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 ± 1N standard configuration; other force option 2N ± 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 G Ω @ 500 VDC
INITIAL CONTACT RESISTANCE 50 mΩ 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.

A	P								B	E

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

Please contact Customer Service for additional colors and paint / laser etched button options.

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)

* No LED available in short body only

Bushing Style**
S** Snap-in plastic
T Threaded plastic

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

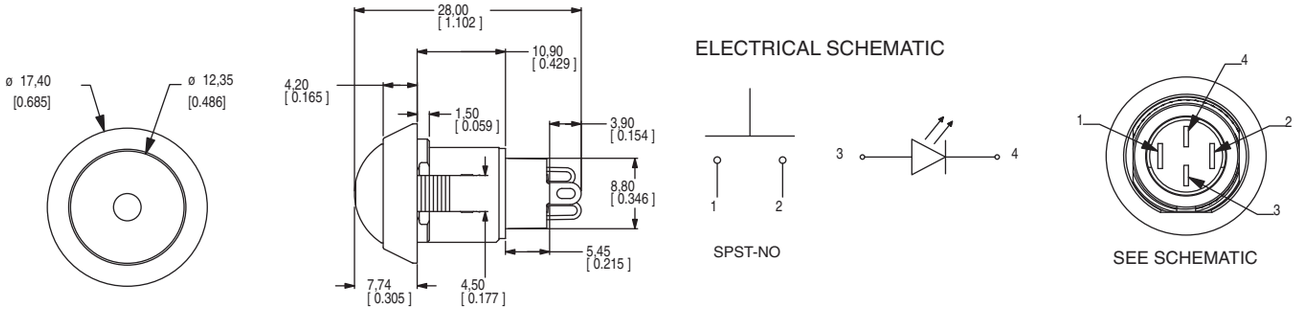
Contact Customer Service for additional hardware options.

Termination
Z Solder Lug
W 12” Wire Leads 22 AWG
C*** PC Terminals

Contact Material
B Gold

Terminal Seal
E Epoxy
All models are epoxy sealed

STANDARD VIEW



OPERATING FORCE

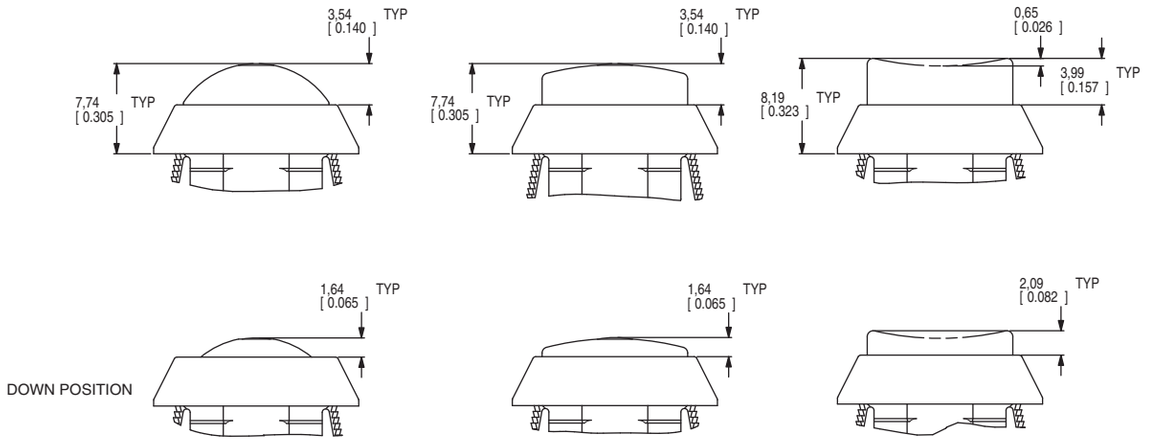
OPTION CODE	OPERATING FORCE
2	2 N, 200 g
4	4 N, 400 g

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

AP Series
Industrial Pushbutton Switch

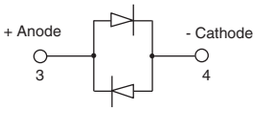
ILLUMINATION

OPTION CODE	ILLUMINATION TYPE	TYPICAL INTENSITY* MIN	MAX	PEAK WAVELENGTH	Vf Forward Voltage
		(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

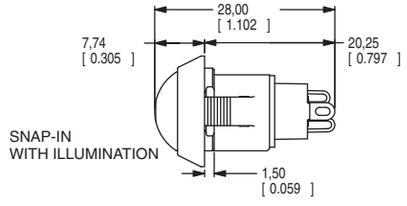
* For information on specific and custom LED, please contact Customer Service.

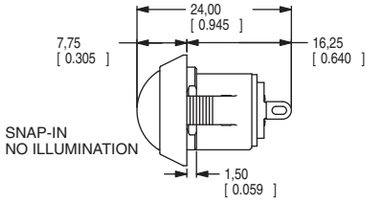
NOTE:
For bi-color LED's the polarity must be reversed to alternate the color



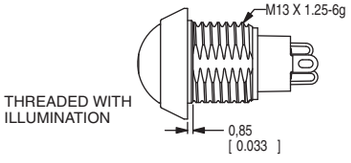
BUSHING STYLE

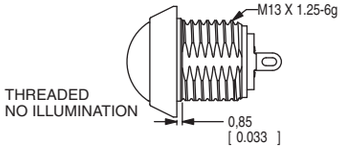
S SNAP-IN



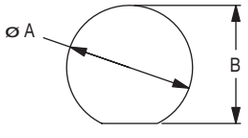


T THREADED PLASTIC





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]

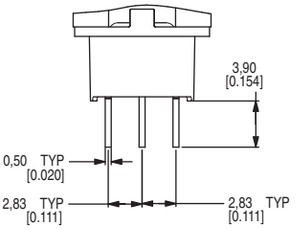
A 0.1mm min. chamfer on the leading edge of the mounting hole is recommended for snap-in version.

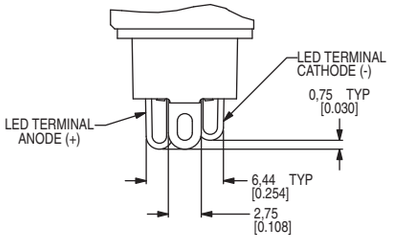
Third Angle Projection

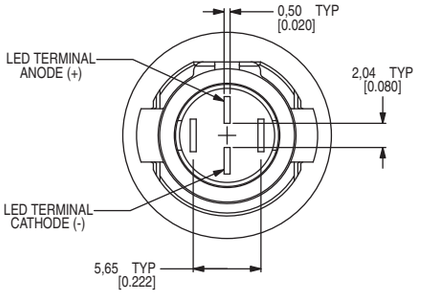
Dimensions are shown: mm (inches)
Specifications and dimensions subject to change

TERMINATION

Z SOLDER LUG



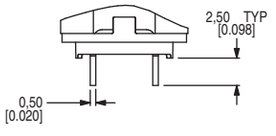


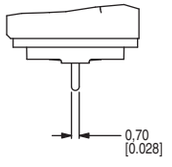


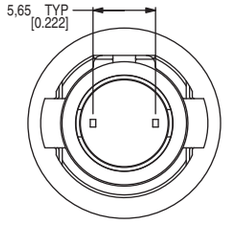
* Switching terminals are gold and LED terminals are silver

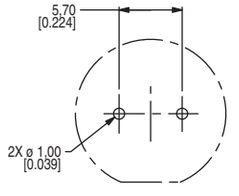
C PC TERMINALS

*** Illumination not available with PC Terminals



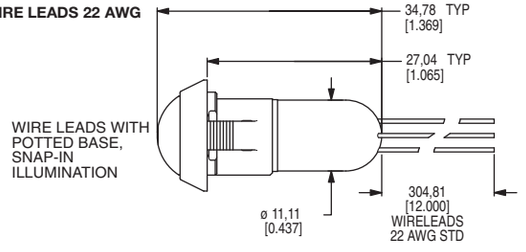


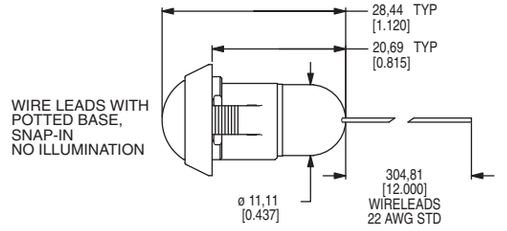


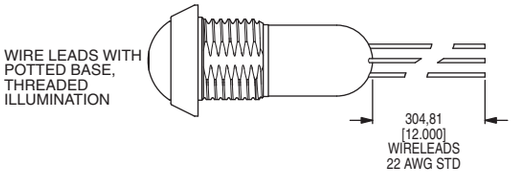


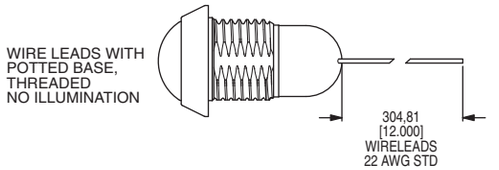
PCB HOLE PATTERN
BOARD VIEW

W 12" WIRE LEADS 22 AWG









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

Third Angle Projection

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

AP Series
Industrial Pushbutton Switch

CONTACT MATERIAL

B GOLD

OPTION CODE	CONTACT MATERIAL
B	Gold

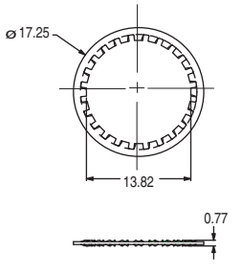
TERMINAL SEAL

E EPOXY

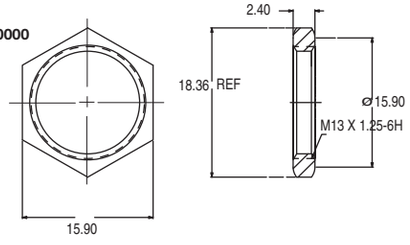
All models are epoxy sealed

HARDWARE

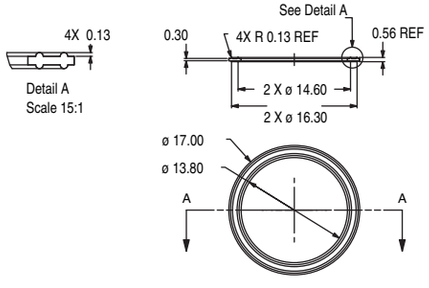
LOCK WASHER
Part Number 647D00000



HEX NUT
Part number 515D00000



PANEL SEAL
Part Number 655D00000



Caps available on next page

Third Angle Projection

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

AVAILABLE CAPS



481D XX XXX

Cap Color

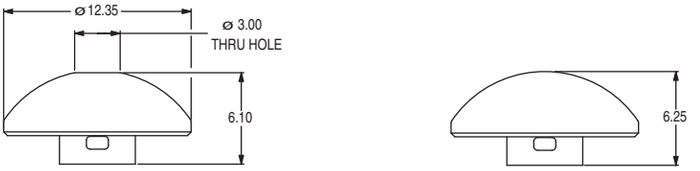
Style

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



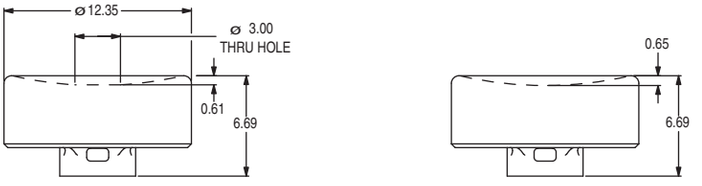
EXTENDED DOME

481DXX002 = NO HOLE
481DXX003 = HOLE



CONCAVE

481DXX004 = NO HOLE
481DXX005 = HOLE



Third Angle Projection

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