TW Series — 22mm NEMA Style Pushbuttons

Key features:

- TW NEMA Style Switches with snap-on contacts
- Corrosion resistant octagonal chrome plated locking bezel
- Snap-on 10A contact blocks
- LED illumination
- Slow make, double break, contacts
- Modular construction for maximum flexibility
- Type 4X and IP65 watertight/oiltight panel
- Available assembled or as sub-components
- Finger-Safe - Spring-Up
- Large M3.5 screw terminals with captive sems plate

IDEC has your 22mm switching needs covered.

Button styles include flush, extended, mushroom, or square and all bodies are crafted from fracture-resistant nylon.

All illuminated units feature two lens styles, one that maximizes light dispersion, the other accommodates direct lens engraving.

Contact mechanism allow for a wide current rating, 5mA to 10A, which reduces the need for various contact materials.

When looking for a 22mm switch that is durable, easy to use, and versatile, then IDEC's TW series is your solution.

UL Listed
File No. E68961

TÜV Rheinland

CSA Approved
File No. LR21451

File No. DK95-01696

Certificate No.
2030010305027380

Specifications

Conforming to Standards	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14
Approvals File No. E68961 (UL) File No. LR21451 (CSA) Certificate No. 2030010305027380 (CCC) TÜV Rheinland CE Registration No: J9551802 (E-Stops) Registration No: J9551803 (All other switches) Registration No: J9551804 (Pilot Lights)	**CSA:** pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) **UL:** pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) **TÜV:** pushbuttons and selector switches: A600–P600 (NO, NC)/Q600 (NO-EM, NC-LB) pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)
Operating Temperature	Operation: –25 to +50°C (without freezing), Storage: –40 to +80°C (without freezing)
Vibration Resistance	5 to 55Hz, 100m/sec^2 (10g) conforming to IEC6068-2-6
Shock Resistance	1000m/sec^2 (100g) conforming to IEC6068-2-7
Electric Shock Protection	Class 2 conforming to IEC60664-7
Degree of Protection (conforming to IEC60529) (conforming to NEMA ICS6-110)	IP65 from front of the panel; (IP54 for key switches) IP20 (Type HW-U contact block) Type 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (Type 1, 2, 3R, 5, 12, 13 for key switches)
Mechanical Life	Momentary pushbuttons: 5,000,000 (1800 operations per hour) All other switches: 500,000
Pollution Degree (conforming to IEC60947-1)	3
Rated Operational Characteristics	AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB) DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC) DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB)
Rated Insulation Voltage	600V
Rated Switching Over-Voltage	Less than 4kV, conforming to IEC60947-1
Rated Impulse Withstanding Voltage	4kV for contact circuit, 2.5kV for lamp circuit
Rated Thermal Current	10 Amp
Minimum Switching Capacity	5 mA at 3V AC/DC
Contact Operation	Slow break NC or slow make NO, self-cleaning

Recommended Terminal Torque

Unit	Wire		Number of Wires	Recommended Tightening Torque (Nm)	Terminal Screw
HW-U Contact Block	Crimping Terminal		2	1.0 to 1.3	M3.5
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3	
		ø1.7 to 2.0 mm (AWG12)	1	1.2 to 1.3	
	Stranded Wire	0.3 to 2.0 mm^2 (AWG14 to 22)	2	1.0 to 1.3	
		2.1 to 3.5 mm^2 (AWG12)	1	1.2 to 1.3	
Illuminated Unit (*1)	Crimping Terminal		2	1.0 to 1.3	M3.5
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)			
	Stranded Wire	0.3 to 2.0 mm (AWG14 to 22)			

Applicable Wire Size

Unit	Wire		Number of Wires	Recommended Tightening Torque (Nm)
Pilot Light	Crimping Terminal		2	0.6 to 1.0 (M3.0) 1.0 to 1.3 (M3.5)
	Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)		
	Stranded Wire	ø0.3 to 2.0 mm (AWG14 to 22)		

1. * refers to the lamp terminals of the illuminated push buttons and selector switches.

External Short-Circuit Protection	10A 250V fuse conforming to IEC60269-1
Applicable Wire Size	Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG
Contact Resistance	Initial contact resistance of 50mΩ or less
Contact Gap	4mm (NO and NC), 2mm (NO-EM and NC-LB)
Electrical Reliability	MTBF < 1 fault for 10 million operation cycles (3V DC, 5mA)
Lamp Ratings	LEDs: 6V: 17mA max, 12/24V: 11mA max, 120/240V: 10mA max
Horsepower Rating	1/4 HP @ 120V (single-phase, non-reversing motor); 1 HP @ 240V (3 phase, non-reversing motor)
Contact Material	Silver

Contact Ratings

Pushbuttons
Illuminated Pushbuttons
Selector Switches
Illuminated Selector Switches
Pushbutton Selectors

Contact Block	Type HW-U
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	AC50/60Hz	AC-12 Control of resistive loads and solid state loads	10A	—	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72VA)	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	—

Non-Illuminated Pushbuttons (Assembled)

Assembled Pushbuttons

A B ( ) W 1 10 – B

Function

B: Momentary
O: Maintained
K: Key On/Off Lock

Bezel Shape

Blank: Octagonal
F: Full Shroud
G: Mushroom Shroud
Q: Square

Button Color

B: Black G: Green W: White
R: Red S: Blue Y: Yellow

Contact Arrangement

10: 1NO 01: 1NC
20: 2NO 02: 2NC
11: 1NO-1NC 22: 2NO-2NC

Button Shape

1: Flush
2: Extended
3: Mushroom Head Ø 29mm
4: Mushroom Head Ø 40mm

Series Designation

W: TW Series

To be used for interpreting part numbers only, not for part number development.

Non-Illuminated Pushbuttons (Assembled) continued

Non-Illuminated Pushbuttons

Style		Contacts	Momentary Action	Maintained Action
Flush		1NO 1NC 1NO-1NC 2NO 2NC	ABW110-① ABW101-① ABW111-① ABW120-① ABW102-①	AOW110-① AOW101-① AOW111-① AOW120-① AOW102-①
Extended		1NO 1NC 1NO-1NC 2NO 2NC	ABW210-① ABW201-① ABW211-① ABW220-① ABW202-①	AOW210-① AOW201-① AOW211-① AOW220-① AOW202-①
Recessed		1NO 1NC 1NO-1NC 2NO 2NC	ABFW110-① ABFW101-① ABFW111-① ABFW120-① ABFW102-①	AOFW110-① AOFW101-① AOFW111-① AOFW120-① AOFW102-①
Extended with Full Shroud		1NO 1NC 1NO-1NC 2NO 2NC	ABFW210-① ABFW201-① ABFW211-① ABFW220-① ABFW202-①	AOFW210-① AOFW201-① AOFW211-① AOFW220-① AOFW202-①
Ø 29mm Mushroom Head		1NO 1NC 1NO-1NC 2NO 2NC	ABW310-① ABW301-① ABW311-① ABW320-① ABW302-①	AOW310-① AOW301-① AOW311-① AOW320-① AOW302-①
Ø 40mm Mushroom Head		1NO 1NC 1NO-1NC 2NO 2NC	ABW410-① ABW401-① ABW411-① ABW420-① ABW402-①	AOW410-① AOW401-① AOW411-① AOW420-① AOW402-①
Ø 40mm Mushroom Head with Full Shroud		1NO 1NC 1NO-1NC 2NO 2NC	ABGW410-① ABGW401-① ABGW411-① ABGW420-① ABGW402-①	AOGW410-① AOGW401-① AOGW411-① AOGW420-① AOGW402-①
Square Flush		1NO 1NC 1NO-1NC 2NO 2NC	ABQW110-① ABQW101-① ABQW111-① ABQW120-① ABQW102-①	AOQW110-① AOQW101-① AOQW111-① AOQW120-① AOQW102-①
Square Extended		1NO 1NC 1NO-1NC 2NO 2NC	ABQW210-① ABQW201-① ABQW211-① ABQW220-① ABQW202-①	AOQW210-① AOQW201-① AOQW211-① AOQW220-① AOQW202-①
Keylock Push On/ Off		1NO 1NC 1NO-1NC 2NO 2NC	AKW210 AKW201 AKW211 AKW220 AKW202	–

1. In place of ①, specify the Button Color Code from table.
2. For sub-assembled part numbers, see next page.
3. For accessories, see page 728.
4. For dimensions, see page 730.
5. Keyed switches are supplied with two keys. All units are keyed alike.

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
Yellow	Y
White	W

Non-Illuminated Pushbuttons (Sub-Assembled)

Contact Blocks	+	Operator	+	Button	=	Complete Part

Operators

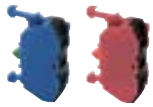
Style	Part Number	
	Momentary	Maintained
Round Flush/Extended	ABW-100	AOW-100
Round with Full Shroud/Recessed	ABFW-200	AOFW-200
Ø 40mm, Ø 29mm Mushroom Head	ABW-300	AOW-300
Ø 40mm Mushroom Head with Full Shroud	ABGW-400	AOGW-400
Square Flush/Extended	ABQW-100	AOQW-100
Keylock Push On/Off	—	AKW-200

Buttons

Style	Part Number
Round Flush	ABW1B-①
Round Extended	ABW2B-①
Ø 29mm Mushroom	ABW3B-①
Ø 40mm Mushroom	ABW4B-①
Square Flush	ABQW1B-①
Square Extended	ABQW2B-①

In place of ① specify the button color code from table

Contact Blocks

Style	Contacts	1NO	1NC
	Finger-Safe Spring-Up Terminal	HW-U10-F	HW-U01-F
		HW-U10R-F (early make)	HW-U01R-F (late break)
	Dummy Block	HW-DB	

1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Use of early and late break contacts creates a make before break function

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
Yellow	Y
White	W

Stop Switches (Assembled)

To be used for interpreting part numbers only, not for part number development.

Assembled Stop Switches

A V (L) W 4 (B) (99) 11 (D) – R – (24V)

Function

V: Pushlock Turn Reset
Y: Push-Pull
X: Pushlock Key Reset

Illumination

Blank: None
L: Illuminated

Series Designation

W: TW Series

Button/Lens Size

3: 29mm Mushroom
4: 40mm Mushroom

Lens Type
(illuminated units only)

Blank: Standard (ribbed)
B: Engravable (smooth with insert)

Illuminated Circuit
(illuminated unit only)

99: Full Voltage (LED determines voltage)
126: 120V AC Step Down Transformer
246: 240V AC Step Down Transformer
486: 480V AC Step Down Transformer

Lamp Voltage
(full voltage illuminated units only)

6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC
240V: 240V AC

Button/Lens Color

A: Amber R: Red W: White
G: Green S: Blue Y: Yellow
B: Black

Lamp Type
(illuminated units only)

D: LED

Contact Arrangement

10: 1NO 01: 1NC
20: 2NO 02: 2NC
11: 1NO/1NC 22: 2NO/2NC

Stop Switches (Assembled), continued

Non-Illuminated Stop Switches

Style		Contacts	Part Number
Ø 40mm Pushlock Turn Reset*		1NO 1NC 1NO-1NC 2NO 2NC	AVW410-R* AVW401-R* AVW411-R* AVW420-R* AVW402-R*
Ø 29mm Pushlock Turn Reset*		1NO 1NC 1NO-1NC 2NO 2NC	AVW310-R* AVW301-R* AVW311-R* AVW320-R* AVW302-R*
Ø 40mm Push-Pull		1NO 1NC 1NO-1NC 2NO 2NC	AYW410-① AYW401-① AYW411-① AYW420-① AYW402-①
Ø 40mm Pushlock Key Reset *		1NO 1NC 1NO-1NC 2NO 2NC	AXW410- R* AXW401- R* AXW411- R* AXW420- R* AXW402- R*

1. *Available in Red only.
2. In place of ①, specify the Button Color Code from table.
3. For sub-assembled part numbers, see next page.
4. For accessories, see page 728.
5. For dimensions, see page 730.

Illuminated Stop Switches

Style		Type	Contacts	Part Number
Ø 40mm Pushlock Turn Reset Type		Transformer	1NO-1NC 2NO 2NC	AVLW4 ④ 11D-R* AVLW4 ④ 20D-R* AVLW4 ④ 02D-R*
		Full Voltage	1NO-1NC 2NO 2NC	AVLW49911D-R*-③ AVLW49920D-R*-③ AVLW49902D-R*-③
Ø 29mm Pushlock Turn Reset		Transformer	1NO-1NC 2NO 2NC	AVLW3④11D-R* AVLW3④20D-R* AVLW3④02D-R*
		Full Voltage	1NO-1NC 2NO 2NC	AVLW39911D-R*-③ AVLW39920D-R*-③ AVLW39902D-R*-③
Ø 40mm Push-Pull		Transformer	1NO-1NC 2NO 2NC	AYLW4 ④ 11D-② AYLW4 ④ 20D-② AYLW4 ④ 02D-②
		Full Voltage	1NO-1NC 2NO 2NC	AYLW49911D-②-③ AYLW49920D-②-③ AYLW49902D-②-③

1. *Available in red only.
2. In place of ②, specify the Lens Color Code (see table above).
3. In place of ③, specify the Full Voltage Code (lamp voltage) (see table above).
4. In place of ④, specify the Transformer Voltage Code (see table above).
5. For sub-assembly part numbers, see next page.
6. For accessories, see page 728.
7. For dimensions, see page 730.

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486

Transformers step down to 6V.

Stop Switches (Sub-Assembled)

Transformer/ Adaptor*	+	Contacts	+	Lamp Holder	+	Operator	+	Lamp	+	Button or Lens	=	Complete Part

*Not applicable for full voltage units

Operators

Style	Part Number	
	Non-Illuminated	Illuminated
Ø 29/Ø 40mm Pushlock Turn Reset	AVW-300	AVLW3-0600
Ø 40mm Push-Pull	AYW-400	AYLW4-0600
Ø 40mm Pushlock Key Reset	AXW-300	—

Buttons

Style	Part Number
Ø 40mm Pushlock Turn Reset	AVW4B-R*
Ø 29mm Pushlock Turn Reset	AVW3B-R*
Ø 40mm Push-Pull	AYW4B-①
Ø 40mm Pushlock Key Reset	AXW4B-R*

1. *Available in Red only
2. In place of ①, specify the button color code from table.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②

1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

① Button Color Codes

Color	Code
Black	B
Green	G
Red	R
Blue	S
White	W
Yellow	Y

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W

Illuminated Stop Switches (Sub-Assembled) continued

Lenses

Style	Part Number	
	Standard	Engravable
Ø 29mm Head Pushlock Turn Reset	AVLW3LU-R*	AVLW3BLU-R*
Ø 40mm Head Pushlock Turn Reset	AVLW4LU-R*	AVLW4BLU-R*
Ø 40mm Head Push Pull	AYLW4LU-②	AYLW4BLU-②

1. In place of ②, specify the lens color code from table on previous page.
2. *Available only in red
3. Standard lenses have ribbed pattern, Engravable lenses are smooth and include an engravable insert.

Lamp Circuit Components

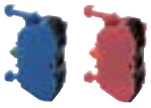
Style	Application	Part Number
Long Lamp Holder	**Used with** Full-size Transformer and two contact blocks	TW-LH2
Lead Holder	**Used with** TW-LH2 holder when using four contact blocks and transformer	HW-LH3

Transformers/Full Voltage Modules

Style		Description		Part Number
Full Size Transformer		Finger-Safe	120V AC	TW-F126B
			240V AC	TW-F246B
			480V AC	TW-F486B
Dummy Block with Full Voltage Adaptor	For use with odd number of contacts.	Finger-Safe		HW-DA1FBN
Full Voltage Adaptor	For use with even number of contacts.	Finger-Safe		TW-DA1FB

All Transformers step down to 6V (use 6V LED).

Contact Blocks

Style	Contacts	1NO	1NC
	Finger-Safe Spring-Up Terminal	HW-U10-F	HW-U01-F
		HW-U10R-F (early make)	HW-U01R-F (late break)
	Dummy Block	HW-DB	

1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Use of early and late break contacts creates a make before break function

Pilot Lights (Assembled)

Assembled Pilot Lights

A P (Q) W 1 (B) (99) (D) – R – (24V)

Function
P: Pilot Light

Bezel Shape
Blank: Octagonal (round lenses)
Q: Square

Series Designation
W: TW Series

Lens Shape
1: Flat
2: Dome

Lens Type
Blank: Standard (ribbed)
B: Engravable (smooth with insert included)

Illumination Circuit
99: Full Voltage (lamp determines voltage)
126: 120V AC Step Down Transformer
246: 240V AC Step Down Transformer
486: 480V AC Step Down Transformer

Lamp Voltage
(Full Voltage Units Only)
6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC
240V: 240V AC

Lens Color Code
A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Lamp
D: LED

1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. All transformers step down to 6V.

Pilot Lights (Assembled) continued

Assembled Pilot Lights

Style		Type	Voltage	Part Number
Round Flat		Transformer	120VAC 240VAC 480VAC	APW1126D-② APW1246D-② APW1486D-②
		Full Voltage	—	APW199D-②-③
Dome		Transformer	120VAC 240VAC 480VAC	APW2126D-② APW2246D-② APW2486D-②
		Full Voltage	—	APW299D-②-③
Square Flat		Transformer	120VAC 240VAC 480VAC	APQW1B126D-② APQW1B246D-② APQW1B486D-②
		Full Voltage	—	APQW1B99D-②-③

1. In place of ②, specify the Lens Color Code from table below.
2. In place of ③, specify the Full Voltage Code from table below.
3. For accessories, see page 728.
4. For dimensions, see page 730.
5. For sub-assembly part numbers, see next page.
6. Yellow pilot light comes with white LED.

② Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V

Pilot Lights (Sub-Assembled)

Transformer	+	Operator	+	Lamp	+	Lens	=	Complete Part

* Transformer not required for full voltage units.

Operators

Style	Part Number
Round Dome/Flat	APW-199
Square	UPQW-199

Same operator is used for full voltage as for transformer completed units.

Lenses

Style	Part Number	
	Standard	Engravable
Dome	APW2LU-②	—
Round Flat	APW1LU-②	APW1BLU-②
Square Flat	—	APQW1BLU-②

1. In place of ②, specify the Lens Color Code from table.
2. Standard lenses have a ribbed lens to enhance light dispersion. Marking lenses are smooth and include an engravable insert.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②

1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.
3. Yellow LED not available. Use white LED.

Transformers

Style	Description		Part Number
	Finger-Safe	120V AC	TW-F126B
		240V AC	TW-F246B
		480V AC	TW-F486B

All Transformers step down to 6V (use 6V LED).

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

If clear lens is desired, use white marking lens and remove engraving insert

Illuminated Pushbuttons (Assembled)

Assembled Illuminated Pushbuttons

A L (F) W 2 (B) 99 11 (D) – R – (24V)

Function

L:Momentary Action
OL:Maintained Action

Bezel Shape

Blank: Octagonal (round lenses)
F: Full Shroud (round lenses)
Q: Square

Series Designation

W: TW series

Lens Shape/Size

2: Standard Extended (round or square)
3: 29mm Mushroom
4: 40mm Mushroom

Lens Type

Blank: Standard (ribbed)
B: Engravable (smooth with insert)

Illumination Circuit

99: Full Voltage (lamp determines voltage)
126: 120V AC Step Down Transformer
246: 240V AC Step Down Transformer
486: 480V AC Step Down Transformer

Lamp Voltage
(Full Voltage Units Only)

6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC
240V: 240V AC

Lens Code

A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Lamp Type

D: LED Lamp

Contact Arrangement

10: 1NO
20: 2NO
11: 1NO-1NC
01: 1NC
02: 2NC
22: 2NO-2NC

1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Transformers step down to 6V.

Illuminated Pushbuttons (Assembled)

Illuminated Pushbuttons

Style		Contacts	Part Number	
			Momentary	Maintained
Extended Lens	Transformer	1NO-1NC 2NO 2NC	ALW2 ④ 11D-② ALW2 ④ 20D-② ALW2 ④ 02D-②	AOLW2 ④ 11D-② AOLW2 ④ 20D-② AOLW2 ④ 02D-②
	Full Voltage	1NO-1NC 2NO 2NC	ALW29911D-②-③ ALW29920D-②-③ ALW29902D-②-③	AOLW29911D-②-③ AOLW29920D-②-③ AOLW29902D-②-③
Extended Lens with Full Shroud	Transformer	1NO-1NC 2NO 2NC	ALFW2 ④ 11D-② ALFW2 ④ 20D-② ALFW2 ④ 02D-②	AOLFW2 ④ 11D-② AOLFW2 ④ 20D-② AOLFW2 ④ 02D-②
	Full Voltage	1NO-1NC 2NO 2NC	ALFW29911D-②-③ ALFW29920D-②-③ ALFW29902D-②-③	AOLFW29911D-②-③ AOLFW29920D-②-③ AOLFW29902D-②-③
ø29mm Mushroom Button	Transformer	1NO-1NC 2NO 2NC	ALW3 ④ 11D-② ALW3 ④ 20D-② ALW3 ④ 02D-②	AOLW3 ④11D-② AOLW3 ④20D-② AOLW3 ④ 02D-②
	Full Voltage	1NO-1NC 2NO 2NC	ALW39911D-②-③ ALW39920D-②-③ ALW39902D-②-③	AOLW39911D-②-③ AOLW39920D-②-③ AOLW39902D-②-③
ø40mm Mushroom Button	Transformer	1NO-1NC 2NO 2NC	ALW4 ④ 11D-② ALW4 ④ 20D-② ALW4 ④ 02D-②	AOLW4 ④11D-② AOLW4 ④20D-② AOLW4 ④ 02D-②
	Full Voltage	1NO-1NC 2NO 2NC	ALW49911D-②-③ ALW49920D-②-③ ALW49902D-②-③	AOLW49911D-②-③ AOLW49920D-②-③ AOLW49902D-②-③
Square Extended	Transformer	1NO-1NC 2NO 2NC	ALQW2B ④11D-② ALQW2B ④20D-② ALQW2B ④02D-②	AOLQW2B ④11D-② AOLQW2B ④20D-② AOLQW2B ④02D-②
	Full Voltage	1NO-1NC 2NO 2NC	ALQW2B9911D-②-③ ALQW2B9920D-②-③ ALQW2B9902D-②-③	AOLQW2B9911D-②-③ AOLQW2B9920D-②-③ AOLQW2B9902D-②-③

1. In place of ②, specify the Lens Color Code (see table). Mushroom lenses not available in yellow.
2. In place of ③, specify the Full Voltage Code (lamp voltage) (see table).
3. In place of ④, specify the Transformer Voltage Code (see table).
4. For sub-assembly part numbers, see next page.
5. For accessories, see page 728.
6. For dimensions, see page 730.
7. Light is independent of switch position.
8. Yellow pushbutton comes with white LED.

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

1. Mushroom lenses not available in yellow.
2. Yellow pushbutton comes with white LED.

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486

Transformers step down to 6V (use 6V LED).

Illuminated Pushbuttons (Sub-Assembled)

Transformer/ Adaptor*	+	Contacts	+	Lamp Holder	+	Operator	+	Lamp	+	Lens	=	Complete Part

*Not applicable for full voltage units

Operators

Style		Part Number	
		Momentary	Maintained
Extended		ALW-0600	AOLW-0600
Extended with Full Shroud		ALFW-0600	AOLFW-0600
ø29mm/ø40mm Mushroom		ALW3-0600	AOLW3-0600
Square/Extended		ALQW-2B0600	AOLQW-2B0600

Lenses

Style		Part Number	
		Standard	Engravable
Round Extended		ALW2LU-②	ALW2BLU-②
ø 29mm Mushroom Head*		ALW3LU-②	ALW3BLU-②
ø 40mm Mushroom Head*		ALW4LU-②	ALW4BLU-②
Square Extended		—	ALQW2BLU-②

1. In place of ②, specify the lens color code from table on the bottom right.
2. *Mushroom lens not available in yellow.
3. Standard lenses have ribbed pattern, Engravable lenses are smooth and include an engravable insert.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②

1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

Lamp Circuit Components

Style	Application	Part Number
Long Lamp Holder	**Used with** Full-size Transformer and two contact blocks	TW-LH2
Lead Holder	**Used with** TW-LH2 holder when using four contact blocks and transformer	HW-LH3

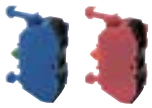
② LED/Lens Color Codes

Color	Code	Color	Code
Amber	A	Blue	S
Green	G	White	W
Red	R	Yellow	Y

Yellow LED not available. Use white LED.

Illuminated Pushbuttons (Sub-Assembled) continued

Contact Blocks

Style	Contacts	1NO	1NC
	Finger-Safe Spring-Up Terminal	HW-U10-F	HW-U01-F
		HW-U10R-F (early make)	HW-U01R-F (late break)
	Dummy Block	HW-DB	

1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Use of early and late break contacts creates a make before break function

Transformers/Full Voltage Modules

Style		Description		Part Number
Full Size Transformer		Finger-Safe	120V AC	TW-F126B
			240V AC	TW-F246B
			480V AC	TW-F486B
Dummy Block with Full Voltage Adaptor	For use with odd number of contacts.	Finger-Safe		HW-DA1FBN
Full Voltage Adaptor	For use with even number of contacts.	Finger-Safe		TW-DA1FB

All Transformers step down to 6V (use 6V LED).

Non-Illuminated Selector Switches (Assembled)

Assembled Selector Switches

A S W 3 (1) (L) 20 – 304

Function

S: Selector Switch

Series Designation

W: TW Series

Number of Positions

2: 2-Position
3: 3-Position
4: 4-Position
5: 5-Position

Spring Return Action

Blank: Maintained
1: Spring return from Right (2 or 3 position)
2: Spring return from Left (2 or 3 position)
3: 2-Way spring return from Left and Right (3 position only)

Circuit Number

(Standard circuits shown on following pages and 720.)

Contact Arrangement Code

10: 1NO	01: 1NC
20: 2NO	02: 2NC
40: 4NO	04: 4NC
11: 1NO-1NC	22: 2NO-2NC

Operator Style Code

Blank: Knob Operator
L: Lever Operator
K: Key Operator

1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Custom contact configurations available.
3. Custom key removable codes available.
4. Portions of part number inside ( ) are optional.

Non-Illuminated Selector Switches (Assembled) continued

2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position L	Operator Position R		Maintained	Spring Return from Right	Spring Return from Left
					L R	L R	L R
1NO	1 2	O O	X O	Knob Lever Key	ASW210 ASW2L10 ASW2K10	ASW2110 ASW21L10 ASW21K10	ASW2210 ASW22L10 ASW22K10
1NC	1 2	X O	O O	Knob Lever Key	ASW201-116 ASW2L01-116 ASW2K01-116	ASW2101-116 ASW21L01-116 ASW21K01-116	ASW2201-116 ASW22L01-116 ASW22K01-116
1NO 1NC	1 2	X O	O X	Knob Lever Key	ASW211 ASW2L11 ASW2K11	ASW2111 ASW21L11 ASW21K11	ASW2211 ASW22L11 ASW22K11
2NO	1 2	O O	X X	Knob Lever Key	ASW220 ASW2L20 ASW2K20	ASW2120 ASW21L20 ASW21K20	ASW2220 ASW22L20 ASW22K20
2NC	1 2	X X	O O	Knob Lever Key	ASW202-104 ASW2L02-104 ASW2K02-104	ASW2102-104 ASW21L02-104 ASW21K02-104	ASW2202-104 ASW22L02-104 ASW22K02-104
2NO 2NC	1 2 3 4	O X O X	X O X O	Knob Lever Key	ASW222 ASW2L22 ASW2K22	ASW2122 ASW21L22 ASW21K22	ASW2222 ASW22L22 ASW22K22
2NO 2NC	1 2 3 4	O O X X	X X O O	Knob Lever Key	ASW222-111 ASW2L22-111 ASW2K22-111	ASW2122-111 ASW21L22-111 ASW21K22-111	ASW2222-111 ASW22L22-111 ASW22K22-111

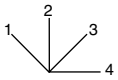
Non-Illuminated Selector Switches (Assembled) continued

3-Position Selector Switches

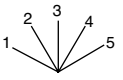
Style						Part Number			
Contact	Mounting	Operator Position L	Operator Position C	Operator Position R		Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-Way
2NO	1 2	X 0	0 0	0 X	Knob Lever Key	ASW320 ASW3L20 ASW3K20	ASW3120 ASW31L20 ASW31K20	ASW3220 ASW32L20 ASW32K20	ASW3320 ASW33L20 ASW33K20
2NC	1 2	0 X—X	X—X X—X	X—X 0	Knob Lever Key	ASW302 ASW3L02 ASW3K02	ASW3102 ASW31L02 ASW31K02	ASW3202 ASW32L02 ASW32K02	ASW3302 ASW33L02 ASW33K02
2NO 2NC	1 2 3 4	X 0 0 X—X	0 0 X—X X—X	0 X X—X 0	Knob Lever Key	ASW322 ASW3L22 ASW3K22	ASW3122 ASW31L22 ASW31K22	ASW3222 ASW32L22 ASW32K22	ASW3322 ASW33L22 ASW33K22
2NO 2NC	1 2 3 4	X X—X 0 0	0 X—X X 0	X 0 0 X	Knob Lever Key	ASW322-309 ASW3L22-309 ASW3K22-309	ASW3122-309 ASW31L22-309 ASW31K22-309	ASW3222-309 ASW32L22-309 ASW32K22-309	ASW3322-309 ASW33L22-309 ASW33K22-309
2NO 2NC	1 2 3 4	0 0 0 0	X 0 X 0	0 X 0 X	Knob Lever Key	ASW322-310 ASW3L22-310 ASW3K22-310	ASW3122-310 ASW31L22-310 ASW31K22-310	ASW3222-310 ASW32L22-310 ASW32K22-310	ASW3322-310 ASW33L22-310 ASW33K22-310
4NO	1 2 3 4	X 0 X 0	0 0 0 0	0 X 0 X	Knob Lever Key	ASW340 ASW3L40 ASW3K40	ASW3140 ASW31L40 ASW31K40	ASW3240 ASW32L40 ASW32K40	ASW3340 ASW33L40 ASW33K40
4NC	1 2 3 4	0 X—X 0 X—X	X—X X—X X—X X—X	X—X 0 X—X 0	Knob Lever Key	ASW304 ASW3L04 ASW3K04	ASW3104 ASW31L04 ASW31K04	ASW3204 ASW32L04 ASW32K04	ASW3304 ASW33L04 ASW33K04

1. The truth table indicates the operating position of contact block when the operator is switched to that position.
   X = On (closed contacts)
   0 = Off (open contacts)
   X—X = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these two positions.
2. All knob and lever selector switches come in black. Other colors are available by ordering the knob or lever separately.
3. Every key selector switch uses an identical key. The key is removable in any maintained position.
4. Custom contact configurations are available, see page 720.

4-Position Selector Switch

Style						Maintained	
Contact	Mounting	Operator Position 1	Operator Position 2	Operator Position 3	Operator Position 4		Part Number
							
2NO 2NC	1 2 3 4	X 0 0 0	0 X 0 0	0 0 X 0	0 0 0 X	Knob Lever	ASW422-411 ASW4L22-411

5-Position Selector Switch

Style							Maintained	
Contact	Mounting	Operator Position 1	Operator Position 2	Operator Position 3	Operator Position 4	Operator Position 5		Part Number
								
2NO 2NC	1 2 3 4	X 0 0 0	0 X 0 0	0 0 0 0	0 0 X 0	0 0 0 X	Knob Lever	ASW522-501 ASW5L22-501

Non-Illuminated Selector Switches (Sub-Assembled)

Contact Blocks	+	Operator	+	Knob or Lever*	+	Color Insert*	=	Complete Part†

1. *Not needed with key type switches.
2. †Knob type shown.

Operators

Style	Positions	Description	Part Number
Knob/Lever	2	Maintained	ASW200
		Spring return from right	ASW2100
		Spring return from left	ASW2200
	3	Maintained, Cam 1 Maintained, Cam 2 Maintained, Cam 3	ASW300-1 ASW300-2 ASW300-3
		Spring return from right, Cam 1 Spring return from right, Cam 2	ASW3100-1 ASW3100-2
		Spring return from left, Cam 1 Spring return from left, Cam 2	ASW3200-1 ASW3200-2
		Spring return from left/right, Cam 1 Spring return from left/right, Cam 2	ASW3300-1 ASW3300-2
	4	Maintained, Standard Cam Maintained, Cam 1	ASW400 ASW400-1
	5	Maintained, Standard cam Maintained, Cam 1	ASW500 ASW500-1
Key	2	Maintained	ASW2K00
		Spring return from right	ASW21K00
		Spring return from left	ASW22K00
	3	Maintained, Cam 1 Maintained, Cam 2 Maintained, Cam 3	ASW3K00-1 ASW3K00-2 ASW3K00-3
		Spring return from right, Cam 1 Spring return from right, Cam 2	ASW31K00-1 ASW31K00-2
		Spring return from left, Cam 1 Spring return from left, Cam 2	ASW32K00-1 ASW32K00-2
		Spring return from left/right, Cam 1 Spring return from left/right, Cam 2	ASW33K00-1 ASW33K00-2

1. Two keys are supplied with every key switch, all are keyed alike, and removable from any maintained position.
2. Locking rings are included with all operators. Order knobs, levers, and color inserts separately.
3. Different cams produce different contact actions. For details, see page 720.
4. Key switch operator supplied with black sleeve.

Handles and Inserts

Style		Part Number
Knob		ASWHHY-①
Lever		ASWHHL-①
Color Insert		TW-HC1-①

Contact Blocks

Style	Contacts	1NO	1NC
	Finger-Safe Spring-Up Terminal	HW-U10-F	HW-U01-F
		HW-U10R-F (early make)	HW-U01R-F (late break)
	Dummy Block	HW-DB	

1. Push rod color code:
   Green = NO contact block
   Red = NC contact block.
2. Dummy blocks (no contacts) are used with an odd number of contact blocks.

① Handle/Insert Color Codes

Color	Code
Black*	B
Blue	S
Green	G
Red	R
Yellow	Y
White†	W

*Color inserts not available in black.
†Knob and lever not available in white.

Replacement Parts

Key Switch Black Sleeve	AKW2B-B

Illuminated Selector Switches (Assembled)

Assembled Illuminated Selector Switches

A SL W 2 (2) 99 11 (D) – (103) – R – (24V)

Function

SL:Illuminated Selector Switch

Series Designation

W: TW series

Number of Positions

2: 2-Position
3: 3-Position

Spring Return Action

Blank: Maintained
1: Spring return from Right
2: Spring return from Left
3: Two-Way spring return from Left and Right

Illumination Circuit

99: Full Voltage (lamp determines voltage)
126: 120V AC Step Down Transformer
246: 240V AC Step Down Transformer
486: 480V AC Step Down Transformer

Lamp Voltage

(Full Voltage Units Only)

6V: 6V AC/DC
12V: 12V AC/DC
24V: 24V AC/DC
120V: 120V AC
240V: 240V AC

Lens Color Code

A: Amber
G: Green
R: Red
S: Blue
W: White
Y: Yellow

Contact Circuit Number

Standard circuits are listed on the following pages and 720.

Lamp Type

D: LED Lamp

Contact Arrangement

10: 1NO	01: 1NC
20: 2NO	02: 2NC
40: 4NO	04: 4NC
11: 1NO-1NC	22: 2NO-2NC

1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. All transformers step down to 6V (use 6V lamp).

Illuminated Selector Switches(Assembled) continued

Illuminated 2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position L	Operator Position R	Lamp Circuit Type	Maintained	Spring Return from Right	Spring Return from Left
					L R	L R	L R
1NO 1NC	1 2	0 X	X 0	Transformer Full Voltage	ASLW2 ① 11D-② ASLW29911D-②-③	ASLW21 ① 11D-② ASLW219911D-②-③	ASLW22 ① 11D-② ASLW229911D-②-③
2NO	1 2	0 0	X X	Transformer Full Voltage	ASLW2 ① 20D-② ASLW29920D-②-③	ASLW21 ① 20D-② ASLW219920D-②-③	ASLW22 ① 20D-② ASLW229920D-②-③
2NC	1 2	X X	0 0	Transformer Full Voltage	ASLW2 ① 02D-104-② ASLW29902D-104-②-③	ASLW21 ① 02D-104-② ASLW219902D-104-②-③	ASLW22 ① 02D-104-② ASLW229902D-104-②-③
2NO 2NC	1 2 3 4	0 X 0 X	X 0 X 0	Transformer Full Voltage	ASLW2 ① 22D-② ASLW29922D-②-③	ASLW21 ① 22D-② ASLW219922D-②-③	ASLW22 ① 22D-② ASLW229922D-②-③

① Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486

Transformers step down to 6V (use 6V LED).

② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

Illuminated 3-Position Selector Switches, Maintained and Spring Return from Right

Style						Part Number			
Contact	Mounting	Operator Position L	Operator Position C	Operator Position R	Lamp Circuit Type	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
2NO	1 2	X 0	0 0	0 X	Transformer Full Voltage	ASLW3 ① 20D-② ASLW39920D-②-③	ASLW31 ① 20D-② ASLW319920D-②-③	ASLW32 ① 20D-② ASLW329920D-②-③	ASLW33 ① 20D-② ASLW339920D-②-③
2NC	1 2	0 X	X X	X 0	Transformer Full Voltage	ASLW3 ① 02D-② ASLW39902D-②-③	ASLW31 ① 02D-② ASLW319902D-②-③	ASLW32 ① 02D-② ASLW329902D-②-③	ASLW33 ① 02D-② ASLW339902D-②-③
2NO 2NC	1 2 3 4	X 0 0 X	0 0 X X	0 X X 0	Transformer Full Voltage	ASLW3 ① 22D-② ASLW39922D-②-③	ASLW31 ① 22D-② ASLW319922D-②-③	ASLW32 ① 22D-② ASLW329922D-②-③	ASLW33 ① 22D-② ASLW339922D-②-③
2NO 2NC	1 2 3 4	X X 0 0	0 X X 0	X 0 0 X	Transformer Full Voltage	ASLW3 ① 22D-309-② ASLW39922D-309-②-③	ASLW31 ① 22D-309-② ASLW319922D-309-②-③	ASLW32 ① 22D-309-② ASLW329922D-309-②-③	ASLW33 ① 22D-309-② ASLW339922D-309-②-③
2NO 2NC	1 2 3 4	0 0 0 0	X 0 X 0	0 X 0 X	Transformer Full Voltage	ASLW3 ① 22D-310-② ASLW39922D-310-②-③	ASLW31 ① 22D-310-② ASLW319922D-310-②-③	ASLW32 ① 22D-310- ② ASLW329922D-310- ② -③	ASLW33 ① 22D-310-② ASLW339922D-310-②-③
4NO	1 2 3 4	X 0 X 0	0 0 0 0	0 X 0 X	Transformer Full Voltage	ASLW3 ① 40D-② ASLW39940D-②-③	ASLW31 ① 40D-② ASLW319940D-②-③	ASLW32 ① 40D-② ASLW329940D-②-③	ASLW33 ① 40D-② ASLW339940D-②-③
4NC	1 2 3 4	0 X 0 X	X X X X	X 0 X 0	Transformer Full Voltage	ASLW3 ① 04D-② ASLW39904D-②-③	ASLW31 ① 04D-② ASLW319904D-②-③	ASLW32 ① 04D-② ASLW329904D-②-③	ASLW33 ① 04D-② ASLW339904D-②-③

1. In place of ①, specify the Transformer Voltage Code.
2. In place of ②, specify the Lens/LED Color Code.
3. In place of ③, specify the Full Voltage Code.
4. For custom contact configurations, see page 720.
5. Light is independent of switch position.
6. Yellow selector switch comes with white LED.

③ Full Voltage Codes

Voltage	Code
6V AC/DC	6V
12V AC/DC	12V
24V AC/DC	24V
120V AC	120V
240V AC	240V

Illuminated Selector Switches (Sub-Assembled)

Transformer*	+	Contact Block	+	Operator	+	Lamp/Lead Holder†	+	LED	+	Lens	=	Complete Part

*Full voltage units use a full voltage adaptor TW-DA1FB (even number of blocks) OR HW-DA1FBN (odd number of blocks) instead of a transformer.
†Lamp holder is not included with operators, order separately.

Operators

Style	Positions	Description	Part Number
	2	Maintained	ASLW200
		Spring return from right	ASLW2100
		Spring return from left	ASLW2200
	3	Maintained, cam 1 Maintained, cam 2 Maintained, cam 3	ASLW300-1 ASLW300-2 ASLW300-3
		Spring return from right, cam 1 Spring return from right, cam 2	ASLW3100-1 ASLW3100-2
		Spring return from left, cam 1 Spring return from left, cam 2	ASLW3200-1 ASLW3200-2
		Spring return from left/right, cam 1 Spring return from left/right, cam 2	ASLW3300-1 ASLW3300-2

Different cams produce different contact action. For details, see Contact Arrangements on page 720.

Lenses (Knobs)

Style		Part Number
Knob		ASLWLU-②

In place of ②, specify the lens color code from table.

Lamps

Style	Voltage	Part Number
LED	6V AC/DC	LSTD-6②
	12V AC/DC	LSTD-1②
	24V AC/DC	LSTD-2②
	120V AC	LSTD-H2②
	240V AC	LSTD-M4②

1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

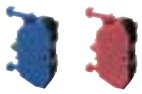
② LED/Lens Color Codes

Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y

Yellow LED not available. Use white LED

Illuminated Selector Switches (Sub-Assembled) continued

Contact Blocks

Style	Contacts	1NO	1NC
	Finger-Safe Spring-Up Terminal	HW-U10-F	HW-U01-F
		HW-U10R-F (early make)	HW-U01R-F (late break)
	Dummy Block	HW-DB	

1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Use of early and late break contacts creates a make before break function

Lamp Circuit Components

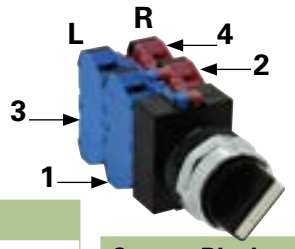
Style	Application	Part Number
Short Lamp Holder	**Used with** full voltage adaptor and one contact block	TW-LH1
Long Lamp Holder	**Used with** Full-size Transformer and two contact blocks	TW-LH2
Lead Holder	**Used with** TW-LH2 holder when using four contact blocks and full size transformer	HW-LH3

Transformers/Full Voltage Modules

Style		Description		Part Number
Full Size Transformer		Finger-Safe	120V AC	TW-F126B
			240V AC	TW-F246B
			480V AC	TW-F486B
Dummy Block with Full Voltage Adaptor	For use with odd number of contacts.	Finger-Safe		HW-DA1FBN
Full Voltage Adaptor	For use with even number of contacts.	Finger-Safe		TW-DA1FB

All Transformers step down to 6V (use 6V lamp).

Contact Arrangement Charts



How to Read Contact Arrangement Charts

To determine contact block mounting position, first make sure the selector switch is oriented as shown on the right

Contact Arrangement
Type and quantity of switch contacts

Circuit Number
* N/D = No designation required

Contact Block Mounting Position
Position or mounting contact blocks on operator.

Operator Position
Truth table indicates the operating position of contact block when operator is switched to that position (X - closed, O - open).

Contact Block Part Number
Part number to use when ordering sub-assembly contact blocks, as required for use with corresponding mounting position

Contact Arrangement Chart: 2-Position Selector Switches

Style		Mounting Position	Operator Position		Contact Block Part Number	Description	Operator Part Number		
Contact	Circuit Number		L	R			Maintained	Spring Ret. from Rt.	Spring Ret. from Lt.
1NO	N/D	1	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	O	HW-DB				
1NC	116	1	X	O	HW-U01-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	O	HW-DB				
1NO 1NC	N/D	1	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-U01-F				
	103	1	X	O	HW-U01-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-U10-F				
1NO-EM 1NC-LB	600	1	O	X	HW-U10R-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-U01R-F				
	601	1	X	O	HW-U01R-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-U10R-F				
2NO	N/D	1	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-U10-F				
2NC	104	1	X	O	HW-U01-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-U01-F				
2NO 2NC	N/D	1	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	X	O	HW-U01-F				
		3	O	X	HW-U10-F				
		4	X	O	HW-U01-F				
	111	1	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW200 ASW2K00 ASLW200	ASW2100 ASW21K00 ASLW2100	ASW2200 ASW22K00 ASLW2200
		2	O	X	HW-U10-F				
		3	X	O	HW-U01-F				
		4	X	O	HW-U01-F				

1. NO-EM, NC-LB = Early Make, Late Break.
   N/D = No circuit number designation required in assembled selector switch part number.
2. X = On (closed contacts) O = Off (Open contacts)

Contact Arrangement Chart: 3-Position Selector Switches

Style		Mounting Position	Operator Position			Contact Block Part Number	Description	Operator Part Number			
Contact	Circuit Number		L	C	R			Maintained	Spring Return from Right	Spring Return from Left	Two-Way
1NO 1NC	202	1	X	0	0	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	X—X		0	HW-U01-F					
	203	1	0	X—X		HW-U01-F					
		2	0	0	X	HW-U10-F					
	302	1	X	0	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X—X		0	HW-U01-F					
	303	1	0	X	0	HW-U01-F					
		2	0	0	X	HW-U10-F					
2NO	N/D	1	X	0	0	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-U10-F					
	301	1	X	0	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	0	0	X	HW-U10-F					
2NC	304	1	0	X	0	HW-U01-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X—X		0	HW-U01-F					
	N/D	1	0	X—X		HW-U01-F	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	X—X		0	HW-U01-F					
2NO 2NC	N/D	1	X	0	0	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-U10-F					
		3	0	X—X		HW-U01-F					
		4	X—X		0	HW-U01-F					
	210	1	0	X	X	HW-U01-F	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0—X		HW-U10-F					
		3	0	X—X		HW-U01-F					
		4	0	0	X	HW-U10-F					
	308	1	X	0	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X—X		0	HW-U01-F					
		3	X	0	X	HW-U10-F					
		4	X—X		0	HW-U01-F					
	309	1	X	0	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X—X		0	HW-U01-F					
		3	0	X	0	HW-U01-F					
		4	0	0	X	HW-U10-F					
	310	1	0	X	0	HW-U01-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	0	0	X	HW-U10-F					
		3	0	X	0	HW-U01-F					
		4	0	0	X	HW-U10-F					

1. Each operator sub-assembly is available as a "-1" and a "-2" for 3-position selector switches. The internal cam of a "-1" is different from that of a "-2". This results in designated combinations of open and closed contacts in the various operator positions.
2. N/D = No circuit number designation required in assembled part number.
3. X = On (closed contacts) 0 = Off (open contacts). X-X Overlapping contacts remain on (closed) when switch is moved between these two positions.

Contact Arrangement Chart: 3-Position Selector Switches

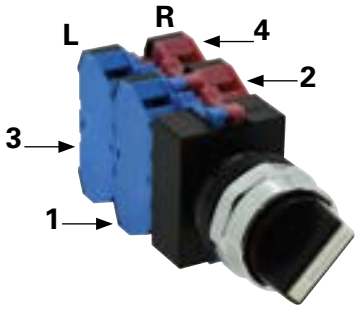
Style		Mounting Position	Operator Position			Contact Block Part Number	Description	Operator Part Number			
Contact	Circuit Number		L	C	R			Maintained	Spring Return from Right	Spring Return from Left	Two-Way
4NO	N/D	1	X	0	0	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	0	0	X	HW-U10-F					
		3	X	0	0	HW-U10-F					
		4	0	0	X	HW-U10-F					
	305	1	X	0	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	0	0	X	HW-U10-F					
		3	X	0	X	HW-U10-F					
		4	0	0	X	HW-U10-F					
4NC	N/D	1	0	X—X		HW-U01-F	Knob/Lever Key Illuminated Knob	ASW300-1 ASW3K00-1 ASLW300-1	ASW3100-1 ASW31K00-1 ASLW3100-1	ASW3200-1 ASW32K00-1 ASLW3200-1	ASW3300-1 ASW33K00-1 ASLW3300-1
		2	X—X		0	HW-U01-F					
		3	0	X—X		HW-U01-F					
		4	X—X		0	HW-U01-F					
	314	1	0	X	0	HW-U01-F	Knob/Lever Key Illuminated Knob	ASW300-2 ASW3K00-2 ASLW300-2	ASW3100-2 ASW31K00-2 ASLW3100-2	ASW3200-2 ASW32K00-2 ASLW3200-2	ASW3300-2 ASW33K00-2 ASLW3300-2
		2	X—X		0	HW-U01-F					
		3	0	X	0	HW-U01-F					
		4	X—X		0	HW-U01-F					

1. Each operator sub-assembly is available as a "-1" and a "-2" for 3-position selector switches. The internal cam of a "-1" is different from that of a "-2". This results in designated combinations of open and closed contacts in the various operator positions.
2. N/D = No circuit number designation required in assembled part number.
3. X = On (closed contacts) O = Off (open contacts). X-X Overlapping contacts remain on (closed) when switch is moved between these two positions.

Custom Selector Switch Building Guide

To build a custom selector switch, follow these steps.

Mounting Positions



Step 1

How many positions of the switch are needed?

# of positions (2, 3, 4, 5)	

Step 2

How many contacts should there be?

# of isolated contacts (maximum 6)	

Step 3

Fill in the Truth Table

(X = closed, 0 = open)

		Knob Position				
		1	2	3	4	5
Contacts	1					
	2					
	3					
	4					
	5					
	6					

Step 4

If building a 2 position selector, skip this step. (2 position selectors have only one cam)

If building a 3, 4, or 5 position selector, determine appropriate cam as follows:

- Look at Row 1 from above table and locate an identical row in the operator truth tables (See next page).
- Repeat for all rows. The user must find one operator that contains all rows from above table.
- Record the operator cam version.

Step 5

Build by placing appropriate contact in appropriate mounting position for each desired row on operator cam truth table. “L” and “R” refer to mounting on left or right side of operator as viewed from the front of the panel.

Step 6

Develop an assembly part number (if necessary) as follows: follow standard numbering nomenclature for selector switches (see pages 712 or 716. In place of the “Circuit Number” indicate the cam number and contact arrangement as such ASW322-3-OELCSS, where “3” is the cam number, and contact arrangement “OELCXX” calls out individual contact mounting locations in order (see diagram above). O=NO, C=NC, E=NO-EM, L=NC-LB, X= no contact. Part number must designate all 6 possible mounting locations.

Caution: Before putting any custom selector switch into use, the user should use an ohmmeter to test for desired performance.
1. For Operator Truth Tables, see next page.

Operator Truth Tables

Use the following tables to build custom selector switches.

2 Position Selector Switches

	Contact	Mounting Position	Operator Position	
			Left	Right
ASW200 ASLW200 ASW2K00	HW-U10-F (NO)	L	0	X
		R	0	X
	HW-U01-F (NC)	L	X	0
		R	X	0
	HW-U10R-F (NO-EM)	L	0	X
		R	0	X
	HW-U01R-F (NC-LB)	L	X	0
		R	X	0

3 Position Selector Switches

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASW300-1 ASW3K00-1 ASLW300-1	HW-U10-F (NO)	L	X	0	0
		R	0	0	X
	HW-U01-F (NC)	L	0	X	X
		R	X	X	0
	HW-U10R-F (NO-EM)	L	X	0	0
		R	0	0	X
	HW-U01R-F (NC-LB)	L	0	X	X
		R	X	X	0

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASW300-2 ASW3K00-2 ASLW300-2	HW-U10-F (NO)	L	X	0	X
		R	0	0	X
	HW-U01-F (NC)	L	0	X	0
		R	X	X	0
	HW-U10R-F (NO-EM)	L	X	0	X
		R	0	0	X
	HW-U01R-F (NC-LB)	L	0	X	0
		R	X	X	0

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASW300-3 ASW3K00-3 ASLW300-3	HW-U10-F (NO)	L	X	0	0
		R	0	0	X
	HW-U01-F (NC)	L	0	X	0
		R	0	X	0
	HW-U10R-F (NO-EM)	L	X	0	X
		R	X	0	X
	HW-U01R-F (NC-LB)	L	0	X	X
		R	X	X	0

4 Position Selector Switches

	Contact	Mounting Position	Operator Position			
			1	2	3	4
ASW400	HW-U10-F (NO)	L	X	0	0	0
		R	0	X	0	0
	HW-U01-F (NC)	L	0	X	X	X
		R	X	0	X	X
	HW-U10R-F (NO-EM)	L	X	0	0	0
		R	0	X	0	0
	HW-U01R-F (NC-LB)	L	0	X	X	X
		R	X	0	X	X

	Contact	Mounting Position	Operator Position			
			1	2	3	4
ASW400-1	HW-U10-F (NO)	L	X	0	0	0
		R	0	0	0	X
	HW-U01-F (NC)	L	0	0	X	0
		R	0	X	0	0
	HW-U10R-F (NO-EM)	L	X	X	0	X
		R	X	0	X	X
	HW-U01R-F (NC-LB)	L	0	X	X	X
		R	X	X	X	0

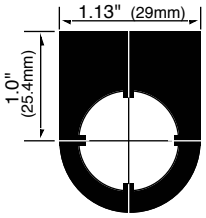
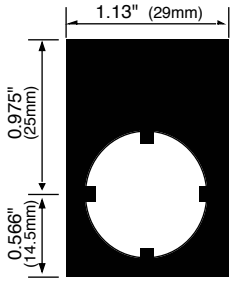
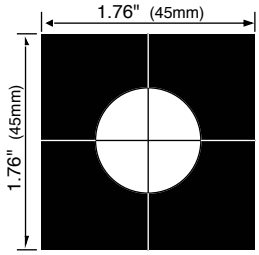
5 Position Selector Switches

	Contact	Mounting Position	Operator Position				
			1	2	3	4	5
ASW500	HW-U10-F (NO)	L	X	0	0	0	0
		R	0	X	0	0	0
	HW-U01-F (NC)	L	0	0	X	X	X
		R	0	0	0	X	X
	HW-U10R-F (NO-EM)	L	X	0	0	0	0
		R	0	X	0	0	0
	HW-U01R-F (NC-LB)	L	0	X	X	X	X
		R	X	0	X	X	X

	Contact	Mounting Position	Operator Position				
			1	2	3	4	5
ASW500-1	HW-U10-F (NO)	L	X	0	0	0	0
		R	0	0	0	0	X
	HW-U01-F (NC)	L	0	0	0	X	0
		R	0	X	0	0	0
	HW-U10R-F (NO-EM)	L	X	X	X	0	X
		R	X	0	X	X	X
	HW-U01R-F (NC-LB)	L	0	X	X	X	X
		R	X	X	X	X	0

Nameplates — TW Series

Faceplates

	NWAL	NWAQL	NWAS	EMERGENCY STOP
				
	Part Number			
Nameplate (blank)	NWAL-0B (black) NWAL-0R (red)	NWAQL-0B (black) NWAQL-0R (red)	NWAS-0B	NWAR-0
Nameplate (engraved)	NWAL-①	NWAQL-①	NWAS-①	NWAR-27†

1. In place of ①, insert either the Standard Legend Code from table below or custom engraving delimited by " ".
2. Standard engravings are available at no charge.
3 NWAR-27 comes marked "Emergency Stop" as shown in drawing.

Standard Legend Codes

Pushbuttons				Pushbuttons/Selector Switches				Selector Switches	
Legend	Code	Legend	Code	Legend	Code	Legend	Code	Legend	Code
AUTO	101	OPEN	116	AUTO-MAN	201	REV-FOR	216	AUTO-MAN-OFF	301
CLOSE	102	OUT	117	CLOSE-OPEN	202	RUN-JOG	217	AUTO-OFF-MAN	302
DOWN	103	RAISE	118	DOWN-UP	203	RUN-SAFE	218	CLOSE-OFF-OPEN	303
EMERG.STOP	104	RESET	119	FAST-SLOW	204	SAFE-RUN	219	DOWN-OFF-SLOW	304
FAST	105	REVERSE	120	FOR-REV	205	SLOW-FAST	220	FAST-OFF-SLOW	305
FORWARD	106	RUN	121	HAND-AUTO	206	START-STOP	221	FOR-OFF-REV	306
HAND	107	SLOW	122	HIGH-LOW	207	STOP-START	222	LEFT-OFF-RIGHT	307
HIGH	108	START	123	JOG-RUN	208	UP-DOWN	223	LOWER-OFF-RAISE	308
IN	109	STOP	124	LEFT-RIGHT	209			OFF-MAN-AUTO	309
INCH	110	STOP	125	LOWER-RAISE	210			OFF-SLOW-FAST	310
JOG	111	TEST	126	MAN-AUTO	211			OFF-1-2	311
LOW	112	UP	127	OFF-ON	212			OPEN-OFF-CLOSE	312
LOWER	113	I (Int'l On)	150	ON-OFF	213			SLOW-OFF-FAST	313
OFF	114	O (Int'l Off)	151	OPEN-CLOSE	214			SUMMER-OFF-WINTER	314
ON	115	EMO	152	RAISE-LOWER	215			UP-OFF-DOWN	315
								1-OFF-2	316
								HAND-OFF-AUTO	317

1. To order engraved nameplates, add legend code to nameplate part number.
Character height based on the number of characters and size of nameplate. Standard character size is 3/16".
2. Nameplates with standard legends are the same list price as blank nameplates.

Nameplate Order Form on next page.

Custom Engraved Nameplates Order Form — TW Series

Copy this order form and use it to specify Letter Height, Custom Engravings, Location of Engraving on Nameplate, and Quantity Desired.
To ensure engraving accuracy, fax it to your IDEC representative. or Distributor.

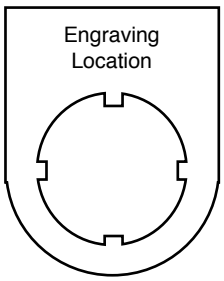
Your Company Name: _____ IDEC Rep/Distributor Contact: _____

Your Name: _____ PO number (if known): _____

Telephone: _____ IDEC Rep/Distributor Phone: _____

Fax & Email: _____ IDEC Rep/Distributor Fax & Email: _____

NWAL



Step 1.
Choose Letter Size - 7/64" or 1/8".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 9 characters.

Step 2.
Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

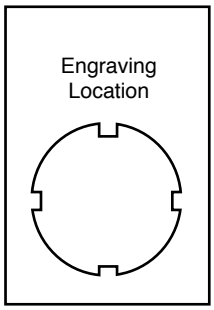
7/64" Letter Size ☐ 11 characters max (for 7/64" size letters)

1/8" Letter Size ☐ 9 characters max (for 1/8" size letters)

1 2 3 4 5 6 7 8 9 10 11

Sample Letter Sizes
7/64" Letters: A B C D
1/8" Letters: A B C D

NWAQL



Step 1.
Choose Letter Size - 7/64" or 1/8".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 9 characters.

Step 2.
Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

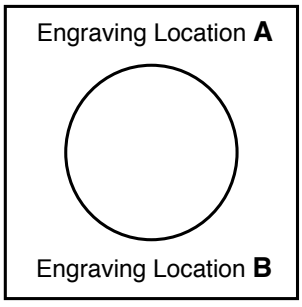
7/64" Letter Size ☐ 11 characters max (for 7/64" size letters)

1/8" Letter Size ☐ 9 characters max (for 1/8" size letters)

1 2 3 4 5 6 7 8 9 10 11

Sample Letter Sizes
7/64" Letters: A B C D
1/8" Letters: A B C D

NWAS



Step 1.
Choose Letter Size - 1/8" or 3/32".

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 14 characters.

3/32" Letter Size ☐ 20 characters max (for 3/32" size letters)

1/8" Letter Size ☐ 14 characters max (for 1/8" size letters)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Step 2.
Specify Quantity.

Enter the number of nameplates desired in the box on the right.

Qty

Step 3.
Specify Location.

Enter the location of engraving (A or B), in the box on the right.

Location

Sample Letter Sizes
3/32" Letters: A B C D
1/8" Letters: A B C D

Switch Engraving Order Form – TW Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.

To ensure engraving accuracy, fax it to your IDEC representative or Distributor.

Your Company: _____ Telephone: _____

Name: _____ Fax: _____

Address: _____ Email: _____

PO: _____ Part Number to be Engraved: _____

Please check one of the boxes below to indicate your choice of engraving options:

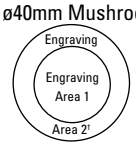
Square Switch

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	6
☐		1/8	6
☐	2	5/32	6
☐		1/8	5
☐	3	1/8	6
☐	4	3/32	5

Round Switch

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	5
☐		1/8	6
☐	2	5/32	5
☐		1/8	6
☐	3	1/8	5
☐	4	3/32	5

ø29mm, ø40mm Mushroom Head



		# of Lines	Letter Height	Max. Characters Per Line
☐	Engraving Area 1	1	5/32	5
☐			1/8	5
☐	Engraving Area 2	1	5/32	7
☐			1/8	7

1. Above mentioned specifications hold true for standard size pushbuttons (round and square).
2. †Engraving Area 2 can be engraved for 40mm mushroom Head non-Illuminated push button only.
3. Engraving is done on the button itself for non-Illuminated push buttons and on marking plate for illuminated push buttons and pilot lights.
4. Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

Enter text to be engraved:

Line 1: _____

Line 2: _____

Line 3: _____

Line 4: _____

Sample Letter Sizes

1/8 Letters: OPEN

5/32 Letters: OPEN

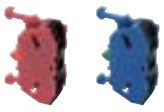
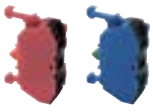
For IDEC Internal Use Only:

Work Order #: _____

Accessories

TW Series Accessories

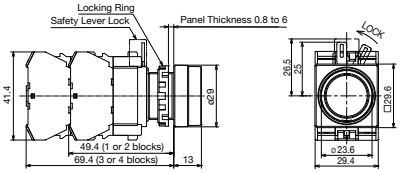
Item	Appearance	Description/Usage		Part Number
Lamp Removal Tool		Rubber tool used to install or remove LED's		OR-55
Contact Block Remover		Used to remove contact blocks, transformers, lenses, and adaptors. Can also be used to determine panel thickness adjustment.		TW-KC1
Nut Locking Wrench		Used in OR-14 locking wrench to tighten locking nuts inside square bezel		TW-KQ2
Metal Bezel		Chrome plated bezels tighten onto operator (replacement for damaged bezels)	Standard octagonal units (chrome-pl.)	AW-R8
			Full shroud octagonal units (chrome-pl.)	AW-RF8
			Full shroud mushroom head units Ø 40mm	AW-G4
Plastic Bezel		Black plastic bezels for square buttons (replacement for damaged bezels)	Round flush units (black plastic)	AW-RP1B
			Round extended units (black plastic)	AW-FP1B
			Square units (black plastic)	AW-Q1B
			Square units with full shroud (black plastic)	AW-QF1B
Boot/Cover		Used to cover and protect pushbuttons	Waterproof lens cover for square pilot lights	APW00LN
			Waterproof lens cover for square illuminated buttons	APW00L
			Clear boot for round flush units	OC-31
			Clear boot for round extended units	OC-32
			*In place of asterisk, specify **Rubber Boot** color: **B** (black), **G** (green), **R** (red), **Y** (yellow) - (nitril rubber)	OCW-11*
Anti-Rotation Ring		Ring to prevent operator base from rotating in the mounting hole. Used when nameplate is not used		OGL-31
Mounting Hole Plug		Black rubber plug fills unused mounting holes in panel.		OB-31
Metallic Mounting Hole Plug		For plugging unused mounting holes in the panel. Tighten the attached locking ring to a torque of 12 kfg-cm maximum Degree of protection: IP66		LW9Z-BM
Replacement Keys		Replacement keys (#0)		TW-SK
Replacement Black Sleeve for Keyswitch				AKW2B-B

Item	Appearance	Description/Usage		Part Number	
Metal Button Guard		Used on flush buttons to prevent inadvertent actuation		OLW-C	
Terminal Tab Adaptor		Quick- connect terminals	#250 (17/64" x 3/64") single tab	TW-FA4	
Lock-out Adaptor		Used to provide lock-out protection for pushbuttons and knob selector switches: • Up to Ø 40mm mushroom head size (Padlock not included.) Not applicable for e-stops.		HW9Z-KL1	
22mm to 30mm Adaptor		Used to mount TW series control unit (except square units) Ø 7/8" (22mm) into a Ø 1-13/64" (30mm) panel cut-out.		TWN-A1R8	
Contact Blocks (with side entry)		These contacts are applicable for wires terminated by ring, fork, **not recommended for bare wire connections**.		**1NC** HW-U01 HW-U01-MAU HW-U01R HW-U01R-MAU (with side entry)	**1NO** HW-U10 HW-U10-MAU HW-U10R HW-U10R-MAU (with side entry)
Contact Blocks (without side entry)		These contacts are applicable for wires terminated by ring, fork, or ferule terminals, and **also bare wire connections**.		HW-U01-F HW-U01-MAU-F HW-U01R-F HW-U01R-MAU-F (no side entry)	HW-U10-F HW-U10-MAU-F HW-U10R-F HW-U10R-MAU-F (no side entry)

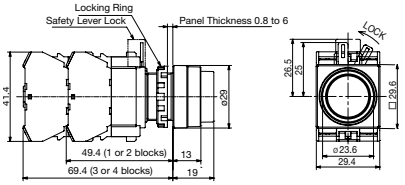
Dimensions

Pushbuttons

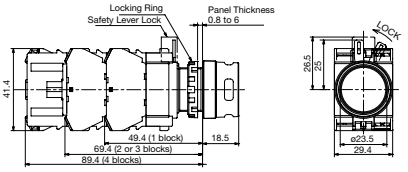
Flush



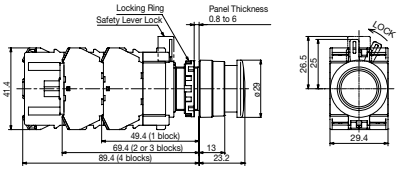
Extended



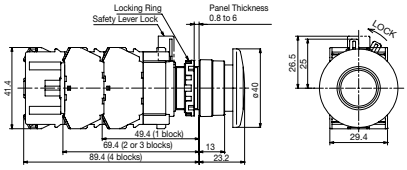
Extended with Full Shroud



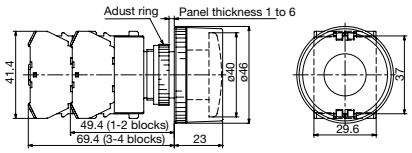
29mm Mushroom



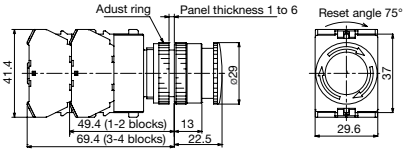
40mm Mushroom



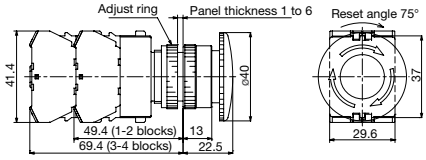
Mushroom with Full Shroud



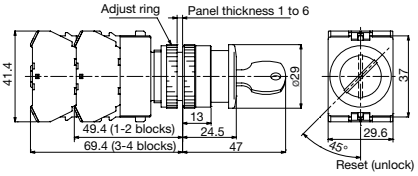
29mm Push-Lock-Turn-Reset



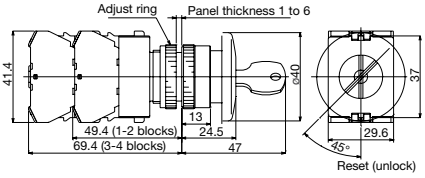
40mm Push-Lock-Turn-Reset



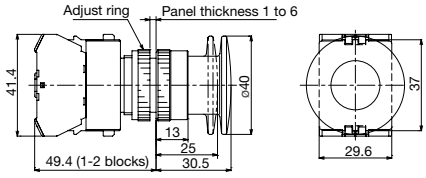
Keylock Push On/Off



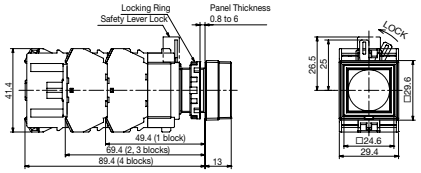
40mm Pushlock Key reset



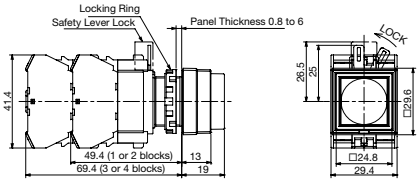
40mm Push-Pull



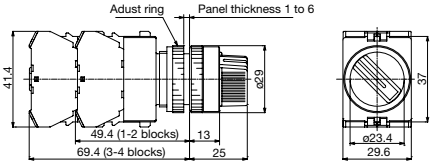
Square Flush

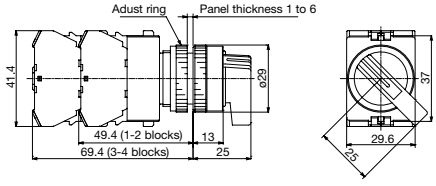


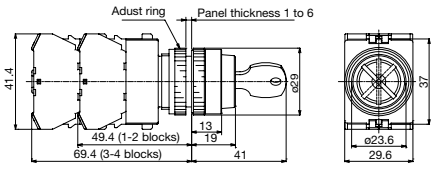
Square Extended



Selector Switches



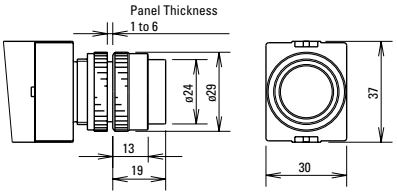




Dimensions continued

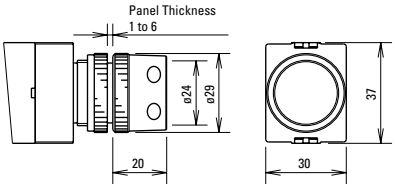
Illuminated Pushbuttons

Extended



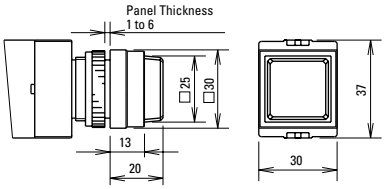
Marking plate: ø15.5mm

Extended with Full Shroud



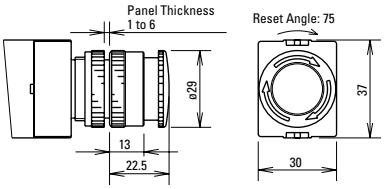
Marking plate: ø15.5mm

Square Extended



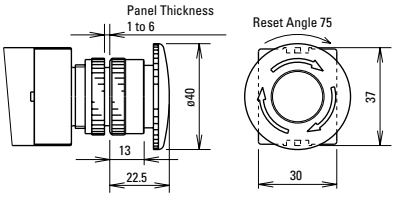
Marking plate: □21mm

29mm Push-Turn-Reset



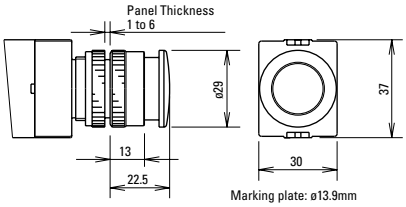
Marking plate: ø13.9mm

40mm Push-Turn-Reset



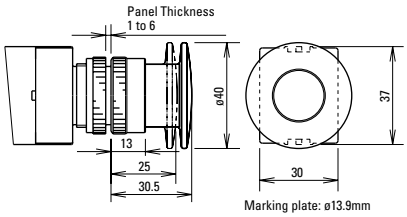
Marking plate: ø13.9mm

Mushroom



Marking plate: ø13.9mm

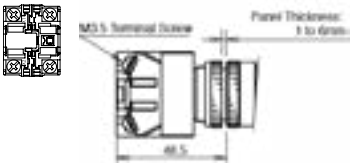
Push-Pull



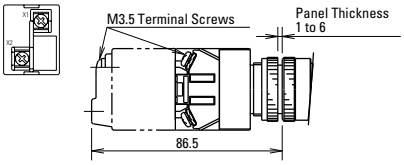
Marking plate: ø13.9mm

Illuminated Selector Switches

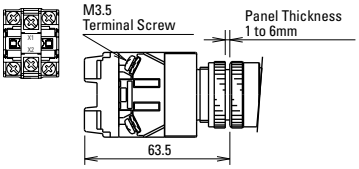
1 Contact Block with Full Voltage Adaptor



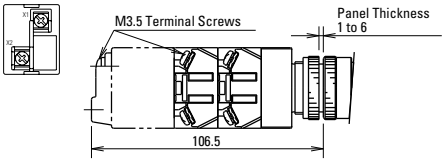
Transformer (2 blocks)



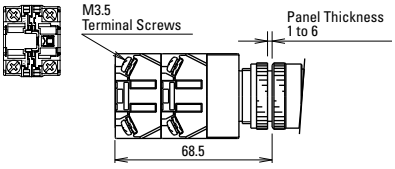
2 Contact Blocks with Full Voltage Adaptor



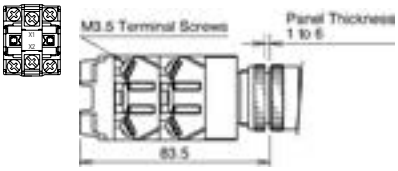
Transformer (4 blocks)



3 Contact Blocks with Full Voltage Adaptor



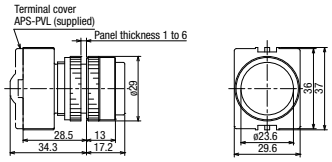
4 Contact Blocks with Full Voltage Adaptor



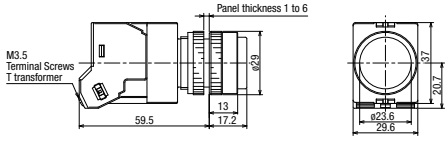
Dimensions continued

Pilot Lights

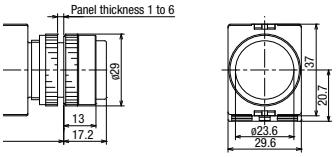
Round Flush APW1 Full Voltage



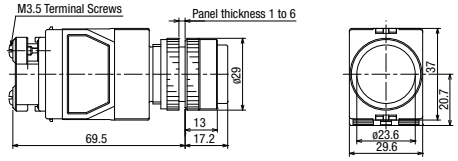
Round Flush APW1 Transformer



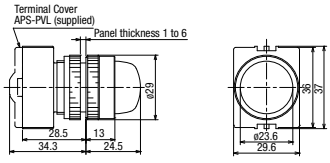
Round Flush Marking Type APW1B Full Voltage



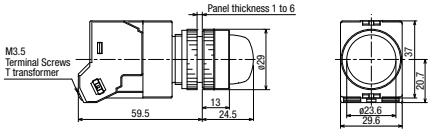
Round Flush Marking Type APW1B Transformer



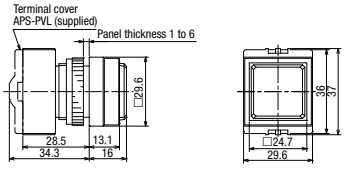
Dome APW2 Full Voltage



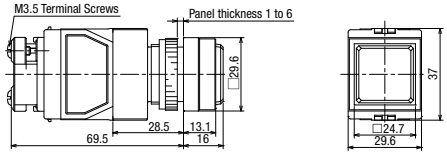
Dome APW2 Transformer



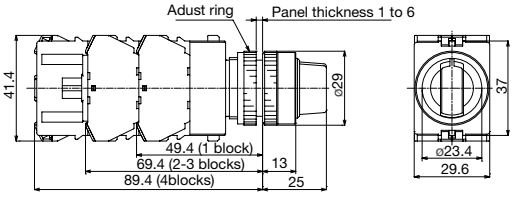
Square Flush Marking Type APQW1B Full Voltage



Square Flush Marking Type APQW1B Transformer

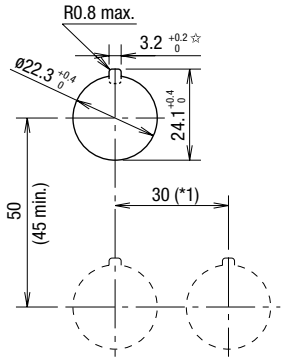


Illuminated Selector Switches



Dimensions continued

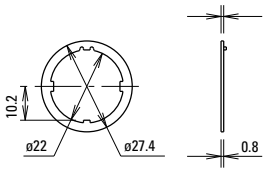
Panel Cut-Out

Diagram	Part	Dimension
	Pushbuttons Pilot Light Illuminated Pushbuttons Selector Switches Illuminated Selector Switches	• The minimum mounting centers are applicable to switches with one layer of contact blocks (one to two contact blocks). When two layers of contact blocks are mounted, determine the minimum mounting centers in consideration of convenience for wiring. 1*) ø40 mm mushroom button type: 40 mm minimum 1*) 2-position, 3-position lever selector switch: 39 mm minimum 1*) 4-position, 5-position lever selector switch: 50 mm minimum • When high temperature is expected, take necessary measures such as securing sufficient mounting centers or using a cooling fan. • The ☆3.2 $^{+0.2}_{0}$ mm recess is for preventing rotation and is not necessary when the nameplate or anti-rotation ring is not used. All dimensions in mm.

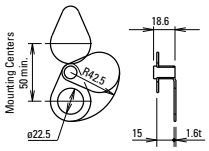
1.The Ø 0.137" (Ø 3.5mm) recess is necessary when either the nameplate or anti-rotation ring is used.
2. *>1.404" (36mm) for 2- or 3-position.
>1.95" (50mm) for 4- or 5-position.

Accessory Dimensions

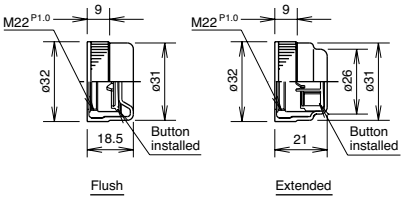
OGL-31
Anti-Rotation Ring



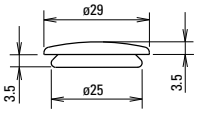
OLW-C
Metal Button Guard



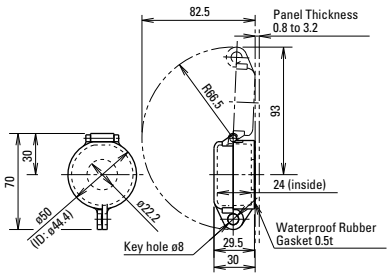
OCW-11
Pushbutton Rubber Boot



OB-31
Mounting Hole Rubber Plug



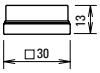
HW9Z-KL1
Lock-out Adaptor



AW-RP1B
Round Plastic Bezel

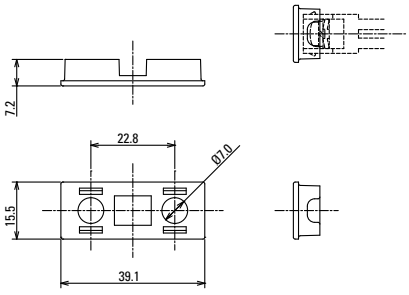
AW-FP1B
Round Plastic w/Full Shroud

AW-QF1B
Square Full Shroud

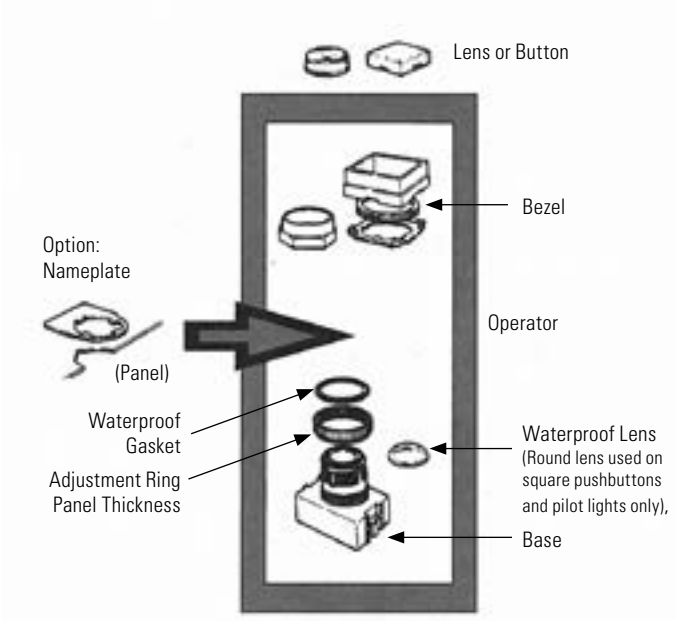


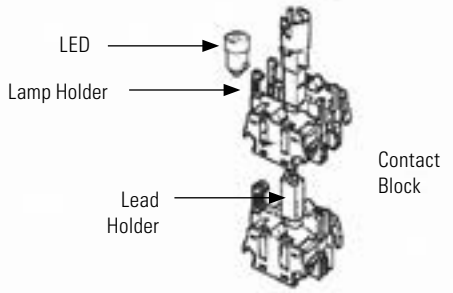
Finger-Safe Cover Dimensions

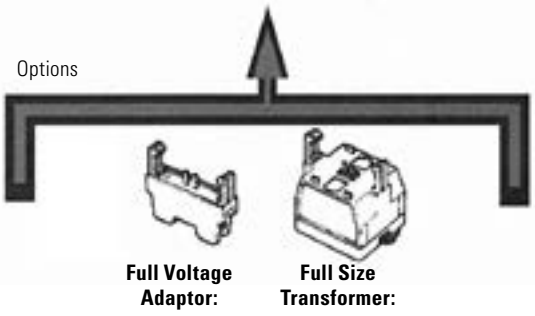
APS-PVL



Component Construction and General Instructions — TW Series



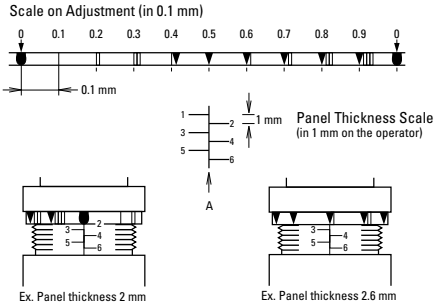




Instructions for Switches and Pilot Devices

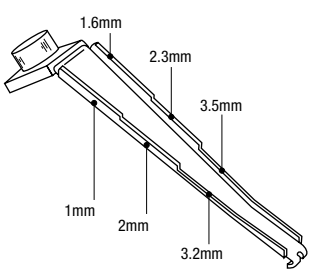
TW Series: Adjustment for Panel Thickness

The panel thickness ring provides adjustment from 0.04" to 0.24" (1 to 6mm) in 0.004" (0.1mm) increments. Rotate the ring until the markings around the periphery are aligned for the desired thickness, as shown below.

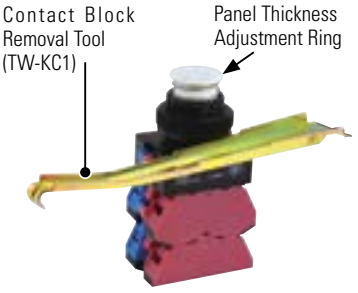


Note: When a nameplate or an anti-rotation ring is used, add 0.03" (0.8mm) to the panel thickness dimension.

An adjustment for panel thicknesses shown below can be made quickly by using the contact block remover tool.



Contact Block Removal Tool



Instructions continued

Pilot Lights and Pushbuttons

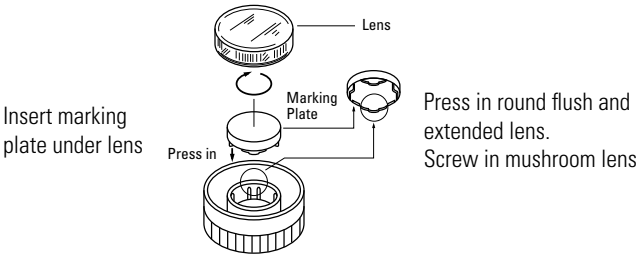
IMPORTANT: Install the body of the TW control unit with the panel thickness scale facing up.

Octagonal and Round Bezels

Octagonal and round bezels screw into the operator. Use a locking ring wrench (optional) for secure tightening and easy removal. Round flush and extended buttons snap onto the operator base. Mushroom buttons screw onto the operator base.

Every round lens can be used with or without legend markings. Engraving can be done on a white translucent plate which is placed in the lens, or clear mylar can be printed and placed in the lens.

Round Marking Unit

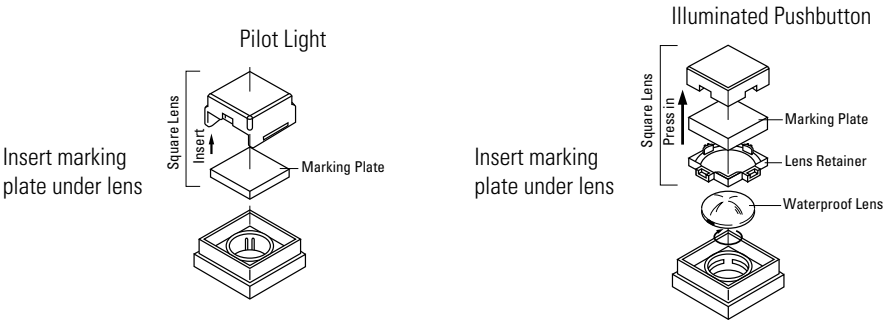


Square Bezels

Square bezels are installed in a 3-step procedure. First install the base plate from the front. Then install the lock nut using the nut locking wrench (optional). Finally, install the square bezel, which snap-fits onto the base plate. Square buttons also snap onto the operator base.

Every square lens can be used with or without legend markings. Engraving can be done on a white translucent plate which is placed in the lens, or clear mylar can be printed and placed in the lens. Square units include a round waterproof lens which screws into the operator. The square outer lens snaps on.

Square Marking Units



To remove square lens from operator, place a screwdriver under the indentation on the side of the lens. To remove the marking plate, place a screwdriver under the indentation and lift out the plate. The lens retainer can be removed by pressing a 3/16" screwdriver into one of the recesses.

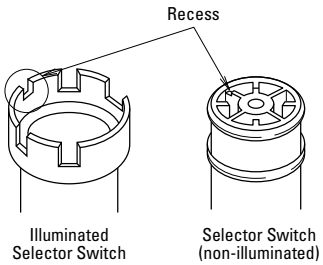
Marking Plate Engraving Area

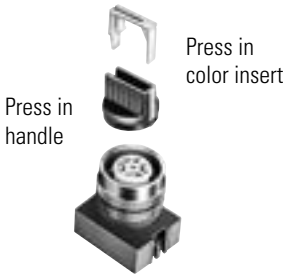
Shape	Engraving Area	Used With	Part Number
Round	Ø 0.55" (14mm)	Illuminated pushbuttons	ALW2B
	Ø 0.55" (14mm)	Pilot lights	APW2B
Mushroom	Ø 0.55" (14mm)	Illuminated mushroom	ALW3B
Square	❑ 0.83" (21mm)	Square pilot lights	APQW1B
Square	❑ 0.83" (21mm)	Square illuminated pushbuttons	ALQW2B

Instructions, continued

Selector Switches

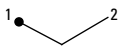
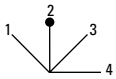
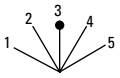
The operator shaft of each unit has a recess to identify in which direction to install the handle. Align the handle with the recess. Press color insert (TW-HC1) into the handle and then press handle into the operator, as shown below.



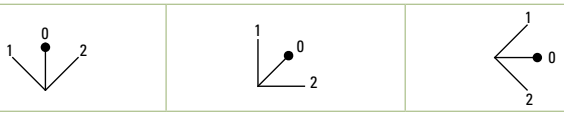


Remove color insert before pulling out the handle.

Standard Operating Positions

2-Postion, 90°	3-Postion, 45°	4-Postion, 45°	5-Postion, 30°
			

Positions: Non-Illuminated 3-Position Operators



Installation of LED Illuminated Units

Transformers are recommended for use in areas subjected to inductive noise. When using full voltage types, install a protection diode as shown below. (Diode with DC power supply to protect against surges and noise.)