

**Pushbutton Switches, 16mm, Illuminated**

**FEATURES:**

Command Series Illuminated Pushbuttons are instrument-grade switches having snap-acting double break contacts, silver clad and gold plated to satisfy the requirements of logic level and power switching. **Contacts are electrically independent of one another and are isolated from the lamp circuit.** Tactile feel is excellent and maintained models have latching feature for visible indication of status. Uses T1-3/4 midget flanged base lamp, relampable from front of panel. Legends may be provided using printed transparent tape affixed to inner button. UL Recognized, File E-51302, CSA LR-20479

Note: Recommended panel thickness 4mm max.

**MATERIAL SPECIFICATIONS:**

Contacts .....Gold plate over silver clad

**TYPICAL PERFORMANCE CHARACTERISTICS:**

Contact Rating .....0.4 VA @ 20 VDC or Peak AC  
 5 A @ 250 VAC or 24 VDC (Resistive)  
 Initial Contact Resistance .....20 Milliohms max.  
 Insulation Resistance .....100 Megohms min.  
 Dielectric Strength .....1,500 VAC  
 Life Expectancy .....100,000 Operations @ rated current

**ENVIRONMENTAL SPECIFICATIONS:**

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)  
 Oiltight .....IP65, NEMA 1, 12 & 13  
 Non-oiltight.....IP40

**ROUND**

Lens set and lamps not supplied.



164EL11

Application Note: For lens sets, accessories and lamps, see page I18 to I20



Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
1437569-2	164EL11	4-1437569-2	165EL11	1 N.O. & N.C.	Momentary
1437569-3	164EL22	4-1437569-3	165EL22	2 N.O. & N.C.	Momentary
—	164EL33	—	165EL33	3 N.O. & N.C.	Momentary
1437569-5	164EL511	4-1437569-4	165EL511	1 N.O. & N.C.	Push on/Push off
1437569-6	164EL522	4-1437569-5	165EL522	2 N.O. & N.C.	Push on/Push off
1437569-7	164EL533	—	165EL533	3 N.O. & N.C.	Push on/Push off

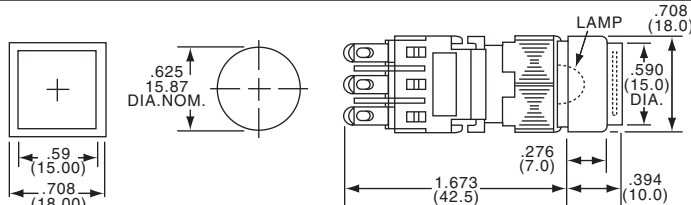
**SQUARE**

Lens set and lamps not supplied.



164SL11

Application Note: For lens sets, accessories and lamps, see page I18 to I20



Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
2-1437569-5	164SL11	4-1437569-9	165SL11	1 N.O. & N.C.	Momentary
2-1437569-6	164SL22	5-1437569-0	165SL22	2 N.O. & N.C.	Momentary
2-1437569-7	164SL33	—	165SL33	3 N.O. & N.C.	Momentary
2-1437569-9	164SL511	5-1437569-1	165SL511	1 N.O. & N.C.	Push on/Push off
3-1437569-0	164SL522	5-1437569-2	165SL522	2 N.O. & N.C.	Push on/Push off
3-1437569-1	164SL533	—	165SL533	3 N.O. & N.C.	Push on/Push off

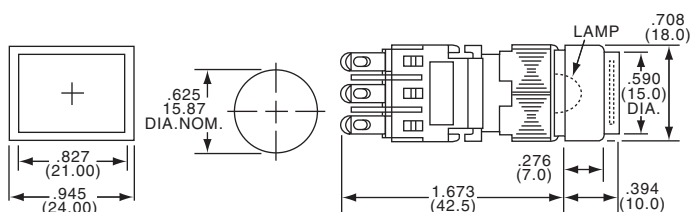
**RECTANGULAR**

Lens set and lamps not supplied.



164TL11

Application Note: For lens sets, accessories and lamps, see page I18 to I20



Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
3-1437569-4	164TL11	5-1437569-4	165TL11	1 N.O. & N.C.	Momentary
3-1437569-5	164TL22	5-1437569-5	165TL22	2 N.O. & N.C.	Momentary
3-1437569-6	164TL33	—	165TL33	3 N.O. & N.C.	Momentary
3-1437569-8	164TL511	5-1437569-6	165TL511	1 N.O. & N.C.	Push on/Push off
3-1437569-9	164TL522	5-1437569-7	165TL522	2 N.O. & N.C.	Push on/Push off
4-1437569-0	164TL533	5-1437569-8	165TL533	3 N.O. & N.C.	Push on/Push off

**Selector or Keylock Switches, 16mm**

**FEATURES:**

Command Series Selector & Keylock Switches are 2 & 3-position rotary types with snap-acting double break contacts. All models have 90° throw. Contacts are silver-clad and gold-plated to provide reliable operation at logic levels as well as for power switching applications. Contacts are electrically isolated from one another. Keylock types are supplied with two keys. Oiltight models meet NEMA 1, 12 & 13 requirements.

UL Recognized File E-51302

CSA LR-20479

**MATERIAL SPECIFICATIONS:**

Contacts .....Gold plate over silver clad

**TYPICAL PERFORMANCE CHARACTERISTICS:**

Contact Rating .....0.4 VA @ 20 VDC or Peak AC  
 5 A @ 250 VAC or 24 VDC (Resistive)  
 Initial Contact Resistance .....20 Milliohms max.  
 Insulation Resistance .....100 Megohms min.  
 Dielectric Strength .....1,500 VAC  
 Life Expectancy .....100,000 Operations at rated current

**ENVIRONMENTAL SPECIFICATIONS:**

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)

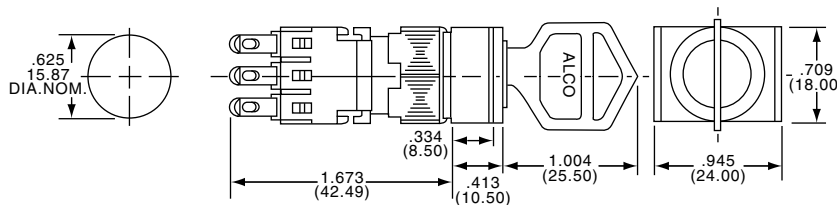
**SELECTORS**



164P2B11

Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
2-1437569-0	164P2B11	4-1437569-8	165P2B11	1N.O. & N.C.	2 Pos. Maintained
2-1437569-1	164P2B22	—	165P2B22	2N.O. & N.C.	2 Pos. Maintained
—	164P2B33	—	165P2B33	3N.O. & N.C.	2 Pos. Maintained
1-1437569-9	164P0B22	—	—	2N.O. & N.C.	2 Pos. Momentary Right
—	164P0B33	—	—	3N.O. & N.C.	2 Pos. Momentary Right
2-1437569-2	164P3B22	—	165P3B22	2N.O. & N.C.	3 Pos. Center Off/Maintained
2-1437569-3	164P3B33	—	165P3B33	3N.O. & N.C.	3 Pos. Center Off

**KEYLOCKS**



164J2A11

2 Position Keylocks						3 Position Keylocks					
Non-Oiltight		Oiltight		Contact	Action	Non-Oiltight		Oiltight		Contact	Action
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch			Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch		
1-1437569-1	164J2A11	4-1437569-7	165J2A11	1N.O. & N.C.	Maintained, key pull left	—	164J3A22	—	165J3A22	2N.O. & N.C.	Maintained, key pull left
1-1437569-2	164J2A22	—	165J2A22	2N.O. & N.C.	Maintained, key pull left	1-1437569-5	164J3A33	—	165J3A33	3N.O. & N.C.	Maintained, key pull left
—	164J2A33	—	165J2A33	3N.O. & N.C.	Maintained, key pull left	—	164J3E22	—	165J3E22	2N.O. & N.C.	Maintained, key pull center
1-1437569-3	164J2B11	—	165J2B11	1N.O. & N.C.	Maintained, key pull both	—	164J3E33	—	165J3E33	3N.O. & N.C.	Maintained, key pull center
1-1437569-4	164J2B22	—	165J2B22	2N.O. & N.C.	Maintained, key pull both	1-1437569-6	164J3C22	—	165J3C22	2N.O. & N.C.	Maintained, key pull all
—	164J2B33	—	165J2B33	3N.O. & N.C.	Maintained, key pull both	—	164J3C33	—	165J3C33	3N.O. & N.C.	Maintained, key pull all
1437569-9	164J0A11	—	—	1N.O. & N.C.	Momentary right, key pull left	—	164J7A22	—	165J7A22	2N.O. & N.C.	Momentary right, key pull left
1-1437569-0	164J0A22	—	—	2N.O. & N.C.	Momentary right, key pull left	1-1437569-8	164KA	—	—	—	Spare Keys
—	164J0A33	—	—	3N.O. & N.C.	Momentary right, key pull left	—	—	—	—	—	—

**Pilot Light Indicators or Lens Sets, 16mm**

**FEATURES**

Command Series Pilot Light Indicators match the appearance of both lighted and unlighted Command Series pushbuttons. The same lens buttons are snapped into place and legends may be easily inserted. Illumination is from T - 1 3/4 midget flange based lamps, which are installed from the front panel. Lenses and lamps are ordered separately. Oiltight models meet NEMA 1, 12 & 13 requirements. UL File No. E-51302  
CSA LR-20479

**TYPICAL PERFORMANCE CHARACTERISTICS:**

LAMP DISSIPATION 1.2W MAX.  
Insulation Resistance .....100 Megohms min.  
Dielectric Strength .....1,500 VAC

**ENVIRONMENTAL SPECIFICATIONS:**

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)

**PILOT LIGHT INDICATORS**



164EZ



Non-Oiltight		Oiltight		Description
Tyco Electronics	Alcoswitch	Tyco Electronics	Alcoswitch	
1437569-8	164EZ	—	165EZ	Round
3-1437569-2	164SZ	—	165SZ	Square
4-1437569-1	164TZ	—	165TZ	Rectangular

Lens set and lamp not supplied, order separately, see below.  
U.L. Recognized E-51302

**LENS SET**



64E



Model	Description
64E(*)	Round lens set
64S(*)	Square lens set
64T(*)	Rectangular lens set

All fit oiltight and non-oiltight indicators.  
(\*) Specify color by adding suffix number: (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White/Clear.

**Application Note:**  
Lens sets include, button, diffuser and cap.

**Accessories and Tools, 16mm**

**FEATURES:**

Standard Legends on Transparent Adhesive Tape are available for Illuminated Command Series switches and pilot lights. Legends are easily affixed to the translucent white button and are protected by the lens cap. The black lettering is back-lit by the lamp and the inscription is visible through the lens cap. This method of providing legends is also suitable in some applications using non-illuminated white (clear), yellow or orange lens caps.

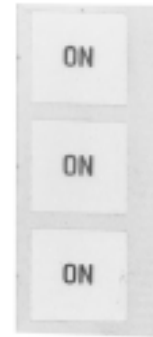
Standard legends, listed below, are intended to be used with round, square or rectangular pushbuttons and pilot lights. Sold only in sheets of 10 identical legends.

**LEGEND MODEL NUMBERS**



Tyco Electronics	Alcoswitch	
6-1437569-3	616	On
6-1437569-2	616	Off

Note: Model numbers must include complete legend nomenclature.



Legend (film)

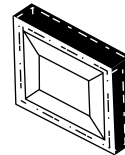
**Accessories**

**MOUNTING WRENCH**

Sturdy tubular brass wrench fits mounting nuts on all Command Series switches.



<b>Tyco Electronics</b>	<b>Alcoswitch</b>
6-1437569-0	601-AG

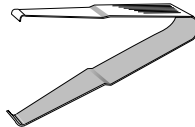


**SPLASH PROOF SEAL**  
Flexible clear seal fits all rectangular pushbuttons and pilot lights.

<b>Tyco Electronics</b>	<b>Alcoswitch</b>
9-1437569-2	668

**LENS REMOVER**

Dual purpose metal tool facilitates removal of lenses, buttons.

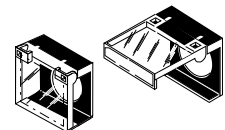


<b>Tyco Electronics</b>	<b>Alcoswitch</b>
6-1437569-9	618-AG

**FLIP COVER SWITCH GUARD**

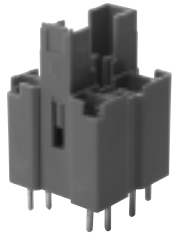
669 used with rectangular series pushbutton switches.  
671 used with square and round series pushbutton switches.

<b>Tyco Electronics</b>	<b>Alcoswitch</b>
9-1437569-4	669 Rectangular
9-1437569-3	671-AG Square and Round

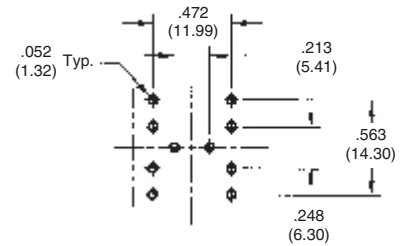


**Socket for 16mm Command Series Switches**

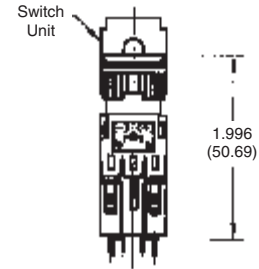
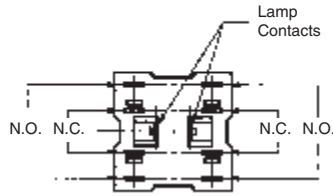
697-PL



9-1437569-5



**Recommended PCB Footprint**



**T1 3/4 Series Midget Incandescent Lamps**

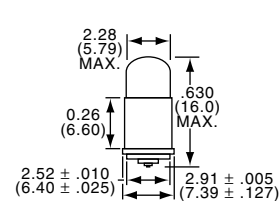
Average Life ratings indicate the lamp life obtained in controlled laboratory conditions while operating lamps at the design voltage (AC) (DC will shorten life by 50%). The life of a subminiature lamp is inversely proportional to the 12th power of the applied voltage.

ALCOSWITCH subminiature lamps are a "T" class, meaning that the envelopes are made of glass tubing, the "T" number indicating the diameter of the tubing in eighths of an inch.

Command Series

Tyco Electronics	Alcoswitch	Rated Volts	Design Amps	Rated MSCP	Average Rated Hours
9-1437620-6	7333	5.0	.060	.05	40,000
1-1437620-8	815-AG	—	.115	.147	40,000
1437620-7	381-AG	6.3	.20	.40	50,000
1437620-8	382-AG	14.0	.08	.30	50,000
1437620-9	385	28.0	.04	.20	50,000
1-1437620-1	387	28.0	.04	.30	25,000
1437620-5	327-AG	28.0	.04	.34	7,000

FLANGE BASE- T1 3/4



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