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

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)

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

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

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.

* No LED available in short body only
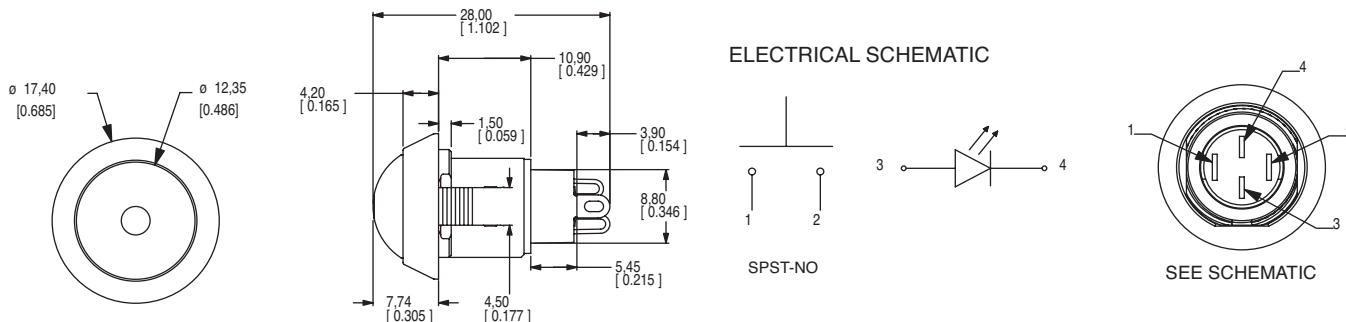
Specifications and dimensions subject to change

A

Pushbutton

STANDARD VIEW

ø 17,40 [0.685] ø 12,35 [0.486]

28,00 [1.102]

10,90 [0.429]

4,20 [0.165]

1,50 [0.059]

3,90 [0.154]

8,80 [0.346]

5,45 [0.215]

7,74 [0.305] 4,50 [0.177]

ELECTRICAL SCHEMATIC

SPST-NO

3 — 4

SEE SCHEMATIC

1 2 3 4
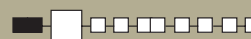
OPERATING FORCE

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

ACTUATOR STYLE

D DOME / CONVEX

3,54 [0.140] TYP

7,74 [0.305] TYP

1,64 [0.065] TYP

DOWN POSITION

E EXTENDED DOME

3,54 [0.140] TYP

7,74 [0.305] TYP

1,64 [0.065] TYP

C CONCAVE

0,65 [0.026]

3,99 [0.157] TYP

8,19 [0.323] TYP

2,09 [0.082] TYP
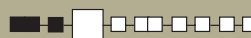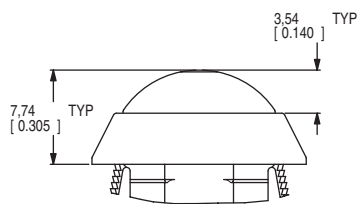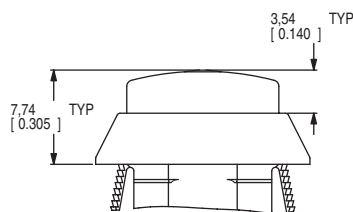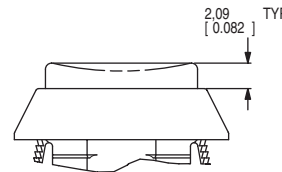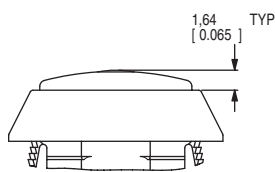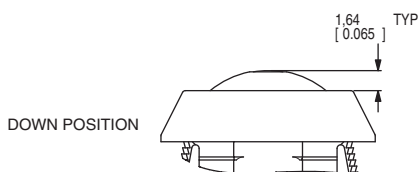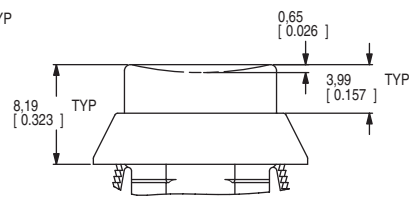
ACTUATOR COLOR

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.
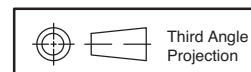
Third Angle Projection

C&K

AP Series
Industrial Pushbutton Switch
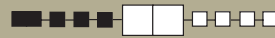
ILLUMINATION

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.
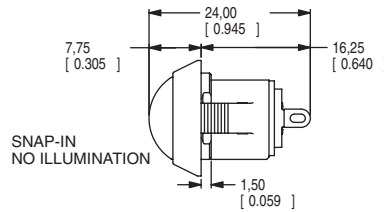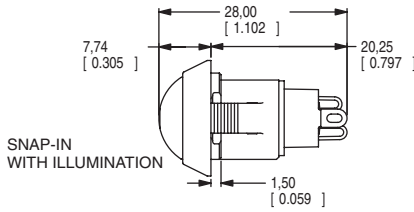
NOTE:

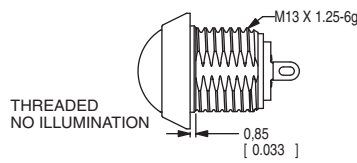For bi-color LED's the polarity must be reversed to alternate the color

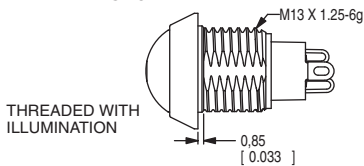+ Anode   - Cathode

3   4

BUSHING STYLE

S SNAP-IN

28,00
[1.102]

7,74
[0.305]

20,25
[0.797]

SNAP-IN
WITH ILLUMINATION

1,50
[0.059]

24,00
[0.945]

7,75
[0.305]

16,25
[0.640]

SNAP-IN
NO ILLUMINATION

1,50
[0.059]

T THREADED PLASTIC

M13 X 1.25-6g

THREADED WITH
ILLUMINATION

0,85
[0.033]

M13 X 1.25-6g

THREADED
NO ILLUMINATION

0,85
[0.033]

PANEL CUTOUT

ø A

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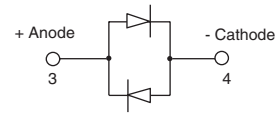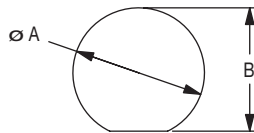
PANEL THICKNESS	DIM A (± 0.05 mm)	DIM B (± 0.05 mm)
1 mm [0.039 in]	13.70 mm [0.539 in]	13.00 mm [0.512 in]
2 mm [0.079 in]	13.80 mm [0.539 in]	13.00 mm [0.512 in]
3 mm [0.118 in]	13.90 mm [0.547 in]	13.10 mm [0.516 in]
THREADED BODY MIN PANEL THICKNESS 1 mm	13.70 mm [0.539 in]	13.00 mm [0.512 in]

Third Angle
Projection

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

TERMINATION

Z SOLDER LUG

3,90 [0.154]

0,50 TYP [0.020]

2,83 TYP [0.111]   2,83 TYP [0.111]

LED TERMINAL CATHODE (-)

0,75 TYP [0.030]

LED TERMINAL ANODE (+)

6,44 TYP [0.254]

2,75 [0.108]

0,50 TYP [0.020]

LED TERMINAL ANODE (+)

2,04 TYP [0.080]
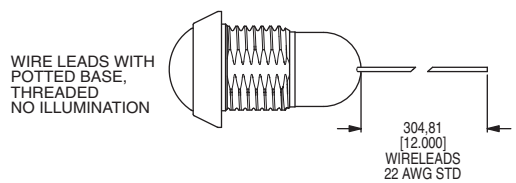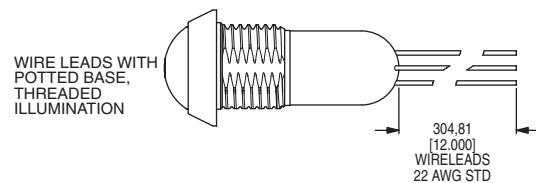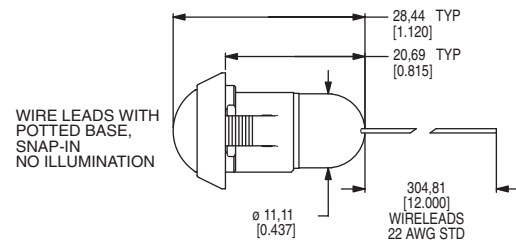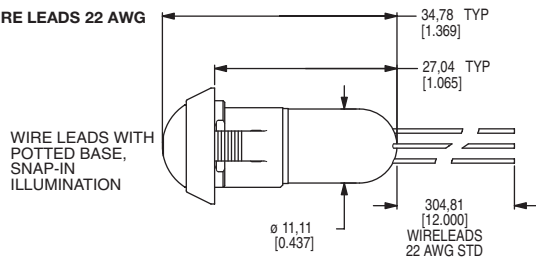
LED TERMINAL CATHODE (-)

5,65 TYP [0.222]
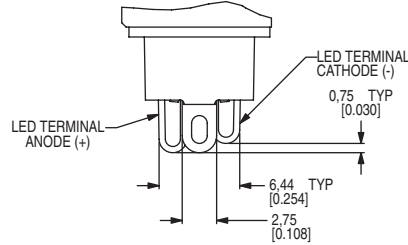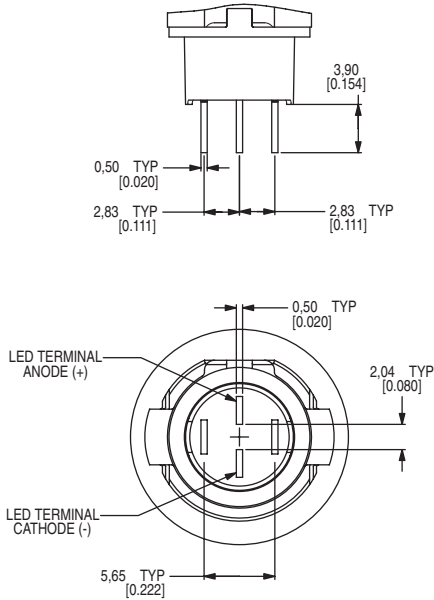
* Switching terminals are gold and LED terminals are silver

C PC TERMINALS   *** Illumination not available with PC Terminals

2,50 TYP [0.098]

0,50 [0.020]

0,70 [0.028]

5,65 TYP [0.222]

5,70 [0.224]

2X ø 1,00 [0.039]

PCB HOLE PATTERN
BOARD VIEW

W 12" WIRE LEADS 22 AWG

34,78 TYP [1.369]

27,04 TYP [1.065]

WIRE LEADS WITH POTTED BASE, SNAP-IN ILLUMINATION

ø 11,11 [0.437]

304,81 [12.000] WIRELEADS 22 AWG STD

28,44 TYP [1.120]

20,69 TYP [0.815]

WIRE LEADS WITH POTTED BASE, SNAP-IN NO ILLUMINATION

ø 11,11 [0.437]

304,81 [12.000] WIRELEADS 22 AWG STD

WIRE LEADS WITH POTTED BASE, THREADED ILLUMINATION

304,81 [12.000] WIRELEADS 22 AWG STD

WIRE LEADS WITH POTTED BASE, THREADED NO ILLUMINATION

304,81 [12.000] WIRELEADS 22 AWG STD

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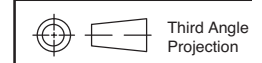
Third Angle Projection

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

C&K

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

ø 17.25

13.82

0.77
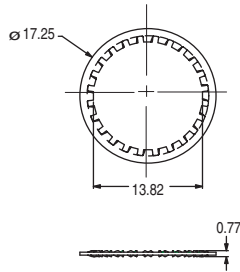
HEX NUT
Part number 515D00000

2.40

18.36 REF

ø 15.90

M13 X 1.25-6H

15.90
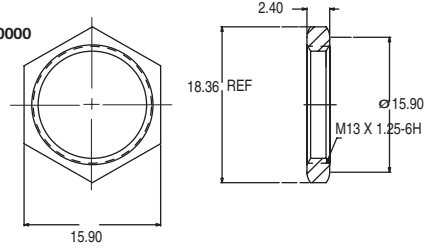
PANEL SEAL
Part Number 655D00000

4X 0.13

Detail A
Scale 15:1

0.30

See Detail A

4X R 0.13 REF

0.56 REF

2 X ø 14.60

2 X ø 16.30

ø 17.00

ø 13.80

A   A
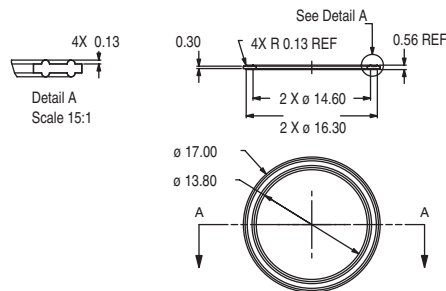
Caps available on next page

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

Ø 12.35 · Ø 3.00 THRU HOLE · 6.10 · 6.25
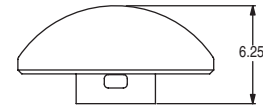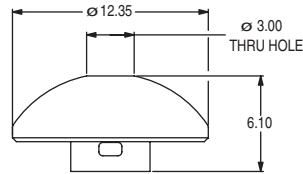
EXTENDED DOME

481DXX002 = NO HOLE
481DXX003 = HOLE

Ø 12.35 · Ø 3.00 THRU HOLE · 6.10 · 6.15
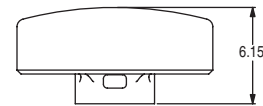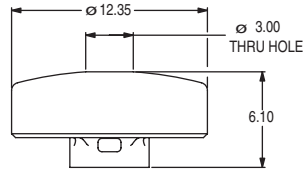
CONCAVE

481DXX004 = NO HOLE
481DXX005 = HOLE

Ø 12.35 · Ø 3.00 THRU HOLE · 0.61 · 6.69 · 0.65 · 6.69

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

Third Angle Projection
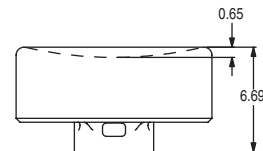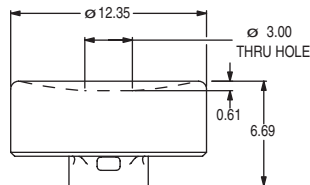
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