

AP Series

Industrial Pushbutton Switches



Description

AP series industrial pushbutton switches are found in applications used in the industrial industry, because of their ability to withstand harsh environments. AP switches are IP67 sealed and come with optional illumination and multiple colored caps, ensuring they can match any design or style.

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

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 Characteristics

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 Characteristics

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	1,000 V AC min.
Insulation Resistance	1 G Ω @ 500 V DC
Initial Contact Resistance	50 mΩ max (without wire leads)
Bounce Time	< 5 ms
Operating Temperature	-40°C to 85°C (+105°C non-illuminated)
ESD Protection	20 KV min.
Sealing	IP67 for threaded body IP65 for snap-in version (no panel seal)

Materials

Housing	PBT
Base	
Cap	
Actuator	Illuminated: Clear polycarbonate Non-illuminated: PBT
Internal Seal	Silicone rubber
Terminals	Copper alloy, gold over silver plating
Movable Contact	
Terminal Seal	Epoxy
Wire Leads	UL1569 Black 22 AWG

Notes:

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

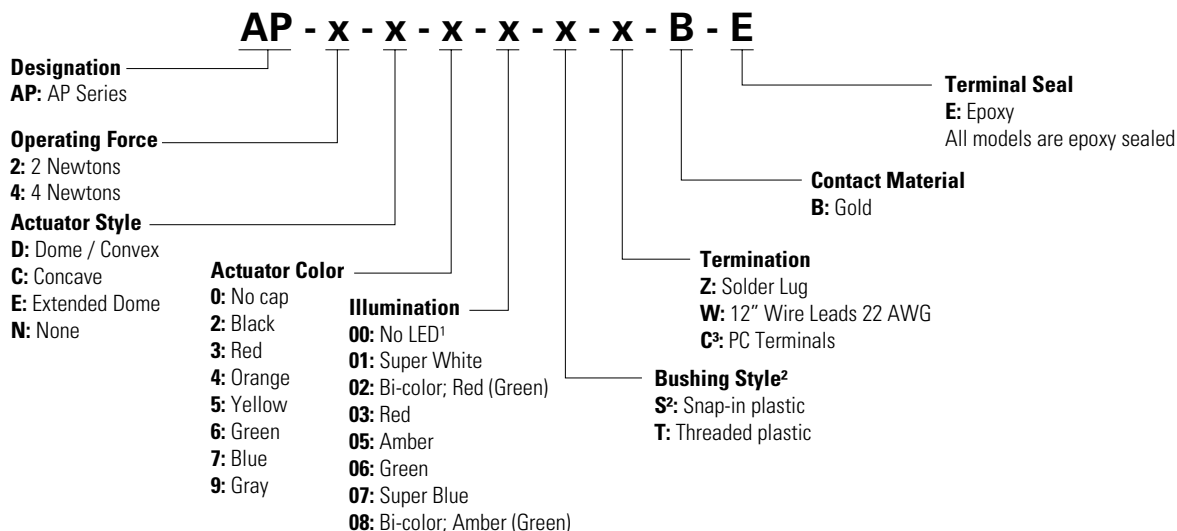
AP Series

Industrial Pushbutton Switches



Ordering Number

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



Notes:

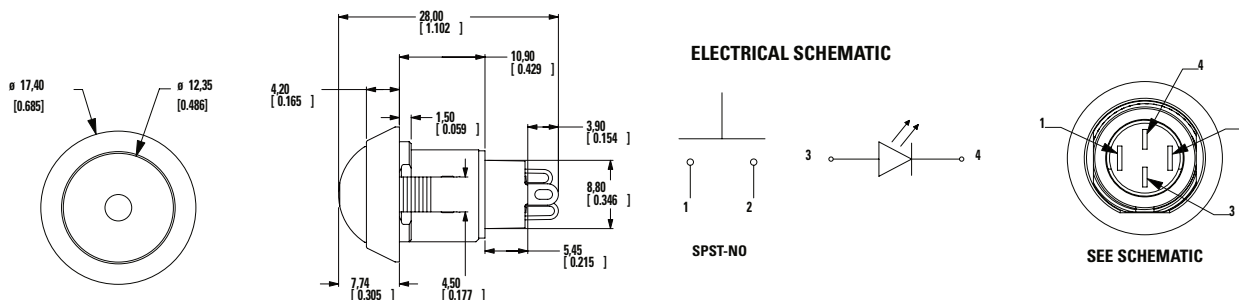
Please contact Customer Service for additional colors and paint / laser etched button options. Contact Customer Service for additional hardware options.

1. No LED available in short body only

2. No panel seal option

3. PC terminals not available with illumination

Standard View mm (inches)



Operating Force

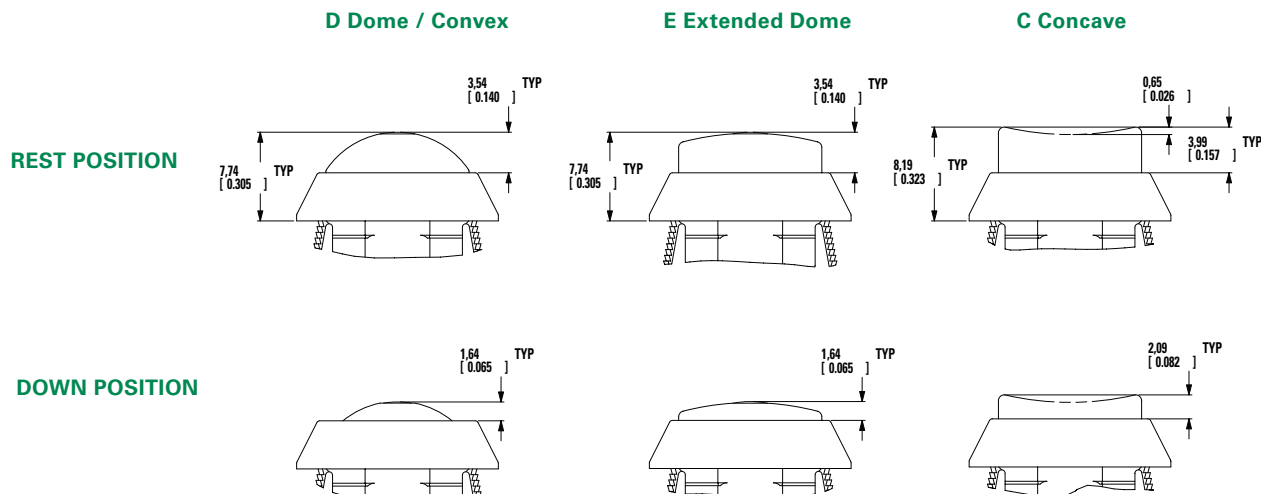
Option Code	Operating Force
2	2 N, 200 g
4	4 N, 400 g

AP Series

Industrial Pushbutton Switches



Actuator Style View mm (inches)



Actuator Color

Option Code	Actuator Color
0	No cap
2	Black
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
9	Gray

Notes: For additional colors please contact Customer Service.

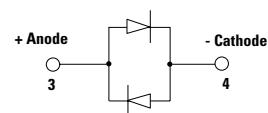
Illumination

Option Code	Illumination Type	Typical Intensity ¹		Peak Wavelength	V1 Forward Voltage
		Min.	Max.		
		(mcd)		(nm)	
00	Model without illumination	-		-	-
01	LED Super White	4,000	5,000	-	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

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

1. LED Forward Current: 20 mA. LED Forward Voltage: see chart above. LED Reverse Voltage: 5.0 V Max.

Bicolor LED



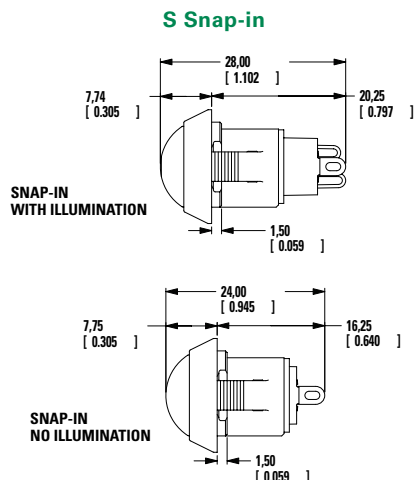
Notes: For bi-color LED's the polarity must be reversed to alternate the color

AP Series

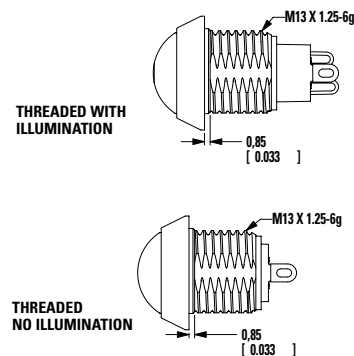
Industrial Pushbutton Switches



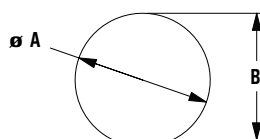
Bushing Style mm (inches)



T Threaded Plastic



Panel Cutout

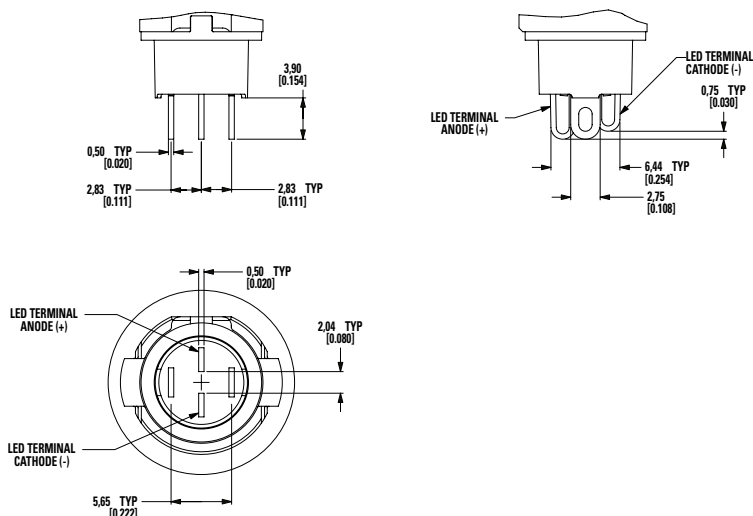


Panel Thickness	DIM A ($\pm 0.05\text{mm}$)	DIM B ($\pm 0.05\text{mm}$)
1 mm [0.039]	13.70 mm [0.539]	13.00 mm [0.512]
2 mm [0.079]	13.80 mm [0.539]	13.00 mm [0.512]
3 mm [0.118]	13.90 mm [0.547]	13.10 [0.516]
Threaded Body Min. Panel Thickness 1 mm	13.70 mm [0.539]	13.00 [0.512]

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

Termination inches (mm)

Z Solder Lug



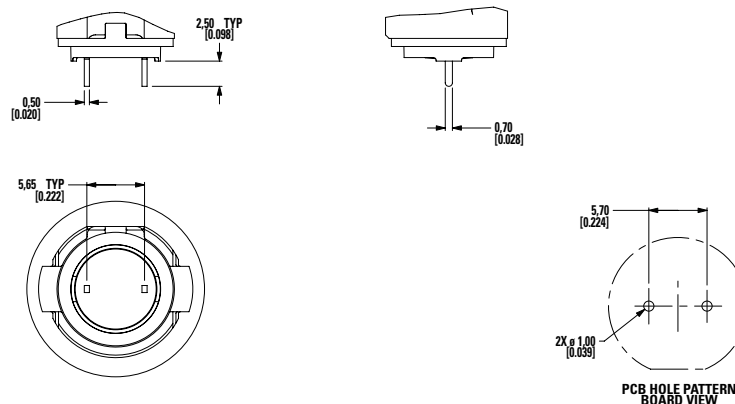
Notes: Switching terminals are gold and LED terminals are silver

AP Series

Industrial Pushbutton Switches

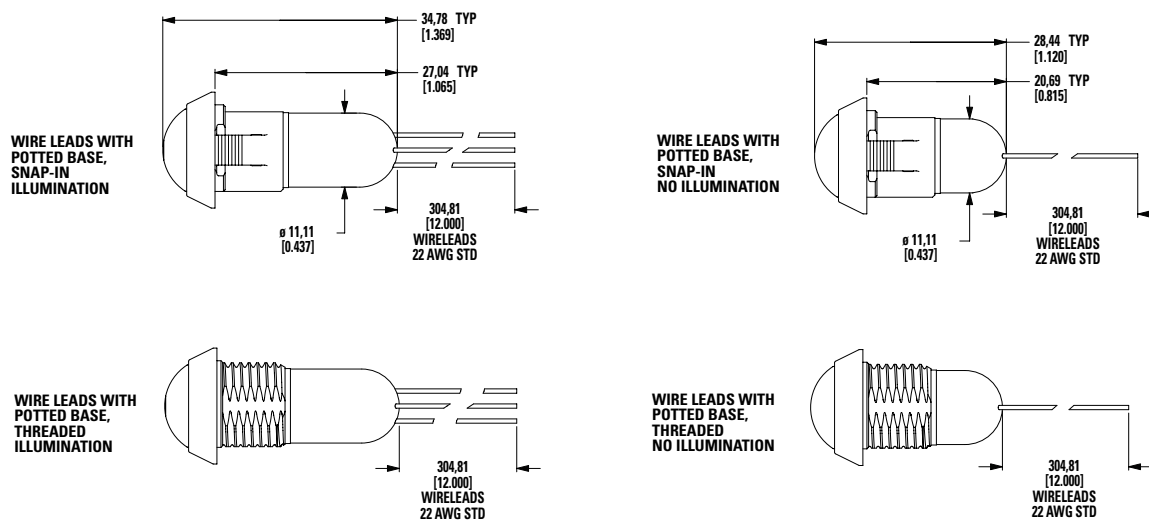


C PC Terminals



Notes: Illumination not available with PC Terminals

W 12" Wire Leads 22 AWG



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

Contact Material

B Gold

Option Code	Contact Material
B	Gold

Terminal Seal

E Epoxy

All models are epoxy sealed

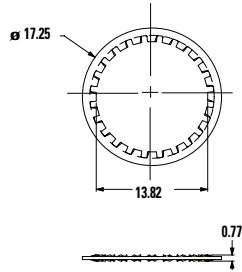
AP Series

Industrial Pushbutton Switches

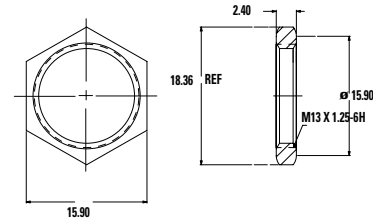


Hardware (mm)

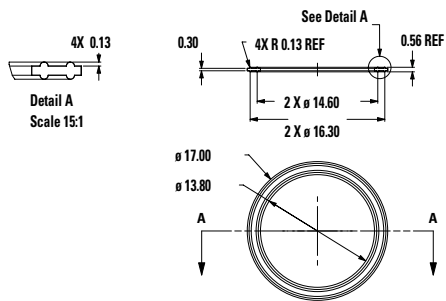
Lock Washer
Part Number 647D00A47



Hex Nut
Part number 515D00000



Panel Seal
Part Number 655D00000

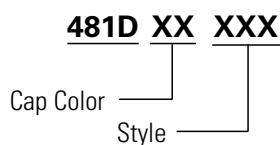


AP Series

Industrial Pushbutton Switches



Available Caps



Cap Color

Option Code	Cap Color
01	White
02	Black
03	Red
04	Orange
05	Yellow
06	Green
07	Blue
08	Brown
09	Gray

Style

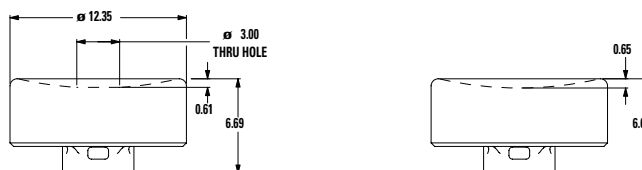
Part Number	Hole	Style
481DXX000	No	Dome
481DXX001	Yes	Dome
481DXX002	No	Extended Dome
481DXX003	Yes	Extended Dome
481DXX004	No	Concave
481DXX005	Yes	Concave

Dome



481DXX000 = NO HOLE
481DXX001 = HOLE

Concave



481DXX004 = NO HOLE
481DXX005 = HOLE

Extended Dome



481DXX002 = NO HOLE
481DXX003 = HOLE

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at <http://www.littelfuse.com/disclaimer-electronics>.