



AP Series Industrial Pushbutton Switch

Features/Benefits

- IP67 sealed
- 1,000,000 life cycle
- Illumination / non-illumination
- Multiple colored caps
- Threaded or snap-in mounting
- Caps available separately
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Specifications

FUNCTION: SPST Momentary
CONTACT ARRANGEMENT: N.O.
MOUNTING TYPE:
Snap-in (no panel seal)
Threaded body (hex nut, lock washer, and panel seal gasket provided)
Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 2.1 ± 0.2 mm
OPERATING POINT 1.55 ± 0.25 mm
OVER TRAVEL: 0.6 min.
OPERATING FORCE: $4N \pm 1N$ standard configuration; other force
option $2N \pm 0.5N$
VIBRATION: 10-500 Hz 10g Max
SHOCK: 60g 11ms sawtooth wave

Electrical

CONTACT RATING:
200mA @ 24 V DC resistive (500,000 cycles)
100mA @ 50 V DC resistive (500,000 cycles)
400mA @ 32 V AC resistive (500,000 cycles)
125mA @ 125 V AC resistive (1,000,000 cycles)

DIELECTRIC STRENGTH: 1000 V AC min.
INSULATION RESISTANCE: $1 \text{ G } \Omega$ @ 500 VDC
INITIAL CONTACT RESISTANCE 50 m Ω max (without wire leads)
BOUNCE TIME: <5 ms

Materials

HOUSING: PBT
BASE: PBT
CAP: PBT
ACTUATOR:
Illuminated: Clear polycarbonate
Non-illuminated: PBT
INTERNAL SEAL: Silicone rubber
TERMINALS: Copper alloy, gold over silver plating
MOVABLE CONTACT: Copper alloy, gold over silver plating
TERMINAL SEAL: Epoxy
WIRE LEADS: UL1569 Black 22 AWG

Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C (+105°C non-illuminated)
ESD PROTECTION: 20 KV min.

Process Environment

SEALING: IP67 for threaded body
IP65 for snap-in version (no panel seal)

NOTE: Specifications and materials listed above are for switches with standard options.
For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

Designation _____ AP AP Series		Operating Force _____ 2 2 Newtons 4 4 Newtons		Actuator Style _____ D Dome / Convex C Concave E Extended Dome N None		Actuator Color _____ 0 No Cap 2 Black 3 Red 4 Orange 5 Yellow 6 Green 7 Blue 9 Gray		Illumination _____ 00 No LED* 01 Super White 02 Bi-color; Red (Green) 03 Red 05 Amber 06 Green 07 Super Blue 08 Bi-color; Amber (Green)		Terminal Seal _____ E Epoxy All models are epoxy sealed		Contact Material _____ B Gold		Termination _____ Z Solder Lug W 12" Wire Leads 22 AWG C*** PC Terminals		Bushing Style** _____ S** Snap-in plastic T Threaded plastic	
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Please contact Customer Service for additional colors and paint / laser etched button options.

** No panel seal option
*** PC terminals not available with illumination

Contact Customer Service for additional hardware options.

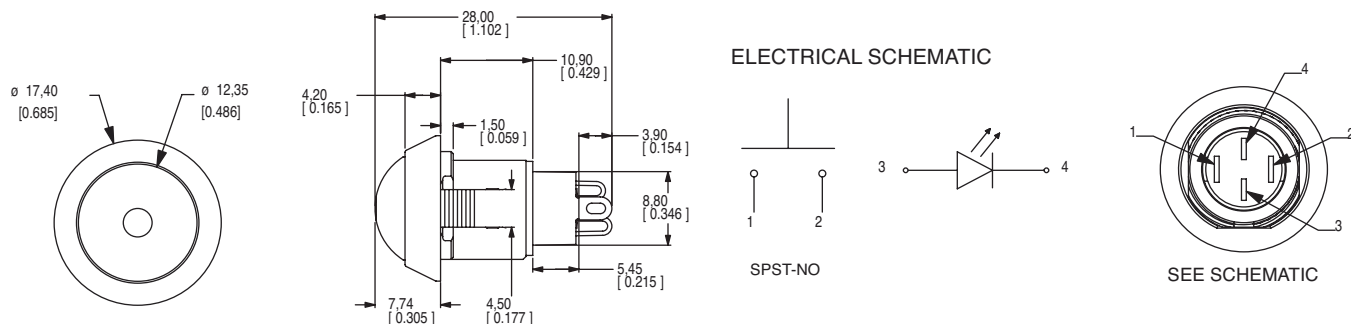
AP Series Industrial Pushbutton Switch



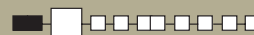
A

Pushbutton

STANDARD VIEW

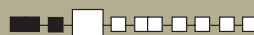


OPERATING FORCE

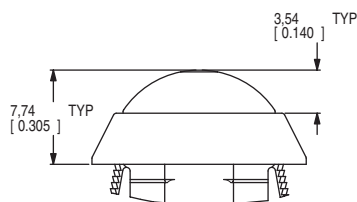


OPTION CODE	OPERATING FORCE
2	2 N, 200 g
4	4 N, 400 g

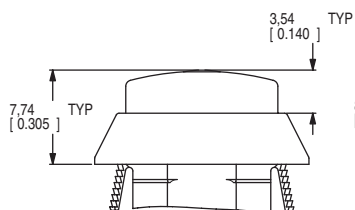
ACTUATOR STYLE



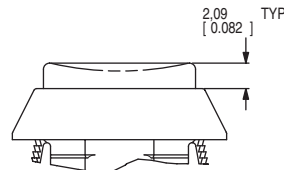
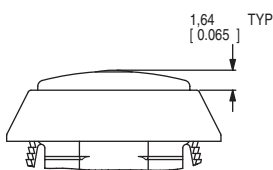
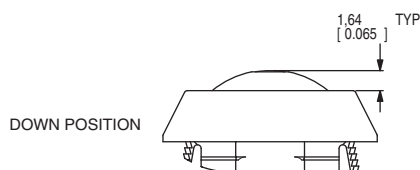
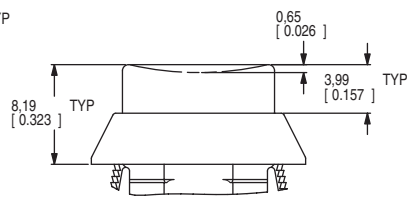
D DOME / CONVEX



E EXTENDED DOME



C CONCAVE

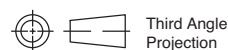


ACTUATOR COLOR



OPTION CODE	ACTUATOR COLOR
0	No Cap
2	Black
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
9	Gray

For additional colors please contact Customer Service.



Third Angle
Projection



A

Pushbutton

AP Series Industrial Pushbutton Switch

ILLUMINATION



OPTION CODE	ILLUMINATION TYPE	TYPICAL INTENSITY*		PEAK WAVELENGTH	Vf Forward Voltage
		MIN	MAX		
		(mcd)		(nm)	
00	Model without illumination	N/A		N/A	
01	LED Super White	4,000	5,000	N/A	3.5
02	LED Bi-Color – Red (Green)	10	20	635/565	2.0
03	LED Red	4	8	700	2.0
05	LED Amber	35	50	610	2.0
06	LED Green	35	50	565	2.0
07	LED Super Blue	800	1,500	470	3.8
08	LED Bi-Color – Amber (Green)	10	10	585/565	2.0

*LED FORWARD CURRENT: 20 mA

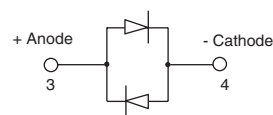
LED FORWARD VOLTAGE: see chart above

LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.

NOTE:

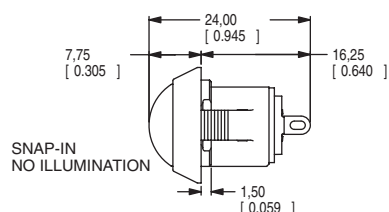
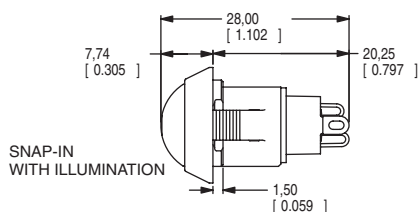
For bi-color LED's the polarity must be reversed to alternate the color



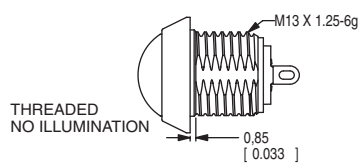
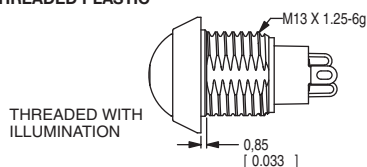
BUSHING STYLE



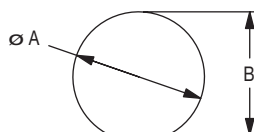
S SNAP-IN



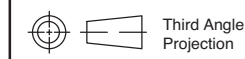
T THREADED PLASTIC



PANEL CUTOUT



PANEL THICKNESS	DIM A (± 0.05 mm)	DIM B (± 0.05 mm)
1 mm [0.039 in]	13.70 mm [0.539 in]	13.00 mm [0.512 in]
2 mm [0.079 in]	13.80 mm [0.539 in]	13.00 mm [0.512 in]
3 mm [0.118 in]	13.90 mm [0.547 in]	13.10 mm [0.516 in]
THREADED BODY MIN PANEL THICKNESS 1 mm	13.70 mm [0.539 in]	13.00 mm [0.512 in]



Third Angle
Projection



A 0.1mm min. chamfer on the leading edge of the mounting hole is recommended for snap-in version.
28 Jul 21

Dimensions are shown: mm (inches)
Specifications and dimensions subject to change

AP Series Industrial Pushbutton Switch

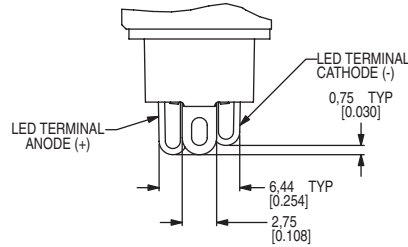
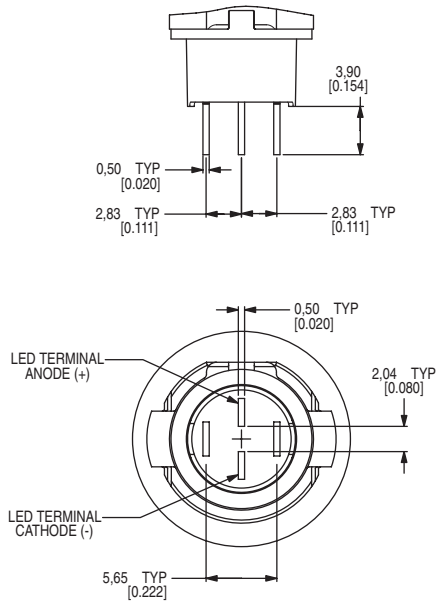


A
Pushbutton

TERMINATION



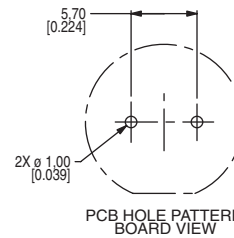
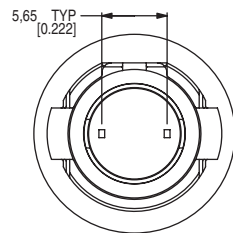
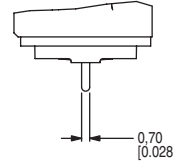
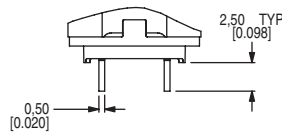
Z SOLDER LUG



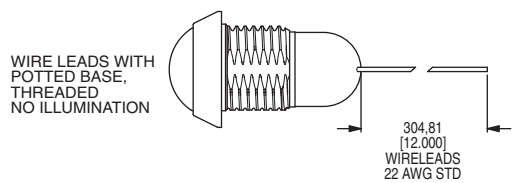
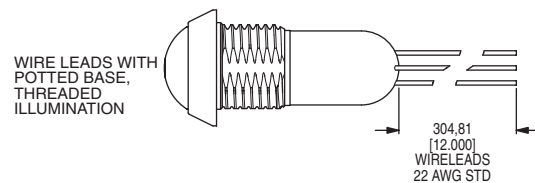
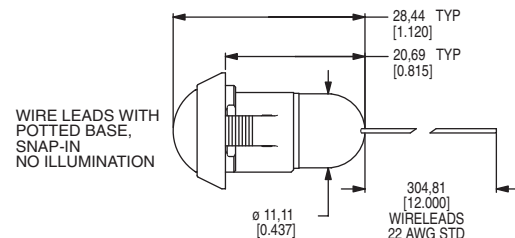
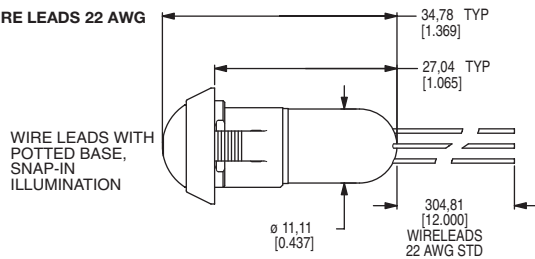
* Switching terminals are gold and LED terminals are silver

C PC TERMINALS

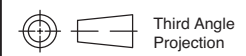
*** Illumination not available with PC Terminals



W 12" WIRE LEADS 22 AWG



Wires: Black wires - Terminals
Red wires - LED (+) Positive
White wire - LED (-) Negative



C&K

28 Jul 21

Dimensions are shown: mm (inches)
Specifications and dimensions subject to change



AP Series Industrial Pushbutton Switch

A

Pushbutton

CONTACT MATERIAL



B GOLD

OPTION CODE	CONTACT MATERIAL
B	Gold

TERMINAL SEAL



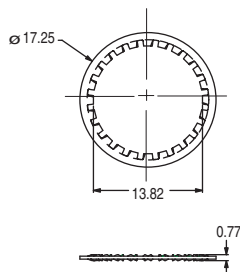
E EPOXY

All models are epoxy sealed

HARDWARE

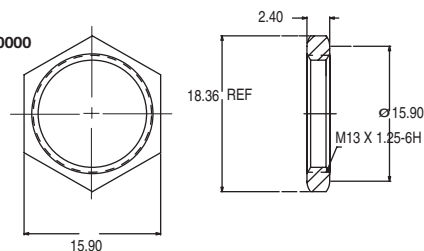
LOCK WASHER

Part Number 647D00A47



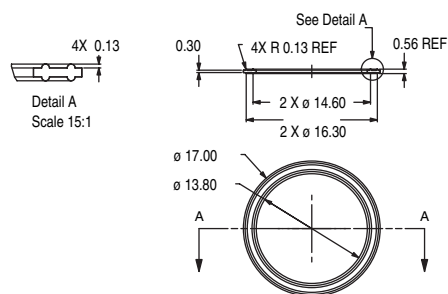
HEX NUT

Part number 515D00000



PANEL SEAL

Part Number 655D00000



Caps available on next page



Third Angle
Projection



AVAILABLE CAPS



481D **XX** **XXX**

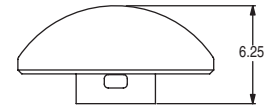
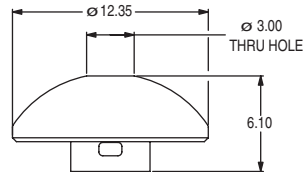
Cap Color ———
Style ———

OPTION	CAP COLOR
01	WHITE
02	BLACK
03	RED
04	ORANGE
05	YELLOW
06	GREEN
07	BLUE
08	BROWN
09	GRAY

PART NUMBER	HOLE	STYLE
481DXX000	NO	DOME
481DXX001	YES	DOME
481DXX002	NO	EXTENDED DOME
481DXX003	YES	EXTENDED DOME
481DXX004	NO	CONCAVE
481DXX005	YES	CONCAVE

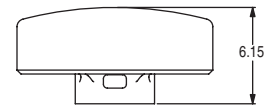
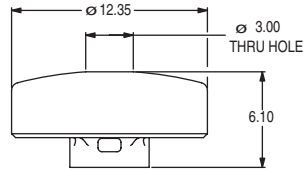
DOME

481DXX000 = NO HOLE
481DXX001 = HOLE



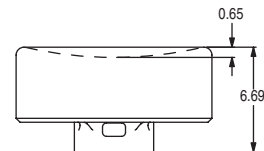
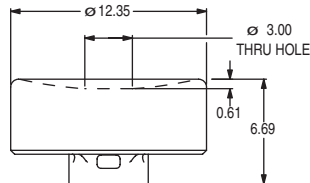
EXTENDED DOME

481DXX002 = NO HOLE
481DXX003 = HOLE



CONCAVE

481DXX004 = NO HOLE
481DXX005 = HOLE





APB Series Backlit Pushbutton Switch

Features/Benefits

- IP67 sealed
- 1,000,000 life cycle
- Illumination
- Threaded or snap-in mounting
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Specifications

FUNCTION: SPST Momentary
CONTACT ARRANGEMENT: N.O.
MOUNTING TYPE:
Snap-in (no panel seal)
Threaded body (hex nut, lock washer, and panel seal gasket provided)
Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 2.1 ± 0.2 mm
OPERATING POINT 1.55 ± 0.25 mm
OVER TRAVEL: 0.6 min.
OPERATING FORCE: $4N \pm 1N$ standard configuration; other force option $2N \pm 0.5N$
VIBRATION: 10-500 Hz 10g Max
SHOCK: 60g 11ms sawtooth wave

Electrical

CONTACT RATING:
200mA @ 24 V DC resistive (500,000 cycles)
100mA @ 50 V DC resistive (500,000 cycles)
400mA @ 32 V AC resistive (500,000 cycles)
125mA @ 125 V AC resistive (1,000,000 cycles)

DIELECTRIC STRENGTH: 1000 V AC min.
INSULATION RESISTANCE: $1 \text{ G } \Omega$ @ 500 VDC
INITIAL CONTACT RESISTANCE 50 m Ω max (without wire leads)
BOUNCE TIME: <5 ms

Materials

HOUSING: PBT
BASE: PBT
CAP: Painted polycarbonate
ACTUATOR:
Illuminated: Clear polycarbonate
INTERNAL SEAL: Silicone rubber
TERMINALS: Copper alloy, gold over silver plating
MOVABLE CONTACT: Copper alloy, gold over silver plating
TERMINAL SEAL: Epoxy
WIRE LEADS: UL1569 Black 22 AWG

Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C
ESD PROTECTION: 20 KV min.

Process Environment

SEALING: IP67 for threaded body
IP65 for snap-in version (no panel seal)

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, please contact Customer Service.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

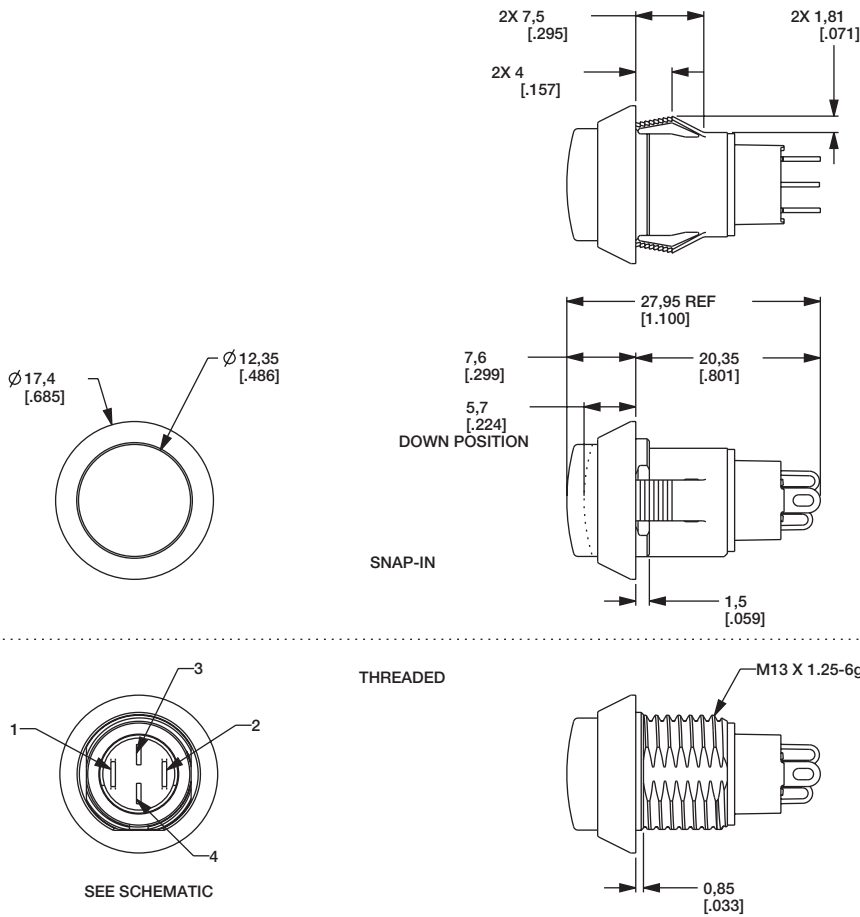
Designation _____ APB APB Series		Operating Force _____ 2 2 Newtons 4 4 Newtons		Cap _____ E Extended Dome (600E)		Illumination _____ 01 Super White 07 Super Blue		Bushing Style _____ S Snap-in plastic T Threaded plastic		Termination _____ Z Solder Lug W 12" Wire Leads 22 AWG		Cap Symbol _____ 000 Painted black over white without symbol* 001 Plus 002 Locked 003 Engine stop 004 Park brake release 005 Engine start 006 Fast 007 Slow 008 Unlocked 009 Rock shaft lower 010 Minus	
												Terminal Seal _____ E Epoxy	
												Contact Material _____ B Gold	

* cap painted black over white to allow customer laser etching

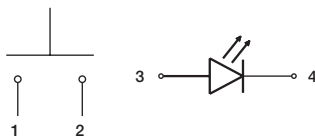
APB Series Backlit Pushbutton Switch



A
Pushbutton

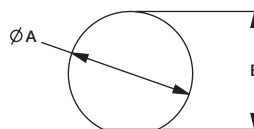


ELECTRICAL SCHEMATIC



SPST-NO-DB

PANEL CUTOUT



PANEL THICKNESS	DIM A (±0.05 MM)	DIM B (±0.05 MM)
1 MM [0.039 IN]	13.70 MM [0.539 IN]	13.00 MM [0.512 IN]
2 MM [0.079 IN]	13.80 MM [0.539 IN]	13.00 MM [0.512 IN]
3 MM [0.118 IN]	13.90 MM [0.547 IN]	13.10 MM [0.516 IN]
THREADED BODY MIN PANEL THICKNESS 1 MM	13.70 MM [0.539 IN]	13.00 MM [0.512 IN]

A 0.1 MM MIN CHAMFER ON THE LEADING EDGE OF MOUNTING HOLE IS RECOMMENDED FOR SNAP-IN VERSION.



Third Angle
Projection



APB Series Backlit Pushbutton Switch

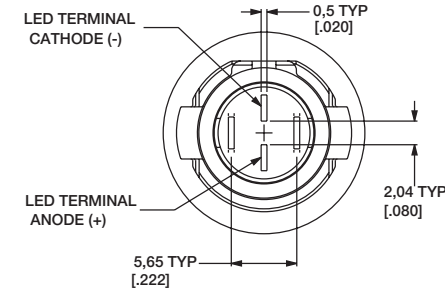
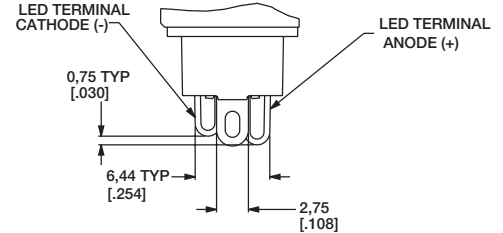
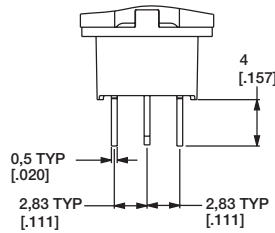
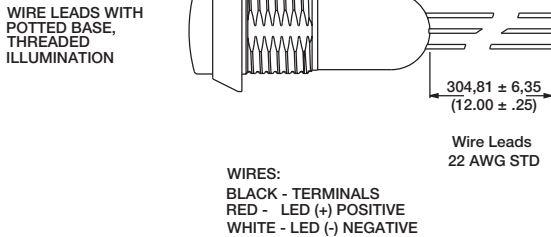
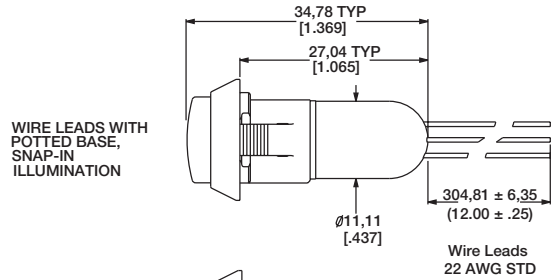
TERMINATION

A

Pushbutton

W 12" WIRE LEADS

Z SOLDER LUG



CONTACT MATERIAL



B GOLD

OPTION CODE	CONTACT MATERIAL
B	Gold

TERMINAL SEAL



E EPOXY

All models are epoxy sealed

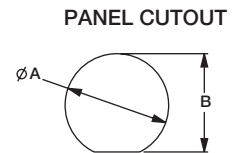




CAP SYMBOLS

	-000		NO SYMBOL
	-001		PLUS
	-002		LOCKED
	-003		ENGINE STOP
	-004		PARK BRAKE RELEASE
	-005		ENGINE START

	-006		FAST
	-007		SLOW
	-008		UNLOCKED
	-009		ROCK SHAFT LOWER
	-010		MINUS



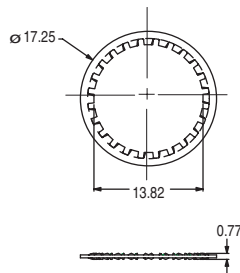
Panel Orientation
Flat indicates bottom

See chart on previous page
for dimensions

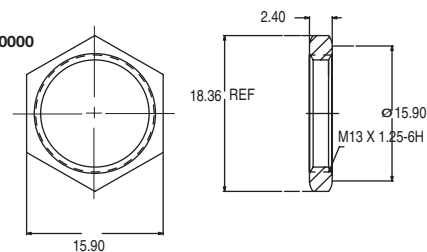
NOTES:
1. ALL GRAPHICS MUST BE POSITIONED AS SHOWN, PERPENDICULAR TO ALIGNMENT FEATURE ON UNDERSIDE OF CAP.
2. GRAPHIC MARKING MUST BE ALIGNED WITH THE FLAT FEATURE ON THE UNDERSIDE OF THE CAP AS SHOWN, TOLERANCE $\pm 3^\circ$

HARDWARE

LOCK WASHER
Part Number 647D00A47



HEX NUT
Part number 515D00000



PANEL SEAL
Part Number 655D00000

