC	ABGS322N1		41.5 (1 or 18.5 30		
		1NO	AOGS310N①		2 blocks) 25 61.5 (3 or 4 blocks)		
		1NC	AOGS301N①				
	Maintained	1NO-1NC	AOGS311N1				
		2NO	AOGS320N①		Note: The depth behind the panel of the maintained unit is 1.5mm longer than the momentary unit.		
∰ ∰ ≙ (€ @		2NC	AOGS302N①				
Pushlock Turn Reset		2NO-2NC	AOGS322N①				
AVS3		1NO	AVS310N①		M3.5 Terminal Screw Panel Thickness 0.8 to 6		
A SHA		1NC	AVS301N1				
3 Com		1NO-1NC	AVS311N①	R: red			
		2NO	AVS320N1	Y: yellow			
		2NC	AVS302N1		$\begin{array}{ c c c c c } \hline & & & & & & & \\ \hline & & & & & & \\ \hline & & & &$		
		2NO-2NC	AVS322N1		63 (3 or 4 blocks)		
Push Turn Lock AJS3		1NO	AJS310N1		M3.5 Terminal Screw II _ Panel Thickness 0.8 to 6		
1000		1NC	AJS301N1	D. block			
: Con		1NO-1NC	AJS311N1	B: black G: green			
		2NO	AJS320N①	R: red Y: yellow			
		2NC	AJS302N①		43 (1 or 2 9 blocks) 25		
∰ ∰ ≙ (€ @		2NO-2NC	AJS322N1)		€63 (3 or 4 blocks)		

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

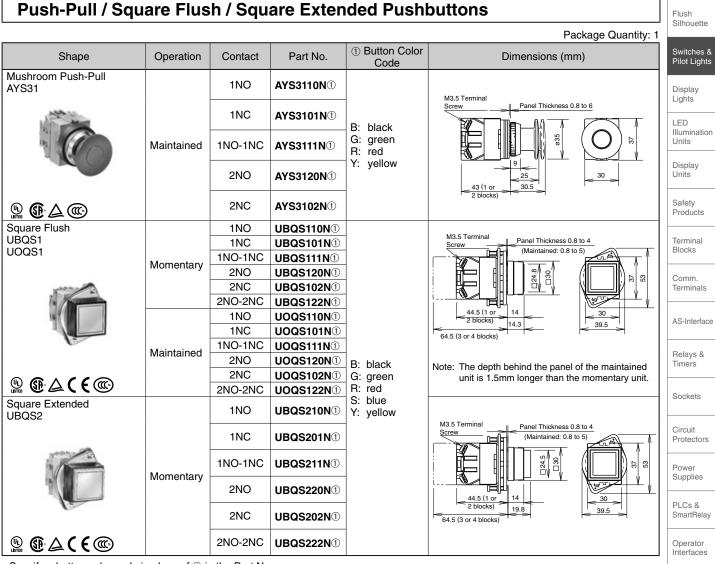
• Round bezel (metal): Chrome-plated

• Pushbuttons with one or three contact blocks contain a dummy block.

Pushibitions with one of three contact blocks contain a durinity block.
Other contact arrangements are also available. See page 369.
Pushlock Turn Reset: Button is maintained when pressed and is reset when turned clockwise.
Note: AVS3 and AJS3 cannot be used as emergency stop switches. When emergency stop switches are required, use HW series emergency stop switches with HW9Z-A25 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.

TWS Series Pushbuttons Ø25



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

Round bezel (metal): Chrome-plated

Square bezel (plastic): Black

Pushbuttons with one or three contact blocks contain a dummy block.

• Other contact arrangements are also available. See page 369.

• Push-Pull: Button is maintained in both depressed and reset positions. Up to 2 contact blocks (1 layer) can be mounted on AYS31 pushpull switches.

Note: AYS31 cannot be used as emergency stop switches. When emergency stop switches are required, use HW series emergency stop switches with HW9Z-A25 ring adapter (ISO 13850 and IEC 60947-5-5 compliant).

Contact Statuses of Push-Pull Switch

Contact	AYS31					
Contact	Ρι	ısh	Pull			
1NO	σ	5	<u> </u>			
1NC	•	∟●	●⊥●			
1NO-1NC	0'0	<u>•</u> _•	-0	●⊥●		
2NO	0'0	σ'σ	0-10	40		
2NC	<u>•</u> •	●⊥●		<u>•</u>		

Note: Push-pull switch can have a maximum of two contact blocks.

Panel Mounting of Square Pushbuttons

- 1. Tighten the square bezel to the operator and position the ring correctly.
- 2. Lightly tighten the screw to secure the pushbutton onto the panel.



 Tighten the screw lightly so that this plate does not bend.

Recommended tightening torque: 0.15 N·m

Sensors

Control

Stations

Explosion

Protection

Square Twin Pushbuttons

					Package Quantity: 1			
Shape	Contact		Part No.	Button Color	Dimensions (mm)			
Square Twin (Momentary)	ON	OFF		-	M3.5 Terminal ScrewPanel Thickness 0.8 to 13			
SWGITT -	1NO	1NO	UWQN11010					
	1NO	1NC	UWQN11001	ON: Black OFF: Red			01 OFF Bed	
	2NO	2NC	UWQN12002		70 (3 or 4 blocks)			
Square Twin (Maintained) UWQN2	11	10	UWQN21000		M3.5 Terminal ScrewPanel Thickness 0.8 to 13			
	-		UWQN20100	ON: Black OFF: Red				
C. OF			UWQN21100					
	21	2NO			6 23 47 (1 block) 70 (2 blocks) 15.5			
	2NC		UWQN20200					

• 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. With the ø30 adapter removed from the sleeve, the unit can mount in a ø25.5mm mounting hole for the ø25 series.

Flush Silhouette

TWS Series Pilot Lights Ø25

Dome / Square / Rectangular (Marking) Pilot Lights

			Package Quantity: 1	
Shape	Lamp	Part No.	②Lens/LED Color Code	Switches & Pilot Lights
Dome APS1	Without Lamp	APS1992	NA: amber, NC: clear, NG: green, NR: red, NS: blue, NW: white, DNY: yellow	Display Lights
6	LED	APS13DN2	A: amber, G: green, PW: pure white, R: red, S: blue, W: white, Y: yellow	LED
® @ △ ((@	Incandescent	APS13N2	A: amber, C: clear, G: green, R: red, S: blue, W: white	Illumination Units
Square (Marking) UPQS1B (Plastic Bezel)	Without Lamp	UPQS1B992	NA: amber, NG: green, NR: red, NS: blue, NW: white, DNY: yellow	Display Units
	LED	UPQS1B3DN2	A: amber, G: green, PW: pure white, R: red, S: blue, W: white, Y: yellow	Safety Products
® @ ((((()	Incandescent	UPQS1B3N2	A: amber, G: green, R: red, S: blue, W: white	Terminal Blocks
Square (Marking) UPQMS1B (Metal Bezel)	Without Lamp	UPQMS1B992	NA: amber, NG: green, NR: red, NS: blue, NW: white, DNY: yellow	Comm.
	LED	UPQMS1B3DN2	A: amber, G: green, PW: pure white, R: red, S: blue, W: white, Y: yellow	Terminals
∰ @ ∆ (€ @	Incandescent	UPQMS1B3N2	A: amber, G: green, R: red, S: blue, W: white	AS-Interface
Rectangular (Marking) UPQS4B (Plastic Bezel)	Without Lamp	UPQS4B99N@		Relays & Timers
® @ △ (€ ()	Incandescent	UPQS4B3N2	A: amber, G: green, R: red, S: blue, W: white	Sockets
Push-to-Check APS1*PN				Circuit Protectors
	Without Lamp	APS199PN [®]	A: amber, C: clear, G: green, R: red, S: blue,	Power Supplies
® @ ((())	Incandescent	APS13PN2	W: white	PLCs & SmartRelay

Operating Voltage Code

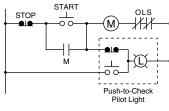
Specify an operating voltage code in place of 3 in the Part No.

	③ Operating	La consta						
	LED	Incandescent	Input					
66:	6V AC/DC	66: 6V AC/DC						
11:	12V AC/DC	88: 12V AC/DC	Full Voltage					
22:	24V AC/DC	33: 24V AC/DC						
16:	100/110V AC							
116:	115V AC							
126:	120V AC							
26:	200/220V AC		1					
236:	230V AC		Transformer					
246:	240V AC							
386:	380V AC							
46:	400/440V AC							
486:	480V AC							
16D:	110V DC	—	DC-DC Converter *					
	- Creatify a salay and in place of ⊚ in the Dayt Na							

- Specify a color code in place of $\ensuremath{\textcircled{}}$ in the Part No.

• Round bezel (metal): Chrome-plated Square bezel (plastic): Black Square bezel (metal): Chrome-plated

* DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC).
• The lamp of push-to-check pilot light is not connected to the contact terminal. To connect, refer to the circuit diagram example below.



IDEC 375

Operator Interfaces

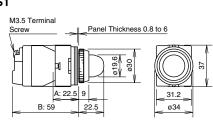
Sensors

Control Stations

Explosion Protection

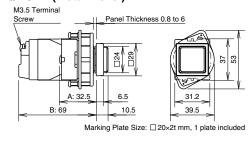
Dimensions

Dome APS1



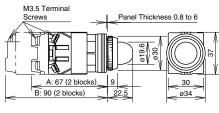
A: Full voltage B: Transformer

Square (Marking) UPQMS1B (Metal Bezel)



A: Full voltage B: Transformer

Push-to-Check APS1*PN



A: Full voltage B: Transformer

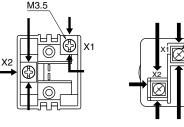
M3.5

Terminal Wiring (Bottom View)

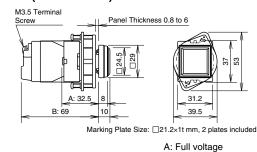
Arrows indicate access directions for wiring.

Full Voltage

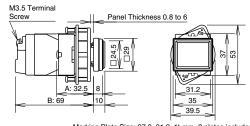




Square (Marking) UPQS1B (Plastic Bezel)



Rectangular (Marking) UPQS4B



Marking Plate Size: 27.2×21.2×1t mm, 2 plates included

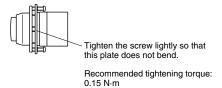
A: Full voltage B: Transformer

B: Transformer

All dimensions in mm.

Panel Mounting of Square and Rectangular Pilot Lights

- 1. Tighten the square or rectangular bezel to the operator and position the ring correctly.
- Lightly tighten the screw to secure the pilot light onto the panel.



TWS Series Illuminated Pushbuttons Ø25

Operation	Lamp Without Lamp	Contact 1NO-1NC 2NO 2NO-2NC 1NO-1NC 2NO 2NO-2NC	Part No. ALS299112 ALS299202 ALS299222 ALS2311DN2 ALS2320DN2 ALS2322DN2		Switches Pilot Ligh Display Lights
omentary		2NO 2NO-2NC 1NO-1NC 2NO 2NO-2NC	ALS299202 ALS299222 ALS2311DN2 ALS2320DN2		Display Lights LED
omentary		2NO-2NC 1NO-1NC 2NO 2NO-2NC	ALS29922@ ALS2311DN@ ALS2320DN@		Lights
omentary	LED	1NO-1NC 2NO 2NO-2NC	ALS2311DN2 ALS2320DN2		Lights
omentary	LED	2NO 2NO-2NC	ALS2320DN2		
omentary	LED	2NO-2NC			
omentary	LED		ALS2322DN2		Illumina
omentary	LED				Units
	1	1NO-1NC	ALS21611DDN2	(Note)	Display
		2NO	ALS21620DDN2	(Note)	Units
		2NO-2NC	ALS21622DDN2	(Note)	0-1-1-1
	Incandescent	1NO-1NC	ALS2311N2		Safety Produc
		2NO	ALS2320N2		
		2NO-2NC	ALS2322N2		Termin Blocks
		1NO-1NC	AOLS299112		DIUCKS
	Without Lamp	2NO	AOLS299202		Comm.
		2NO-2NC	AOLS299222		Termin
		1NO-1NC	AOLS2311DN2		
		2NO	AOLS2320DN2		AS-Inte
into in a d		2NO-2NC	AOLS2322DN2		
lintaineu		1NO-1NC	AOLS21611DDN2	(Note)	Relays
		2NO	AOLS21620DDN2	(Note)	Timers
		2NO-2NC	AOLS21622DDN2	(Note)	
		1NO-1NC	AOLS2311N2		Socket
	Incandescent	2NO	AOLS2320N2		
		2NO-2NC	AOLS2322N2		Circuit Protecte
•	intained	without Lamp	intained Incandescent 2NO 2NO-2NC 2NO-2NC 2NO-2NC 2NO-2NC 2NO-2NC 2NO-2NC 1NO-1NC 2NO 2NO-2NC 1NO-1NC 2NO 2NO-2NC 1NO-1NC 2NO 2NO-2NC 1NO-1NC 2NO 2NO-2NC 1NO-1NC 2NO 2NO-2NC	Incandescent 2NO ALS2320N2 2NO-2NC ALS2322N2 2NO-2NC ALS2322N2 1NO-1NC AOLS299112 Without Lamp 2NO 2NO-2NC AOLS299202 2NO-2NC AOLS299202 2NO-2NC AOLS299202 2NO-2NC AOLS2311DN2 2NO AOLS2320DN2 2NO-2NC AOLS2322DN2 1NO-1NC AOLS2322DN2 1NO-1NC AOLS2322DN2 2NO AOLS2320DN2 2NO AOLS21611DDN2 2NO AOLS21620DDN2 2NO-2NC AOLS21622DDN2 1NO-1NC AOLS2311N2 Incandescent 2NO 2NO AOLS2320N2	Incandescent 2NO ALS2@20N@ 2NO-2NC ALS2@22N@ 2NO-2NC ALS2@22N@ 1NO-1NC AOLS299911@ 2NO AOLS29920@ 2NO-2NC AOLS29920@ 2NO-2NC AOLS29920@ 2NO-2NC AOLS2@20DN@ 2NO AOLS2@20DN@ 2NO-2NC AOLS2@20DN@ 2NO AOLS21611DDN@ 2NO AOLS21620DDN@ 2NO-2NC AOLS21620DN@ 2NO-2NC AOLS21622DDN@ 2NO-2NC AOLS21622DDN@ 2NO-2NC AOLS21622DDN@ 2NO-2NC AOLS23011N@ 2NO-2NC AOLS23020N@

Designation Code

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

	② Lens/LED Color Code	•	3 Operating	Voltage Code	Input	PLCs & SmartRelay	
Without Lamp	LED	Incandescent	LED	Incandescent	Input		
Specify a lens color	Specify a lens/LED	Specify a lens color	66: 6V AC/DC	66: 6V AC/DC		Operator	
code in place of 2.	color code in place of 2.		code in place of 2.	11: 12V AC/DC	88: 12V AC/DC	Full Voltage	Interfaces
NA: amber		A: amber	22: 24V AC/DC	33: 24V AC/DC			
NC: clear	A: amber	G: green	16: 100/110V AC			Sensors	
NG: green	G: green	R: red S: blue W: white	116: 115V AC				
NR: red	PW: pure white		126: 120V AC			Control	
NS: blue NW: white	R: red S: blue		W: white	W: white	26: 200/220V AC		
DNY: yellow	W: white		236: 230V AC		Transformer		
2	Y: yellow		246: 240V AC			Explosion	
	A pure white LED		386: 380V AC			Protection	
	lamp is used for yellow		46: 400/440V AC				
	illumination.		486: 480V AC			References	
			16□□D: 110V DC	_	DC-DC Converter *		

Round bezel (metal): Chrome-plated
Other contact arrangements are also available. See page 369.
DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC).

Shape	Operation	Lamp	Contact	Part No.	
Round Extended			1NO-1NC	ALGS299112	
vith Half Shroud ALGS2		Without Lamp	2NO	ALGS299202	
ADLGS2			2NO-2NC	ALGS299222	
			1NO-1NC	ALGS2311DN2	
			2NO	ALGS2320DN2	
	Mamantan	LED	2NO-2NC	ALGS2322DN2	
	Momentary		1NO-1NC	ALGS21611DDN2	(Note)
			2NO	ALGS21620DDN2	(Note)
1 martin			2NO-2NC	ALGS21622DDN2	(Note)
		Incandescent	1NO-1NC	ALGS2311N2	
			2NO	ALGS2320N2	
			2NO-2NC	ALGS2322N2	
		Without Lamp	1NO-1NC	AOLGS299112	
			2NO	AOLGS299202	
			2NO-2NC	AOLGS299222	
			1NO-1NC	AOLGS2311DN2	
			2NO	AOLGS2320DN2	
	Maintained	LED	2NO-2NC	AOLGS2322DN2	
	Maintaineu		1NO-1NC	AOLGS21611DDN2	(Note)
			2NO	AOLGS21620DDN2	(Note)
			2NO-2NC	AOLGS21622DDN2	(Note)
			1NO-1NC	AOLGS2311N2	
		Incandescent	2NO	AOLGS2320N2	
≞ € ≙(€©			2NO-2NC	AOLGS2322N2	

Round Extended with Half Shroud Illuminated Pushbuttons

Note: DC-DC converter types.

Designation Code

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

	2 Lens/LED Color Code	3 Operating	Input		
Without Lamp	LED Incandescent		LED Incandescent		input
Specify a lens color code in place of @. NA: amber NC: clear NG: green NR: red NS: blue NW: white DNY: yellow	LED 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	Specify a lens color code in place of @. A: amber G: green R: red S: blue W: white	LED 66: 6V AC/DC 11: 12V AC/DC 22: 24V AC/DC 16: 100/110V AC 116: 115V AC 126: 120V AC 26: 200/220V AC 236: 230V AC 246: 240V AC	Incandescent 66: 6V AC/DC 88: 12V AC/DC 33: 24V AC/DC	Full Voltage
	A pure white LED lamp is used for yellow illumination.		386: 380V AC 46: 400/440V AC 486: 480V AC		-
			16□□D: 110V DC	_	DC-DC Converter *

• Round bezel (metal): Chrome-plated

Other contact arrangements are also available. See page 369.
 DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC).

Power Supplies

TWS Series Illuminated Pushbuttons Ø25

Round Extended with Full Shroud Illuminated Pushbuttons

				Packa	ge Quantity: 1		
Shape	Operation	Lamp	Contact	Part No.	<u>.</u>	Switche	
ound Extended			1NO-1NC	ALFS299112		Pilot Liç	
ith Full Shroud LFS2		Without Lamp	2NO	ALFS299202		Display	
OLFS2				ALFS299222		Lights	
			1NO-1NC	ALFS2311DN2			
			2NO	ALFS2320DN2		LED	
1 Co			2NO-2NC	ALFS2322DN2		Units	
	Momentary	LED	1NO-1NC	ALFS21611DDN ²	(Note)	Displa	
			2NO	ALFS21620DDN2	(Note)	Units	
			2NO-2NC	ALFS21622DDN2	(Note)	0	
		Incandescent	1NO-1NC	ALFS2311N2		Safet Prod	
			2NO	ALFS2320N2			
			2NO-2NC	ALFS2322N2		Term	
			1NO-1NC	AOLFS299112		BIOCK	
		Without Lamp	2NO	AOLFS299202		Com	
			2NO-2NC	AOLFS299222		Term	
			1NO-1NC	AOLFS2311DN2			
			2NO	AOLFS2320DN2		AS-Ir	
	Maintained	LED	2NO-2NC	AOLFS2322DN2			
	wamaned		1NO-1NC	AOLFS21611DDN ²	(Note)	Relay	
			2NO	AOLFS21620DDN2	(Note)	Time	
			2NO-2NC	AOLFS21622DDN2	(Note)		
			1NO-1NC	AOLFS2311N2		Sock	
@ △ (€ @)		Incandescent	2NO	AOLFS2320N2			
			2NO-2NC	AOLFS2322N2		Circu Prote	

Note: DC-DC converter types.

Designation Code

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

	② Lens/LED Color Code		③ Operating Voltage Code		- Input	PLCs & SmartRelay	
Without Lamp	LED	Incandescent	LED	Incandescent	_ input		
Specify a lens color	Specify a lens/LED	Specify a lens color	66: 6V AC/DC	66: 6V AC/DC		Operator	
code in place of 2.	color code in place	code in place of 2.	11: 12V AC/DC	88: 12V AC/DC	Full Voltage	Interfaces	
NA: amber	of ②.	A: amber	22: 24V AC/DC	33: 24V AC/DC			
NC: clear	A: amber	C: clear	16: 100/110V AC			Sensors	
NG: green	G: green	PW: pure white R: red 126: 120V AC R: red S: blue 26: 200/220V AC S: blue W: white 26: 200/220V AC	116: 115V AC				
NR: red	PW: pure white		S: blue	126: 120V AC			Control
NS: blue NW: white				26: 200/220V AC			Stations
DNY: vellow				Transformer			
Bitti yonoti	Y: yellow		246: 240V AC			Explosion	
			386: 380V AC			Protection	
	A pure white LED lamp is used for yellow		46: 400/440V AC				
	illumination.		486: 480V AC			References	
			16□□D: 110V DC	_	DC-DC Converter *		

Round bezel (metal): Chrome-plated

Other contact arrangements are also available. See page 369.
 * DC-DC converter types are not approved by UL, CSA, and TÜV, and not CE compliant (operating voltage 90 to 140V DC).

Mushroom / Mushroom Pushlock Turn Reset Illuminated Pushbuttons

				Package Quantity: 1
Shape	Operation	Lamp	Contact	Part No.
ø35mm Mushroom			1NO-1NC	ALS39911N2
ALS3 AOLS3		Without Lamp	2NO	ALS39920N2
AOLOG	Momenter		2NO-2NC	ALS39922N2
	Momentary		1NO-1NC	ALS3311N2
the second se		Incandescent	2NO	ALS3320N2
10-			2NO-2NC	ALS3322N2
			1NO-1NC	AOLS39911N2
		Without Lamp	2NO	AOLS39920N2
	Maintained		2NO-2NC	AOLS39922N2
	Maintaineo		1NO-1NC	AOLS3311N2
		Incandescent	2NO	AOLS3320N2
∰ ∯ ≙ (€ @			2NO-2NC	AOLS3322N2
Mushroom Pushlock Turn F	Reset		1NO-1NC	AVLS39911NR
AVLS3		Without Lamp	2NO	AVLS39920NR
			2NO-2NC	AVLS39922NR
A COLORING CONTRACT			1NO-1NC	AVLS3311DNR
		LED	2NO	AVLS3320DNR
			2NO-2NC	AVLS3322DNR
			1NO-1NC	AVLS3311NR
		Incandescent	2NO	AVLS3320NR
			2NO-2NC	AVLS3322NR

Designation Code

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

② Lens Color Code	3 Operating	Voltage Code	Input
	LED	Incandescent	input
Specify a lens color code	66: 6V AC/DC	66: 6V AC/DC	
in place of 2.	11: 12V AC/DC	88: 12V AC/DC	Full Voltage
A: amber	22: 24V AC/DC	33: 24V AC/DC	
G: green	16: 100/110V AC		
R: red	116: 115V AC		
S: blue	126: 120V AC		Transformer
W: white	26: 200/220V AC		
	236: 230V AC		
	246: 240V AC		
	386: 380V AC		
	46: 400/440V AC		
	486: 480V AC		

• Round bezel (metal): Chrome-plated

• Other contact arrangements are also available. See page 369.

Pushlock Turn Reset: Lens is maintained when pressed and is reset when turned clockwise. Red lens only.
 Note: AVLS3 pushlock turn reset switches cannot be used as emergency stop switches. When emergency stop switches are required, use HW series emergency stop switches with HW9Z-A25 ring adapters (ISO 13850 and IEC 60947-5-5 compliant).

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TWS Series Illuminated Pushbuttons Ø25

Square Flush Illuminated Pushbuttons

Square Flush	Illuminated P	ushbuttons			Flush Silhouette
				Package Quantity: 1	Silhouette
Shape	Operation	Lamp	Contact	Part No.	Switches &
Square Flush (Marking)			1NO-1NC	ULQS1B99112	Pilot Lights
ULQS1B UOLQS1B		Without Lamp	2NO	ULQS1B99202	Display
			2NO-2NC	ULQS1B99222	Lights
			1NO-1NC	ULQS1B311DN2	LED
	Momentary	LED	2NO	ULQS1B320DN2	Illumination
			2NO-2NC	ULQS1B322DN2	Units
		Incandescent Without Lamp	1NO-1NC	ULQS1B311N2	Display
			2NO	ULQS1B320N2	Units
			2NO-2NC	ULQS1B322N2	Cofety
			1NO-1NC	UOLQS1B9911@	Safety Products
			2NO	UOLQS1B99202	Terminal Blocks
			2NO-2NC	UOLQS1B99222	
			1NO-1NC	UOLQS1B311DN2	DIOCKS
	Maintained	LED	2NO	UOLQS1B320DN2	Comm.
			2NO-2NC	UOLQS1B322DN2	Terminals
			1NO-1NC	UOLQS1B311N2	
® @ ≙ (€ @)		Incandescent	2NO	UOLQS1B320N2	AS-Interface
			2NO-2NC	UOLQS1B322N2	
		· · ·		Relays &	

Designation Code

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

opecity a code in place						O a alvada
	② Lens/LED Color Code		③ Operating Voltage Code		Input	Sockets
Without Lamp	LED	Incandescent	LED	Incandescent	- input	
Specify a lens color	Specify a lens/LED color	Specify a lens color	66: 6V AC/DC	66: 6V AC/DC		Circuit Protectors
code in place of 2.	code in place of 2.	code in place of 2.	11: 12V AC/DC	88: 12V AC/DC	Full Voltage	Protectors
NA: amber	A: amber	A: amber	22: 24V AC/DC	33: 24V AC/DC		Power
NG: green	G: green	G: green	16: 100/110V AC			Supplies
NR: red		R: red	116: 115V AC			
NS: blue	R: red	S: blue	126: 120V AC			PLCs &
NW: white	S: blue	W: white	26: 200/220V AC			SmartRelay
DNY: yellow	W: white Y: vellow		236: 230V AC		Transformer	
	1. yenow		246: 240V AC 386: 380V AC			Operator Interfaces
	A pure white LED					
	lamp is used for yellow illumination.		46: 400/440V AC			
			486: 480V AC			Sensors

• Square bezel (plastic): Black

• Marking plate size: $\Box 21.2 \times 1.0$ mm (2 pieces supplied)

• Illumination color W (white) and PW (pure white) marking consist of clear lens and white marking plate. See page 400.

• Other contact arrangements are also available. See page 369.

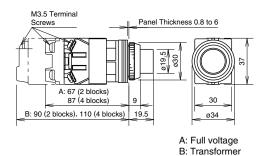
Timers

Control Stations

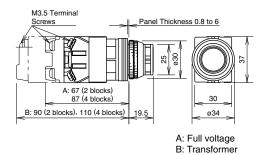
Explosion Protection

Dimensions

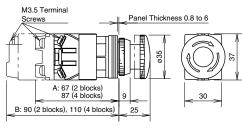
Round Extended ALS2 / AOLS2



Round Extended with Full Shroud ALFS2 / AOLFS2

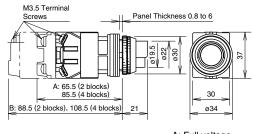


Mushroom Pushlock Turn Reset AVLS3



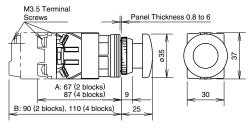
A: Full voltage **B:** Transformer

Round Extended with Half Shroud ALGS2 / AOLGS2



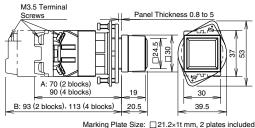
A: Full voltage B: Transformer

ø35mm Mushroom ALS3 / AOLS3



A: Full voltage B: Transformer

Square Flush ULQS1B / UOLQS1B



A: Full voltage B: Transformer

All dimensions in mm.

Flush

TWS Series Selector Switches Ø25

								Package Quantity: 1	Silhouette
No. of Positions	Shape				ASS () () () () () () () () () ()	M3.5 Term	Al (2 blocks)	;	Switches & Pilot Lights Display Lights
	Contact Code	Ontact Arranger Contact Block Mounting Position Contact	Operator F	Position	Maintained	Spring Return from Right	Spring Return from Left	_	Illumination Units Display Units
	10 (1NO)	1 NO 2 Dummy			ASS210N	ASS2110N	ASS2210N *		Safety
ition	11 (1NO-1NC)	1 NO 2 NC	•		ASS211N	ASS2111N	ASS2211N *		Products
2-position	20 (2NO)	1 NO	•		ASS220N	ASS2120N	ASS2220N *		Terminal Blocks
90° 2	(2NO) 22 (2NO-2NC)	2 NO 1 NO 2 NC 3 NO 4 NC	• • • • • • • •		ASS222N	ASS2122N	ASS2222N *	_	Comm. Terminals
	2R ★ (1NO-1NC)	1 NO 2 NC			ASS22RN-118 ★	ASS212RN-118 ★	—		AS-Interface
	2R ★ (1NO-1NC)	1 NC 2 NO			_	_	ASS222RN-169 ★		
	Contact Code	Contact Block Mounting Position Contact	Operator F	Position	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way	Relays & Timers
3-position	20	1 NO	•	-	ASS320N	ASS3120N	ASS3220N	ASS3320N	Sockets
	(2NO) 02	2 NO 1 NC			ASS302N	ASS3102N	ASS3202N	ASS3302N	Circuit
	(2NC) 22 (2NO-2NC)	2 NC 1 NO 2 NO 3 NC 4 NC		-	ASS322N	ASS3122N	ASS3222N	ASS3322N	Protectors Power Supplies
45° 3-p	40 (4NO)	1 NO 2 NO 3 NO 4 NO	• •	-	ASS340N	ASS3140N	ASS3240N	ASS3340N	PLCs & SmartRelay
	04 (4NC)	1 NC 2 NC 3 NC 4 NC		-	ASS304N	ASS3104N	ASS3204N	ASS3304N	Operator Interfaces
	3S ★	1 NO 2 NO 3 NC 4 Dummy		-	ASS33SN-243 ★	_	_	_	Sensors Control Stations
L	Contact Code	Fosition	Operator F	Position 4 5	Maintained	Maintained	and Contact Arra	-	Explosion Protection
4-positio	4S ★	1 NO 2 NC 3 NC 4 NO			ASS44SN-407 ★	_			References
30° 5-position / 45° 4-position	4S ★	1 NO 2 NC 3 NC 4 NO	• • • • • • • • • • • • • • • • • • •	•	ASS44SN-411 ★	_	1 NO • 2 NO 3 NC •	•	
30° 5-pos	3S ★	1 NO 2 NC 3 NC 4 Dummy	• • •		ASS43SN-461 ★	_	• For more contact arrangement		
Ċ,	4S ★	1 NO 2 NC 3 NC 4 NO	• • •	•		ASS54SN-501 ★	chart, see pages 388 to 390.	3	

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



• On the contact arrangement marked with * in the table above, the rated current (load switching current) is reduced to a half of the rated Selector switches with one or three contact blocks contain a dummy block.
Knob operator: White indicator on black knob

Selector Switches (Lever Operator)

		Package Quantity: 1											
s	Shape						ASSEL	M3.5 Terminal	Screw -> Panel Thickness 0	1.8 to 6			
No. of Positions	с	ontact Arrang	emei	nt Cl	nart		£ € € € €		3 (2 blocks) 9 4 blocks) 22				
		Contact Block Operator Position				opition	Maintained	Spring Return	Spring Return				
	Contact Code	Mounting Position		R		osition	L R	from Right	from Left	_			
_	10 (1NO)	1 NO 2 Dummy	/	•			ASS2L10N	ASS21L10N	ASS22L10N *				
90° 2-position	11 (1NO-1NC)	1 NO 2 NC	•	•			ASS2L11N	ASS21L11N	ASS22L11N *				
2-pc	20 (2NO)	1 NO 2 NO		•	-		ASS2L20N	ASS21L20N	ASS22L20N *				
°06	22 (2NO-2NC)	1 NO 2 NC 3 NO 4 NC	•				ASS2L22N	ASS21L22N	ASS22L22N *	_			
	$\frac{2R \star}{(1NO-1NC)}$ $\frac{2R \star}{(1NO-1NC)}$	1 NO 2 NC 1 NC 2 NO					ASS2L2RN-118 ★	ASS21L2RN-118 ★	— ASS22L2RN-169 ★				
	Contact Code	Contact Block Mounting Position		pera	tor P	osition	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way			
	20 (2NO)	1 NO 2 NO	•		•		ASS3L20N	ASS31L20N	ASS32L20N	ASS33L20N			
	02	1 NC			Ď		ASS3L02N	ASS31L02N	ASS32L02N	ASS33L02N			
3-position	(2NC) 22 (2NO-2NC)	2 NC 1 NO 2 NO 3 NC 4 NC			•		ASS3L22N	ASS31L22N	ASS32L22N	ASS33L22N			
45° 3-p	40 (4NO)	1 NO 2 NO 3 NO 4 NO	•		•		ASS3L40N	ASS31L40N	ASS32L40N	ASS33L40N			
	04 (4NC)	1 NC 2 NC 3 NC 4 NC					ASS3L04N	ASS31L04N	ASS32L04N	ASS33L04N			
	3S ★	1 NO 2 NO 3 NC 4 Dummy	•	•	•		ASS3L3SN-243 ★	_	_	_			
E C	Contact Code	Contact Block Mounting Position	+	pera 2	tor P	osition 4 5	Maintained	Maintained	Contact Block M and Contact Arra	angement Chart			
4-positio	4S ★	1 NC 2 NC 3 NC 4 NO		•	•		ASS4L4SN-407 ★	_					
30° 5-position / 45° 4-position	4S ★	1 NO 2 NC 3 NC 4 NO	•	•	•	•	ASS4L4SN-411 ★	_	1 NO • 2 NO 3 NC • 4 NC •				
30° 5-pos	3S ★	1 NO 2 NC 3 NC 4 Dummy		•	•		ASS4L3SN-461 ★	_	For more contact arrangement chart,				
	4S ★	1 NO 2 NC 3 NC 4 NO	•	•		•		ASS5L4SN-501 ★	see pages 388 to 390.	³ 1			
• 0	A NO A OT A STATE AND A A A A A A A A A A A A A A A A A A												

On the contact arrangement marked with * in the table above, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.
Selector switches with one or three contact blocks contain a dummy block.

Lever operator: White indicator on black lever

Flush

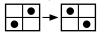
TWS Series Selector Switches Ø25

Key Selector Switches

Package Quanty: 1 Shape ASSIK ASSIC Package Quanty: 1 Contact Arrangement Chart Site work of the paratement down of the para		-) -											Silhouette	
Import Contact Arrangement Chart Import Import <th colsp<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Package Quantity: 1</td><td></td></th>	<td></td> <td>Package Quantity: 1</td> <td></td>												Package Quantity: 1	
Contact Contact Operator Position Maintained Spring Return from Right Spring Return from Left Display Units Display Units 10 1 NO ASS2K10N ASS21K10N ASS22K10N ASS22K10N Spring Return from Right Turninalin Display Units 10 1 NO ASS2K10N ASS21K10N ASS22K10N ASS22K10N Turninalin 20 1 NO ASS2K2NN ASS21K2NN ASS22K20N ASS23K20N ASS33K20N Corma. Terminaliand Terminaliand Terminaliand Corma. Terminaliand Terminaliand Terminaliand	s	Shape							ASS□K	M3.5 T	Terminal Screw	kness 0.8 to 6		
Contact Contact Operator Position Maintained Spring Return from Right Spring Return from Left Display (************************************	tion												Pilot Lights	
Contact Contact Operator Position Maintained Spring Return from Right Spring Return from Left Display (************************************	osit									410			Diaplay	
Contact Contact Operator Position Maintained Spring Return from Right Spring Return from Left Display (1) Display (1) <thdisplay (1) <thdi< td=""><td>Ē</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td></thdi<></thdisplay 	Ē								1					
Contact Contact Operator Position Maintained Spring Return from Right Spring Return from Left Display (************************************	0.								<pre></pre>		52 (2 blocks) 9	30	_	
Contact Code Contact Block Operator Position Maintained Spring Return from Right Spring Return from Right Spring Return from Left Diptay 100 1 NO 0 ASS2K10N ASS2K10N ASS2K10N ASS2K10N ASS2K1N ASS2K1N ASS2K1N ASS2K1N ASS2K1N ASS2K1N ASS2K2N ASS3K2N ASS3K4N ASS3K4N ASS3K4N<	ž		ontact A	rrange	mor	nt Cl	nart		🖲 🚯 🕁 🕻 🗑		<	<~~>		
Contact Code Block Operator Position from Right from Left		0					an							
Code Mounting Contact L R ASS2K10N ASS21K10N ASS22K10N * Umps 10 1 1 0.0 ASS2K10N ASS21K10N ASS22K10N * Safety Products 11 1 0.0 ASS2K10N ASS21K10N ASS22K11N * Safety Products 11 1 0.0 ASS2K20N ASS21K20N ASS22K20N * Safety Products 200 1 N.0 ASS2K22N ASS21K20N ASS22K20N * - - - ASS2K20N * - <		Contact			Op	berat	tor P	osition	Iviairitairieu	from Right				
Image: Contact Image:				,r 					L R	L. TR	L R	—		
10 1 NO ASS2K10N ASS21K10N ASS22K10N * Products 11 1 NO • ASS2K11N ASS21K11N ASS22K11N * ASS22K11N * ASS22K11N * ASS22K11N * ASS22K20N * · · Terminal Block Terminal Block Terminal Block Terminal Block Comment ·<				Contact	L	R							Offits	
State Contact		10		NO		•			ASSOKION	ASSOLKION	ACC00//10N		Safety	
Image: Construct of the second seco	_	. ,							ASSZKTUN	ASSZIKIUN	ASS22KIUN *			
Image: Construct of the second seco	tion			-		•			ASS2K11N	ASS21K11N	ASS22K11N *			
Image: Construct of the second seco	osi	, ,			-	•				40004//0001				
Image: Construct of the second seco	2-5					-			ASS2K20N	ASS21K20N	ASS22K20N *		BIOCKS	
Image: Construct of the second seco	°					•							0	
Image: Contact (NO-NC) Image: Contact (NO-NC) Ass2k2RN-118 ± Ass21k2RN-118 ± Image: Contact (NO-NC) Ass2k2RN-118 ± Ass22k2RN-118 ± Ass22k2RN-169 ± Ass2k2RN-169 ± Ass2k2RN-160 ± Ass2k2RN-169 ± Ass3k2RN-160 ± Ass3k2RN-160 ± Ass33k2RN-160 ± Ass33k2RN-160 ± Ass33k2RN-160 ± Ass33k2RN-160 ± Ass33k2RN-160 ± Ass33k2RN-160 ± Ass33k	0,				•				ASS2K22N	ASS21K22N	ASS22K22N *			
ASS2K2RN-118 * ASS21K2RN-118 * - AS-Interface 2R * 1 NC - - ASS2K2RN-118 * ASS21K2RN-118 * - AS-Interface 2R * 1 NC 2 NC - - ASS21K2RN-118 * - ASS22K2RN-169 * Ass21K2RN-169 * Ass32K2RN-169 * Relays & Contact Code Contact Block Operator Position Maintained Spring Return from Right Spring Return from Left Spring Return two-way Relays & 20 1 NO ASS3K20N ASS31K20N ASS33K20N ASS33K20N Circuit 20 1 NO ASS3K02N ASS31K2N ASS32K20N ASS33K02N ASS33K02N ASS33K02N 22 2 NO ASS3K40N ASS31K2N ASS32K40N ASS33K40N ASS33K40N ASS33K40N Power SmartRelay 4 NO ASS3K40N ASS31K04N ASS32K04N ASS33K04N ASS33K					•	-								
INC.NC) Z NC Association Association Protectors Contact Code Contact Block Operator Position Maintained of n Spring Return from Right Spring Return from Left Spring Return Two-way Spring Return Two-way Spring Return to o n Spring Return to n Spring Return to n Spring Ret		2R ★	-	-					ACCOKODN 110 +					
IND-INC 2 NO - - ASS22K2RN-169 ★ Relays & Image: Contact Code Contact Block Operator Position Maintained Spring Return from Right Spring Return from Left Spring Return Two-way Sockets 20 1 NO ASS3K20N ASS31K20N ASS32K20N ASS33K20N Circuit 20 1 NO ASS3K20N ASS31K20N ASS32K20N ASS33K20N Circuit 20 1 NO ASS3K02N ASS31K20N ASS32K20N ASS33K02N ASS33K02N 21 NO ASS3K02N ASS31K22N ASS32K22N ASS33K22N ASS33K22N Power 22 2 NO ASS3K40N ASS31K40N ASS32K40N ASS33K40N ASS33K40N Power 4 NC ASS3K04N ASS31K04N ASS32K04N ASS33K04N Sensors 04 2 NC ASS3K04N ASS31K04N ASS32K04N ASS33K04N Sensors 3 X 2 NO ASS3K3N-243 * - - - - - Control		$(1\overline{\text{NO}}-1\overline{\text{NC}})$		-					A332K2HN-110 *	A3321K2HN-110 *			AS-Interface	
Contact Code Contact Block Operator Position Maintained Spring Return from Right Spring Return from Left Spring Return Two-way Spring Return Two-way <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td>_</td> <td>ASS22K2RN-169 *</td> <td></td> <td></td>									_	_	ASS22K2RN-169 *			
Contact Code Block Operator Position from Right from Right from Left Two-way Sockets 20 1 NO ASS3K20N ASS31K20N ASS33K20N PUCs & SmartBelay Puccs & SmartBelay Operator Interfaces Doperator Operator Operator Interfaces Sensors Sensors Sensors Sensors		(INO-INC)		-		-			Maintained	Spring Poturn	Spring Poturn	Spring Poturn		
Code Mounting Contact L C R L C R Sockets 20 1 NO ASS3K20N ASS31K20N ASS32K20N ASS33K20N ASS33K20N Circuit Circuit Protectors 02 1 NO ASS3K02N ASS31K02N ASS32K20N ASS33K02N ASS33K02N Power 02 1 NO ASS3K02N ASS31K02N ASS33K02N ASS33K02N ASS33K02N Power 22 2 NO ASS3K22N ASS31K22N ASS33K22N ASS33K22N ASS33K22N Power Supplies 20 1 NO ASS3K40N ASS31K40N ASS32K40N ASS33K40N ASS33K40N PLCs & SmartRelay 4 NO ASS3K04N ASS31K04N ASS32K04N ASS33K04N Operator 1 NO ASS3K04N ASS31K04N ASS33K04N Sensors 3 NC ASS3K3SN-243 ★ - - - - Control		Contact			Op	perat	tor P	osition	ivialitatiteu				1111013	
Position Control Control Control Control Control 20 (2NO) 1 NO ASS3K20N ASS31K20N ASS32K20N ASS33K20N Circuit 02 (2NO) 1 NO ASS3K02N ASS31K02N ASS32K02N ASS33K02N Power 02 (2NO) 2 NO ASS3K02N ASS31K02N ASS32K02N ASS33K02N Power 22 (2NO-2NC) 2 NO ASS3K22N ASS31K22N ASS32K22N ASS33K22N Power 22 (2NO-2NC) 3 NC ASS3K40N ASS31K40N ASS32K40N ASS33K40N ASS33K40N ASS33K40N ASS33K40N ASS33K40N ASS33K40N ASS33K40N ASS33K40N Operator Interfaces 4 NC 4 NC ASS3K40N ASS31K40N ASS32K40N ASS33K40N ASS33K40N Operator Interfaces 3 NC 4 NC ASS3K3SN-243 * - - - - Control				-		-	_							
Image: constraint of the second sec			Position	Contact	L	С	R						Sockets	
Image: constraint of the constrant of the constraint of the constraint of the constraint of the c		20	1		٠		_		ASS3K20N	ASS31K20N	ASS32K20N	ASS33K20N		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		· · /		-										
$\begin{array}{c c c c c c c c c c c c c c c c c c c $									ASS3K02N	ASS31K02N	ASS32K02N	ASS33K02N	Protectors	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	_		1	NO	٠								Power	
$\begin{array}{c c c c c c c c c } & 40 & 2 & NO & \bullet \\ \hline & 3 & NO & \bullet \\ \hline & 3 & NO & \bullet \\ \hline & 4 & NO & \bullet \\ \hline & 4 & NO & \bullet \\ \hline & 4 & NO & \bullet \\ \hline & 04 & 2 & NC & \bullet \\ \hline & 1 & NC & \bullet \\ \hline & 04 & 2 & NC & \bullet \\ \hline & 4 & NC & \bullet \\ \hline & 4 & NC & \bullet \\ \hline & 4 & NC & \bullet \\ \hline & 1 & NO & \bullet \\ \hline & 3 & NC & \bullet \\ \hline & 3 & NC & \bullet \\ \hline & 3 & NC & \bullet \\ \hline \end{array} \\ \begin{array}{c} \text{ASS3K40N} \\ \text{ASS3K40N} \\ \text{ASS31K40N} \\ \text{ASS31K40N} \\ \text{ASS32K04N} \\ \text{ASS32K04N} \\ \text{ASS33K04N} \\ \text{ASS33K04N} \\ \text{ASS33K04N} \\ \hline \end{array} \\ \begin{array}{c} \text{SmartRelay} \\ \text{Operator} \\ \text{Interfaces} \\ \text{Sensors} \\ \hline \\ \text{Sensors} \\ \hline \end{array} \\ \begin{array}{c} \text{Sensors} \\ \text{Sensors} \\ \hline \end{array} \\ \begin{array}{c} \text{Control} \\ \text{Control} \\ \end{array} \end{array}$	tior								ASS3K22N	ASS31K22N	ASS32K22N	ASS33K22N		
$\begin{array}{c c c c c c c c c } & 40 & 2 & NO & \bullet \\ \hline & 3 & NO & \bullet \\ \hline & 3 & NO & \bullet \\ \hline & 4 & NO & \bullet \\ \hline & 4 & NO & \bullet \\ \hline & 4 & NO & \bullet \\ \hline & 04 & 2 & NC & \bullet \\ \hline & 1 & NC & \bullet \\ \hline & 04 & 2 & NC & \bullet \\ \hline & 4 & NC & \bullet \\ \hline & 4 & NC & \bullet \\ \hline & 4 & NC & \bullet \\ \hline & 1 & NO & \bullet \\ \hline & 3 & NC & \bullet \\ \hline & 3 & NC & \bullet \\ \hline & 3 & NC & \bullet \\ \hline \end{array} \\ \begin{array}{c} \text{ASS3K40N} \\ \text{ASS3K40N} \\ \text{ASS31K40N} \\ \text{ASS31K40N} \\ \text{ASS32K04N} \\ \text{ASS32K04N} \\ \text{ASS33K04N} \\ \text{ASS33K04N} \\ \text{ASS33K04N} \\ \hline \end{array} \\ \begin{array}{c} \text{SmartRelay} \\ \text{Operator} \\ \text{Interfaces} \\ \text{Sensors} \\ \hline \\ \text{Sensors} \\ \hline \end{array} \\ \begin{array}{c} \text{Sensors} \\ \text{Sensors} \\ \hline \end{array} \\ \begin{array}{c} \text{Control} \\ \text{Control} \\ \end{array} \end{array}$	osi	(2NO-2NC)				_								
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	5				•									
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	ີ່			-			٠		ASS3K40N	ASS31K40N	ASS32K40N	ASS33K40N	SmartRelay	
$\begin{array}{ c c c c c }\hline 1 & NC & & & & \\ \hline 04 & 2 & NC & & \\ \hline 04 & 3 & NC & & \\ \hline 4 & NC & & \\ \hline 1 & NO & & \\ \hline 3S \star & \hline 2 & NO & & \\ \hline 3S \star & \hline 3 & NC & & \\ \hline \end{array}$		(4NO)		-	•								_	
04 (4NC) 2 NC ASS3K04N ASS31K04N ASS32K04N ASS33K04N ASS33K04N 1 NC - - - - - - - Control 3S ★ 2 NC - - - - - Control			<u> </u>				Ď							
$\begin{array}{ c c c c c c c c } \hline & 3 & \text{NC} & \hline & \hline & & \hline & & & \hline & & & & \hline & & & & & \hline & & & & & \hline & & & & & & \hline & & & & & & \hline & & & & & & & \hline & & & & & & & \hline & & & & & & & & \hline & & & & & & & & \hline & & & & & & & & \hline & & & & & & & & & \hline & & & & & & & & & \hline & & & & & & & & & & \hline & & & & & & & & & & & & \hline &$			2	NC					4553K04N	45531K04N	45532K04N	ASS33K04N		
1 NO ● 3S ★ 2 NO ● 3S ★ 3 NC ● ASS3K3SN-243 ★		(4NC)											Concern	
3S ★ 2 NO ● 3S ★ 3 NC ● ASS3K3SN-243 ★			-										Sensors	
ASS3K3SN-243 * Control			2				•							
4 Dummy Stations		35 🖈	3	-		•			ASS3K3SN-243 ★		_	_		
			4	Dummy									Stations	

• On the spring-returned, the key 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 370.

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



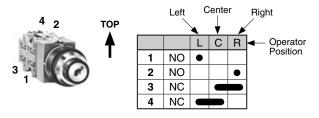
• On the contact arrangement marked with \star in the table above, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

• Key selector switches with one or three contact blocks contain a dummy block.

Cylinder cover: Black

Round bezel (Metal): Chrome-plated

Contact Block Mounting Position and Contact Arrangement Chart



• For more contact arrangement chart, see pages 388 to 390.

Explosion Protection

Illuminated Selector Switches

90° 2-position

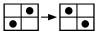
90° 2-p	ositio	n						Package Quantity: 1		
Shape	act Arrang	vemen	t Chai	ť	ASLS M3.5 Terminal Screws A: 67 (2 blocks) B: 90 (2 blocks), 110 (4 blocks) 22					
Contact Operator Contact Block Position				rator	Lamp	Maintained	Spring Return from Right	Spring Return from Left		
Code	Mounting Position Contact		L	R						
	1	NO		•	Without Lamp	ASLS299112	ASLS219911@	ASLS229911② *		
11 (1NO-1NC)	2	NC	•		LED	ASLS2311DN2	ASLS21311DN2	ASLS22311DN2 *		
			Incandescent	ASLS2311N2	ASLS21311N2	ASLS22311N2 *				
	1	NO		•	Without Lamp	ASLS299202	ASLS2199202	ASLS229920② *		
20 (2NO)	2	NO		•	LED	ASLS2320DN2	ASLS21320DN2	ASLS22320DN2 *		
					Incandescent	ASLS2320N2	ASLS21320N2	ASLS22320N2 *		
	1	NO		•	Without Lamp	ASLS299222	ASLS2199222	ASLS2299222 *		
00	2	NC NO	•	•						
22 (2NO-2NC)	4	NC	•	-	LED	ASLS2322DN2	ASLS21322DN2	ASLS22322DN2 *		
					Incandescent	ASLS2322N2	ASLS21322N2	ASLS22322N2 *		

Designation Code

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

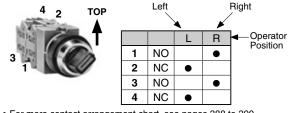
	② Lens/LED Color Code	3 Operating	Voltage Code	Input		
Without Lamp	LED	Incandescent	LED	Incandescent	input	
Specify a lens color	Specify a lens/LED color	Specify a lens color	66: 6V AC/DC	66: 6V AC/DC		
code in place of 2.	code in place of 2.	code in place of 2.	11: 12V AC/DC	88: 12V AC/DC	Full Voltage	
NA: amber	A: amber	A: amber	22: 24V AC/DC	33: 24V AC/DC		
NG: green	G: green	G: green	16: 100/110V AC			
NR: red	R: red	R: red	136: 115/120V AC			
NS: blue NW: white	S: blue W: white	S: blue W: white	26: 200/220V AC			
DNY: yellow	Y: yellow		256: 230/240V AC		Transformer	
,	2		386: 380V AC			
	A pure white LED lamp is used for yellow		46: 400/440V AC			
	illumination.		486: 480V AC			

• On the selector switches marked with * above, the contact operation is reversed as follows.



• Round bezel (Metal): Chrome-plated

Contact Block Mounting Position and Contact Arrangement Chart



• For more contact arrangement chart, see pages 388 to 390.

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Illuminated Selector Switches

45° 3-position

Contact	Conta Bloc			pera Positio			Maintained	Spring Return from Right	Spring Return from left	Spring Return Two-way	Switche Pilot Lig	
Code	Mounting Position	Contact	L	С	R	Lamp			L C R		Display Lights	
	1	NO	•			Without Lamp	ASLS399202	ASLS3199202	ASLS3299202	ASLS3399202	LED Illumina Units	
20 (2NO)	2	NO			•	LED	ASLS3320DN2	ASLS31320DN2	ASLS32320DN2	ASLS33320DN2	Display	
						Incandescent	ASLS3320N2	ASLS31320N2	ASLS32320N2	ASLS33320N2	Units	
	1 NC						Without Lamp	ASLS399022	ASLS3199022	ASLS3299022	ASLS3399022	Safety Produc
02 (2NC)	2 NC					LED	ASLS3302DN2	ASLS31302DN2	ASLS32302DN2	ASLS33302DN2	Termin	
						Incandescent	ASLS3302N2	ASLS31302N2	ASLS32302N2	ASLS33302N2	Blocks	
	1 2	NO NO	•		•	Without Lamp	ASLS399222	ASLS3199222	ASLS3299222	ASLS3399222	Comm Termir	
22 (2NO- 2NC)	3	NC NC				LED	ASLS3322DN2	ASLS31322DN2	ASLS32322DN2	ASLS33322DN2	AS-Inte	
-,				1	1	Incandescent	ASLS3322N2	ASLS31322N2	ASLS32322N2	ASLS33322N2		
	1 2	NO NO	•		•	Without Lamp	ASLS399402	ASLS3199402	ASLS3299402	ASLS3399402	Relay: Timer	
40 (4NO)	3	NO NO	•		•	LED	ASLS3340DN2	ASLS31340DN2	ASLS32340DN2	ASLS33340DN2	Socke	
		_			_	Incandescent	ASLS3340N2	ASLS31340N2	ASLS32340N2	ASLS33340N2	Circui	
04 (4NC)	1 2	NC NC	_			Without Lamp	ASLS399042	ASLS3199042	ASLS3299042	ASLS339904@	Protec	
	3	3 NC				LED ASLS3304DN2		ASLS31304DN2	ASLS32304DN2	ASLS33304DN2	Power Suppli	
	<u> </u>				1	Incandescent	ASLS3304N2	ASLS31304N2	ASLS32304N2	ASLS33304N2	PLCs Smartl	

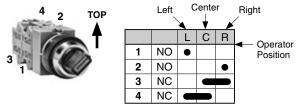
Designation Code

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

Specify a code in place of						
	2 Lens/LED Color Code		3 Operating	Voltage Code	Input	
Without Lamp	LED	Incandescent	LED	Incandescent	- Input	Sensors
Specify a lens color	Specify a lens/LED color		66: 6V AC/DC	66: 6V AC/DC		
code in place of 2.	code in place of 2.	code in place of 2.	11: 12V AC/DC	88: 12V AC/DC	Full Voltage	Control Stations
NA: amber	A: amber	A: amber	22: 24V AC/DC	33: 24V AC/DC		Stations
NG: green	G: green	G: green	16: 100/110V AC			Explosion
NR: red	R: red	R: red	136: 115/120V AC			Protection
NS: blue NW: white	S: blue W: white	S: blue W: white	26: 200/220V AC	;		
DNY: vellow	Y: yellow	vv. writte	256: 230/240V AC	;	Transformer	References
,			386: 380V AC			
	A pure white LED lamp is used for yellow		46: 400/440V AC			
	illumination.		486: 480V AC			

• Round bezel (Metal): Chrome-plated

Contact Block Mounting Position and Contact Arrangement Chart

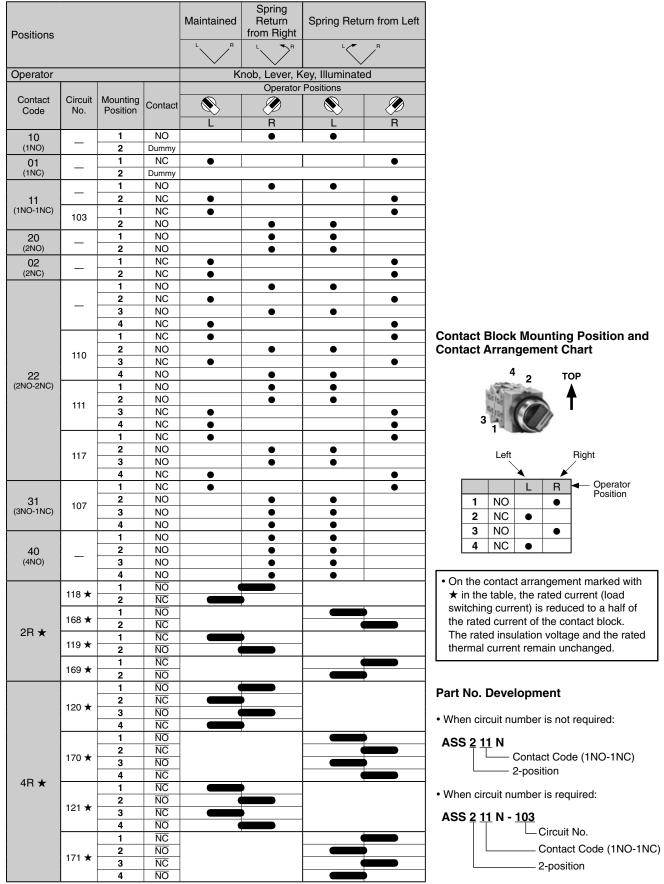


• For more contact arrangement chart, see pages 388 to 390.

IDEC

Flush Silhouette

90° 2-position (Maintained / Spring Return)



TWS Series Selector Switch Contact Arrangement Charts Ø25

45° 3-position (Maintained / Spring Return)

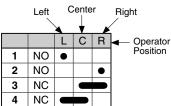
	Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-way
Positions				
Operatorc	۲. ۲	Knob, Lever, K	ey, Illuminate	d

				Oper	rator Posi	tions
Contact Code	Circuit No.	Mounting Position	Contact			Ø
				L	С	R
	202	1	NO	•		
		2	NC			
11 (1NO-1NC)	203	1	NC			
		2	NO			
	302	1	NO	•		•
		2	NC			
	303	1	NC		•	
		2	NO			•
	_	1	NO	•		
20		2	NO			•
(2NC)	301	1	NO			•
		2	NO			•
	_	1	NC			
02		2	NC			L
(2NC)	304	1	NC		•	
		2	NC			ļ
		1	NO	•		
		2	NO			•
		3	NC			
		4	NC			
		1	NC			
	210	2	NO			•
		3	NC			
		4	NO			•
		1	NO	•		•
22	308	2	NC			
(2NO-2NC)		3	NO	•		•
		4	NC			
		1	NO	•		•
	309	2	NC			
		3	NC		•	
		4	NO			•
		1	NC		•	
	310	2	NO			•
		3	NC		•	
		4	NO			•
		1	NO	•		
	206	2	NC			
		3	NO	•		
31		4	NO			•
(3NO-1NC)		1	NC			
	207	2	NO			•
	201	3	NO	•		
		4	NO			•
		1	NO	•		
	212	2	NC			
		3	NC			
13		4	NC			
(1NC-3NC)		1	NC		•	
	313	2	NO			•
		3	NC		•	
		4	NC			

				Oper	rator Posi	tions
Contact Code	Circuit No.	Mounting Position	Contact			Ø
				L	С	R
		1	NO	•		
		2	NO			•
		3	NO	•		
40		4	NO			•
(4NO)		1	NO	•		•
	305	2	NO			•
	305	3	NO	•		•
		4	NO			•
		1	NC			
		2	NC			
		3	NC			
04		4	NC			
(4NC)		1	NC		•	
	314	2	NC			
	314	3	NC		•	
		4	NC			

Contact Block Mounting Position and Contact Arrangement Chart





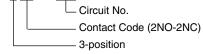
Part No. Development

• When circuit number is not required:

ASS <u>3 22 N</u>	
	Contact Code (2NO-2NO
	3-position

• When circuit number is required:

ASS <u>3 22</u> N - <u>210</u>



Flush Silhouette

Switches & Pilot Lights

Display Lights

LED Illumination Units

Display Units

Safety Products

Terminal Blocks

Comm. Terminals

AS-Interface

Relays & Timers

Sockets

Circuit Protectors

Power Supplies

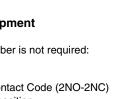
PLCs & SmartRelay

Operator Interfaces

Sensors

Control Stations

Explosion Protection



				N	laintaine	ed
Positions						
Operator				III	nob, Lev luminate	d
				Oper	rator Pos	itions
Contact Code	Circuit No.	Mounting Position	Contact			B
		1	NO	•	-	
		2	NO			
3S★	243 ★	3	NC		•	
		4	Dummy			
		1	NO	•		
		2	NC			
	233 ★	3	NO	•		
		4	NO			•
		1	NO	•		
		2	NC			
	234 ★	3	NC		•	
		4	NC			
		1	NC			
		2	NO			
4S★	235 ★	3	NC		•	
		4	NO			
		1	NO	•		
	007 +	2	NO			
	237 ★	3	NC		•	
		4	NO			
		1	NC			
		2	NC			
	240 ★	3	NC		•	
		4	NO			•

45° 3-position (Maintained)

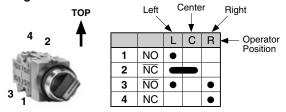
45° 4-position (Maintained)

					Maint	ained		
Positions								
Operator				Knob,	Lever			
					Operator	Positions	;	
Contact Code	Circuit No.	Mounting Position	Contact	۲		Ø		
0000				1	2	3	4	
		1	NO	•				
		2	NC		•			
3S ★	461 ★	3	NC			•		
		4	Dummy					
		1	NC				J	
	405.4	2	NC		•			
	405 ★	3	NC			•		
		4	NC					
		1	NC					
	407 ★	2	NC		•			
	407 🗙	3	NC			•		
4S ★		4	NO				•	
43 🛪		1	NO	•				
	409 ★	2	NC		•			
	409 🗙	3	NC			•		
		4	NC					
		1	NO	•				
	411 ★	2	NC		•			
	+11 🛪	3	NC			•		
		4	NO					

30° 5-position (Maintained)

						Maintained				
Positions	Positions					1 2 3 4 5				
Operator	Operator					nob, Lev	er			
				Operator Positions						
Contact Code	Circuit No.	Mounting Position		Contact		۲		Ø	<i>(</i>	
				1	2	3	4	5		
		1	NO	•						
10 ±	F01 -	2	NC		•					
4S ★	501 ★	o01 ★ 3	NC				•			
		4	NO							

Contact Block Mounting Position and Contact Arrangement Chart



• On the contact arrangement marked with ★ in the table, the rated current (load switching current) is reduced to a half of the rated current of the contact block. The rated insulation voltage and the rated thermal current remain unchanged.

Part No. Development

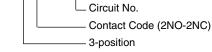
• When circuit number is not required:

ASS <u>3</u> <u>4S</u> N

Contact Code
3-position

• When circuit number is required:

ASS <u>3 4S</u> N - <u>233</u>



TWS Series Accessories and Replacement Parts Ø25

Terminal Cover	TW-VLC	HW-VL3	HW-VL5	APS-PVL	Use of terminal	
					covers increases the depth by the dimensions below.	Switches Pilot Ligh Display Lights LED Illuminati
	44.6H × 14.1W	37.8H × 26W	39.1H × 15.5W	36H × 29.4W	Ҷ⊥⊥⊥ ▲ <u>Terminal Cover</u> ∖	Units
II Voltage				x	+6 mm	Units Safety Products
ansformer C-DC Converter		х			+3 mm	Terminal Blocks
Contact block	x					Comm. Terminal AS-Interfa
contact blocks	X 2 pieces					Relays & Timers
contact blocks	X 2 pieces				- +3.5 mm	Sockets Circuit Protector
contact blocks					-	Power Supplies
	X 2 pieces					PLCs & SmartRel
II Voltage			x		+3 mm	Operator Interface
						Sensors
C-DC Converter		Y			+3 mm	Control Stations
U C Tr		~			+3 11111	Explosio Protectio
	ansformer -DC Converter contact block Terminal Cover CB contact blocks CB contact blocks contact b	II Voltage	II Voltage ansformer >-DC Converter >-DC Converter >ontact block Image Image <t< td=""><td>Il Voltage</td><td>Il Voltage X Ansformer >-DC Converter X Contact block X Image X</td><td>$\begin{array}{ c c c c c } & &$</td></t<>	Il Voltage	Il Voltage X Ansformer >-DC Converter X Contact block X Image X	$\begin{array}{ c c c c c } & & & & & & & & & & & & & & & & & & &$

Ordering Terminal Covers Terminal covers are ordered separately. When ordering terminal covers, specify the Part No. and required quantity.

ø25 TWS Series Accessories and Replacement Parts

Nameplates

Dimensions (mm)	Legend	Material	Part No.	Ordering No.	Package Quantity	Description
NSA	Disale			NSA-0	1	- Dia di
34	Blank	Aluminium	NSA-0	NSA-0PN10	10	• Black
1.025 ⁵ %			NSA-*	1	White letters	
	With Legend		NSA-*	NSA-*PN10	10	on black back- ground
	Disels	Aluminium	NSALO	NSALO	1	- Dia di
- sta	Blank	1.2 mm thick	NSALO	NSALOPN10	10	• Black
NFSO						
	Blank	Stainless steel	NFSO	NFSO	1	Stainless steel
1015 88	Diarik	0.8 mm thick	NF3U	NFSOPN10	10	ground color

• 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

Example of Shape and Engraving Area

	-	-		
Shape	Engraving Area		Max. No.	No. of Letters
•	Height	Width	of Lines	on 1 Line
Standard (NSA/NFSO)				
	4	31	1	17
Mushroom (NSALO)	8	31	2	17

The above example is when the letter is 3 mm tall.Engraving must be made within 1.5 mm from the sides.

TWS Series Accessories and Replacement Parts Ø25

Accesso	ories						Flush Silhouette
Sh	ape	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)	Switches &
Locking Ring Wre	ench				Guantity	 Used to tighten the round bezel when installing the TWS control unit onto a panel. 	Pilot Lights
	0	Rubber (nitryl)	OR-12	OR-12	1	025 Series	Display Lights LED Illumination Units
Lamp Holder Too	bl					Used to install and remove LED/incandescent lamps.	Display Units
		Rubber (nitryl)	OR-55	OR-55	1		Safety Products Terminal Blocks
Contact Block Re	emoval Tool					Used to remove contact blocks, transformers, lenses and adapters.	Comm.
		Metal (steel:					Terminals
		zinc-plated) / Rubber (nitryl)	TW-KC1	TW-KC1	1		AS-Interface
						Se S	Relays & Timers
Nut Locking Wre	nch					Used to tighten the locking ring on the square control units.	Sockets
		Metal (steel:	TWST-T1	TWST-T1	1		Circuit Protectors
		zinc-plated)	10031-11	1001-11			Power
							Supplies PLCs &
Locking Ring (For Square Units)						 Used to attach square pushbuttons and illumi- nated pushbuttons on to the panel. Mounting centers are the same as round 	SmartRelay
	Pushbutton Illuminated	Polyamide	OG-RT1	OG-RT1PN02	2	control units.	Operator Interfaces
	Pushbutton						Sensors
\bigcirc						 Used to attach pilot lights on to the panel. Mounting centers are the same as round control units. 	Control Stations
	Pilot Light	Polyamide	OG-RT2	OG-RT2PN02	2		Explosion Protection
	Light	l'olyannao					References
Anti-rotation Ring]					 Used to prevent the operator from rotating. Generally used when using no nameplates on selector switches. 	
	10	Metal (steel:	OGL-21	OGL-21PN10	10		
		zinc-plated)					
Rubber Mounting	g Hole Plug					Used to plug unused ø25.5mm mounting holes. Gray also available (ordering no. OBS-13PN05)	
•	9	Rubber (nitryl /black)	OBS-13B	OBS-13BPN05	5		
						11	

Ø25 TWS Series Accessories and Replacement Parts

Accessories

Sh	ape	Material	Part No.	Ordering No.	Package Quantity	Dimensions (mm)
Barrier		Polyamide	HW-VL1	HW-VL1PN10	10	Used to prevent contact between adjacent lead wires when units are mounted closely. Barriers should be always used in close mounting.
Contact Rubber Boot	For 1 layer of contact blocks (2 contact blocks)	Rubber (nitryl) Black	OCS-99	OCS-99	1	 Dust cover boot used for pushbuttons and selector switches. Temperature range: -5 to +60°C Black
Button Clear Boot	For flush pushbuttons	Rubber (EPDM)	OC-221	OC-221	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
00	For extended pushbuttons	(= 2)	OC-222	OC-222	1	splash.
Button Cover	0	Rubber (nitryl)	OCS-11①	OCS-11①	1	 B (black), G (green), R (red), Y (yellow) Metallic bezels covered with rubber boot to enhance waterproof and oiltight characteristics. Button is installed in the cover. Remove the button from the pushbutton before using the button cover. Temperature range: -5 to +60°C
Padlock Cover		Polyarylate (gasket: nitryl rubber)	OLS-KL1	OLS-KL1	1	Used to protect momentary and maintained pushbuttons, illuminated pushbuttons, knob selector switches, and key selector switches. Panel Thickness 0.8 to 3.2 OB to 3.2 Constrained pushbuttons, knob selector switches, and key selector switches. Vestication of the selector switches and the selector switches and the selector switches are selector switches. Vestication of the selector switches are selector switches are selector switches are selector switches. Vestication of the selector switches are switches are selector switches are selector switches are selector
Metal Protector		Metal (steel: zinc-plated)	OLS-C	OLS-C	1	 Used to protect flush buttons from inadvertent operation. Can be easily attached under the round bezel.

Note: Specify a button cover color code in place of in the Ordering No.

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Flush

TWS Series Accessories and Replacement Parts Ø25

Maintenance Parts

SI	nape	Material	Part No.	Ordering No.	Package Quantity	Color Code	
ezel	Pushbutton Pilot Light	Debugehenste	OGP-221	OGP-221PN02		B (black), G (green), R (red), Y (yellow), W (white)	
0 0	Selector Switch	Polycarbonate	OGP-33 ①	OGP-33①PN02		 Cannot be used for control units with half shroud or full shroud. 	
	Pushbutton Pilot Light Key Selector Illuminated Selector		OG-22	OG-22PN02	2	Cannot be used for control units with half shroud or full	
	 Selector Switch (except key selector) 	Metal (chrome- plated)	OG-33	OG-33PN02		shroud.	
	OPushbutton with Full Shroud	ZDC	ABS2FN	ABS2FN			
	Mushroom with Full Shroud		ABS3GN	ABS3GN			
	Pushbutton, Illumi- nated Pushbutton with Half Shroud	Shroud: brass Others: ZDC	ALS1G	ALS1G	1		
	Illuminated Pushbutton with Full Shroud	Metal (chrome- plated) ZDC	ALS1F	ALS1F			
Button	O Flush		ABS1BN-①	ABS1BN-①PN05	5		
	@Extended		ABS2BN-①	ABS2BN-①PN05	5	B (black), G (green), R (red), S (blue), Y (yellow), W (white) • Light color	
	❸ ø35mm Mushroom		ABS3BN-①	ABS3BN-①PN02	2		
4 6	Square Flush	Polyacetal	UBQS1BN-①	UBQS1BN-①PN02		B (black), G (green), R (red), S (blue), Y (yellow)	
	Square Extended		UBQS2BN-①	UBQS2BN-①PN02	2	Light color	
	OPushlock Turn Reset	-	AVS3BN-①	AVS3BN-①PN02		R (red), Y (yellow)	
	⊘ Push-Pull		AYS3BN-①	AYS3BN-①PN02		B (black), G (green), R (red), Y (yellow)	
ens (for illuminated ishbuttons)	Dome		APS106L-2	APS106L-@PN05		C (clear), G (green), R (red), S (blue)	
0			APS106LD-2	APS106LD-@PN05		A (amber), W (white), Y (yellow)	
0 0	Por Square Metal	AS resin	UPQS306L-2	UPQS306L-@PN05	5	C (clear), G (green), R (red), S (blue)	
	Bezel Unit		UPQS306LD-2	UPQS306LD-@PN05		A (amber), Y (yellow)	
	8Rectangular		UPQS406L-2	UPQS406L-@PN05		A (amber), C (clear), G (green), R (red), S (blue)	
ens (for pilot lights nd illuminated ushbuttons)	For Square with	AS resin	UPQS106L-2	UPQS106L-@PN05	5	C (clear), G (green), R (red), S (blue)	
	Plastic Bezel		UPQS106LD-@ UPQS106LD-@		5	A (amber), Y (yellow)	
ns 0			ALS06L-2	ALS06L-@PN05	_	C (clear), G (green), R (red), S (blue)	
	•Extended	nded	ALS06LD-@	ALS06LD-@PN05	5	A (amber), Y (yellow), W (white)	
6		AS resin	ALS3L-@	ALS3L-@PN02		G (green), R (red), S (blue)	
	Mushroom		ALS3LD-2	ALS3LD-@PN02	2	A (amber), W (white)	
	OPushlock Turn Reset		AVLS3L-R	AVLS3L-RPN02			

Note: Specify a button color code or lens color code in place of 1 or 2 in the Ordering No. Use a clear lens for white or pure white illumination.

Maintenance Parts

Sha	pe	Material	Part No.	Ordering No.	Package Quantity	Remarks	
Selector Operator	O Knob		ASSHHY-①	ASSHHY-①PN02		B (black), G (green),	
0 0	ØLever	Plastic	ASSHHL-1	ASSHHL-①PN02	2	R (red)	
	❸ Color Insert		TWS-HC1①	TWS-HC1①PN05	5	B (black), G (green), R (red), S (blue), Y (yellow), W (white)	
ັ 🌓 🧶	Illuminated	Disatis	ASLSLDY-2	ASLSLDY-2	_	G (green), R (red), S (blue)	
	Selector	Plastic	ASLSDDY-2	ASLSDDY-2	1	A (amber), W (white), Y (yellow),	
Cap for Key Selector		Plastic	AKS2B-①	AKS2B-①PN05	5	B (black), R (red)	
Clear Button Cover)	Plastic	ABS1B-C	ASB1B-CPN05	5	B (black), G (green), R (red), W (white) Y (yellow) • Used on flush pushbut- tons to indicate a mark	
Marking Plate for Clear	Button Cover	Plastic	TWS-0 ①	TWS-0①PN10	10	or a symbol engraved on the marking plate. The clear button cover holds the marking plate.	
Marking Plate	For Square Pilot Lights and Illumi-		UPQS106P-W	UPQS106P-WPN02		• □21.2 × 1t mm	
0 0 0	nated Pushbuttons	-	UPQS106P-C	UPQS106P-CPN02			
0	Por Square Pilot Lights with Metal Bezel	Plastic	UPQS306N-W	UPQS306N-WPN02	2	• 🗆 20 × 2t mm	
	34 For Rectangular		UPQS406P-W	UPQS406P-WPN02			
	Pilot Lights		UPQS406P-C	UPQS406P-CPN02		27.2 × 21.2 × 1t mm	
Contact Block	1NO		HW-C10	HW-C10		Housing: Blue Push rod: Green	
ia.	1NC		HW-C01	HW-C01		Housing: Purple red Push rod: Red	
	Early Make		HW-C10R	HW-C10R	1	Housing: Blue Push rod: Black	
Tet	Late Break		HW-C01R	HW-C01R		Housing: Purple red Push rod: White	
Dummy Block			TW-DB	TW-DBPN10	10	Used for non-illuminated units with 1NO or 1NC contact blocks.	
Full Voltage Adapter			TW-DA1B	TW-DA1BPN02	2	• Adapter with M3.5 screws used for illumi- nated pushbutton or illu- minated selector switch. Snaps on to the back of the contact block.	
Spare Key							
	For Key Selector Switch	Metal	TW-SK-0	TW-SK-0PN02	2		
Rubber Washer	0 3.0-mm thick	Rubber	OW-22	OW-22PN10	10	Outside diameter: ø33.8	
S	❷ 1.5-mm thick		OW-21	OW-21PN10	10	Inside diameter: ø25.5	

Note: Specify a color code in place of or in the Ordering No.

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Flush Silhouette

TWS Series Accessories and Replacement Parts Ø25

Maintenance Parts

LED Lamps (LSTD)

LED Lamps	(LSID)								Switches &	
Dimensions	Operating Voltage	Currer AC	nt Draw	Part No.	Ordering No.	Illumination Color Code	Package Quantity	Base	Pilot Lights	
	voltage	AC	DC				Quantity			
		0 0	7 mA (A, R, W)			LSTD-62	Specify a color code in place of 2	1		Display Lights
0.50	6V AC/DC ±5%	8 mA	5.5 mA (G, PW, S)	LSTD-62	LSTD-6 [©] PN10	in the Ordering No.	10		LED Illumination Units	
					LSTD-12	G: green	1			
(20.8)	12V AC/DC	11	10		LSID-IC	PW: pure white		DA00/10	Display Units	
2.4 18.4	±10%	11 mA	10 mA	LSTD-12		R: red	4.0	BA9S/13	Units	
					LSTD-1@PN10	S: blue	10		Safety	
Voltage						W: white			Products	
Base (x2) BA9S/13	24V AC/DC				LSTD-22	Use a pure white	1			
Grommet (x1)	±10%	11 mA	10 mA	LSTD-22		(PW) LED lamp			Terminal	
					LSTD-22PN10	with yellow (Y) lens.	10		Blocks	
		1	1	1						

Incandescent Lamps (LS)

Dimensions	Rated Operating Voltage	Lamp Ratings	Part No.	Package Quantity
	6V AC/DC	1W (6.3V)	LS-6	
3	12V AC/DC	1W (18V)	LS-8	-
Base BA9S/13	18V AC/DC	1W (24V)	LS-2	
22.5 ^{±1.5}	24V AC/DC	1W (30V)	LS-3	

Comm. Terminals

AS-Interface

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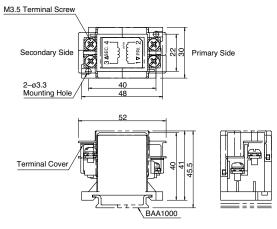
Transformer

Shape	Primary Voltage	Secondary Voltage	Part No.	Applicable Load		
For 6V	100/110V AC		TWR516			
	115/120V AC		TWR5126			
	200/220V AC		TWR526			
	230/240V AC	5.5V AC, 1W	TWR5246	LSTD-6 LED lamp (6V AC/DC) or LS-6 incandescent lamp (6V AC/DC, 1W)		
	380V AC		TWR5386			
	400/440V AC		TWR546			
	480V AC		TWR5486			

Specifications

Operating Voltage	100/110V AC, 115/120V AC, 200/220V AC, 230/240V AC, 380V AC, 400/440V AC, 480V AC (50/60Hz)	
Current Draw	2.4 VA	
Rated Insulation Voltage	600V	
Insulation Resistance	100 MΩ minimum (500V DC megger)	
Operating Temperature	-30 to +60°C (no freezing)	
Storage Temperature	-40 to +80°C (no freezing)	
Operating Humidity	35 to 85% RH (no condensation)	
Vibration Resistance	Damage Limits: 30 Hz, amplitude 1.5 mm Operating extremes: 5 to 55 Hz, amplitude 0.5 mm	
Shock Resistance	Damage limits : 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	(FC) 45 45

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

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Flush Silhouette

Switches 8

Pilot Lights

Display

Lights

.

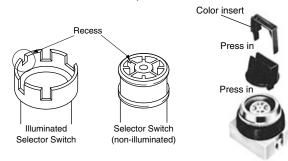
TWS Series Instructions | Ø25

Safety Precautions

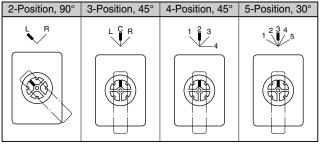
- Turn off the power to the TWS series control units before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid a burn on your hand, use the lamp holder tool when replacing lamps.
- · For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

Installation of Selector Operators

- 1. The shaft of each selector or illuminated selector switch has a recess to identify in which direction to install the operator. Align the operator with the recess and press in the operator.
- 2. Press color insert (non-illuminated) into the operator. The color insert retains the operator.



Standard Position



[Example]

Standard Position

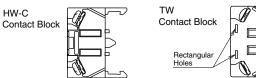
The non-illuminated operators can be installed in positions other than the standard position as shown above.

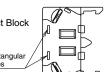
Removing Contact Blocks, Transformers, and Full Voltage Adapters

Insert the end of the contact block removal tool into the snap-fit latch of the contact block (or transformer, full voltage adapter) and pull the tool as shown on the right.



 Use HW-C contact blocks for the TWS series. Do not replace with or add conventional TW series contact blocks. Using a different type of contact block may lead to malfunction.





1. Removing the Color

Insert a flat screwdriver

(Non-illuminated)

3. Removing the Operator

Insert a flat screwdriver into

the recess of the operator

and turn the screwdriver to

remove the operator.

(Illuminated)

(4.5mm wide at maximum)

into the recess of the color

insert. Turn the screwdriver

Insert

Illumination Units		
Display		

Safety Products

Terminal Blocks

Comm. Terminals

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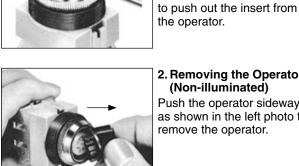
Control

Stations

Explosion Protection

References



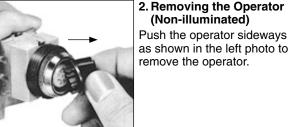


Removing the Operator

Recess

Flat

screwdriver



Recess

Flat

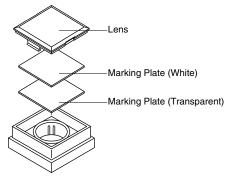
screwdriver

Instructions

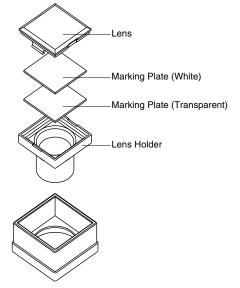
Installing Lenses

Lens Structure and Marking Plate

All square lens units are marking types. To engrave on the marking plate, remove the marking plate from the lens. Square Pilot Lens



Square Illuminated Pushbutton



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

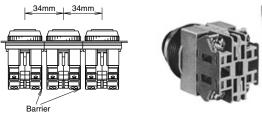
To install, insert the lamp head into the lamp holder tool. Place the pins on the lamp base to the grooves in the lamp socket. Insert the lamp and turn it clockwise.





Collective Mounting

When mounting the units closely in a horizontal row on 34mm centers, use optional barriers to prevent interconnection between adjoining terminals. The barriers can be attached simply by pressing them onto the sides of contact blocks.



Tightening Torque

Tighten the M3.5 terminal screws to a torque of 1.0 to 1.3 $\ensuremath{\text{N}$\cdot\text{m}$}.$

Flush Silhouette

Switches & Pilot Lights

Display

Display Units

Lights LED Illumination Units

TWS Series Instructions Ø25

Instructions

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

- Momentary Pushbutton (Excluding Extended with Half Shroud, Extended with Full Shroud, and Square)
- Round Pilot Light (APS1)

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

Applicable Models

• Momentary Pushbutton with Half Shroud (ABGS2)

Panel Thickness (mm)	Rubber Washer		
Faller Thickness (mm)	1.5 mm	3.0 mm	
Supplied	1 piece	1 piece	
0.8	1 piece	1 piece	
0.8 to 2.3		1 piece	
2.3 to 3.8	1 piece		

Applicable Models

- Maintained Extended Pushbutton with Half Shroud (AOGS2)
- Momentary Illuminated Pushbutton with Half Shroud (ALGS2)
- Maintained Illuminated Pushbutton with Half Shroud (AOLGS2)

Banal Thickness (mm)	Rubber Washer		
Panel Thickness (mm)	1.5 mm	3.0 mm	
Supplied	2 pieces	1 piece	
0.8	2 pieces	1 piece	
0.8 to 2.3	1 piece	1 piece	
2.3 to 3.8	—	1 piece	
3.8 to 5.3	1 piece		

Applicable Models

• Momentary Extended Pushbutton with Full Shroud (ABFS2)

Panel Thickness (mm)	Rubber Washer		
Faller mickness (mm)	1.5 mm	3.0 mm	
Supplied	3 pieces	1 piece	
0.8 to 1.5	3 pieces	1 piece	
1.5 to 3	2 pieces	1 piece	
3.0 to 4.5	1 piece	1 piece	
4.5 to 6		1 piece	

Applicable Models

Maintained Extended Pushbutton with Full Shroud (AOFS2)

Rubber Washer

				.	
Panel Thickness (mm)	Rubber Washer			Safety Products	
	Faller mickness (mm)	1.5 mm	3.0 mm		
	Supplied	4 pieces	1 piece		Terminal
	0.8 to 1.5	4 pieces	1 piece		Blocks
	1.5 to 3.0	3 pieces	1 piece		
	3.0 to 4.5	2 pieces	1 piece		Comm. Terminals
	4.5 to 6.0	1 piece	1 piece		Terrinidis

Applicable Models

• Other Models (Excluding Square)

Panal Thickness (mm)	Rubber Washer		
Panel Thickness (mm)	1.5 mm	3.0 mm	
Supplied	3 pieces	1 piece	
0.8 to 2.5	3 pieces	1 piece	
2.5 to 4.0	2 pieces	1 piece	
4.0 to 5.5	1 piece	1 piece	
5.5 to 6.0		1 piece	

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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.

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 $\pm 10\%$ 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 $\pm 10\%$ 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.

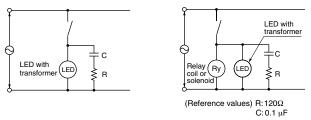
 Single-phase half-wave rectification This is not suitable for the power source of LED lamps. Use constant-voltage DC power.

Noise

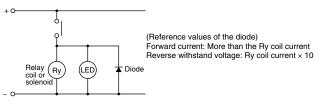
LED elements deteriorate due to extraneous noise, resulting in significant decrease in luminance, hue change, or failure of lighting. When such effects are anticipated, take a protection measure shown below, such as RC elements or a surge absorber.

- 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.

[Protection Example 1] For AC circuit



[Protection Example 2] For DC circuit



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.

