

New TWND Series — Full Size NEMA Pushbuttons



New! TWND Series: Heavy duty switches built to last

Key features:

- Variety of button sizes up to 2 9/16" (65mm)
- Rugged construction includes chrome plated zinc locking ring die cast zinc mounting thread
- 6 vibrant colors rendered by single long lasting white LED engine
- Transformer or full voltage
- Slow make, double break wiping contacts
- Modular construction for maximum flexibility
- Available assembled or as sub-components
- UL Type 4X, 13 and IP65 watertight/oiltight panel

The rugged series of TWND 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 TWNDs are here to stay.

The TWND series also offers LED illumination in full voltage and transformer models.

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



UL Listed
File No. E68961



File No. LR21451



R 50363567



Certificate No.
2016010305902410

Specifications

Conforming to Standards	EN60947-5-1, UL508, CSA C22-2 No.14
Approvals	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 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 (illuminated versions) -25 ~ +70°C non-illuminated Storage: -40 to +80°C (without freezing) C-> °C
Vibration Resistance	5 to 55Hz, 98m/sec ² (10g) conforming to IEC60068-2-6
Shock Resistance	980m/sec ² (100g) conforming to IEC60068-2-27
Electric Shock Protection	Class 2 conforming to IEC60664-1
Degree of Protection	IP65 (from front of the panel) (conforming to IEC60529) UL Type 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (conforming to NEMA ICS6-110)
Mechanical Life	Momentary pushbuttons: 5,000,000 (1800 operations per hour) All other switches: 500,000
Pollution Degree (conforming to IEC60947-1)	3

Mechanical-Electrical Specifications

Rated Operational Characteristics	AC-15: A600					
Rated Insulation Voltage	600V					
Rated Impulse Withstanding Voltage	Between live and dead metal parts					
Dielectric Strength	2.5kV AC, 1 minute					
Rated Thermal Current	10 Amp					
Minimum Switching Capacity	5 mA at 3V AC/DC (applicable range may vary with operating conditions and load types)					
Contact Operation	Slow break NC or NO					
Operating Force	Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 9.0±1.5N Additional contacts—1NO or 1NC: +3.0N					
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 mm² (AWG14 to 22)	2	1.0 to 1.3	
			2.1 to 3.5 mm² (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)	2	1.0 to 1.3	
		Stranded Wire	0.3 to 2.0 mm (AWG14 to 22)	2	1.0 to 1.3	
Applicable Wire Size	Pilot Light	Crimping Terminal		2	0.6 to 1.0 (M3.0)	
		Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)	2	1.0 to 1.3 (M3.5)	
		Stranded Wire	ø0.3 to 2.0 mm (AWG14 to 22)	2	1.0 to 1.3 (M3.5)	
	 1. * refers to the lamp terminals of the illuminated push buttons and selector switches.					
Contact Resistance	Initial contact resistance of 50mΩ or less					
Contact Gap	4mm (NO and NC) 2mm (NO-EM and NC-LB)					
LED Ratings	LEDs: 6V: 8mA, 12V: 11mA, 24V: 11mA, 120V: 8.8mA, 240V: 8.6mA					
Contact Material	Silver					

Contact Ratings

Contact Ratings by Utilization Category IEC 60947-5-1			AC-15 (A600)					
			DC-13 (P600)					
Contact Ratings by Utilization Category								
Operational Voltage			24V	48V	50V	110V	220V	440V
Operation Current	AC 50/60 Hz	AC-12 Control of resistive loads & 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 & 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

Function

B: Momentary
O: Maintained
V: Pushlock Turn Reset
Y: Push-Pull

Bezel Shape

Blank: Octagonal
F: Full Shroud
G: Mushroom Shroud
P: Neoprene Boot

Series Designation

D: TWND Series

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 ø 40mm
4: Jumbo Mushroom ø 65mm

A **B** **()** **D** **1** **10** **NU** **R**

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)

Non-Illuminated Pushbuttons

Style	Contacts	Momentary	Maintained
Flush	1NO 1NC 1NO-1NC 2NO 2NC	ABD110NU① ABD101NU① ABD111NU① ABD120NU① ABD102NU①	AOD110NU① AOD101NU① AOD111NU① AOD120NU① AOD102NU①
Extended	1NO 1NC 1NO-1NC 2NO 2NC	ABD210NU① ABD201NU① ABD211NU① ABD220NU① ABD202NU①	AOD210NU① AOD201NU① AOD211NU① AOD220NU① AOD202NU①
Extended with Neoprene Boot [†]	1NO 1NC 1NO-1NC 2NO 2NC	ABPD210NU① ABPD201NU① ABPD211NU① ABPD220NU① ABPD202NU①	AOPD210NU① AOPD201NU① AOPD211NU① AOPD220NU① AOPD202NU①
Recessed	1NO 1NC 1NO-1NC 2NO 2NC	ABFD110NU① ABFD101NU① ABFD111NU① ABFD120NU① ABFD102NU①	AOFD110NU① AOFD101NU① AOFD111NU① AOFD120NU① AOFD102NU①
Extended with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABFD210NU① ABFD201NU① ABFD211NU① ABFD220NU① ABFD202NU①	AOFD210NU① AOFD201NU① AOFD211NU① AOFD220NU① AOFD202NU①
ø 40mm Mushroom Head	1NO 1NC 1NO-1NC 2NO 2NC	ABD310NU① ABD301NU① ABD311NU① ABD320NU① ABD302NU①	AOD310NU① AOD301NU① AOD311NU① AOD320NU① AOD302NU①
ø 40mm Mushroom Head with Full Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABGD310NU① ABGD301NU① ABGD311NU① ABGD320NU① ABGD302NU①	AOGD310NU① AOGD301NU① AOGD311NU① AOGD320NU① AOGD302NU①
ø 65mm Jumbo Mushroom Head	1NO 1NC 1NO-1NC 2NO 2NC	ABD410NU① ABD401NU① ABD411NU① ABD420NU① ABD402NU①	AOD410NU① AOD401NU① AOD411NU① AOD420NU① AOD402NU①
ø 65mm Jumbo Mushroom Head with Shallow Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABGD410NU① ABGD401NU① ABGD411NU① ABGD420NU① ABGD402NU①	AOGD410NU① AOGD401NU① AOGD411NU① AOGD420NU① AOGD402NU①
ø 65mm Jumbo Mushroom Head With Deep Shroud	1NO 1NC 1NO-1NC 2NO 2NC	ABFD410NU① ABFD401NU① ABFD411NU① ABFD420NU① ABFD402NU①	AOFD410NU① AOFD401NU① AOFD411NU① AOFD420NU① AOFD402NU①

① Button Color Codes

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



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



- In place of ①, specify the Button Color Code.
- For sub-assembly part numbers, see next page.
- *Neoprene boot available only in Black (B), Green (G), Red (R) and Yellow (Y).

Non-Illuminated Pushbuttons (Sub-Assembled)



Operators

Style		Part Number	
		Momentary	Maintained
Flush/Extended		ABD1200T8	AOD1200T8
Extended with Full Shroud		ALFD2300T8	AOLFD2300T8
ø 40mm Mushroom/ø 65mm Jumbo Mushroom		ABD3400T8	AOD3400T8
ø 40mm Mushroom with Full Shroud		ABGD-300T	AOGD-300T
ø 65mm Jumbo Mushroom with Shallow Shroud		ABGD-400T	AOGD-400T
ø 65mm Jumbo Mushroom with Deep Shroud		ABFD-400T	AOFD-400T

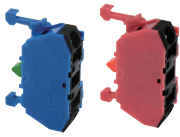
Buttons and Lenses

Style	Part Number
Flush	ABD1BN-①
Extended	ABD2BN-①
ø 40mm Mushroom	ABD3BN-①
ø 65mm Jumbo Mushroom	ABD4BN-①



In place of ①, specify the Button Color Code. (See table previous page)

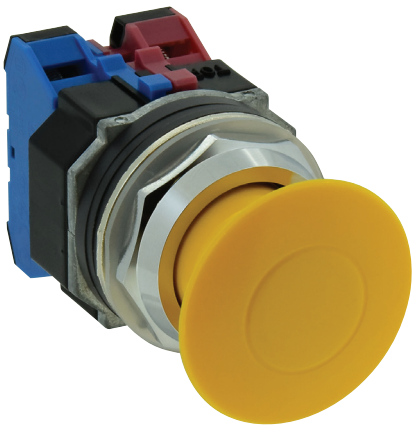
Contact Blocks

Style		Part Number	
		1NO	1NC
All Control Units		HW-U10-F HW-U10R-F (early make)	HW-U01-F HW-U01R-F (late break)
Dummy Block		HW-DB	



- Dummy blocks (no contacts) are used with an odd number of contact blocks.
- Combining HW-U10R-F and HW-U01R-F result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

Stop Switches (Assembled)



Assembled Stop Switches

	A	V	(L)	D	3	22	11	D	NU	R	
Function		V: Pushlock Turn Reset Y: Push-Pull									Button/Lens Color Code
Illumination			Blank: None L: Illuminated								A: Amber G: Green R: Red S: Blue W: White Y: Yellow
Series Designation				D: TWND Series							(illuminated units only) D: LED
Button/Lens Size					3: 40mm Mushroom						Contact Arrangement
Illumination Circuit											10: 1NO 01: 1NC 20: 2NO 02: 2NC 11: 1NO-1NC 22: 2NO-2NC



- 1. Use only when interpreting part numbers. Do not use for developing part numbers.
- 2. Custom contact configurations available, contact IDEC for details.

Stop Switches (Assembled)

Stop Switches

Style	Contacts	Part Number
ø 40mm Pushlock Turn Reset 	1NO 1NC 1NO-1NC 2NO 2NC	AVD310NUR* AVD301NUR* AVD311NUR* AVD320NUR* AVD302NUR*
ø 40mm Illuminated Pushlock Turn Reset 	1NO-1NC 2NO 2NC	AVLD3③11DNUR* AVLD3③20DNUR* AVLD3③02DNUR*
ø 40mm Push-Pull 	1NO 1NC 1NO-1NC 2NO 2NC	AYD310NU① AYD301NU① AYD311NU① AYD320NU① AYD302NU①
ø 40mm Illuminated Push-Pull 	1NO-1NC 2NO 2NC	AYLD3③11DNU② ** AYLD3③20DNU② ** AYLD3③02DNU② **
	1NO-1NC 2NO 2NC	AYLD3④11DNU② ** AYLD3④20DNU② ** AYLD3④02DNU② **

① Button Color Codes

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

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	66
12V AC/DC	11
24V AC/DC	22
120V AC	QH2
240V AC	QM4

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486



Transformers step down to 6V.

1. In place of ①, specify the button color code.
2. In place of ②, specify the lens color code.
3. In place of ③, specify the Full Voltage (lamp voltage) Code.
4. * Only available in red.
5. In place of ④, specify the transformer voltage code.
6. **Not available in blue.
7. For sub-assembly part numbers, see next page.
8. For nameplates and accessories, see page 825 and page 823.
9. For dimensions, see page 828.

Stop Switches (Sub-Assembled)



* Not required for full voltage units.

Operators

Style		Part Number
ø40mm Illuminated and Non-illuminated Pushlock Turn Reset		AVD000T8
ø 40mm Illuminated and Non-illuminated Push-Pull		AYD000T8

Buttons and Lenses

Style		Part Number
Button for Pushlock Turn Reset Stop Switches (ø40mm, red only)		AVN3B-R
Lens for Illuminated Pushlock Turn Reset Stop Switches (ø40mm, red only)		AVLN3LD-R-K
Button for Push-Pull Stop Switches (ø40mm)		AYD3BN-①
Lens for Illuminated Push-Pull Stop Switches (ø40mm)	2 pos*	AYLD3LD-②-K

1. In place of ①, specify the Button Color Code. (See table below)
2. In place of ②, specify the lens Color Code.
3. *Not available in blue.

Lamp Circuit Components

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

LEDs

Style	Voltage	Part Number
	6V AC/DC	LSRD-6
	12V AC/DC	LSRD-1
	24V AC/DC	LSRD-2
	120V AC/DC	LSRD-H2
	240V AC	LSRD-M4



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

② Lens Color Codes

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

① Button Color Codes

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

Contact Blocks

Style		Part Number	
		1NO	1NC
All Control Units		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. Combining HW-U10R-F and HW-U01R-F result in overlapping contacts.

Transformers

Style	Primary Voltage (50/60Hz)	Part Number
	120V AC	TW-F126B
	240V AC	TW-F246B
	480V AC	TW-F486B



6V secondary voltage (uses 6V LED).

Full Voltage Modules

Style		Description	Part Number
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).

Pilot Lights (Assembled)



Assembled Pilot Lights

Function	A	P	D	1	126	D	NU	R	Lens Color Code
P: Pilot Light									A: Amber
Series Designation									G: Green
D: TWND Series									R: Red
Lens Shape									S: Blue
1: Dome									W: White
Rated Operational Voltage (Primary)									Y: Yellow
Transformer Type									D: LED
126: 120V AC									
246: 240V AC									
486: 480V AC									
Full Voltage Type									
66: 6VAC/DC									
11: 12VAC/DC									
22: 24VAC/DC									
QH2: 120VAC/DC									
QM4: 240VAC									



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

LED Pilot Lights

Style	Operating Voltage	Part Number
		LED
Transformer Dome	120V AC 240V AC 480V AC	APD1126DNU② APD1246DNU② APD1486DNU②
Full Voltage Dome	—	APD1③DNU②

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	66
12V AC/DC	11
24V AC/DC	22
120V AC/DC	QH2
240V AC	QM4



1. In place of ②, specify the Lens/LED Color Code.
2. In place of ③, specify the Full Voltage Code (LED voltage).
3. Yellow pilot light comes with white LED.

Pilot Lights (Sub-Assembled)



* Not required for full voltage units.

One Each from Left Column	plus	One Selection from Right Column
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Operators

Style	Part Number
Transformer or FULL Voltage	APD09ST8

Full Voltage Clips

Primary Voltage (50/60Hz)	Part Number
	APD-F



Required for all full voltage models. Two pieces each.
2 clips required for full voltage pilot lights

Transformers (only for Pilot Lights)

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



6V secondary voltage (use 6V lamp).

Lenses

Style	Part Number
Dome Lens	APN106LN-②-K



1. In place of ②, specify the Lens Color Code.

LEDs

Style	Voltage	Part Number
LED	6V AC/DC	LSRD-6
	12V AC/DC	LSRD-1
	24V AC/DC	LSRD-2
	120V AC/DC	LSRD-H2
	240V AC	LSRD-M4

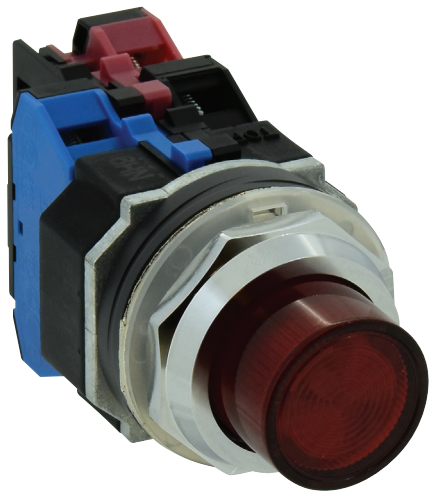


1. In place of ②, specify the lens color code.
2. The LED contains a current-limiting resistor and a protection diode.

② Lens Color Codes

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 NU R

Function

L: Momentary Action
OL: Maintained Action

Bezel Shape

Blank: Octagonal
F: Full Shroud

Series Designation

D: TWND Series

Lens Shape

2: Extended
3: Mushroom ø 40mm

Rated Operational Voltage (Primary)

Transformer Type	Full Voltage Type
126: 120V AC	66: 6VAC/DC
246: 240V AC	11: 12VAC/DC
486: 480V AC	22: 24VAC/DC
	QH2: 120VAC/DC
	QM4: 240VAC

Lens Color Code

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

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 step down to 6V.

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Illuminated Pushbuttons (Assembled)

Illuminated Pushbuttons

Style		Contacts	Part Number	
			Momentary	Maintained
 Extended Lens	Full Voltage	1NO-1NC 2NO 2NC	ALD2③11DNU② ALD2③20DNU② ALD2③02DNU②	AOLD2③11DNU② AOLD2③20DNU② AOLD2③02DNU②
	Transformer	1NO-1NC 2NO 2NC	ALD2 ④ 11DNU② ALD2 ④ 20DNU② ALD2 ④ 02DNU②	AOLD2 ④ 11DNU② AOLD2 ④ 20DNU② AOLD2 ④ 02DNU②
 Extended Lens with Full Shroud	Full Voltage	1NO-1NC 2NO 2NC	ALFD2③11DNU② ALFD2③20DNU② ALFD2③02DNU②	AOLFD2③11DNU② AOLFD2③20DNU② AOLFD2③02DNU②
	Transformer	1NO-1NC 2NO 2NC	ALFD2 ④ 11DNU② ALFD2 ④ 20DNU② ALFD2 ④ 02DNU②	AOLFD2 ④ 11DNU② AOLFD2 ④ 20DNU② AOLFD2 ④ 02DNU②
 ø 40mm Mushroom Lens	Full Voltage	1NO-1NC 2NO 2NC	ALD3③11DNU② ALD3③20DNU② ALD3③02DNU②	AOLD3③11DNU② AOLD3③20DNU② AOLD3③02DNU②
	Transformer	1NO-1NC 2NO 2NC	ALD3 ④ 11DNU② ALD3 ④ 20DNU② ALD3 ④ 02DNU②	AOLD3 ④ 11DNU② AOLD3 ④ 20DNU② AOLD3 ④ 02DNU②

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	66
12V AC/DC	11
24V AC/DC	22
120V AC/DC	QH2
240V AC	QM4

④ Transformer Voltage Codes

Voltage	Code
120VAC	126
240VAC	246
480VAC	486

 6V secondary voltage (uses 6V LED).

-  1. In place of ②, specify the Lens Color Code.
2. In place of ③, specify the Full Voltage Code (LED voltage).
3. In place of ④, specify the Transformer Voltage Code.
4. Light is independent of switch position.
5. Yellow pushbutton comes with white LED only.

Illuminated Pushbuttons (Sub-Assembled)

Transformer* + Contact Block + Operator + LED + Lens = Complete Part



*Not required for full voltage types.

Operators

Style		Part Number	
		Momentary	Maintained
Extended		ALD2300T8	AOLD2300T8
Extended with Full Shroud		ALFD2300T8	AOLFD2300T8
40mm Mushroom		ALD2300T8	AOLD2300T8

Lenses

Style		Part Number
Extended		ALN06LU-②-K
ø 40mm Mushroom		ALN3LU-②-K



In place of ②, specify the Lens Color Code.

Lamp Circuit Components

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

LEDs

Style	Voltage	Part Number
	6V AC/DC	LSRD-6
	12V AC/DC	LSRD-1
	24V AC/DC	LSRD-2
	120V AC/DC	LSRD-H2
	240V AC	LSRD-M4



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

② Lens Color Codes

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

Contact Blocks

Style		Part Number	
		1NO	1NC
All Control Units 		HW-U10-F	HW-U01-F
		HW-U10R-F (early make)	HW-U01R-F (late break)
Dummy Block 		HW-DB	



- Dummy blocks (no contacts) are used with an odd number of contact blocks.
- Combining HW-U10R-F and HW-U01R-F result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

Transformers

Style	Primary Voltage (50/60Hz)	Part Number
	120V AC	TW-F126B
	240V AC	TW-F246B
	480V AC	TW-F486B



6V secondary voltage (use 6V LED).

Full Voltage Modules

Style	Description	Part Number
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).

Non-Illuminated Selector Switches (Assembled)



Assembled Selector Switches

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

Function

S: Selector Switch

Series Designation

D: TWND 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: 2-Way spring return from Left and Right

Circuit Number

(See Circuit # column of Selector Switch Contact Arrangement Chart on beginning on page 820.)

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 key removal codes available. Please contact IDEC for details.

Non-Illuminated Selector Switches (Assembled)

Non-Illuminated 2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position			Maintained	Spring Return from Right	Spring Return from Left
		L	R				
							
1NO	1	0	X	Knob Lever Key	ASD210NU	ASD2110NU	ASD2210NU
	2	0	0		ASD2L10NU	ASD21L10NU	ASD22L10NU
					ASD2K10NU	ASD21K10NU	ASD22K10NU
1NC	1	X	0	Knob Lever Key	ASD201NU-116	ASD2101NU-116	ASD2201NU-116
	2	0	0		ASD2L01NU-116	ASD21L01NU-116	ASD22L01NU-116
					ASD2K01NU-116	ASD21K01NU-116	ASD22K01NU-116
1NO 1NC	1	0	X	Knob Lever Key	ASD211NU	ASD2111NU	ASD2211NU
	2	X	0		ASD2L11NU	ASD21L11NU	ASD22L11NU
					ASD2K11NU	ASD21K11NU	ASD22K11NU
2NO	1	0	X	Knob Lever Key	ASD220NU	ASD2120NU	ASD2220NU
	2	0	X		ASD2L20NU	ASD21L20NU	ASD22L20NU
					ASD2K20NU	ASD21K20NU	ASD22K20NU
2NC	1	X	0	Knob Lever Key	ASD202NU-104	ASD2102NU-104	ASD2202NU-104
	2	X	0		ASD2L02NU-104	ASD21L02NU-104	ASD22L02NU-104
					ASD2K02NU-104	ASD21K02NU-104	ASD22K02NU-104
2NO 2NC	1	0	X	Knob Lever Key	ASD222NU	ASD2122NU	ASD2222NU
	2	X	0		ASD2L22NU	ASD21L22NU	ASD22L22NU
	3	0	X				
	4	X	0		ASD2K22NU	ASD21K22NU	ASD22K22NU
2NO 2NC	1	0	X	Knob Lever Key	ASD222NU-111	ASD2122NU-111	ASD2222NU-111
	2	0	X		ASD2L22NU-111	ASD21L22NU-111	ASD22L22NU-111
	3	X	0				
	4	X	0		ASD2K22NU-111	ASD21K22NU-111	ASD22K22NU-111



- 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.
- All knob and lever selector switches come in black. Other colors are available by ordering the knob or lever separately.
- Custom contact arrangements available, see page 820.

Non-Illuminated 3-Position Selector Switches

		Style				Part Number			
Contact	Mounting	Operator Position				Maintained	Spring Return from Right	Spring Return from Left	Spring Return Two-Way
									
									
2NO	1	X	0	0	Knob Lever Key	ASD320NU	ASD3120NU	ASD3220NU	ASD3320NU
	2	0	0	X		ASD3L20NU	ASD31L20NU	ASD32L20NU	ASD33L20NU
2NC	1	0	X	X	Knob Lever Key	ASD302NU	ASD3102NU	ASD3202NU	ASD3302NU
	2	X	X	0		ASD3L02NU	ASD31L02NU	ASD32L02NU	ASD33L02NU
2NO 2NC	1	X	0	0	Knob Lever Key	ASD322NU	ASD3122NU	ASD3222NU	ASD3322NU
	2	0	0	X		ASD3L22NU	ASD31L22NU	ASD32L22NU	ASD33L22NU
	3	0	X	X		ASD3K22NU	ASD31K22NU	ASD32K22NU	ASD33K22NU
	4	X	X	0					
2NO 2NC	1	X	0	X	Knob Lever Key	ASD322NU-309	ASD3122NU-309	ASD3222NU-309	ASD3322NU-309
	2	X	X	0		ASD3L22NU-309	ASD31L22NU-309	ASD32L22NU-309	ASD33L22NU-309
	3	0	X	0		ASD3K22NU-309	ASD31K22NU-309	ASD32K22NU-309	ASD33K22NU-309
	4	0	0	X					
2NO 2NC	1	0	X	0	Knob Lever Key	ASD322NU-310	ASD3122NU-310	ASD3222NU-310	ASD3322NU-310
	2	0	0	X		ASD3L22NU-310	ASD31L22NU-310	ASD32L22NU-310	ASD33L22NU-310
	3	0	X	0		ASD3K22NU-310	ASD31K22NU-310	ASD32K22NU-310	ASD33K22NU-310
	4	0	0	X					
4NO	1	X	0	0	Knob Lever Key	ASD340NU	ASD3140NU	ASD3240NU	ASD3340NU
	2	0	0	X		ASD3L40NU	ASD31L40NU	ASD32L40NU	ASD33L40NU
	3	X	0	0		ASD3K40NU	ASD31K40NU	ASD32K40NU	ASD33K40NU
	4	0	0	X					
4NC	1	0	X	X	Knob Lever Key	ASD304NU	ASD3104NU	ASD3204NU	ASD3304NU
	2	X	X	0		ASD3L04NU	ASD31L04NU	ASD32L04NU	ASD33L04NU
	3	0	X	X		ASD3K04NU	ASD31K04NU	ASD32K04NU	ASD33K04NU
	4	X	X	0					

Non-Illuminated Selector Switches (Sub-Assembled)

Contact Blocks	+	Operator	+	Knob or Lever*	+	Color Insert*	=	Complete Part†
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- *Not needed with key type switches.
- †Knob type shown.

Operators

Style	Position	Description	Part Number
Knob/Lever	2	Maintained	ASD0201T8
		Spring return from right	ASD0213T8
		Spring return from left	ASD0224T8
	3	Maintained, Cam 1	ASD0302T8
		Maintained, Cam 2	ASD0306T8
		Spring return from right, Cam 1	ASD0314T8
		Spring return from right, Cam 2	ASD0310T8
		Spring return from left, Cam 1	ASD0323T8
		Spring return from left, Cam 2	ASD0328T8
		Spring return from left/right, Cam 1	ASD0335T8
		Spring return from left/right, Cam 2	ASD0339T8
Key	2	Maintained	ASD0201KT8
		Spring return from right	ASD0213KT8
		Spring return from left	ASD0224KT8
	3	Maintained, Cam 1	ASD0302KT8
		Maintained, Cam 2	ASD0306KT8
		Spring return from right, Cam 1	ASD0302KT8B
		Spring return from right, Cam 2	ASD0310KT8B
		Spring return from left, Cam 1	ASD0323KT8
		Spring return from left, Cam 2	ASD0310KT8B
		Spring return from left/right, Cam 1	ASD0335KT8
		Spring return from left/right, Cam 2	ASD3K339KT8



- Order knobs, levers, color inserts separately (see below).
- For key switches, keys are removable in all maintained positions. Other options available, contact IDEC for details.
- See page 822 "Operator Truth Tables" for details of difference between cams.

① Color Codes

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



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

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.
*Not available in yellow.

Contact Blocks

Style	Part Number	
	1NO	1NC
All Control Units	HW-U10-F HW-U10R-F (early make)	HW-U01-F HW-U01R-F (late break)
Dummy Block	HW-DB	



- Dummy blocks (no contacts) are used with an odd number of contact blocks.
- Combining HW-U10R-F and HW-U01R-F result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

Illuminated Selector Switches (Assembled)



Assembled Illuminated Selector Switches

A SL D 2 (2) 22 11 DN U - 111 - R

Function

SL: Illuminated Selector Switch

Series Designation

D: TWND 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

Rated Operational Voltage (Primary)

Transformer Type	Full Voltage Type
136: 120V AC	66: 6VAC/DC
256: 240V AC	11: 12VAC/DC
486: 480V AC	22: 24VAC/DC
	QH2: 120VAC/DC
	QM4: 240VAC

Contact Arrangement Code

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

Lens Color Code

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

Circuit Code Number

See Circuit # column of Selector Switch Contact Arrangement Charts on page 820.

D: LED Lamp



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

Illuminated Selector Switches (Assembled)

Illuminated 2-Position Selector Switches

Style					Part Number		
Contact	Mounting	Operator Position		Lamp Circuit Type	Maintained	Spring Return from Right	Spring Return from Left
		L	R				
1NO	1	O	X	Transformer Full Voltage	ASLD2 ④11DNU②-104	ASLD21 ④11DNU②	ASLD22 ④11DNU②
1NC	2	X	O	Transformer Full Voltage	ASLD2③11DNU②	ASLD21③11DNU②	ASLD22③11DNU②
2NO	1	O	X	Transformer Full Voltage	ASLD2 ④20DNU②	ASLD21 ④20DNU②	ASLD22 ④20DNU②
	2	O	X	Transformer Full Voltage	ASLD2③20DNU②	ASLD21③20DNU②	ASLD22③20DNU②
2NC	1	X	O	Transformer Full Voltage	ASLD2 ④02DNU-104-②	ASLD21 ④02DNU-104-②	ASLD22 ④02DNU-104-②
	2	X	O	Transformer Full Voltage	ASLD2③02DNU-104-②	ASLD21③02DNU-104-②	ASLD22③02DNU-104-②
2NO	1	O	X	Transformer Full Voltage	ASLD2 ④22DNU②	ASLD21 ④22DNU②	ASLD22 ④22DNU②
2NC	2	X	O	Transformer Full Voltage	ASLD2③22DNU②	ASLD21③22DNU②	ASLD22③22DNU②
	3	O	X	Transformer Full Voltage			
	4	X	O	Transformer Full Voltage			
2NO	1	O	X	Transformer Full Voltage	ASLD2 ④22DNU-111-②	ASLD21 ④22DNU-111-②	ASLD22 ④22DNU-111-②
2NC	2	O	X	Transformer Full Voltage	ASLD2③22DNU-111-②	ASLD21③22DNU-111-②	ASLD22③22DNU-111-②
	3	X	O	Transformer Full Voltage			
	4	X	O	Transformer Full Voltage			

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	66
12V AC/DC	11
24V AC/DC	22
120V AC	QH2
240V AC	QM4

Illuminated 3-Position Selector Switches, Maintained and Spring Return

Style					Part Number			
Contact	Mounting	Operator Position			Lamp Circuit Type	Maintained	Spring Return From Right	Spring Return from Left
		L	C	R				
2NO	1	X	O	O	Transformer Full Voltage	ASLD3 ④ 20DNU②	ASLD31 ④ 20DNU②	ASLD32 ④ 20DNU②
	2	O	O	X	Transformer Full Voltage	ASLD3③20DNU②	ASLD31③20DNU②	ASLD32③20DNU②
2NC	1	O	X	X	Transformer Full Voltage	ASLD3 ④ 02DNU②	ASLD31 ④ 02DNU②	ASLD32 ④ 02DNU②
	2	X	X	O	Transformer Full Voltage	ASLD3③02DNU②	ASLD31③02DNU②	ASLD32③02DNU②
2NO	1	X	O	O	Transformer Full Voltage	ASLD3 ④ 22DNU②	ASLD31 ④ 22DNU②	ASLD32 ④ 22DNU②
2NC	2	O	O	X	Transformer Full Voltage	ASLD3③22DNU②	ASLD31③22DNU②	ASLD32③22DNU②
	3	O	X	X	Transformer Full Voltage			
	4	X	X	O	Transformer Full Voltage			
2NO	1	X	O	X	Transformer Full Voltage	ASLD3 ④ 22DNU-309-②	ASLD31 ④ 22DNU-309-②	ASLD32 ④ 22DNU-309-②
2NC	2	X	X	O	Transformer Full Voltage	ASLD3③22DNU-309-②	ASLD31③22DNU-309-②	ASLD32③22DNU-309-②
	3	O	X	O	Transformer Full Voltage			
	4	O	O	X	Transformer Full Voltage			
2NO	1	O	X	O	Transformer Full Voltage	ASLD3 ④ 22DNU-310-②	ASLD31 ④ 22DNU-310-②	ASLD32 ④ 22DNU-310-②
2NC	2	O	O	X	Transformer Full Voltage	ASLD3③22DNU-310-②	ASLD31③22DNU-310-②	ASLD32③22DNU-310-②
	3	O	X	O	Transformer Full Voltage			
	4	O	O	X	Transformer Full Voltage			
4NO	1	X	O	O	Transformer Full Voltage	ASLD3 ④ 40DNU②	ASLD31 ④ 40DNU②	ASLD32 ④ 40DNU②
	2	O	O	X	Transformer Full Voltage	ASLD3③40DNU②	ASLD31③40DNU②	ASLD32③40DNU②
	3	X	O	O	Transformer Full Voltage			
	4	O	O	X	Transformer Full Voltage			
4NC	1	O	X	X	Transformer Full Voltage	ASLD3 ④ 04DNU②	ASLD31 ④ 04DNU②	ASLD32 ④ 04DNU②
	2	X	X	O	Transformer Full Voltage	ASLD3③04DNU②	ASLD31③04DNU②	ASLD32③04DNU②
	3	O	X	X	Transformer Full Voltage			
	4	X	X	O	Transformer Full Voltage			

④ Transformer Voltage Codes

Voltage	Code
120VAC	136
240VAC	256
480VAC	486



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



- In place of ②, specify the Lens/LED Color Code, in place of ③, specify the Full Voltage (LED voltage) Code, in place of ④, specify the Transformer Voltage Code.
- 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
- Yellow selector switch comes with white LED.

Illuminated Selector Switches (Sub-Assembled)

Transformer*	+	Contact Block	+	Operator	+	LED	+	Lens	=	Complete Part
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*Not required for full voltage units.

Operators

Style	Position	Description	Part Number
	2	Maintained	ASLD0201T8
	3	Maintained, Cam 1	ASLD0302T8
		Maintained, Cam 2	ASLD0306T8
	2	Spring return from right	ASLD0213T8
		Spring return from left	ASLD0224T8
	3	Spring return from right, Cam 1	ASLD0314T8
		Spring return from right, Cam 2	ASLD0310T8
		Spring return from left, Cam 1	ASLD0323T8
		Spring return from left, Cam 2	ASLD0328T8
		Spring return from left/right, Cam 1	ASLD0335T8
		Spring return from left/right, Cam 2	ASLD0339T8

Lenses

Style	Part Number
Knob	ASLNHU-⊙-K

Lamps

Style	Voltage	Part Number
	6V AC/DC	LSRD-6
	12V AC/DC	LSRD-1
	24V AC/DC	LSRD-2
	120V AC/DC	LSRD-H2
	240V AC	LSRD-M4

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

Contact Blocks

Style		Part Number	
		1NO	1NC
All Control Units		HW-U10-F	HW-U10-F
		HW-U10R-F (early make)	HW-U10R-F (late break)
Dummy Block		HW-DB	

1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining HW-U10R-F and HW-U01R-F result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

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 Full Voltage Adaptor and two contact blocks	
	Used with TW-LH2 holder when using four contact blocks	HW-LH3

Full Voltage Modules

Style	Description	Part Number
Dummy Block with Full Voltage Adaptor	For use with odd number of contacts.	HW-DA1FBN
Full Voltage Adaptor	For use with even number of contacts.	TW-DA1FB



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

Transformers

Style	Primary Voltage (50/60Hz)	Part Number
	120V AC	TW-F126B
	240V AC	TW-F246B
	480V AC	TW-F486B



6V secondary voltage.

② Lens 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

Contact Arrangement

Type and quantity of switch contacts

Circuit Number

* N/D = No designation

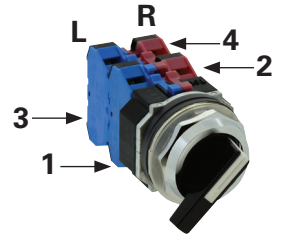
Contact Block Mounting Position

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 = 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

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 Return from Right	Spring Return from Left
									
1NO	N/D	1	O	X	HW-U10-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	O	HW-DB	Illuminated Knob			
1NC	116	1	X	O	HW-U01-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	O	HW-DB	Illuminated Knob			
1NO 1NC	N/D	1	O	X	HW-U10-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	X	O	HW-U01-F	Illuminated Knob			
	103	1	X	O	HW-U01-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	X	HW-U10-F	Illuminated Knob			
1NO-EM 1NC-LB	600	1	O	X	HW-U10R-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	X	O	HW-U01R-F	Illuminated Knob			
	601	1	X	O	HW-U01R-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	X	HW-U10R-F	Illuminated Knob			
2NO	N/D	1	O	X	HW-U10-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	X	HW-U10-F	Illuminated Knob			
2NC	104	1	X	O	HW-U01-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	X	O	HW-U01-F	Illuminated Knob			
2NO 2NC	N/D	1	O	X	HW-U10-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	X	O	HW-U01-F	Illuminated Knob			
		3	O	X	HW-U10-F	Illuminated Knob			
		4	X	O	HW-U01-F	Illuminated Knob			
	110	1	X	O	HW-U01-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	X	HW-U10-F	Illuminated Knob			
		3	X	O	HW-U01-F	Illuminated Knob			
		4	O	X	HW-U10-F	Illuminated Knob			
	111	1	O	X	HW-U10-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	X	HW-U10-F	Illuminated Knob			
		3	X	O	HW-U01-F	Illuminated Knob			
		4	X	O	HW-U01-F	Illuminated Knob			
4NO	N/D	1	O	X	HW-U10-F	Knob/Lever Key	ASD0201T8 ASD0201KT8 ASLD0201T8	ASD0213T8 ASD0213KT8 ASLD0213T8	ASD0224T8 ASD0224KT8 ASLD0224T8
		2	O	X	HW-U10-F	Illuminated Knob			
		3	O	X	HW-U10-F	Illuminated Knob			
		4	O	X	HW-U10-F	Illuminated Knob			

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	O	O	HW-U10-F	Knob/Lever Key	ASD0302T8 ASD0302KT8 ASLD0302T8	ASD0314T8 ASD0314KT8 ASLD0314T8	ASD0323T8 ASD0323KT8 ASLD0323T8	ASD0335T8 ASD0335KT8 ASLD0335T8
		2	X	X	O	HW-U01-F	Illuminated Knob				
	203	1	O	X	X	HW-U01-F	Knob/Lever Key	ASD0302T8 ASD0302KT8 ASLD0302T8	ASD0314T8 ASD0314KT8 ASLD0314T8	ASD0323T8 ASD0323KT8 ASLD0323T8	ASD0335T8 ASD0335KT8 ASLD0335T8
		2	O	O	X	HW-U10-F	Illuminated Knob				
	302	1	X	O	X	HW-U10-F	Knob/Lever Key	ASD0306T8 ASD0306KT8 ASLD0306T8	ASD0310T8 ASD0301KT8 ASLD0310T8	ASD0328T8 ASD0328KT8 ASLD0328T8	ASD0339T8 ASD0339KT8 ASLD0339T8
		2	X	X	O	HW-U01-F	Illuminated Knob				
	303	1	O	X	O	HW-U01-F	Knob/Lever Key	ASD0306T8 ASD0306KT8 ASLD0306T8	ASD0310T8 ASD0301KT8 ASLD0310T8	ASD0328T8 ASD0328KT8 ASLD0328T8	ASD0339T8 ASD0339KT8 ASLD0339T8
		2	O	O	X	HW-U10-F	Illuminated Knob				
2NO	N/D	1	X	O	O	HW-U10-F	Knob/Lever Key	ASD0302T8 ASD0302KT8 ASLD0302T8	ASD0314T8 ASD0314KT8 ASLD0314T8	ASD0323T8 ASD0323KT8 ASLD0323T8	ASD0335T8 ASD0335KT8 ASLD0335T8
		2	O	O	X	HW-U10-F	Illuminated Knob				
	301	1	X	O	X	HW-U10-F	Knob/Lever Key	ASD0306T8 ASD0306KT8 ASLD0306T8	ASD0310T8 ASD0301KT8 ASLD0310T8	ASD0328T8 ASD0328KT8 ASLD0328T8	ASD0339T8 ASD0339KT8 ASLD0339T8
		2	O	O	X	HW-U10-F	Illuminated Knob				
2NC	304	1	O	X	O	HW-U01-F	Knob/Lever Key	ASD0306T8 ASD0306KT8 ASLD0306T8	ASD0310T8 ASD0301KT8 ASLD0310T8	ASD0328T8 ASD0328KT8 ASLD0328T8	ASD0339T8 ASD0339KT8 ASLD0339T8
		2	X	X	O	HW-U01-F	Illuminated Knob				
	N/D	1	O	X	X	HW-U01-F	Knob/Lever Key	ASD0302T8 ASD0302KT8 ASLD0302T8	ASD0314T8 ASD0314KT8 ASLD0314T8	ASD0323T8 ASD0323KT8 ASLD0323T8	ASD0335T8 ASD0335KT8 ASLD0335T8
		2	X	X	O	HW-U01-F	Illuminated Knob				
2NO 2NC	N/D	1	X	O	O	HW-U10-F	Knob/Lever Key Illuminated Knob	ASD0302T8 ASD0302KT8 ASLD0302T8	ASD0314T8 ASD0314KT8 ASLD0314T8	ASD0323T8 ASD0323KT8 ASLD0323T8	ASD0335T8 ASD0335KT8 ASLD0335T8
		2	O	O	X	HW-U10-F					
		3	O	X	X	HW-U01-F					
		4	X	X	O	HW-U01-F					
	210	1	O	X	X	HW-U01-F	Knob/Lever Key Illuminated Knob	ASD0302T8 ASD0302KT8 ASLD0302T8	ASD0314T8 ASD0314KT8 ASLD0314T8	ASD0323T8 ASD0323KT8 ASLD0323T8	ASD0335T8 ASD0335KT8 ASLD0335T8
		2	O	O	X	HW-U10-F					
		3	O	X	X	HW-U01-F					
		4	O	O	X	HW-U10-F					
	308	1	X	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASD0306T8 ASD0306KT8 ASLD0306T8	ASD0310T8 ASD0301KT8 ASLD0310T8	ASD0328T8 ASD0328KT8 ASLD0328T8	ASD0339T8 ASD0339KT8 ASLD0339T8
		2	X	X	O	HW-U01-F					
		3	X	O	X	HW-U10-F					
		4	X	X	O	HW-U01-F					
	309	1	X	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASD0306T8 ASD0306KT8 ASLD0306T8	ASD0310T8 ASD0301KT8 ASLD0310T8	ASD0328T8 ASD0328KT8 ASLD0328T8	ASD0339T8 ASD0339KT8 ASLD0339T8
		2	X	X	O	HW-U01-F					
		3	O	X	O	HW-U01-F					
		4	O	O	X	HW-U10-F					
310	1	O	X	O	HW-U01-F	Knob/Lever Key Illuminated Knob	ASD0306T8 ASD0306KT8 ASLD0306T8	ASD0310T8 ASD0301KT8 ASLD0310T8	ASD0328T8 ASD0328KT8 ASLD0328T8	ASD0339T8 ASD0339KT8 ASLD0339T8	
	2	O	O	X	HW-U10-F						
	3	O	X	O	HW-U01-F						
	4	O	O	X	HW-U10-F						

-  1. Each operator sub-assembly is available as an "02" and an "06" for 3-position selector switches. The internal cam of an "02" is different from that of an "06". 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.

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	O	O	HW-U10-F	Knob/Lever Key Illuminated Knob	ASD0302T8	ASD0314T8	ASD0323T8	ASD0335T8
		2	O	O	X	HW-U10-F		ASD0302KT8	ASD0314KT8	ASD0323KT8	ASD0335KT8
		3	X	O	O	HW-U10-F		ASLD0302T8	ASLD0314T8	ASLD0323T8	ASD0335T8
		4	O	O	X	HW-U10-F					
	305	1	X	O	X	HW-U10-F	Knob/Lever Key Illuminated Knob	ASD0306T8	ASD0310T8	ASD0328T8	ASD0339T8
		2	O	O	X	HW-U10-F		ASD0306KT8	ASD0301KT8	ASD0328KT8	ASD0339KT8
		3	X	O	X	HW-U10-F		ASLD0306T8	ASLD0310T8	ASLD0328T8	ASLD0339T8
4NC	N/D	1	O	X	X	HW-U01-F	Knob/Lever Key Illuminated Knob	ASD0302T8	ASD0314T8	ASD0323T8	ASD0335T8
		2	X	X	O	HW-U01-F		ASD0302KT8	ASD0314KT8	ASD0323KT8	ASD0335T8
		3	O	X	X	HW-U01-F		ASLD0302T8	ASLD0314T8	ASLD0323T8	ASD0335T8
		4	X	X	O	HW-U01-F					
	314	1	O	X	O	HW-U01-F	Knob/Lever Key Illuminated Knob	ASD0306T8	ASD0310T8	ASD0328T8	ASLD0339T8
		2	X	X	O	HW-U01-F		ASD0306KT8	ASD0301KT8	ASD0328KT8	ASD0339KT8
		3	O	X	O	HW-U01-F		ASLD0306T8	ASLD0301T8	ASLD0328T8	ASLD0339T8
		4	X	X	O	HW-U01-F					

1. Each operator sub-assembly is available as an "02" and an "06" for 3-position selector switches. The internal cam of an "02" is different from that of an "06". 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.

Operator Truth Tables

Use the following tables to build custom selector switches.

2 Position Selector Switches

	Contact	Mounting Position	Operator Position	
			Left	Right
ASLD0201T8	HW-U10-F (NO)	L	O	X
		R	O	X
	HW-U01-F (NC)	L	X	O
		R	X	O
	HW-U10R-F (NO-EM)	L	O	X—
		R	O	X—
	HW-U01R-F (NC-LB)	L	X—	O
		R	X—	O

3 Position Selector Switches

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASD0302T8 ASLD0302T8 ASD0302KT8	HW-U10-F (NO)	L	X	O	O
		R	O	O	X
	HW-U01-F (NC)	L	O	X—X	
		R	X—X	O	
	HW-U10R-F (NO-EM)	L	X—	O	O
		R	O	O	X
	HW-U10R-F (NC-LB)	L	O	X—X	
		R	X—X	O	

	Contact	Mounting Position	Operator Position		
			Left	Center	Right
ASD0306T8 ASLD0306T8 ASD0306KT8	HW-U10-F (NO)	L	X	O	X
		R	O	O	X
	HW-U01-F (NC)	L	O	X	O
		R	X—X	O	
	HW-U10R-F (NO-EM)	L	X—	O	X—
		R	O	O	X
	HW-U01R-F (NC-LB)	L	O	X—	O
		R	X—X	O	

Accessories — TWND Series

Item	Appearance	Description/Usage		Part Number
Lamp Removal Tool		Rubber tool used to install or remove LED's		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		OGP11B
Boot/Cover		Used to cover and protect pushbuttons	In place of ①, specify Neoprene Rubber Boot color: B (black), G (green), R (red), Y (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
			Grey 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-FA4
Long Lamp Holder		Used with Transformer and two contact blocks Used with Full Voltage Adaptor and two contact blocks		TW-LH2
Lead Holder		Used with TW-LH2 holder when using four contact blocks		HW-LH3
Lock Out Adaptor		Used to provide lockout protection for TWTD pushbuttons and knob selectors. ø 1-13/64" (30mm)		OL-KL1
Full Voltage Clips		Primary Voltage (50/60Hz) Required for all full voltage pilot lights. Two pieces each. 2 clips required for full voltage pilot lights.		APD-F
Replacement Keys		Pair of keys (#0)		TW-SK

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Accessories TWND Series continued

Item	Appearance	Description/Usage	Part Number	
			1NC	1NO
Contact Blocks (with side entry)		These contacts are applicable for wires terminated by ring, fork, terminals, not recommended for bare wire connections.	HW-U01 HW-U01-MAU HW-U01R HW-U01R-MAU (with side entry)	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)
Contact Block Rubber Boot		- For 1 layer (2 each) contact blocks. - Nitril rubber, black. - Used to prevent oil or dirt ingress into contact blocks. - Temperature range -5 to 60°.  - Cut tube projection in the rubber cover to match the diameter of the wires.	OC-99	

Fingersafe Covers for TWND Series

Item	Description	Used with	Part Number
	Fingersafe terminal cover, for full voltage pilot lights, adds 3mm to overall depth	Full voltage pilot lights	APD-PVL
	Fingersafe terminal cover, adds 1.5mm to overall depth	Transformer pilot lights	N-VL3

Nameplates — TWND Series

Faceplates

	NALD	NAKD	NAQD
Dimensions			
Description	Part Number		
Nameplate (blank)	NALD-B (black) NALD-R (red)	NAKD-B (black) NAKD-R (red)	NAQD-B (black) NAQD-R (red)
Nameplate (engraved)	NALD-①	NAKD-①	NAQD-①



- Nameplates are made of 0.031" aluminum. Lettering is white letters engraved on black background.
- 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



- *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".
- 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.

Custom engraved Nameplates Order Form — TWND 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: _____

NALD Nameplate



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 13 characters.

Sample Letter Sizes

7/64" Letters: A B C D

1/8" Letters: A B C D

7/64"
Letter Size

☐

16 characters max
(for 7/64" size letters)

1/8"
Letter Size

☐

13 characters max
(for 1/8" size letters)

Step 2.

Specify Quantity.

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

Qty

--

12345678910111213141516

NAKD Nameplate



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

--

1234567891011121314151617

Sample Letter Sizes

1/8" Letters: A B C D

NAQD Nameplate



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 16 characters.

7/64"
Letter Size

☐

20 characters max
(for 7/64" size letters)

1/8"
Letter Size

☐

16 characters max
(for 1/8" size letters)

--

1234567891011121314151617181920

Step 2.

Specify Quantity.

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

Qty

Sample Letter Sizes

3/32" Letters: A B C D

1/8" Letters: A B C D

Switch Engraving Order Form – TWND Series

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

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

Your Company: _____
 Name: _____
 Address: _____
 PO: _____

Telephone: _____
 Fax: _____
 Email: _____
 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	7
☐		1/8	8
☐	2	5/32	7
☐		1/8	8
☐	3	1/8	8
☐	4	Custom*	

*Engraving is possible, but character size will be smaller than standard sizes.

Round
Switch

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	5/32	7
☐		1/8	8
☐	2	5/32	7
☐		1/8	8
☐	3	1/8	8
☐	4	Custom*	

*Engraving is possible, but character size will be smaller than standard sizes.

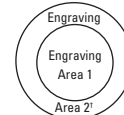
65mm
Jumbo
Mushroom

	# of Lines	Letter Height	Max. Characters Per Line
☐	1	3/4	4
☐		5/16	5
☐	2	5/16	5
☐		1/4	6
☐		5/32	8
☐	3	5/32	8
☐		1/8	9
☐	4	1/8	9

Enter text to be engraved:

Line 1: _____
 Line 2: _____
 Line 3: _____
 Line 4: _____

ø29mm, ø40mm Mushroom Head



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



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

Sample Letter Sizes

1/8 Letters: **OPEN**

5/32 Letters: **OPEN**



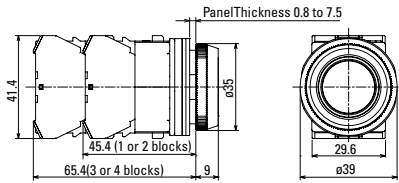
All engraving is 5/8mm wide.

For IDEC Internal Use Only:

Work Order #: _____

Dimensions (mm)

Pushbutton



Mushroom Pushbutton w/Full Shroud



Pushbuttons	Dimension A	Dimension B
Flush	0.351" (9mm)	ø 0.975" (25mm)
Extended	0.566" (14.5mm)	ø 0.975" (25mm)
Extended w/Full Shroud	0.663" (17mm)	ø 1.11" (28.5mm)
Mushroom	0.858" (22mm)	ø 1.56" (40mm)
Mushroom w/Full Shroud	0.936" (24mm)	ø 1.87" (48mm)
Jumbo Mushroom	1.13" (29mm)	ø 2.54" (65mm)
Mushroom, Pushlock Turn Reset and Push-Pull	*0.975" (25mm) **0.975" (25mm)	ø 1.56" (40mm) ø 1.56" (40mm)



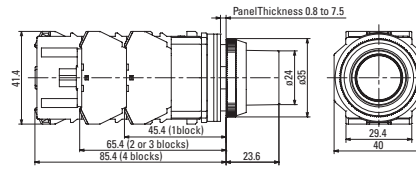
*Dimension when operator is in reset position.
**Dimension when operator is in pull position.

Illuminated Pushbuttons

w/Transformer



Full Voltage

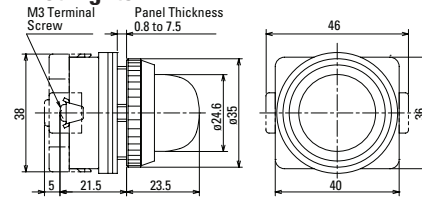


Illuminated Pushbuttons	Dimension A	Dimension B
Flush w/Full Shroud	0.975" (25mm) 0.995" (25.5mm)	ø 0.936" (24mm) ø 0.936" (24mm)
Extended w/Full Shroud	0.741" (19mm) 0.761" (19.5mm)	ø 0.936" (24mm) ø 0.936" (24mm)
ø 1.56" (40mm) Mushroom Pushlock Turn Reset, Push-Pull	*0.975" (25mm) **0.975" (25mm)	ø 1.56" (40mm) ø 1.56" (40mm)



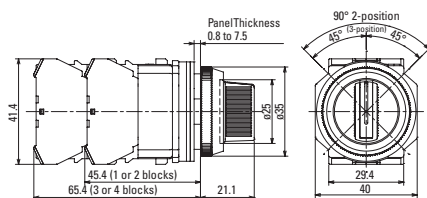
*Dimension when operator is in reset position.
**Dimension when operator is in pull position.

Pilot Lights

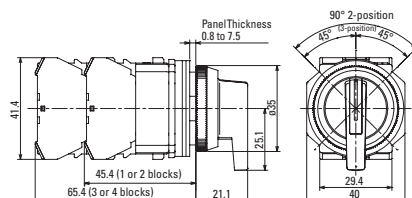


Selector Switches

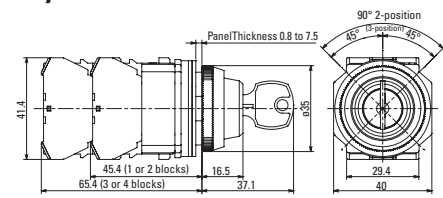
Knob



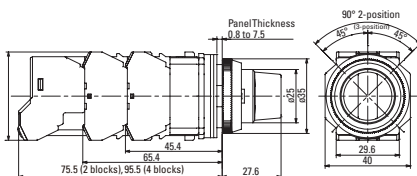
Lever



Key



Illuminated Knob





1. *Jumbo Mushroom < 2.61" (66mm)
2. 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.
3. The $\varnothing 0.195"$ ($\varnothing 5\text{mm}$) recess is necessary when either the nameplate or anti-rotation ring is used.

Technical drawing of the 100mm diameter water meter, showing dimensions and components.

Top View Dimensions:

- Outside diameter: $\phi 50$
- Inside diameter: $\phi 44$
- Section dimensions: 30, 70, $\phi 44$, $\phi 30.2$

Side View Dimensions:

- Total height: 82.5
- Panel Thickness: 0.8 to 32
- Key Hole: $\phi 8$
- Waterproof Rubber Gasket: 0.5t
- Section dimensions: 30, 29.5, 24.8, 93
- Radius: R68.5

Technical drawing of a square floor drain cover. The drawing shows a top view and a side view. The top view is a square with a rounded corner. The side view shows the cover has a height of 32.6 mm. The width of the cover is indicated as 18 mm for model OC-31 and 22 mm for model OC-32.

Technical drawing of the NVL3 connector showing top, side, and detail views with dimensions in inches and millimeters.

Top View Dimensions:

- Overall width: 0.63" (16mm)
- Overall height: 1.20" (30.4mm)
- Internal width: 0.94" (24mm)
- Internal height: 0.68" (17.2mm)
- Pin spacing: 0.24" (6.2mm)
- Pin diameter: 0.19" (4.7mm)
- Pin offset: 0.41" (10.5mm)

Labels: DEC, NVL3

Technical drawings of the APD0PVL component, showing dimensions in inches and millimeters:

- Top View:**
 - Overall width: 1.45" (37mm)
 - Overall height: 0.413" (10.5mm)
 - Internal height: 0.354" (9mm)
- Side View:**
 - Overall height: 0.258" (6.2mm)
 - Internal height: 1.26" (32mm)
 - Overall width: 1.73" (44mm)
- Front View:**
 - Overall width: 1.45" (37mm)
 - Overall height: 0.413" (10.5mm)
 - Internal height: 0.354" (9mm)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors

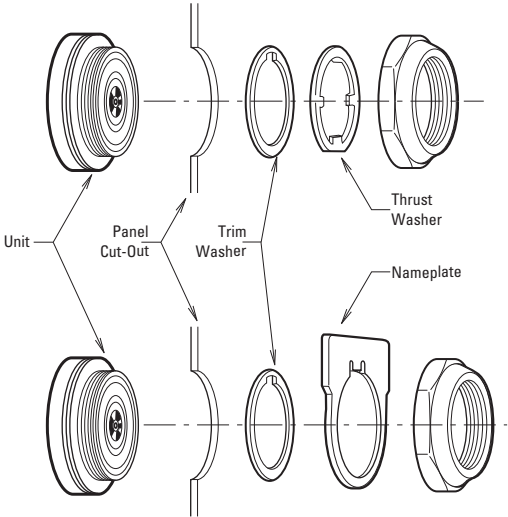
Terminal Blocks

Circuit Breakers

Operating Instructions

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 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°
A diagram of a selector switch handle in a 2-position, 90-degree configuration. The handle is shown in two positions, labeled 1 and 2, with a 90-degree angle between them.	A diagram of a selector switch handle in a 3-position, 45-degree configuration. The handle is shown in three positions, labeled 0, 1, and 2, with 45-degree angles between them.

Non-Illuminated 3-Position Operators

A diagram of a non-illuminated 3-position operator handle. The handle is shown in three positions, labeled 1, 0, and 2, with 45-degree angles between them.	A diagram of a non-illuminated 3-position operator handle. The handle is shown in three positions, labeled 1, 0, and 2, with 45-degree angles between them.	A diagram of a non-illuminated 3-position operator handle. The handle is shown in three positions, labeled 1, 0, and 2, with 45-degree angles between them.
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Insallation of LED Illuminated Units

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

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-Adapter Circuit



Full Voltage Circuit

