

## TWTD Series — Full Size NEMA Pushbuttons



A

## TWTD Series: Heavy duty switches built to last

### Key features include:

- Variety of button sizes up to 2 9/16" (65mm)
- Rugged construction includes chrome plated zinc locking ring die cast zinc mounting threads, screw mounted contact blocks
- LED or incandescent illumination
- Transformer or full voltage
- Transparent contact windows
- Slow make, double break self cleaning contacts
- Modular construction for maximum flexibility
- Double nickel plated terminal screws
- Available assembled or as sub-components
- NEMA 4x and IP65 watertight/oiltight panel
- Large M3.5 screw terminals with captive sems plate

The rugged series of TWTD switches offers both variety and durability in an attractive design.

With button sizes up to 2 9/16" (65mm), chrome plated zinc locking rings, die cast zinc mounting threads, steel anti-rotation rings, and self cleaning contacts, the TWTD's are here to stay.

The TWTD series also offers either LED or incandescent illumination in full voltage and transformer models.

Transparent contact windows allow the viewing of IDEC's self cleaning slow-make/slow-break contacts.

Regardless of your switching needs, the TWTD series provides the kind of long lasting, industrial strength quality you've come to expect from IDEC.



UL Listed  
File No. E70646



File No. LR48366



Ref. No. 117617MC

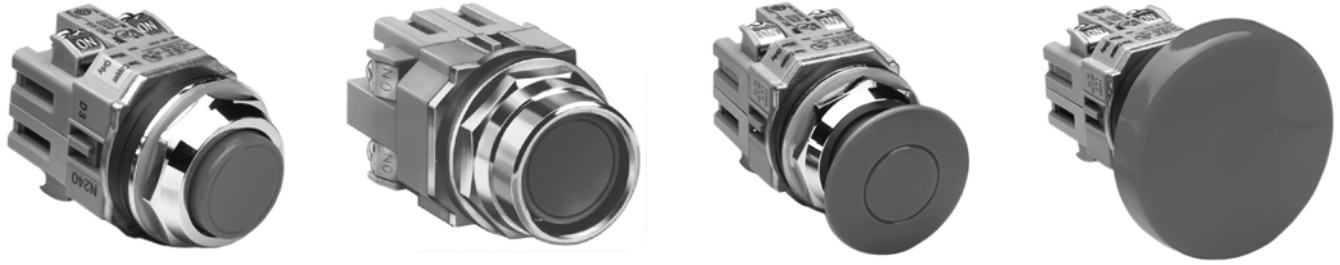


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<b>Specifications</b>	Conforming to Standards	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14
	Approvals	 UL Listed File No. E70646      File No. LR48366 Ref. No. 117617MC
	<b>Operating Temperature</b>	Operation: -25 to +50°C (without freezing) Storage: -40 to +70°C (without freezing)
	<b>Vibration Resistance</b>	10 to 55Hz, 98m/sec <sup>2</sup> (10g) conforming to IEC6068-2-6
	<b>Shock Resistance</b>	980m/sec <sup>2</sup> (100g) conforming to IEC6068-2-7
	<b>Electric Shock Protection</b>	Class 0 conforming to IEC60536
	<b>Degree of Protection</b>	IP65 (from front of the panel) (conforming to IEC60529) NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (conforming to NEMA ICS6-110)
	<b>Mechanical Life</b>	Momentary pushbuttons: 5,000,000 (900 operations per hour) All other switches: 500,000
	<b>Pollution Degree (conforming to IEC60947-1)</b>	3 for switches not using a transformer 2 for switches using a transformer
	<b>Mechanical-Electrical Specifications</b>	<b>Rated Operational Characteristics</b>
<b>Rated Insulation Voltage</b>		600V
<b>Rated Switching Over-Voltage</b>		Less than 4kV, conforming to IEC60947-1
<b>Rated Impulse Withstanding Voltage</b>		4kV for contact circuit 2.5kV for lamp circuit
<b>Rated Thermal Current</b>		10 Amp
<b>Minimum Switching Capacity</b>		5 mA at 3V AC/DC
<b>Contact Operation</b>		Slow break NC or NO, self-cleaning
<b>Operating Force</b>		Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 7.0±2N (maintained) Additional contacts—1NO or 1NC: +3.2N (momentary), + 3.3N (maintained)
<b>Terminal Referencing</b>		Conforming to CENELEC EN50005
<b>Recommended Terminal Torque</b>		0.8 N m (7.1 in lb.)
<b>External Short-Circuit Protection</b>		10A 250V fuse conforming to IEC60269-1
<b>Applicable Wire Size</b>		Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG
<b>Contact Resistance</b>		Initial contact resistance of 50mΩ or less
<b>Contact Gap</b>		4mm (NO and NC) 2mm (NO-EM and NC-LB)
<b>Lamp Ratings</b>		Incandescent: 1 W LEDs: 6, 12, 24V: 20mA / 120, 240V: 10mA
<b>Maximum Inrush Current</b>	40 A (40 msec)	
<b>Contact Material</b>	Silver	

<b>Contact Ratings</b>	<b>Break Values</b>				<b>Make Values</b>			
	<b>AC</b>		<b>DC</b>		<b>AC</b>		<b>DC</b>	
	<i>Inductive</i>	<i>Resistive</i>	<i>Inductive</i>	<i>Resistive</i>	<i>Inductive</i>	<i>Resistive</i>	<i>Inductive</i>	<i>Resistive</i>
<b>Rated Operating Current</b>	120V: 6A 240V: 3A 480V: 1.5A 600V: 1.2 A	120V: 10A 240V: 6A 480V: 2A	120V: 1.1A 240V: 0.6A 12V: 4A 24V: 4A	120V: 2A 240V: 1.1A 480V: 0.4A 12V: 4A, 24V: 4A	120V: 60A 240V: 30A 480V: 15A 600V: 12 A	120V: 100A 240V: 60A 480V: 20A	120V: 11A 240V: 6A 12V: 40A 24V: 40A	120V: 20A 240V: 11A 480V: 4A 12V: 40A, 24V: 40A
<b>Horsepower Rating</b>	1/4 HP @ 120V (single-phase, non-reversing motor); 1 HP @ 240V (3 phase, non-reversing motor)							

**Non-Illuminated Pushbuttons (Assembled)**



**Assembled Pushbuttons**

**A B ( ) D 1 10 N - B**

<p><b>Degree of Protection</b> _____</p> <p>A: IP65</p> <p><b>Function</b> _____</p> <p>B: Momentary O: Alternate V: Pushlock Turn Reset Y: Push-Pull</p> <p><b>Bezel Shape</b> _____</p> <p>Blank: Octagonal F: Full Shroud G: Mushroom Shroud P: Neoprene Boot</p> <p><b>Series Type</b> _____</p> <p>D: TWTD Ø 1-13/64" (Ø 30mm)</p>	<p><b>Button Color</b></p> <p>B: Black    G: Green R: Red     S: Blue Y: Yellow</p> <p><b>Contact Arrangement</b></p> <p>10: 1NO            01: 1NC 20: 2NO            02: 2NC 11: 1NO-1NC      22: 2NO-2NC</p> <p><b>Button Shape</b></p> <p>1: Flush 2: Extended 3: Mushroom Ø 1-37/64" (Ø 40mm) 4: Jumbo Mushroom Ø 2-9/16" (Ø 65mm)</p>
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1. Use only when interpreting part numbers. Do not use for developing part numbers.  
2. Custom contact configurations available, contact IDEC for details.

## Non-Illuminated Pushbuttons (Assembled) con't

### Part Numbers: Non-Illuminated Pushbuttons

Style	Contacts	Part Number	
		Momentary	Maintained
Flush *	1NO 1NC 1NO-1NC 2NO 2NC	ABD110N-B,G,R* ABD101N-B,G,R* ABD111N-B,G,R* ABD120N-B,G,R* ABD102N-B,G,R*	AOD110N-B,G,R* AOD101N-B,G,R* AOD111N-B,G,R* AOD120N-B,G,R* AOD102N-B,G,R*
Extended	1NO 1NC 1NO-1NC 2NO 2NC	ABD210N-① ABD201N-① ABD211N-① ABD220N-① ABD202N-①	AOD210N-① AOD201N-① AOD211N-① AOD220N-① AOD202N-①
Extended with Neoprene Boot	1NO 1NC 1NO-1NC 2NO 2NC	ABPD210N-①† ABPD201N-①† ABPD211N-①† ABPD220N-①† ABPD202N-①†	AOPD210N-① AOPD201N-① AOPD211N-① AOPD220N-① AOPD202N-①
Recessed	1NO 1NC 1NO-1NC 2NO 2NC	ABFD110N-① ABFD101N-① ABFD111N-① ABFD120N-① ABFD102N-①	AOFD110N-① AOFD101N-① AOFD111N-① AOFD120N-① AOFD102N-①
Extended with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABFD210N-① ABFD201N-① ABFD211N-① ABFD220N-① ABFD202N-①	AOFD210N-① AOFD201N-① AOFD211N-① AOFD220N-① AOFD202N-①
Ø 1-37/64" (40mm) Mushroom	1NO 1NC 1NO-1NC 2NO 2NC	ABD310N-① ABD301N-① ABD311N-① ABD320N-① ABD302N-①	AOD310N-① AOD301N-① AOD311N-① AOD320N-① AOD302N-①
Ø 1-37/64" (40mm) Mushroom with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABGD310N-① ABGD301N-① ABGD311N-① ABGD320N-① ABGD302N-①	AOGD310N-① AOGD301N-① AOGD311N-① AOGD320N-① AOGD302N-①
Ø 2-9/16" (65mm) Jumbo Mushroom	1NO 1NC 1NO-1NC 2NO 2NC	ABD410N-① ABD401N-① ABD411N-① ABD420N-① ABD402N-①	AOD410N-① AOD401N-① AOD411N-① AOD420N-① AOD402N-①
Ø 2-9/16" (65mm) Jumbo Mushroom with Shallow Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABGD410N-① ABGD401N-① ABGD411N-① ABGD420N-① ABGD402N-①	AOGD410N-① AOGD401N-① AOGD411N-① AOGD420N-① AOGD402N-①
Ø 2-9/16" (65mm) Jumbo Mushroom With Deep Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABFD410N-① ABFD401N-① ABFD411N-① ABFD420N-① ABFD402N-①	AOFD410N-① AOFD401N-① AOFD411N-① AOFD420N-① AOFD402N-①



- In place of ①, specify the button color code.
- \* One each with assembled units: Black (B), Green (G), Red (R). Buttons in other colors must be ordered separately.
- For sub-assembly part numbers, see next page.
- For accessories, see page A-184.
- † Neoprene boot available only in Black (B), Green (G), Red (R) and Yellow (Y).

### ① Button Color Code

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



- 65mm Jumbo mushroom not available in white.
- Neoprene boot is not available in blue or white.

### Part Numbers: Emergency Stop Switches





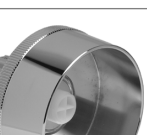
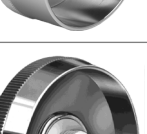
Style	Contacts	Part Number
Ø 1-37/64" (40mm) Pushlock Turn Reset	1NO 1NC 1NO-1NC 2NO 2NC	AVD310N-R* AVD301N-R* AVD311N-R* AVD320N-R* AVD302N-R*
Ø 1-37/64" (40mm) Push-Pull	1NO 1NC 1NO-1NC 2NO 2NC	AYD310N-① AYD301N-① AYD311N-① AYD320N-① AYD302N-①



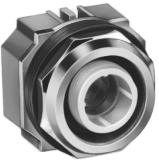

- In place of ①, specify the button color code.
- \* available in red only.
- For accessories, see page A-184.
- For dimensions, see page A-188.

## Non-Illuminated Pushbuttons (Sub-Assembled)


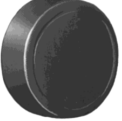
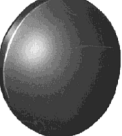



### Part Numbers: Operators

Style	Part Number	
	Momentary	Maintained
Flush/Extended 	ABD-100	AOD-100
Extended with Full Shroud 	ABFD-200	AOFD-200
Ø 1-37/64" (40mm) Mushroom/ Ø 2-9/16" (65mm) Jumbo Mushroom 	ABD-300	AOD-300
Ø 1-37/64" (40mm) Mushroom with Full Shroud 	ABGD-300	AOGD-300
Ø 2-9/16" (65mm) Jumbo Mushroom with Deep Shroud 	ABFD-400	AOFD-400
Ø 2-9/16" (65mm) Jumbo Mushroom with Shallow Shroud 	ABGD-400	AOGD-400

### Part Numbers: Special Function Operators

Style	Part Number
Ø 1-37/64" (40mm) Pushlock Turn Reset 	AVD-300
Ø 1-37/64" (40mm) Push-Pull 	AYD-3100

### Part Numbers: Buttons and Lenses

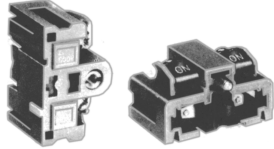
Style	Part Number
Flush 	ABD1BN-①
Extended 	ABD2BN-①
Ø 1-37/64" (40mm) Mushroom 	ABD3BN-①
Ø 2-9/16" (65mm) Jumbo Mushroom 	ABD4BN-①
Ø 1-37/64" (40mm) Pushlock Turn Reset 	AVN3B-R *
Ø 1-37/64" (40mm) Push-Pull 	AYN3B-①



1. In place of ①, specify the color code. (See table previous page)

2. \* Available in Red only

### Part Numbers: Contact Blocks

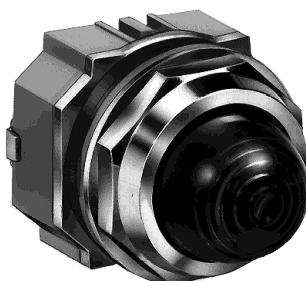
Description	Part Number	
	1N0	1NC
All Switches and Pilot Devices 	BST-010 BST-010S (early make)	BST-001 BST-001S (late break)
Dummy Blocks	BST-D	



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.

2. Combining BST-010S and BST-001S result in overlapping contacts.

## Pilot Lights (Assembled)



A

**Assembled Pilot Lights**

A P D 1 126 D N - R - ( )

**Degree of Protection** \_\_\_\_\_  
A: IP65

**Function** \_\_\_\_\_  
P: Pilot Light

**Series Type** \_\_\_\_\_  
D: TWTD Ø 1-13/64" (Ø 30mm)

**Lens Shape** \_\_\_\_\_  
1: Dome

**Rated Operational Voltage (Primary)** \_\_\_\_\_  
Transformer Full Voltage Type  
126:120V AC 99:Full Voltage  
246:240V AC  
486:480V AC

**Lamp Voltage (Full Voltage Only)**

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



**Lens Color Code**

A: Amber  
G: Green  
R: Red  
S: Blue  
W: White  
Y: Yellow (LED only)

**Lamp Type**

Blank: Incandescent Lamp  
D: LED Lamp

### Part Numbers: LED and Incandescent Pilot Lights

Style	Operating Voltage	Part Number	
		LED	Incandescent
Transformer Dome 	120V AC 240V AC 480V AC	APD1126DN-② APD1246DN-② —	APD1126N-② APD1246N-② APD1486N-②
Full Voltage Dome 	—	APD199DN-②-③	APD199N-②-③

### ② Lens Color Code

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

### ③ Full Voltage Code

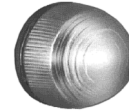
Voltage	Code
6V AC/DC	6
12V AC/DC	12
24V AC/DC	24
120V AC	120
240V AC	240 (LED only)



1. In place of ②, specify the Lens/LED color code.
2. In place of ③, specify the full voltage (lamp voltage) code.

## Pilot Lights (Sub-Assembled)

Transformer/Adaptor\* + Operator + Lamp + Lens = Complete Part



\*Not required for full voltage units, use clips.

### Part Numbers: Operators

Style	Part Number
Full Voltage	APD-199
AC Adaptor/Transformer	APD-006

The lens, lamp, and transformer/adaptor or the full voltage clips must be ordered separately.

### Part Numbers: Lenses

Style	Part Number	
	LED	Incandescent
Dome Lens	APD106LD-②	APD106LN-②

In place of ②, specify the lens color code. Use incandescent lens when using blue LED.

### Part Numbers: Adaptors and Transformers

Description	Primary Voltage (50/60Hz)	Part Number
Transformers (Incandescent)	120V AC	TWD-0126
	240V AC	TWD-0246
	480V AC	TWD-0486

6V secondary voltage (use 6V lamp).

### Part Numbers: Full Voltage Clips

Primary Voltage (50/60Hz)	Part Number
Full Voltage Clips (2 req'd for each unit)	APD-F

### Part Numbers: Lamps (LED)

Type	Voltage	Current	Part Number
LED	6V AC	20mA	LSTD-6②
	12V AC/DC	20mA	LSTD-1②
	24V AC/DC	20mA	LSTD-2②
	120V AC	10mA	LSTD-H2②
	240V AC		LSTD-M4②
Incandescent	6.3V AC/DC, 1W		IS-6
	12V AC/DC, 1W		IS-12
	24V AC/DC, 1W		IS-24
	30V AC/DC, 1W		IS-30
	120V AC, 1W		L-120L

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

### ② Lens/LED Color Code

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

## Illuminated Pushbuttons (Assembled)



### Assembled Illuminated Pushbuttons A L ( ) D 2 126 11 (D) N - R - ( )

**Degree of Protection**

A: IP65

**Function**

L: Momentary Action  
 OL: Alternate Action  
 VL: Pushlock Turn Reset  
 YL: Push-Pull

**Bezel Shape**

Blank: Octagonal  
 F: Full Shroud

**Series Type**

D: TWTD Ø 1-13/64" (Ø 30mm)

**Lens Shape**

2: Extended  
 3: Mushroom Ø 1-37/64" (Ø 40mm)

**Rated Operational Voltage (Primary)**

Transformer/AC Adaptor Type	Full Voltage Type
126:120V AC	99:Full Voltage
246:240V AC	
486:480V AC (Transformer type only)	

**Lamp Voltage**

(Full Voltage Only)

6: 6V AC/DC  
 12: 12V AC/DC  
 24: 24V AC/DC  
 120: 120V AC  
 240: 240V AC (LED only)

**Lens Color Code**

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

**Lamp Type**

Blank: Incandescent Lamp  
 D: LED

**Contact Arrangement**

20: 2NO 02: 2NC  
 11: 1NO-1NC



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



## Illuminated Pushbuttons (Assembled) con't

### Part numbers: Illuminated Pushbuttons

Style	Image	Contacts	Part Number	
			Momentary	Maintained
Extended Lens Transformer		1NO-1NC 2NO 2NC	ALD2 ④ 11⑤N-② ALD2 ④ 20⑤N-② ALD2 ④ 602⑤N-②	AOLD2 ④ 11⑤N-② AOLD2 ④ 20⑤N-② AOLD2 ④ 602⑤N-②
Extended Lens Full Voltage		1NO-1NC 2NO 2NC	ALD29911⑤N-②-③ ALD29920⑤N-②-③ ALD29902⑤N-②-③	AOLD29911⑤N-②-③ AOLD29920⑤N-②-③ AOLD29902⑤N-②-③
Extended Lens with Full Shroud Transformer		1NO-1NC 2NO 2NC	ALFD2 ④ 11⑤N-② ALFD2 ④ 20⑤N-② ALFD2 ④ 602⑤N-②	AOLFD2 ④ 11⑤N-② AOLFD2 ④ 20⑤N-② AOLFD2 ④ 602⑤N-②
Extended Lens with Full Shroud Full Voltage		1NO-1NC 2NO 2NC	ALFD29911⑤N-②-③ ALFD29920⑤N-②-③ ALFD29902⑤N-②-③	AOLFD29911⑤N-②-③ AOLFD29920⑤N-②-③ AOLFD29902⑤N-②-③
Ø 1-37/64" (40mm) Mushroom Lens Transformer		1NO-1NC 2NO 2NC	ALD3 ④ 11⑤N-② ALD3 ④ 20⑤N-② ALD3 ④ 602⑤N-②	AOLD3 ④ 11⑤N-② AOLD3 ④ 20⑤N-② AOLD3 ④ 602⑤N-②
Ø 1-37/64" (40mm) Mushroom Lens Full Voltage		1NO-1NC 2NO 2NC	ALD39911⑤N-②-③ ALD39920⑤N-②-③ ALD39902⑤N-②-③	AOLD39911⑤N-②-③ AOLD39920⑤N-②-③ AOLD39902⑤N-②-③

### ② Lens Color Codes

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

### ③ Full Voltage Codes

Volatge	Code
6V AC/DC	6
12V AC/DC	12
24V AC/DC	24
120V AC	120
240V AC	240 (LED only)

### ④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486

1. 6V secondary voltage (uses 6V lamp).

### Part Numbers: Special Function Illuminated Pushbuttons

Style	Image	Contacts	Part Number
Ø 1-37/64" (40mm) Push-lock Turn Reset Transformer Type (available in Red only)		1NO-1NC 2NO 2NC	AVLD3 ④ 611⑤N-R* AVLD3 ④ 620⑤N-R* AVLD3 ④ 602⑤N-R*
Ø 1-37/64" (40mm) Push-lock Turn Reset Full Voltage (available in Red only)		1NO-1NC 2NO 2NC	AVLD39911⑤N-R-③* AVLD39920⑤N-R-③* AVLD39902⑤N-R-③*
Ø 1-37/64" (40mm) Push-Pull Transformer Type		1NO-1NC 2NO 2NC	AYLD3 ④ 611⑤N-② AYLD3 ④ 620⑤N-② AYLD3 ④ 602⑤N-②
Ø 1-37/64" (40mm) Push-Pull Full Voltage		1NO-1NC 2NO 2NC	AYLD39911⑤N-②-③ AYLD39920⑤N-②-③ AYLD39902⑤N-②-③
Ø 1-37/64" (40mm) Push-Pull (3-position) Transformer Type		1NO-1NC 1NC-1LB†	AYLD22 ④ 611⑤N-②-TK962 AYLD22 ④ 602S⑤N-②-TK962
Ø 1-37/64" (40mm) Push-Pull (3-position) Full Voltage		1NO-1NC 1NC-1LB†	AYLD229911⑤N-②-TK962-③ AYLD229902S⑤N-②-TK962-③

### ⑤ Lamp Type Code

Lamp	Code
Incandescent	Blank
LED	D

### Motor Starting Application (3 position push-pull)

Position	BST-001 (start)	BST-001S (stop)
Pull (start) (momentary)		
Normal		
Push (stop) (momentary)		



- In place of ②, specify the lens color code.
- In place of ③, specify the full voltage (lamp voltage) code.
- In place of ④, specify the transformer voltage code.
- In place of ⑤, specify the Lamp Type code.
- \* Available in red only.
- 3 position push-pull available in spring return to center only.
- † The most common configuration for motor starting applications.

## Illuminated Pushbuttons (Sub-Assembled)

Transformer\* + Contact Block + Operator + Lamp + Lens = Complete Part






A



\* Not required for full voltage types (full voltage types use APD-F full voltage clips).



### Part Numbers: Operators

Style	Part Number	
	Momentary	Maintained
Extended 	ALD-0600	AOLD-0600
Extended with Full Shroud 	ALFD-0600	AOLFD-0600
Ø 1-37/64" (40mm) Mushroom 	ALD-0600	AOLD-0600

### Part Numbers: Lenses

Style	Ill. Type	Part No.
Extended 	LED	ALD06LD-②
	Incandescent	ALD06LN-②
Ø 1-37/64" (40mm) Mushroom 	LED	ALN3LD-②
	Incandescent	ALN3L-②
Ø 1-37/64" (40mm) Pushlock Turn Reset 	LED	AVLN3LD-R
	Incandescent	AVLD06L-R
Ø 1-37/64" (40mm) Push-Pull 	Incandescent or LED	AYLD3L-②

### Part Numbers: Special Function Operators

Style	Part Number
Ø 1-37/64" (40mm) Pushlock Turn Reset 	AVLD3-0600N
Ø 1-37/64" (40mm) Push-Pull 	AYLD-0600

### ② Lens/LED Color Codes

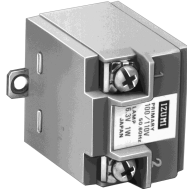
Color	Code
Amber	A
Green	G
Red	R
Blue	S
White	W
Yellow	Y



1. Bezel or full shroud included with pushbutton operator.
2. When ordering pushbutton operators, the contact blocks and lens must be ordered separately. Transformers (incandescent) or AC adaptors (LED) must also be ordered separately. Plus, with 1 NO or INC contact configuration, a dummy contact block must also be ordered separately.

## Illuminated Pushbuttons (Sub-Assembled) con't

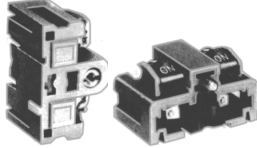
### Part Numbers: Adaptors and Transformers

Description	Primary Voltage (50/60Hz)	Part Number
Transformers 	120V AC	TWD-0126
	240V AC	TWD-0246
	480V AC	TWD-0486



6V secondary voltage (uses 6V lamp).


### Part Numbers: Contact Blocks

Description	Part Number	
	1NO	1NC
All Control Units 	BST-010 BST-010S (early make)	BST-001 BST-001S (late break)
Dummy Blocks	BST-D	





- Dummy blocks (no contacts) are used with an odd number
- Combining BST-010S and BST-001S result in overlapping (remain on, or closed, when switch is moved between two)

### Part Numbers: Full Voltage Clips

Primary Voltage (50/60Hz)	Part Number
Full Voltage Clips (2 req'd for each unit) 	APD-F

### Part Numbers: Lamps

Type	Voltage	Current	Part Number
LED 	6V AC	20mA	LSTD-6②
	12V AC/DC	20mA	LSTD-1②
	24V AC/DC	20mA	LSTD-2②
	120V AC	10mA	LSTD-H2②
	240V AC		LSTD-M4②
Incandescent 	6.3V AC/DC, 1W		IS-6
	12V AC/DC, 1W		IS-12
	24V AC/DC, 1W		IS-24
	30V AC/DC, 1W		IS-30
	120VAC, 1W		L-120L



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

#### ② LED Color Codes

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

## Non-Illuminated Selector Switches (Assembled)



**Knob Selector  
(Non-illuminated)**



**Key Selector  
(Non-illuminated)**



**Lever Selector  
(Non-illuminated)**

A

### Assembled Selector Switches

A S D 2 ( ) ( ) 11 N - ( )

**Degree of Protection**

A: IP65 (IP40 for Key Types)

**Function**

S: Selector Switch

**Series Type**

D: TWTD Ø 1-13/64" (Ø 30mm)

**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: 2-Way spring return from Left and Right

**Circuit Number**

(See Circuit # column of Selector Switch Contact Arrangement Chart on beginning on A-180.)

**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



Use only when interpreting part numbers. Do not use for developing part numbers.

## Non-Illuminated Selector Switches (Assembled) con't

### Part numbers: Non-Illuminated 2-Position Selector Switches

Style		Operator Position			Part Number	Part Number	Part Number
Contact	Mounting	L	R		Maintained	Spring Return from Right	Spring Return from Left
1NO	1	0	X	Knob Lever Key	ASD210N ASD2L10N ASD2K10N	ASD2110N ASD21L10N ASD21K10N	ASD2210N ASD22L10N ASD22K10N
	2	0	0				
1NC	1	X	0	Knob Lever Key	ASD201N-116 ASD2L01N-116 ASD2K01N-116	ASD2101N-116 ASD21L01N-116 ASD21K01N-116	ASD2201N-116 ASD22L01N-116 ASD22K01N-116
	2	0	0				
1NO 1NC	1	X	0	Knob Lever Key	ASD211N ASD2L11N ASD2K11N	ASD2111N ASD21L11N ASD21K11N	ASD2211N ASD22L11N ASD22K11N
	2	0	X				
2NO	1	0	X	Knob Lever Key	ASD220N ASD2L20N ASD2K20N	ASD2120N ASD21L20N ASD21K20N	ASD2220N ASD22L20N ASD22K20N
	2	0	X				
2NC	1	X	0	Knob Lever Key	ASD202N-104 ASD2L02N-104 ASD2K02N-104	ASD2102N-104 ASD21L02N-104 ASD21K02N-104	ASD2202N-104 ASD22L02N-104 ASD22K02N-104
	2	X	0				
2NO 2NC	1	0	X	Knob Lever Key	ASD222N ASD2L22N ASD2K22N	ASD2122N ASD21L22N ASD21K22N	ASD2222N ASD22L22N ASD22K22N
	2	X	0				
	3	0	X				
	4	X	0				
2NO 2NC	1	0	X	Knob Lever Key	ASD222N-111 ASD2L22N-111 ASD2K22N-111	ASD2122N-111 ASD21L22N-111 ASD21K22N-111	ASD2222N-111 ASD22L22N-111 ASD22K22N-111
	2	0	X				
	3	X	0				
	4	X	0				

### Part Numbers: Non-Illuminated 3-Position Selector Switches

Style		Operator Position				Part Number	Part Number	Part Number	Part Number
Contact	Mounting	L	C	R		Maintained	Spring Return from Right	Spring Return From Left	Spring Return Two-Way
2NO	1	X	0	0	Knob Lever Key	ASD320N ASD3L20N ASD3K20N	ASD3120N ASD31L20N ASD31K20N	ASD3220N ASD32L20N ASD32K20N	ASD3320N ASD33L20N ASD33K20N
	2	0	0	X					
2NC	1	0	X	X	Knob Lever Key	ASD302N ASD3L02N ASD3K02N	ASD3102N ASD31L02N ASD31K02N	ASD3202N ASD32L02N ASD32K02N	ASD3302N ASD33L02N ASD33K02N
	2	X	X	0					
2NO 2NC	1	X	0	0	Knob Lever Key	ASD322N ASD3L22N ASD3K22N	ASD3122N ASD31L22N ASD31K22N	ASD3222N ASD32L22N ASD32K22N	ASD3322N ASD33L22N ASD33K22N
	2	0	0	X					
	3	0	X	X					
	4	X	X	0					
2NO 2NC	1	X	0	X	Knob Lever Key	ASD322N-309 ASD3L22N-309 ASD3K22N-309	ASD3122N-309 ASD31L22N-309 ASD31K22N-309	ASD3222N-309 ASD32L22N-309 ASD32K22N-309	ASD3322N-309 ASD33L22N-309 ASD33K22N-309
	2	X	X	0					
	3	0	X	0					
	4	0	0	X					
2NO 2NC	1	0	X	0	Knob Lever Key	ASD322N-310 ASD3L22N-310 ASD3K22N-310	ASD3122N-310 ASD31L22N-310 ASD31K22N-310	ASD3222N-310 ASD32L22N-310 ASD32K22N-310	ASD3322N-310 ASD33L22N-310 ASD33K22N-310
	2	0	0	X					
	3	0	X	0					
	4	0	0	X					
4NO	1	X	0	0	Knob Lever Key	ASD340N ASD3L40N ASD3K40N	ASD3140N ASD31L40N ASD31K40N	ASD3240N ASD32L40N ASD32K40N	ASD3340N ASD33L40N ASD33K40N
	2	0	0	X					
	3	X	0	0					
	4	0	0	X					
4NC	1	0	X	X	Knob Lever Key	ASD304N ASD3L04N ASD3K04N	ASD3104N ASD31L04N ASD31K04N	ASD3204N ASD32L04N ASD32K04N	ASD3304N ASD33L04N ASD33K04N
	2	X	X	0					
	3	0	X	X					
	4	X	X	0					



1. The truth table indicates the operating position of contact block when the operator is switched to that position.

X = On (closed contacts) O = Off (open contacts)

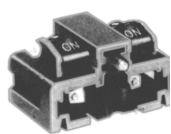
X-X = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these two positions.

2. All knob and lever selector switches come in black. Other colors are available by ordering the knob or lever separately.

3. Custom contact arrangements available, see page A-180 or call IDEC for details.

## Non-Illuminated Selector Switches (Sub-Assembled)


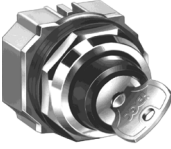
Contact Blocks + Operator + Knob or Lever\* + Color Insert\* = Complete Part †




A

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

### Part Numbers: Operators

Appearance/ Position	Description	Part Number
 Knob & Lever	2 Maintained	ASD200
	2 Spring-Ret. from Right	ASD2100
	2 Spring-Ret. from Left	ASD2200
	3 Maintained, Cam 1 Maintained, Cam 2	ASD300-1 ASD300-2
	3 Spring-Ret. from Right, Cam1 Spring-Ret. from Right, Cam 2	ASD3100-1 ASD3100-2
	3 Spring-Ret. from Left, Cam 1 Spring-Ret. from Left, Cam 2	ASD3200-1 ASD3200-2
 Key	2 Maintained	ASD2K00
	2 Spring-Ret. from Right	ASD21K00
	2 Spring-Ret. from Left	ASD22K00
	3 Maintained, Cam 1 Maintained, Cam 2	ASD3K00-1 ASD3K00-2
	3 Spring-Ret. from Right, Cam1 Spring-Ret. from Right, Cam 2	ASD31K00-1 ASD31K00-2
	3 Spring-Ret. from Left, Cam 1 Spring-Ret. from Left, Cam 2	ASD32K00-1 ASD32K00-2
3 Spring-Ret. from L/R, Cam 1 Spring-Ret. from L/R, Cam 2	ASD33K00-1 ASD33K00-2	

 Locking ring included with all selector switch operators. Order knobs, levers, color inserts separately (see below).


### ① Color Codes

Knob/Lever Color	Code	Insert Color	Code
Black	B	Blue	S
Blue	S	Green	G
Green	G	Red	R
Red	R	Yellow	Y
Yellow	Y	White	W

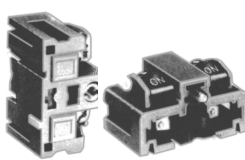
- 1. Knob/Lever not available in white.
- 2. Color inserts not available in Black.

### Part Numbers: Handles and Inserts

Style	Part Number
Knob 	ASDHHY - ①
Lever 	ASDHHL - ①
Color Insert 	TW-HC1 - ①

 In place of ①, specify the color code.

### Part Numbers: Contact Blocks

Style	Part Number	
	1NO	1NC
	All Control Units	BST-010 BST-010S (early make)
Dummy Blocks	BST-D	

- 1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
- 2. Combining BST-010S and BST-001S result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

**Illuminated Selector Switches (Assembled)**



\*AC adaptor is used with LED and transformer is used with incandescent (full voltage types use APD-F full voltage clips).

### Assembled Illuminated Selector Switches

**A SL D 2 (2) 126 11 D N - 111 - R - 24**

<p><b>Degree of Protection</b> A: IP54</p> <p><b>Function</b> SL: Illuminated Selector Switch</p> <p><b>Series Type</b> D: TWTD Ø 1-13/64" (Ø 30mm)</p> <p><b>Number of Positions</b> 2: 2-Position 3: 3-Position</p> <p><b>Spring Return Action</b> Blank: Maintained 1: Spring return from Right 2: Spring return from Left 3: 2-Way spring return from Left and Right</p> <p><b>Rated Operational Voltage (Primary)</b> Transformer/AC Adaptor Type      Full Voltage Type 126:120V AC                              99:Full Voltage 246:24V AC 486:480V AC (Transformer type only)</p> <p><b>Contact Arrangement</b> 20: 2NO                              02: 2NC 40: 4NO                              04: 4NC 11: 1NO-1NC                        22: 2NO-2NC</p>	<p><b>Lamp Voltage (Full Voltage Only)</b> Incandescent 6: 6V AC/DC 12: 12V AC/DC 24: 24V AC 120: 120V LED 6: 6V AC/DC 12: 12V AC/DC 24: 24V AC/DC 120: 120V AC 240: 240V AC</p> <p><b>Lens Color Code</b> A: Amber G: Green R: Red S: Blue W: White Y: Yellow</p> <p><b>Circuit Code Number</b> See Circuit # column of Selector Switch Contact Arrangement Charts on page A-180.</p> <p><b>Lamp Type</b> Blank: Incandescent D: LED</p>
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Use only when interpreting part numbers. Do not use for developing part numbers.

## Illuminated Selector Switches (Assembled) con't

### Part Numbers: Illuminated 2-Position Selector Switches

Style				AC Adaptor Full Voltage		
Contact	Mounting	Operator Position		Part Number	Part Number	Part Number
		L	R	Maintained	Spring Return From Right	Spring Return From Left
1NO 1NC	1	0	X	ASLD2 ④611⑤N-②	ASLD21 ④611⑤N-②	ASLD22 ④611⑤N-②
	2	X	0	ASLD29911⑤N-②-③	ASLD219911⑤N-②-③	ASLD229911⑤N-②-③
2NO	1	0	X	ASLD2 ④620⑤N-②	ASLD21 ④620⑤N-②	ASLD22 ④620⑤N-②
	2	0	X	ASLD29920⑤N-②-③	ASLD219920⑤N-②-③	ASLD229920⑤N-②-③
2NC	1	X	0	ASLD2 ④602⑤N-104-②	ASLD21 ④602⑤N-104-②	ASLD22 ④602⑤N-104-②
	2	X	0	ASLD29902⑤N-104-②-③	ASLD219902⑤N-104-②-③	ASLD229902⑤N-104-②-③
2NO 2NC	1	0	X	ASLD2 ④622⑤N-② ASLD29922⑤N-②-③	ASLD21 ④622⑤N-② ASLD219922⑤N-②-③	ASLD22 ④622⑤N-② ASLD229922⑤N-②-③
	2	X	0			
2NO 2NC	3	0	X	ASLD2 ④622⑤N-② ASLD29922⑤N-②-③	ASLD21 ④622⑤N-② ASLD219922⑤N-②-③	ASLD22 ④622⑤N-② ASLD229922⑤N-②-③
	4	X	0			
2NO 2NC	1	0	X	ASLD2 ④622⑤N-11-② ASLD29922⑤N-11-②-③	ASLD21 ④622⑤N-11-② ASLD219922⑤N-11-②-③	ASLD22 ④622⑤N-11-② ASLD229922⑤N-11-②-③
	2	0	X			
2NO 2NC	3	X	0	ASLD2 ④622⑤N-11-② ASLD29922⑤N-11-②-③	ASLD21 ④622⑤N-11-② ASLD219922⑤N-11-②-③	ASLD22 ④622⑤N-11-② ASLD229922⑤N-11-②-③
	4	X	0			

### ② Lens/LED Color Codes

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

### ③ Full Voltage Codes

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

### ④ AC Adaptor/Transformer Voltage Codes

Voltage	Code
120VAC	12
240VAC	24
480VAC	48 (Incandescent only)



6V secondary voltage (uses 6V lamps).

### ⑤ Lamp Type Code

Lamp	Code
Incandescent	Blank
LED	D

### Part Numbers: Illuminated 3-Position Selector Switches

Style				Transformer Full Voltage		AC Adaptor Full Voltage		
Contact	Mounting	Operator Position			Part Number	Part Number	Part Number	Part Number
		L	C	R	Maintained	Spring Return From Right	Spring Return From Left	Spring Return Two-Way
2NO	1	X	0	0	ASLD3 ④ 20⑤N-②	ASLD31 ④ 20⑤N-②	ASLD32 ④ 20D⑤N-②	ASLD33 ④ 20D⑤N-②
	2	0	0	X	ASLD39920⑤N-②-③	ASLD319920⑤N-②-③	ASLD329920D⑤N-②-③	ASLD339920D⑤N-②-③
2NC	1	0	X	X	ASLD3 ④ 02⑤N-②	ASLD31 ④ 02⑤N-②	ASLD32 ④ 02D⑤N-②	ASLD33 ④ 02D⑤N-②
	2	X	X	0	ASLD39902⑤N-②-③	ASLD319902⑤N-②-③	ASLD329902D⑤N-②-③	ASLD339902D⑤N-②-③
2NO 2NC	1	X	0	0	ASLD3 ④ 22⑤N-② ASLD39922⑤N-②-③	ASLD31 ④ 22⑤N-② ASLD319922⑤N-②-③	ASLD32 ④ 22D⑤N-② ASLD329922D⑤N-②-③	ASLD33 ④ 22D⑤N-② ASLD339922D⑤N-②-③
	2	0	0	X				
2NO 2NC	3	0	X	X	ASLD3 ④ 22⑤N-309-② ASLD39922⑤N-309-②-③	ASLD31 ④ 22⑤N-309-② ASLD319922⑤N-309-②-③	ASLD32 ④ 22D⑤N-309-② ASLD329922D⑤N-309-②-③	ASLD33 ④ 22D⑤N-309-② ASLD339922D⑤N-309-②-③
	4	X	X	0				
2NO 2NC	1	0	X	0	ASLD3 ④ 22⑤N-310-② ASLD39922⑤N-310-②-③	ASLD31 ④ 22⑤N-310-② ASLD319922⑤N-310-②-③	ASLD32 ④ 22D⑤N-310-② ASLD329922D⑤N-310-②-③	ASLD33 ④ 22D⑤N-310-② ASLD339922D⑤N-310-②-③
	2	0	0	X				
2NO 2NC	3	0	X	0	ASLD3 ④ 22⑤N-310-② ASLD39922⑤N-310-②-③	ASLD31 ④ 22⑤N-310-② ASLD319922⑤N-310-②-③	ASLD32 ④ 22D⑤N-310-② ASLD329922D⑤N-310-②-③	ASLD33 ④ 22D⑤N-310-② ASLD339922D⑤N-310-②-③
	4	0	0	X				
4NO	1	X	0	0	ASLD3 ④ 40⑤N-② ASLD39940⑤N-②-③	ASLD31 ④ 40⑤N-② ASLD319940N-②-③	ASLD32 ④ 40D⑤N-② ASLD329940D⑤N-②-③	ASLD33 ④ 40D⑤N-② ASLD339940D⑤N-②-③
	2	0	0	X				
4NO	3	X	0	0	ASLD3 ④ 40⑤N-② ASLD39940⑤N-②-③	ASLD31 ④ 40⑤N-② ASLD319940N-②-③	ASLD32 ④ 40D⑤N-② ASLD329940D⑤N-②-③	ASLD33 ④ 40D⑤N-② ASLD339940D⑤N-②-③
	4	0	0	X				
4NC	1	0	X	X	ASLD3 ④ 04⑤N-② ASLD39904⑤N-②-③	ASLD31 ④ 04⑤N-② ASLD319904⑤N-②-③	ASLD32 ④ 04D⑤N-② ASLD329904D⑤N-②-③	ASLD33 ④ 04D⑤N-② ASLD339904D⑤N-②-③
	2	X	X	0				
4NC	3	0	X	X	ASLD3 ④ 04⑤N-② ASLD39904⑤N-②-③	ASLD31 ④ 04⑤N-② ASLD319904⑤N-②-③	ASLD32 ④ 04D⑤N-② ASLD329904D⑤N-②-③	ASLD33 ④ 04D⑤N-② ASLD339904D⑤N-②-③
	4	X	X	0				



1. In place of ②, specify the lens/LED color code, in place of ③, specify the full voltage (lamp voltage) code, in place of ④, specify the AC adaptor/transformer voltage code and in place of ⑤ specify the Lamp Type code.

2. The truth table indicates the operating position of contact block when the operator is switched to that position.

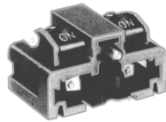
X = On (Closed Contacts) O = Off (Open Contacts)

—X—X = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these positions




## Illuminated Selector Switches (Sub-Assembled)

Adaptor/Transformer\* + Contact Block + Operator + Lamp + Operator = Complete Part

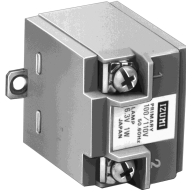


\*Not required for full voltage units (use APD-F full voltage clips instead).

### Part Numbers: Operators

Appearance/Positions	Description	Part Number
	2 Maintained	ASLD200
	3 Maintained, Cam 1 Maintained, Cam 2	ASLD300-1 ASLD300-2
	2 Spring-Ret. from Right Spring-Ret. from Left	ASLD2100 ASLD2200
	Spring-Ret. from Right, Cam 1 Spring-Ret. from Right, Cam 2	ASLD3100-1 ASLD3100-2
	3 Spring-Ret. from Left, Cam 1 Spring-Ret. from Left, Cam 2	ASLD3200-1 ASLD3200-2
	Spring-Ret. from L/R, Cam 1 Spring-Ret. from L/R, Cam 2	ASLD3300-1 ASLD3300-2



### Part Numbers: AC Adaptors and Transformers

Description	Primary Voltage (50/60Hz)	Part Number
	120V AC	TWD-0126
	240V AC	TWD-0246
	480V AC	TWD-0486



6V secondary voltage



### Part Numbers: Lenses

Style	Part Number
Knob (Incandescent) 	ASLDLDY - ①
Knob (For LED) 	ASLDDD Y-①

### Part Numbers: Full Voltage Clips

Primary Voltage (50/60Hz)	Part Number
Full Voltage Clips (2 req'd for each unit)	APD-F

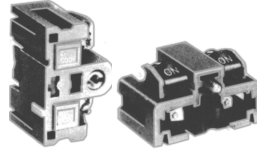
### Part Numbers: Lamps

Type	Voltage	Current	Part Number
	6V AC	20mA	LSTD-6-②
	12V AC/DC	20mA	LSTD-1-②
	24V AC/DC	20mA	LSTD-2-②
	120V AC	10mA	LSTD-H2②
	240V AC		LSTD-M4②
	6.3V AC/DC, 1W		IS-6
	12V AC/DC, 1W		IS-12
	24V AC/DC, 1W		IS-24
	30V AC/DC, 1W		IS-30
	120VAC, 1W		L-120L



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

### Contact Blocks

Description	Part Number	
	1NO	1NC
	BST-010	BST-001
	BST-010S (early make)	BST-001S (late break)
	Dummy Blocks	
	BST-D	



- Dummy blocks (no contacts) are used with an odd number of contact blocks.
- Combining BST-010S and BST-001S result in overlapping contacts (make before break).

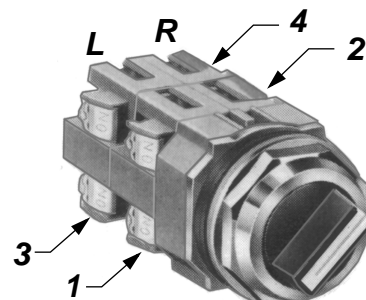
### ② Lens/LED Color Codes

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

## 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



TWTD

#### Contact Arrangement

Type and quantity of switch contacts

#### Circuit Number

\* N/D = No designation

#### Contact Block Mounting

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 = On (Closed Contacts)**  
**O = Off (Open Contacts)**  
**X X = Overlapping Contacts: Remain on (closed) when switch is moved between these two positions**

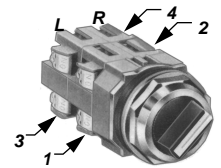
#### Contact Block Part Number

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

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. form Lt.
			L	R					
			↙	↘		↙ R	↘ R	↙ R	
1NO	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200	ASD2100	ASD2200
		2	O	O	BST-D	Illuminated Knob	ASD2K00 ASLD200	ASD21K00 ASLD2100	ASD22K00 ASLD2200
1NC	116	1	X	O	BST-001	Knob/Lever Key	ASD200	ASD2100	ASD2200
		2	O	O	BST-D	Illuminated Knob	ASD2K00 ASLD200	ASD21K00 ASLD2100	ASD22K00 ASLD2200
1NO 1NC	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200	ASD2100	ASD2200
		2	X	O	BST-001	Illuminated Knob	ASD2K00 ASLD200	ASD21K00 ASLD2100	ASD22K00 ASLD2200
	103	1	X	O	BST-001	Knob/Lever Key	ASD200	ASD2100	ASD2200
		2	O	X	BST-010	Illuminated Knob	ASD2K00 ASLD200	ASD21K00 ASLD2100	ASD22K00 ASLD2200
2NO	N/D	1	O	X	BST-010	Knob/Lever Key	ASD200	ASD2100	ASD2200
		2	O	X	BST-010	Illuminated Knob	ASD2K00 ASLD200	ASD21K00 ASLD2100	ASD22K00 ASLD2200
2NC	104	1	X	O	BST-001	Knob/Lever Key	ASD200	ASD2100	ASD2200
		2	X	O	BST-001	Illuminated Knob	ASD2K00 ASLD200	ASD21K00 ASLD2100	ASD22K00 ASLD2200

**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.
			L	R					
1NO	N/D	1	0	X	BST-010	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	0	BST-D				
1NC	116	1	X	0	BST-001	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	0	BST-D				
1NO 1NC	N/D	1	0	X	BST-010	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	0	BST-001				
	103	1	X	0	BST-001	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	X	BST-010				
EM LB	600	1	0	X	BST-010S	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	0	BST-001S				
	601	1	X	0	BST-001S	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	X	BST-010S				
2NO	N/D	1	0	X	BST-010	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	X	BST-010				
2NC	104	1	X	0	BST-001	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	0	BST-001				
2NO 2NC	N/D	1	0	X	BST-010	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	X	0	BST-001				
		3	0	X	BST-010				
		4	X	0	BST-001				
	110	1	X	0	BST-001	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	X	BST-010				
		3	X	0	BST-001				
		4	0	X	BST-010				
	111	1	0	X	BST-010	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	X	BST-010				
		3	X	0	BST-001				
		4	X	0	BST-001				
	117	1	X	0	BST-001	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	X	BST-010				
		3	0	X	BST-010				
		4	X	0	BST-001				
4NO	105	1	0	X	BST-010	Knob/Lever Key Illuminated Knob	ASD200 ASD2K00 ASLD200	ASD2100 ASD21K00 ASLD2100	ASD2200 ASD22K00 ASLD2200
		2	0	X	BST-010				
		3	0	X	BST-010				
		4	0	X	BST-010				





## Operator Truth Tables

Use the following tables to build custom selector switches.

### 2 Position Selector Switches

**ASD200**

Contact	Mounting Position	Operator Position	
		Left	Right
BST-010 (NO)	L	0	X
	R	0	X
BST-001 (NC)	L	X	0
	R	X	0
BST-010S (NO-EM)	L	0	X
	R	0	X
BST-001S (NC-LB)	L	X	0
	R	X	0

### 3 Position Selector Switches

**ASD300-1  
ASLD300-1  
ASD3K00-1**

Contact	Mounting Position	Operator Position		
		Left	Center	Right
BST-010 (NO)	L	X	0	0
	R	0	0	X
BST-001 (NC)	L	0	X	X
	R	X	X	0
BST-010S (NO-EM)	L	X	0	0
	R	0	0	X
BST-001S (NC-LB)	L	0	X	X
	R	X	X	0





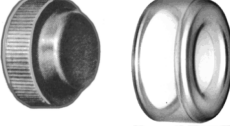

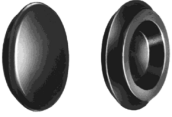




**ASD300-2  
ASLD300-2  
ASD3K00-2**

Contact	Mounting Position	Operator Position		
		Left	Center	Right
BST-010 (NO)	L	X	0	X
	R	0	0	X
BST-001 (NC)	L	0	X	0
	R	X	X	0
BST-010S (NO-EM)	L	X	0	X
	R	0	0	X
BST-001S (NC-LB)	L	0	X	0
	R	X	X	0



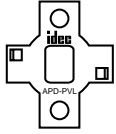
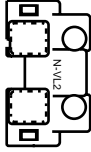
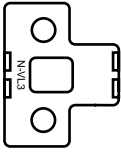
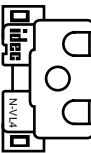
1. For Operator Truth Tables, see next page.
2. For examples of how to assemble selector switches, see A-106.

## Accessories — TWTD Series

Locking Ring Wrench		Wrench used to tighten round bezels from the front of the panel. Units with round bezels, will not work with octagonal bezels.	OR-12	
Lamp Removal Tool		Tool used to install LED's and incandescent lamps.	OR-55	
Metal Bezel		Replacement locking ring/bezel	Standard octagonal units (chrome-pl.).	OG-81
			Extended, non-illuminated (chrome-pl.).	OG-82
			Extended, illuminated (chrome-pl.).	OG-83L
			Jumbo Mushroom Shallow Shroud	ABN4G
			Jumbo Mushroom Deep Shroud	ABN4F
Plastic Bezel		Black plastic locking ring/bezel	OGP-11B	
Boot/Cover		Used to cover and protect push-buttons.	In place of ①, specify neoprene <b>Rubber Boot</b> color: <b>B</b> (black), <b>G</b> (green), <b>R</b> (red), <b>Y</b> (yellow)	OC-11 ①
			Flush units (clear plastic -40° to +60°C).	OC-121
			Extended units (clear plastic -40° to +60°C).	OC-122
Anti-Rotation Ring		Plastic washer For nameplates or panels that should not be scratched..		OGL-D1T
		Thrust washer/Anti-rotation ring for use with notched panel cutout..		OGL-D1S
Mounting Hole Plug		Plugs used to fill unused 30mm panel cutouts.	Plastic with locking nut attached.	OBP-11
			Metal with locking nut attached	OB-11
			Black rubber (-5° to +60°C)	OB-13
Terminal Tab Adaptor		Tab #250 17/64" x 3/64" (6.35mm x 0.8mm): Single tab		TW-FA1
		Tab #110 1/8" x 3/64" (2.8mm x 0.8mm): Double tab		TW-FA2
		Tab #187 3/16" x 1/32" (4.75mm x 0.5mm): Single tab		TW-FA3
Full Voltage Adaptor		Used on all full voltage illuminated units. Two required per unit. (M3.5 screw and saddle)	APD-F	
Lock Out Adaptor		Used to provide lockout protection for TWTD pushbuttons and knob selectors. Ø 1-13/64" (30mm)	OL-KL1	
Replacement Keys		Pair of Keys (#0)	TW-SK	

**Accessories con't**

**Part Numbers: Fingersafe Covers for TWTD Series**

Appearance	Description	Used with	Part Number
	Fingersafe terminal cover, adds 3mm to overall depth	APO LED and incandescent full voltage pilot lights	APD-PVL
	Fingersafe terminal cover, adds 3mm to overall depth	Illuminated pushbutton switches: ALD, AOLD, ALGD, ALFD, AOLFD, and AVLD	N-VL2
	Fingersafe terminal cover, adds 1.5mm to overall depth	Transformer/AC Adaptor pilot lights and illuminated units	N-VL3
	Fingersafe terminal cover, adds 4 mm to depth	Full voltage illuminated pushbuttons	N-VL4



Dimensions on page A-188.

## Nameplates — TWTD Series

### Part Numbers: Nameplates

	NALD	NAKD	NAQD
<b>Dimensions</b>			

Description		Part Number	Part Number	Part Number
<b>Namplate (blank)</b>	Black	NALD-0B	NAKD-B	NAQD-B
	Red	NALD-0R	NAKD-R	NAQD-R
<b>Namplate (engraved)</b>		NALD-①	NAKD-①	NAQD-①

1. Nameplates are made of 0.031" aluminum. Lettering is white letters engraved on black background.  
 2. In place of ①, insert either the standard legend code from table below or custom engraving delimited by " " .

### \* 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			AUTO-MAN-OFF	301
CLOSE	102	OUT	117	CLOSE-OPEN	202			AUTO-OFF-MAN	302
DOWN	103	RAISE	118	DOWN-UP	203			CLOSE-OFF-OPEN	303
*EMERG.STOP	104	RESET	119	FAST-SLOW	204			DOWN-OFF-SLOW	304
FAST	105	REVERSE	120	FOR-REV	205	REV-FOR	216	FAST-OFF-SLOW	305
FORWARD	106	RUN	121	HAND-AUTO	206	RUN-JOG	217	FOR-OFF-REV	306
HAND	107	SLOW	122	HIGH-LOW	207	RUN-SAFE	218	LEFT-OFF-RIGHT	307
HIGH	108	START	123	JOG-RUN	208	SAFE-RUN	219	LOWER-OFF-RAISE	308
IN	109	*STOP	124	LEFT-RIGHT	209	SLOW-FAST	220	OFF-MAN-AUTO	309
INCH	110	STOP	125	LOWER-RAISE	210	START-STOP	221	OFF-SLOW-FAST	310
JOG	111	TEST	126	MAN-AUTO	211	STOP-START	222	OFF-1-2	311
LOW	112	UP	127	OFF-ON	212	UP-DOWN	223	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. \*Available in Red as standard legend code 104 and 124. To order engraved nameplate and codes, add legend code to nameplate part number.  
 Character height based on the number of characters, space and size of nameplate. Standard character size is 3/16".  
 2. Nameplates with standard legends are the same list price as blank nameplates. Special engravings, additional cost.

To specify engraving instructions, use the Nameplate order form on next page.



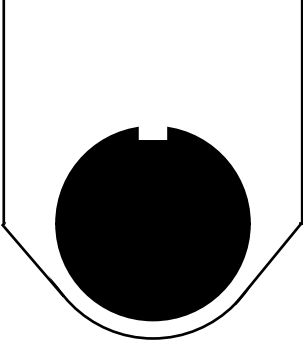
## Nameplates Order Form — TWTD Series

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

Your Company Name: \_\_\_\_\_  
 Your Name: \_\_\_\_\_  
 Telephone: \_\_\_\_\_

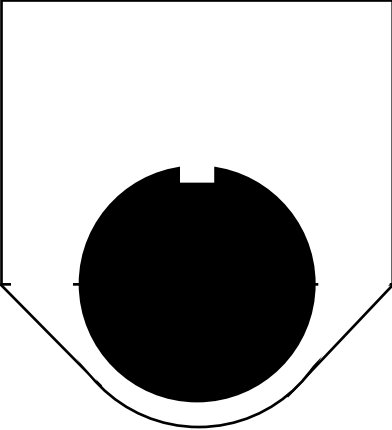
IDEC Representative(if known): \_\_\_\_\_  
 PO number (if known): \_\_\_\_\_

### NALD Nameplate

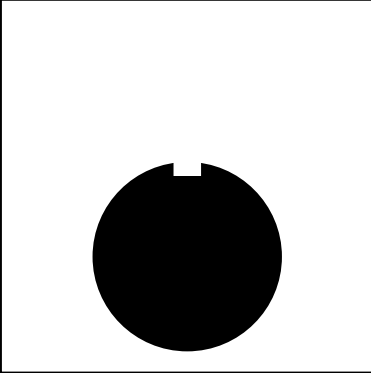
<p><b>Step 1. Specify letter height and custom engraving.</b>          Maximum of 2 lines of engraving.</p> <p>1/8" SAMPLE LETTERING Size (13 characters maximum per line)</p> <p>-----          -----</p> <hr/> <p>7/64" SAMPLE LETTERING (13 characters maximum)</p> <p>-----          -----</p>	<p><b>Step 2. Specify location of engraving on NVAL namePlate.</b></p> 	<p><b>Step 3. Specify Quantity.</b>          Enter the number of nameplates desired with the specifications defined to the left.</p> <div style="border: 1px solid black; width: 60px; height: 40px; margin: 0 auto;"></div>
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**A**

### NAKD Nameplate

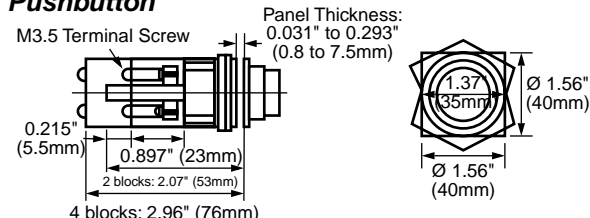
<p><b>Step 1. Specify letter height and custom engraving.</b>          Maximum of 4 lines of engraving.</p> <p>1/8" SAMPLE LETTERING Size          (16 characters maximum per line)</p> <p>-----          -----          -----          -----</p>	<p><b>Step 2. Specify location of engraving on NWAQL namePlate.</b></p> 	<p><b>Step 3. Specify Quantity.</b>          Enter the number of nameplates desired with the specifications defined to the left.</p> <div style="border: 1px solid black; width: 60px; height: 40px; margin: 0 auto;"></div>
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### NAQD Nameplate

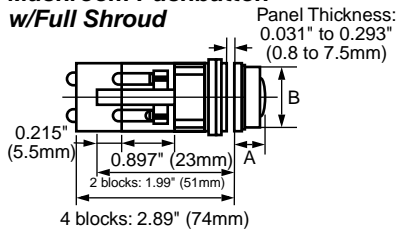
<p><b>Step 1. Specify letter height and custom engraving.</b>          Maximum of 2 lines of engraving.</p> <p>1/8" SAMPLE LETTERING Size (15 characters maximum)</p> <p>-----          -----</p> <hr/> <p>7/64" SAMPLE LETTERING (16 characters maximum)</p> <p>-----          -----</p>	<p><b>Step 2. Specify location of engraving on NAQD nameplate.</b></p> 	<p><b>Step 3. Specify Quantity.</b>          Enter the number of nameplates desired with the specifications defined to the left.</p> <div style="border: 1px solid black; width: 60px; height: 40px; margin: 0 auto;"></div>
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## Dimensions — TWTD Series

### Pushbutton



### Mushroom Pushbutton w/Full Shroud



### Pushbuttons

#### Flush Extended w/Full Shroud

	Dimension A	Dimension B
Flush Extended w/Full Shroud	0.351" (9mm) 0.566" (14.5mm) 0.663" (17mm)	Ø 0.975" (25mm) Ø 0.975" (25mm) Ø 1.11" (28.5mm)

#### Mushroom w/Full Shroud Jumbo Mushroom Ø 1.56" (40mm)

Mushroom w/Full Shroud Jumbo Mushroom Ø 1.56" (40mm)	0.858" (22mm) 0.936" (24mm) 1.13" (29mm)	Ø 1.56" (40mm) Ø 1.87" (48mm) Ø 2.54" (65mm)
--	--	--

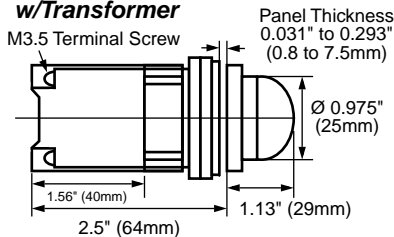
#### Mushroom, Pushlock Turn Reset, Push-Pull Ø 1.56" (40mm)

Mushroom, Pushlock Turn Reset, Push-Pull Ø 1.56" (40mm)	*0.975" (25mm) **0.975" (25mm)	Ø 1.56" (40mm) Ø 1.56" (40mm)
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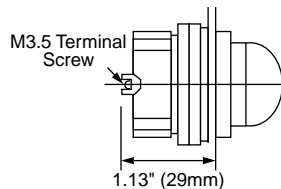
**Note:** \*Dimension when operator is in reset position.  
\*\*Dimension when operator is in pull position.

### Pilot Lights

#### w/AC Adapter w/Transformer



#### Full Voltage



### Illuminated Pushbuttons

#### Flush w/Full Shroud

	Dimension A	Dimension B
Flush w/Full Shroud	0.975" (25mm) 0.995" (25.5mm)	Ø 0.936" (24mm) Ø 0.936" (24mm)

#### Extended w/Full Shroud

Extended w/Full Shroud	0.741" (19mm) 0.761" (19.5mm)	Ø 0.936" (24mm) Ø 0.936" (24mm)
------------------------	----------------------------------	------------------------------------

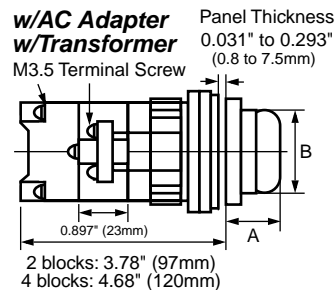
#### Ø 1.56" (40mm) Mushroom Pushlock Turn Reset, Push-Pull

Ø 1.56" (40mm) Mushroom Pushlock Turn Reset, Push-Pull	*0.975" (25mm) **0.975" (25mm)	Ø 1.56" (40mm) Ø 1.56" (40mm)
--	-----------------------------------	----------------------------------

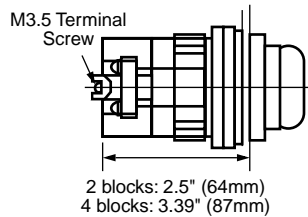
**Note:** \*Dimension when operator is in reset position.  
\*\*Dimension when operator is in pull position.

### Illuminated Pushbuttons

#### w/AC Adapter w/Transformer

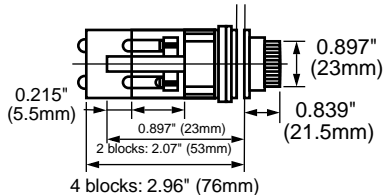


#### Full Voltage

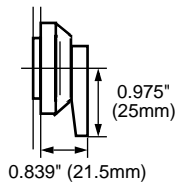


### Selector Switches

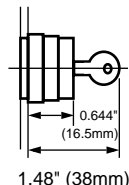
#### Knob



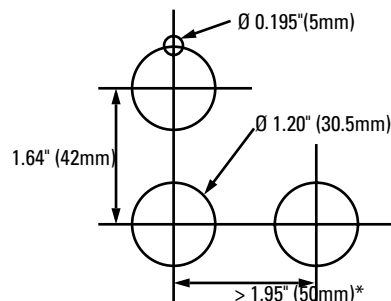
#### Lever



#### Key

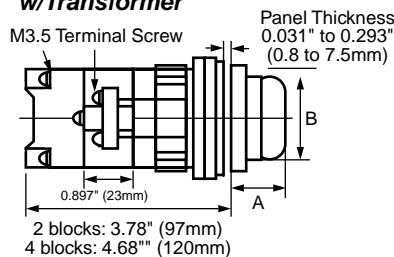


### Panel Cut-Out

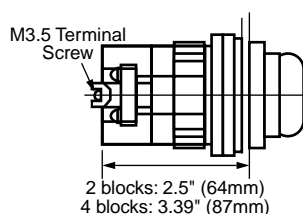


### Illuminated Knob

#### w/AC Adapter w/Transformer



#### Full Voltage

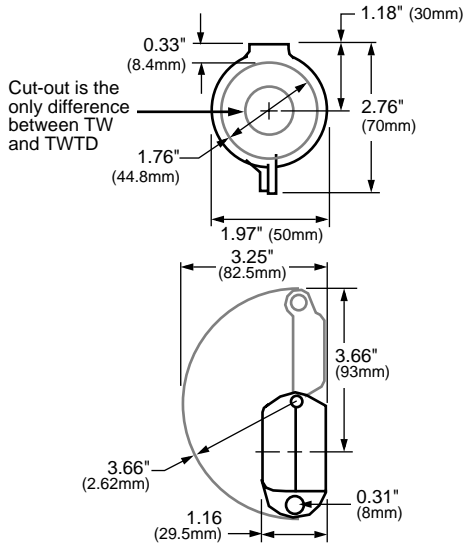


- \* Jumbo Mushroom < 2.61" (66mm)
- Minimum mounting centers are applicable to switches with one stack of contact blocks. When mounting two stacks of contact blocks, minimum centers should allow for access to wiring.
- The Ø 0.195" (Ø 5mm) recess is necessary when either the nameplate or anti-rotation ring is used.

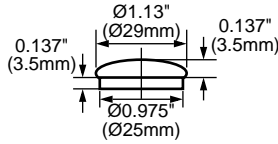
**Dimensions — TWTD Series con't**

**Accessory Dimensions**

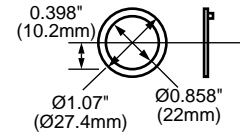
**OL-KL1  
Lock-Out Adaptor**



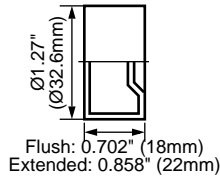
**OB-31  
Mounting Hole Rubber Plug**



**OGL-31  
Anti-Rotation Ring**

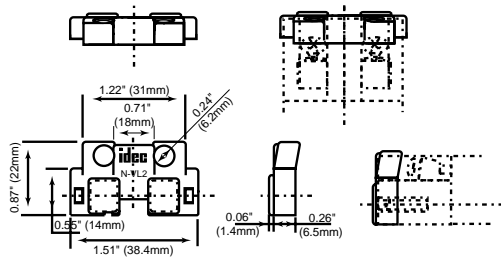


**OC-31  
Pushbutton Clear Boot**

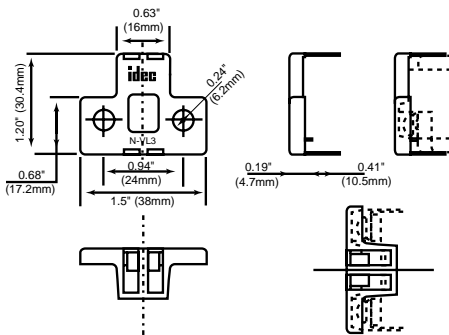


**Finger-Safe Cover**

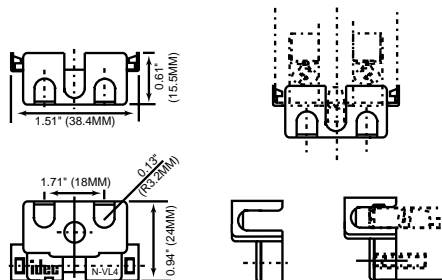
**N-VL2**



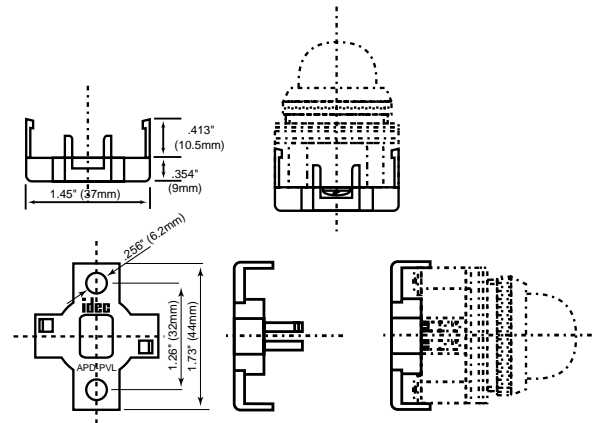
**N-VL3**



**N-VL4**



**APD-PVL**



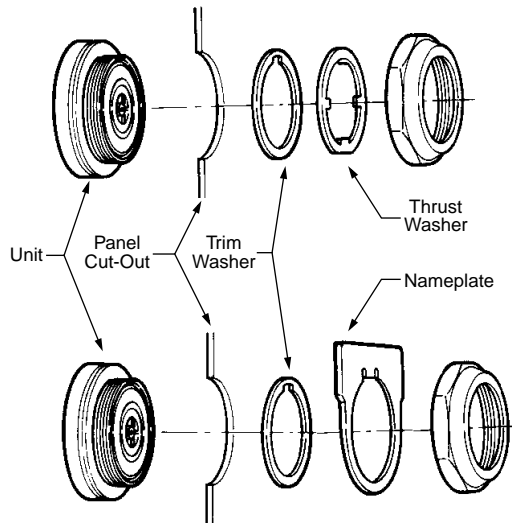
## Instructions — TWTD Series

### Adjustment for Panel Thickness

Each unit is shipped with several waterproof gaskets which are 0.06" (1.5mm) and 0.12" (3mm) thick. Combine the gaskets for a dimension approximately equal to panel thickness and install between the bezel and the body of the unit.

A

A trim washer must be used with a thrust washer or a nameplate to prevent the control unit from rotating in the mounting hole. When using anti-rotation rings (trim washer with thrust washer or nameplate), install as shown below.



### 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 Standard Operating Positions.

#### Standard operation positions

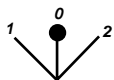
2-Position, 90°



3-Position, 45°

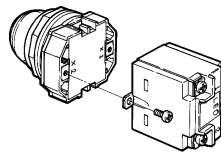


#### Non-Illuminated 3-Position Operators



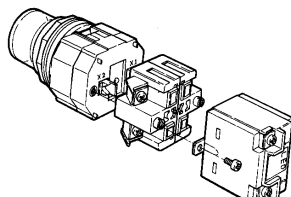
#### Installation of TWTD Series Units

##### TWTD Pilot Lights

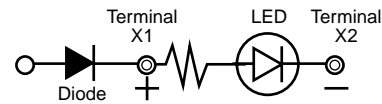


TWTD Illuminated Pushbuttons,  
TWTD Selector Switches  
(AC Adaptor or Full Voltage)

Terminal X1 = Positive  
Terminal X2 = Negative



**Installation of LED Illuminated Units**—AC adaptor units are recommended for use in areas subjected to inductive noise. When using full voltage types, install a protection diode as shown below. Use diode with AC power supply to protect against reverse polarity. Use with DC power supply to protect against surges and noise.

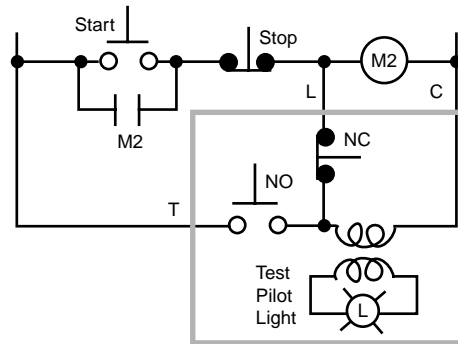


Make sure that LED illuminated units are installed with correct polarity, as indicated at the terminals.

#### Application Example For Push-To-Test Pilot Light

A typical application of illuminated pushbuttons is a push-to-test pilot light which can be used to check the lamp/LED circuit.

##### Transformer/AC-Adaptor Circuit



##### Full Voltage Circuit

