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Electro-Mech Components, Inc.
Switch Capabilities & Options Grid

		<u>Specification/Option</u>	metal case	plastic case	switch	indicator	front panel mount	sub panel mount	mounting adapter available	SPST-2PDT	3PST-6PDT	2a res., 0.5a ind.	10a res., 5a ind.	single lamp/LED	multi lamp/LED	multi switch	momentary only	UL listed	any EMC lens	waterproof available
Series	Page#																			
20	32-33			•	•		•			•		•		•				•		•
2100	12-13		•		•			•	•	•		•		•				•	•	•
2600	14-16		•		•			•	•		•			•				•	•	•
3000	22-23		•		•			•	•	•	•			•				•	•	•
3200	40		•			•		•						•				•	•	•
3600/3700	24-25		•		•			•	•	•	•			•				•	•	•
3800/3900	24-25		•		•			•	•	•	•			•				•	•	•
400	52-53							•								•		•		
4000	26		•		•			•	•				•	•				•	•	•
500	54-55						•									•		•		
5100	27		•		•		•			•		•		•			•	•	•	•
60	34-35			•	•		•			•	•	•		•				•		•
600	46-49			•	•		•			•	•	•			•			•		
60-350	36			•	•		•			•		•		•			•	•		•
61	31			•	•		•			•		•		•				•		
6100	30		•		•		•			•		•		•				•	•	•
644-2100	50-51		•		•		•			•		•			•			•		
65-210	41			•		•	•							•				•		
73-210	41			•		•	•							•				•		
73-350	37			•	•		•			•		•		•			•	•		•
800	46-49			•	•		•			•	•	•			•			•		
GH5300	29		•		•			•		•		•		•			•	•	•	•
L150	42													•				•		
S510/S520	18-19		•		•		•			•				•			•			•
S570	20		•		•		•			•	•			•						•

Focus on Aircraft Switches

FAA PMA Approved



Boeing Commercial Aircraft Installations

ELECTRO-MECH
COMPONENTS

EMC P/N	PMA?	PMA Supp#	POLLAK P/N	PMA MODEL NUMBERS*	DESCRIPTION
L11A	YES	21	N/A	747-400,-400D Series	747 GALLEY ATTN'D LENS
SW43196-1	YES	1	700821B1-001	747-200,-300,-400	747 CARGO DOOR SWITCH
SW43196-3	YES	1	700821B1-003	747-200	747 CARGO DOOR SWITCH
SW43250-1	YES	16	N/A	747-400,747-400F Series	747 CARGO DOOR SWITCH
SW43346	YES	1	920056	737A,747A,757-200,767-200,-300	READING LAMP SWITCH
SW43353	YES	1	920055	737A,747A,757-200,767-200,-300	ATTENDANT CALL SWITCH
SW43792	YES	8	920077	DC-9-81,82,83,87,MD88,MD-90-30	READING LAMP SWITCH
SW43793	YES	8	920076	DC-9-81,82,83,87,MD88,MD-90-30	ATTENDANT CALL SWITCH
SW43794-001	YES	8	930045-001	DC-9-81,82,83,87,MD88	READING LAMP LENS
SW43795-002	YES	8	930044-001	DC-9-81,82,83,87,MD88	ATTENDANT CALL LENS
SW43830	YES	2	710906-13A1	737-200	ATTENDANT CALL SWITCH
SW43836	YES	5	S18011D4E6F4	777-200	777 LAV ATTENDANT SWITCH
SW43837	YES	23	920099	767-300 Series	ATTENDANT CALL SWITCH
SW43845	YES	10	S52010A MOD	747-400	747 GALLEY ATTN'D SWITCH
SW43848	YES	10	932501-007	737-200,777-200	ATTENDANT LENS w/LAMP
SW43849	YES	6	690623A1-4F	737B,747B,757A,767A	ATTN'D LENS w/LAMP FEMALE
SW43853	YES	3	710907-13A2	737-200	READING LAMP SWITCH
SW43890-4	YES	15	N/A	757-200 Series	A.C.P. H-E POT SWITCH ASSY
SW43892	YES	4	311078-001	737-200	HOUSING, READING LENS
SW43896	YES	7	721101A1	737AB,747C,757B,767A,777-200	AUTOPILOT w/WIRES
SW43896-2	YES	9	721101A1-2	777-200,-300	AUTOPILOT w/WIRES
SW43901-1A	YES	13	691212-13A1-1A	707-300,737-200	
SW43902-B	YES	12	690623A1-4B	707-300,727-200,737-200	LENS, ATTENDANT CALL
SW43906-001	YES	16	311077-001	737-200 Series	HOUSING ADAPTER
SW43907-005	YES	15	932501-005	737-200C Series	LENS, ATTENDANT CALL
SW43908	YES	25	720905C1	727C Series, 727-200 Series	LENS, ATTENDANT CALL, RED
SW43913-001	YES	16	311079-001	707-300C,737-200,767-200,300 et	HOUSING ADAPTER
SW43913-002	YES	16	311079-002	707-300C,727-200,737-200	HOUSING ADAPTER
SW43934	YES		730620-13A1		AUTOPILOT SWITCH
SW43938	YES	17	970022 (KIT)	747-200BCF,-300,-400DF,777-200	KIT OF SW+LENS+2 ADAPTERS
SW44009-145	YES	24	681210B1-145	747-100,-200,-300,747SP,747SR	LENS, PB, 60B00149-XXX ASSY
SW44109	YES	19	N/A	757-200 Series, 767-300 Series	A.C.P. H-E POT SWITCH ASSY
OBS = OBSOLETE		NOT ALL DASH NUMBERS SHOWN.			
Part numbers in bold indicate the PMA'd part number is the Pollak Pendar part number.					
MOD = INDICATES EMC VERSION HAS DEVIATIONS FROM POLLAK PENDAR PART NUMBER.					

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SW44267

Circuitry SPST - DPDT Sunlight Readable Quad LED Switch Hidden Legend Display



ELECTRO-MECH
COMPONENTS



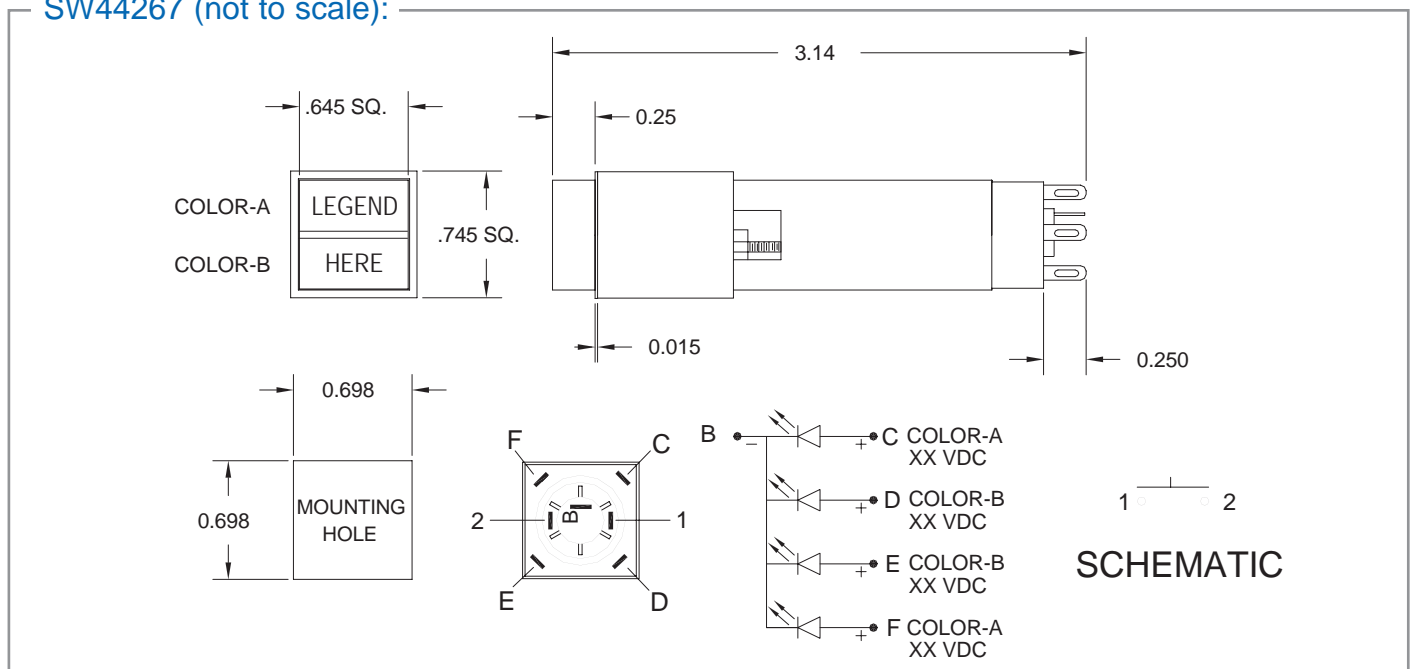
- ◆ Dual or Four Lamp/LED Capability
- ◆ Horizontal or Vertical Split Legend Lenses
- ◆ Meets Sunlight Readability of MIL-PRF-22885

Electro-Mech has introduced its SW44267 model pushbutton switch assembly featuring quad LED capability which meets the sunlight readability requirements of MIL-PRF-22885 for cockpit and ground based installations. Switch mounts in industry size standard mounting hole, accomodates SPST-DPDT circuitry, and is available in momentary or alternate action switch functions.

Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Operating Pressure:	3 lbs. ± 1 lb.
Weight:	1.1 oz. (30 g) (approx.)
Switch Action:	Momentary or Alternate Action (SW44267 = momentary snap feel)
Actuations:	100,000 minimum
Contacts:	Silver plated (Gold plated contacts available)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Illumination:	Four T-1 (3mm) sub midget flange base LED's; external resistor to operate at 28vdc
Lens Display:	Hidden legends; Legends illuminate in color (Visible legends also available).
Brightness Contrast:	CL = 0.819, CUL = 0.574

SW44267 (not to scale):



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SW44188

Front Panel Mount, SPST Snap Action Pushbutton Switch Custom Legends



ELECTRO-MECH
COMPONENTS



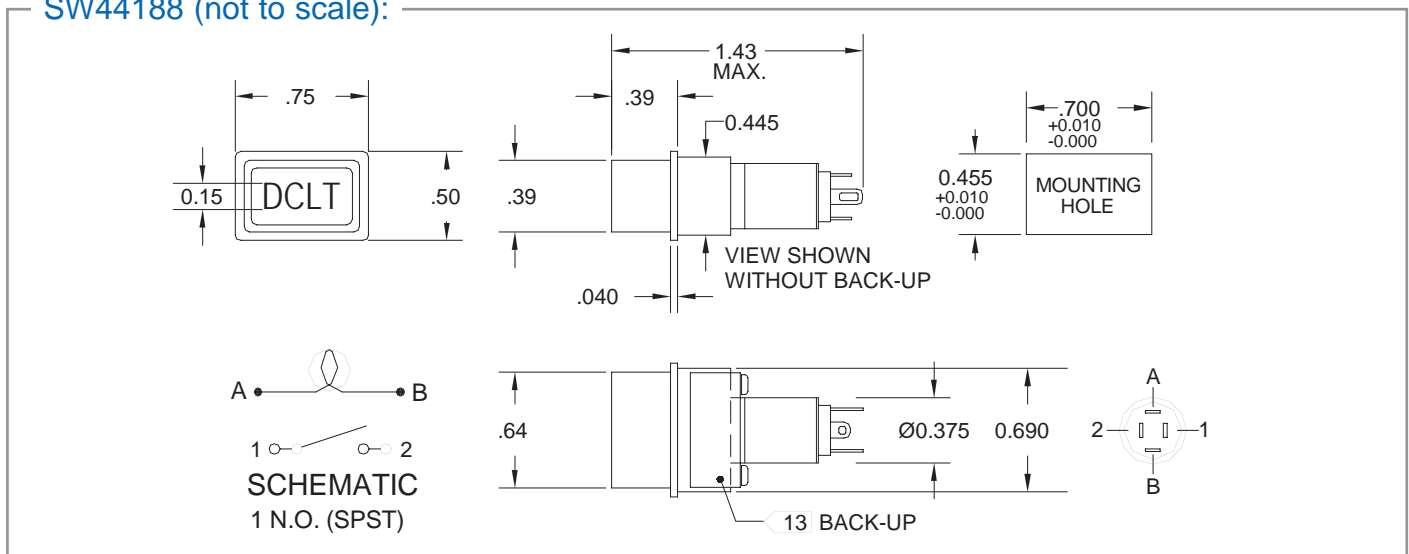
- * Reliable snap action switching
- * SPST circuitry
- * Hidden and custom legends available
- * Accommodates one T 1-3/4 mfb lamp or LED

Featuring a snap action design and versatile legend display options, Electro-Mech Components introduces the new SW44188 family of SPST momentary snap action switches. Originally designed for cockpit trainers and simulators, the new switch is suitable for use in a variety of commercial, military, and industrial applications.

Specifications:

Ratings:	30 volts DC or 125 volts AC; 1.0A resistive, 0.5A inductive
Weight:	0.4 oz. (12 g) (approx.)
Operating Pressure:	24 oz. \pm 8 oz. (681g \pm 227g)
Plunger Travel:	0.070 nominal (1.7mm)
Actuations:	50,000 minimum
Contacts:	Silver plated
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates custom size lens per drawing. Hidden and custom legends available.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange based lamp or LED. Lamp circuit is independent.

SW44188 (not to scale):



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SW44418

Sub Panel Mount, SPST - 2PDT Potentiometer + Pushbutton Switch For Edgelit Panels

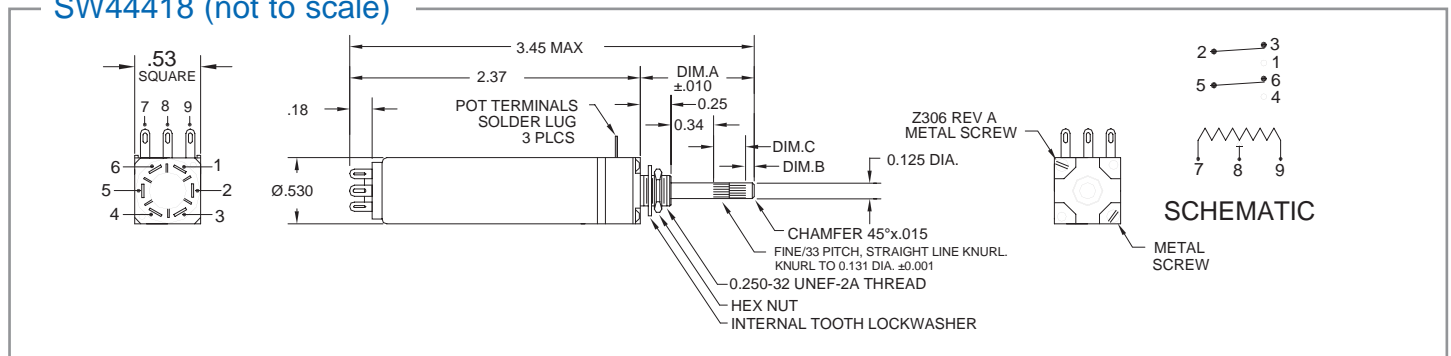


ELECTRO-MECH
COMPONENTS



- ♦ combination pushbutton switch with rotary potentiometer
- ♦ momentary or alternate action (remain-in) switching actuations
- ♦ ideal for volume control functions
- ♦ optional edgelit knob for edgelit (aircraft) panels

SW44418 (not to scale)



Specifications:

Switch:		Potentiometer:	
Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive	Resistance Tolerance:	+10%
Weight:	1.0 oz. (28g) (approx.)	Elec. & Mech. Rotation:	295° ± 5°
Operating Pressure:	2 lbs. ± 1 lb.	Effective Rotation:	250° ± 5°
Plunger Travel:	0.140 ± 0.010 (3.56 ± 0.25mm)	End Resistance:	4 ohms max. linear
Actuations:	100,000 minimum	Dielectric Strength:	900 VAC for 60 seconds ATM
Contacts:	Silver plated (gold plating optional)	Working Voltage:	350 VDC across terminals
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.	Dynamic Noise:	3% of total resistance
Knob:	Edgelit knob optional.	Voltage Coefficient:	0.008%/volt max.
		Rotational Life:	25,000 cycles min.
		Power Rating:	1 watt @ 85°C
		Torque Rating:	0.2 to 4.5 oz.-in.
		Operating Temperature:	-55°C to +150°C
		Stop Torque:	3 lb.-in.
		Functional Output:	Linear or Tapered
		Element:	Cermet or Plastic

Notes:

1. Plunger differential for push-on/remain-in/push-off switches is 0.150 + 0.010.
2. The potentiometer shaft can be manufactured with a flat or be knurled at the end of the shaft for knob mounting. EMC can furnish the assembly with a knob or the customer can procure knobs separately.
3. The potentiometer terminals can be either solder lug terminals, straight PC pins, or hooked PC pins.

How to Order:

Please call the factory for a copy of a specific configuration drawing. All configurations are assigned a custom (SW) drawing number in the sequence SW4xxxx.

File:Pot-switch 2005 0711

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hall effect switch+potentiometer

Features

- ◆ compact combination switch
- ◆ SPST, NO, hall effect IC switch
- ◆ <1" behind panel depth
- ◆ 100K potentiometer value
- ◆ 1/2" square body size
- ◆ front facing PC pins

Electro-Mech Announces Its Compact Potentiometer Switch

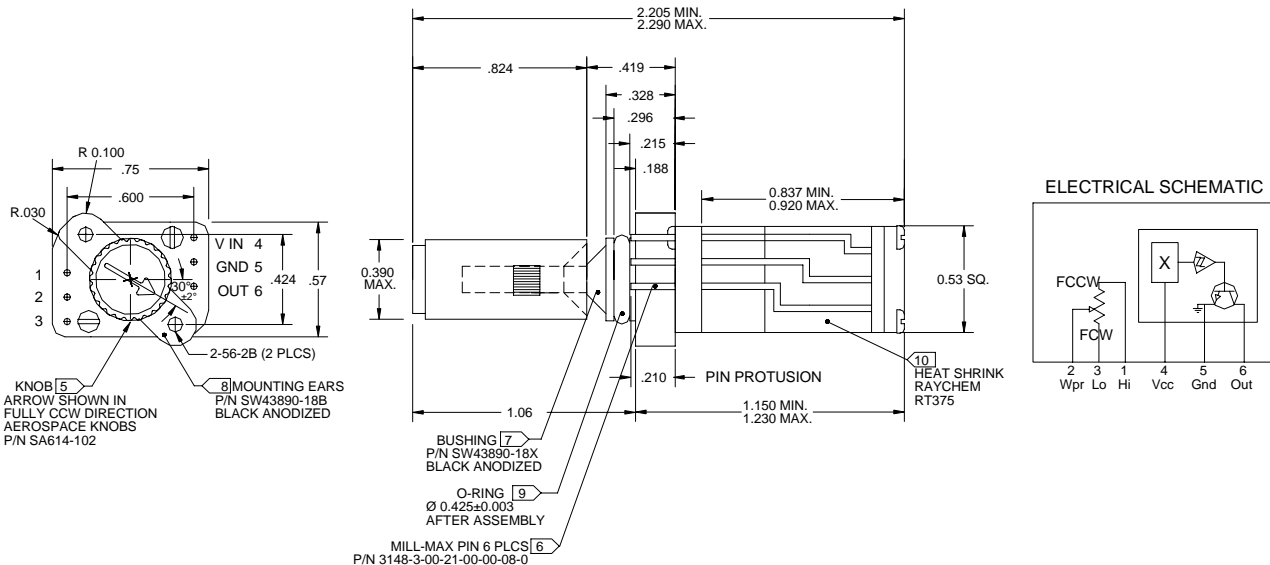
The hall-effect switch + potentiometer assembly offers the advantages of both digital and rotary control in a compact size for audio volume preset in avionics cockpit applications. Illumination of the edgelit knob is via an edgelit panel. Front facing PC pins allow unit to be mounted from behind the panel.



Specifications (drawing SW44109 REV B):

- Weight: 1.0 ounce maximum
- Operating Temperature: -40°C to +95°C
- Operating Pressure: 35 ± 5 ounces
- Switch Travel: 0.060 nominal
- Actuations: 100,000 minimum
- Switch Action: snap-feel momentary
- Potentiometer: 100K linear (S) taper (can be specified)
- Mechanical Rotation: 295°
- IC supply voltage: 3.8vdc minimum
- IC supply current: 5mA maximum
- Note: Edgelit knob is supplied with this assembly.

Specifications (drawing SW44109 REV B) (not to scale):



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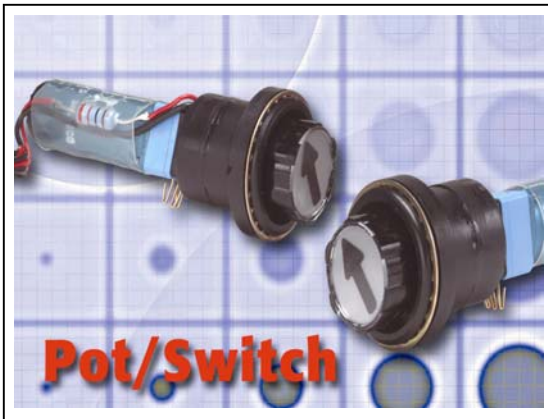


Backlit Potentiometer+Switch SW44175

Features

- ◆ backlit potentiometer+switch
- ◆ SPDT alternate action switching
- ◆ 3/4" dia. round button
- ◆ 7/8" dia. round mounting hole
- ◆ backlit with 4 discrete LED's

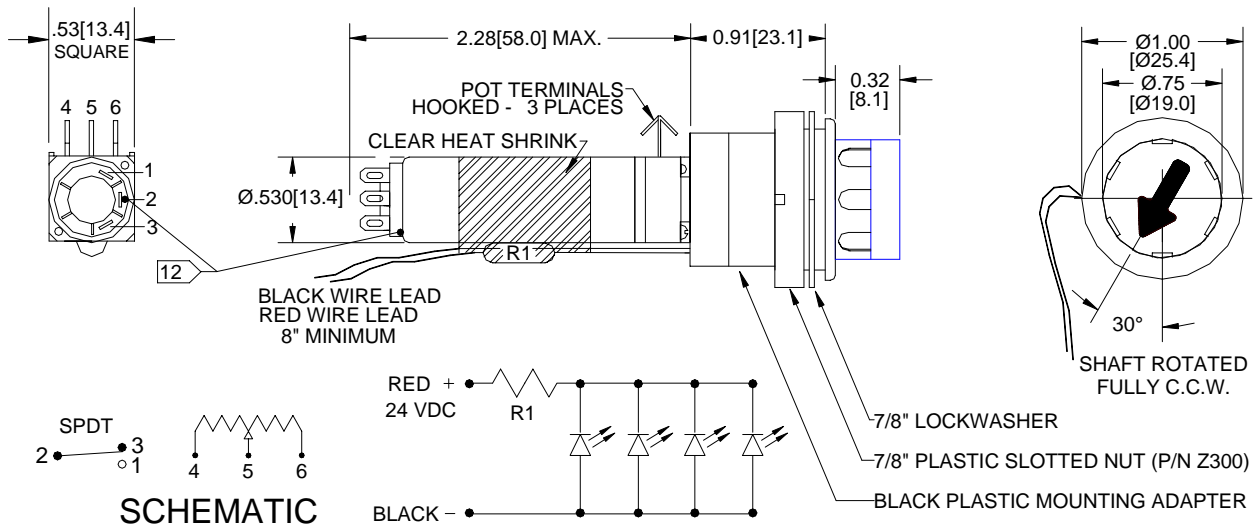
Electro-Mech's SW44175 backlit potentiometer switch offers both rotary and push-on/push-off functionality plus back-lighting for maximum operation control. The SPDT switch enables the user to specify a value so that at the push of a button, the circuit or channel automatically opens at the pre-set level. 3/4" pushbutton lens assembly allows insertion of custom legends. Illumination features four discrete LED's with built in resistor for illumination at 24vdc.



Specifications:

Ratings:	30vdc or 115vac, 2a resistive, 0.5a inductive
Life (at rated load):	50,000 cycles minimum
Weight:	4 grams (approx.)
Operating Pressure:	2 lbs. ± 1 lb.
Plunger Travel:	0.24" approx.
Switch Action:	push-on / remain-in / push-off
Hardware Supplied:	7/8" lockwasher and 7/8" plastic slotted nut
Terminals:	switch: solder lug terminals; pot.: hooked PC pins
Pushbutton Lens:	3/4" diameter, clear overcap, custom legends avail.
Lamp/LED:	built in: four T 1-3/4 green discrete LED's with resistor; illuminates at 24vdc
Ordering info:	order as part number SW44175

Specifications (not to scale) (Drawing SW44175):



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Hall Effect Switch SW44158

Features

- ◆ solid state circuitry
- ◆ SPST, NO, momentary
- ◆ 5/8" square button
- ◆ 3/4" square mounting hole
- ◆ LED or incandescent lamp illum.

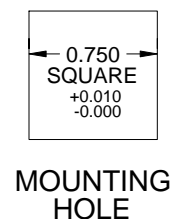
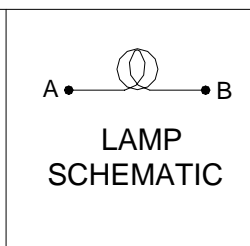
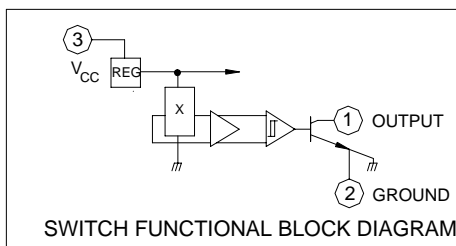
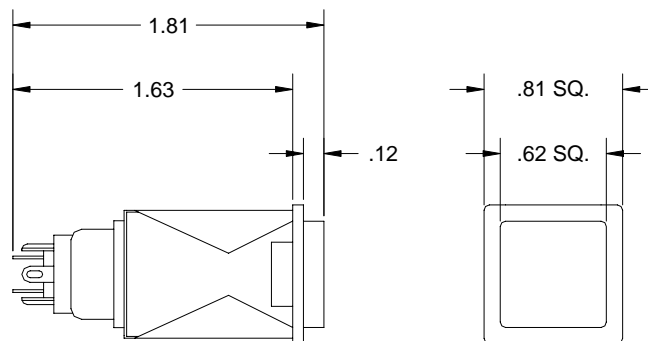
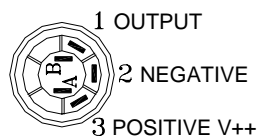
Electro-Mech introduces the SW44158 Hall Effect pushbutton switch. Featuring Hall-effect integrated circuitry, the SW44158 provides reliable performance and long service life in a compact size to meet a wide variety of small form factor requirements. Designed as a SPST or 2PST momentary illuminated switch, the SW44158 is suitable for virtually any high volume front panel switch application including industrial/ avionics displays and controls or instrument panel controls.



Specifications:

Ratings:	3.8vdc min supply voltage; 5mA max supply current
Life (at rated load):	500,000 cycles minimum at rated load
Weight:	3 grams (approx.)
Operating Pressure:	12 oz. ± 4 oz.
Plunger Travel:	0.120" (nom.) (0.050 min. travel to make)
Switch Action:	momentary
Hardware Supplied:	snap in aluminum adapter
Terminals:	solder lug terminals
Pushbutton Lens:	5/8" square, any color
Lamp/LED:	accomodates one T 1-3/4 mfb lamp or LED
Ordering info:	order as drawing SW44158

Specifications (not to scale) (Drawing SW44158):



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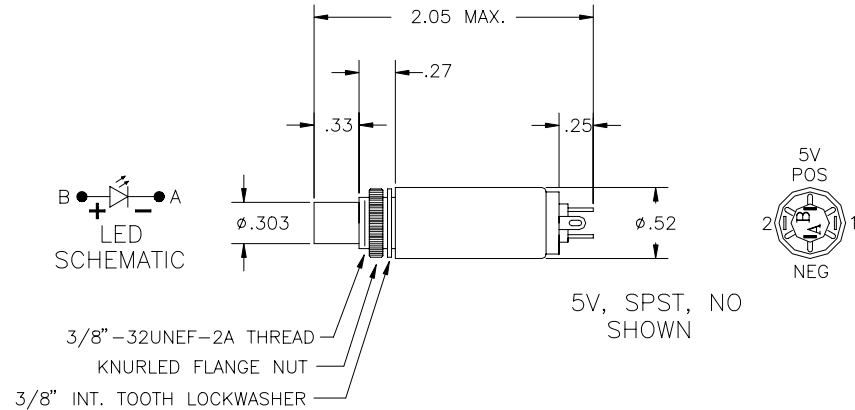


Electro-Mech Components offers many custom switch designs illuminated by built-in LED's. All versions include a built-in resistor for operating at a specified voltage. Here are three examples:

SW43716 COMPACT LED SWITCH

Features:

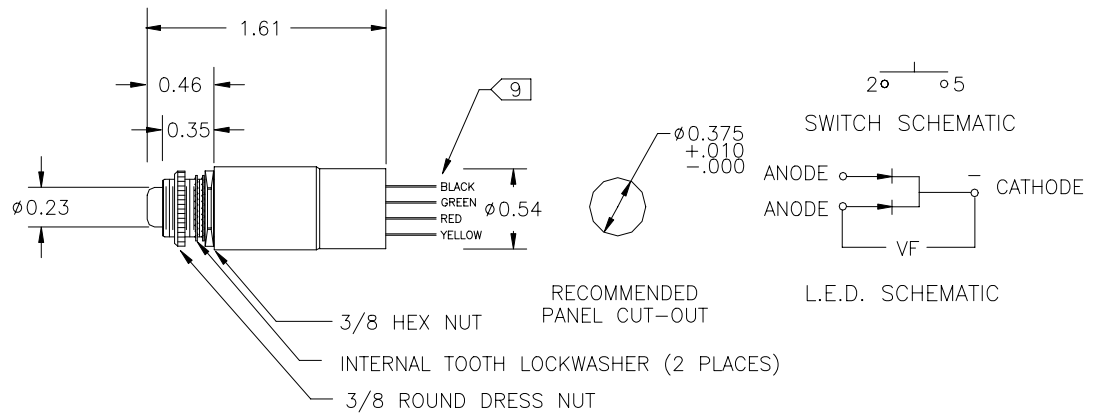
- ◆ compact, light weight
- ◆ single color LED
- ◆ 8 oz. op. pressure
- ◆ colored lens cap
- ◆ SPST-2PDT
- ◆ momentary only
- ◆ mounts in 3/8" hole
- ◆ front panel mount
- ◆ specify p/n SW43716



SW43745 BI COLOR LED SWITCH

Features:

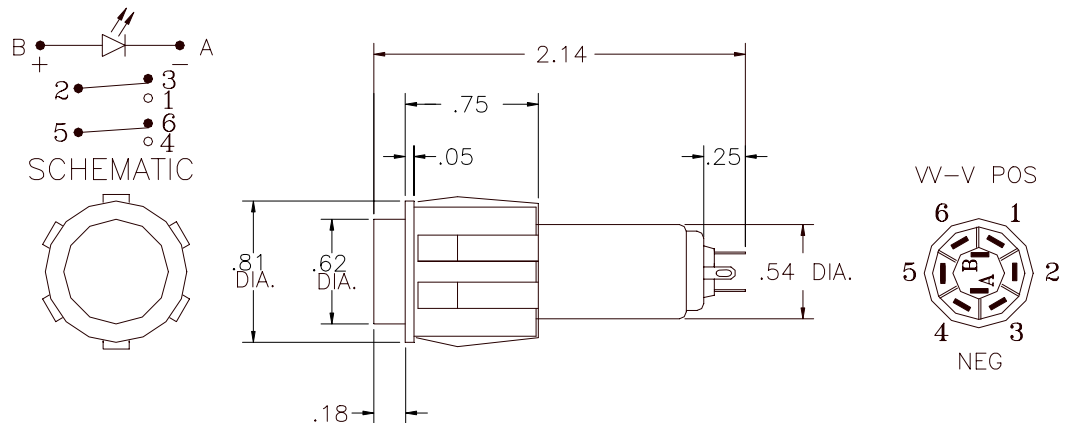
- ◆ compact, light weight
- ◆ bi-color LED (r,g,r + g)
- ◆ built in wire harness
- ◆ 8 oz. op. pressure
- ◆ clear lens cap
- ◆ SPST, NO circuit
- ◆ momentary only
- ◆ mounts in 3/8" hole
- ◆ front panel mount
- ◆ specify p/n SW43745



SW43813 SNAP IN LED SWITCH

Features:

- ◆ colors: G, R, or Y/A
- ◆ 5vdc - 28vdc
- ◆ 8 oz. op. pressure
- ◆ white lens cap
- ◆ SPST - DPDT
- ◆ momentary or alt. act
- ◆ mounts in 3/4" hole
- ◆ front panel mount
- ◆ specify p/n SW43813



Modification Codes

Switch and indicator modification codes below are adapted from and comply with the Pendar (Pollak/G.I.) pushbutton switch products. EMC acquired this product line in 1997.

EMC Code (Pendar)	Feature	
W (D4)	moisture, dust and salt proof	W = water resistant modification, includes O-ring (ethylene propylene) on plunger and epoxy seal on terminal base.
RB (D5)		RB = Silicone rubber boot: sealed at case neck, seals to bottom of lens, and epoxy seal on terminal base.
		For both W and RB: add 8 oz. to operating pressure specification.
GP (E3)	gold contacts	GP = Gold Plates contacts for stable low resistance applications and greater solderability.
E4 (E4)	switched lamp circuit	E4 = Provides lamp circuit with make and break contact independent of switch contacts. Lamp circuit goes ON when plunger is depressed and goes OFF when plunger is released.
SW drawing required (E5)	make before break	CA = All normally open (N.O.) switch contacts close before normally closed (N.C.) switch contacts open.
SW drawing required (E6)	Amp 110 Faston ter- minals	EMC will assign a custom SW drawing number for switches requiring terminals that accept Amp "110" Faston terminals (0.016 tab-Style A).
F1 (F1)	Gang switch mounting methods	F1 = single-light ganged switch mounting (mechanically interlocked). Provides plunger lengthened by 0.125" [3.17mm], plunger threaded and spanner nut for mounting.
N/A (F2)		F2 = not available from EMC (was plunger lengthened by 0.320")
F3 (F3)		F3 = single-light ganged switch (non interlocked). Provides plunger lengthened by 0.125" [3.17mm] and spanner nut for mounting.
AF (F4)	round spanner nut	AF = Switch furnished with round slotted spanner nut in place of standard hex nut (two slots) AF4 = four slots instead of standard two

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Series 2100



Sub Panel Mount Pushbutton Switch

Illuminated and Non-Illuminated Models



- * Momentary or Alternate Action switching actions
- * SPST - DPDT switch circuitry
- * Easy lamp replacement from front
- * T 1-3/4 midget flange-based lamp or LED enhanced by replaceable lens covers available in standard EMC colors
- * Environmentally sealed models available (specify modification code "W")
- * Multi-station interlocking assemblies (see Series 400/500)
- * Snap-in front panel mounting (see Mounting Adapters)

In the Series 2100, Electro-Mech offers a slimline version of its standard illuminated pushbutton switch. A unique product design features silver slide bar action reducing contact bounce to an absolute minimum, thereby giving longer life and greater reliability.

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Series 2100

Sub Panel Mount Pushbutton Switch

Illuminated and Non-Illuminated Models



Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23 g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (908g ± 454g)
Plunger Travel:	0.187 nominal (4.7mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates any standard EMC lens. See Single Lamp Lenses.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

Modification Code Options (partial list):

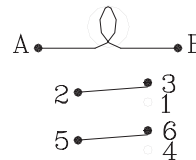
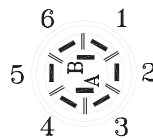
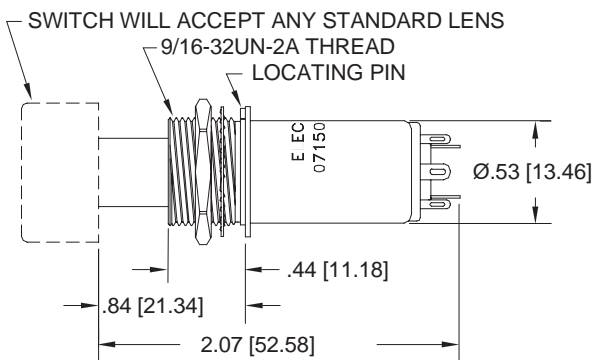
Code	P/N w/ Code	Description
AF	2150AF	9/16"-32 round slotted nut
BR	BR2128	1/2"-32 threaded neck
BA	BA2229	Black Anodized switch case
F1	2132PDF1	Special length threaded plunger
F3	2332PDF3	Special length plunger
GH	GH2150	1/2" grooved neck with c-clip for mounting in 400/500 assys
GP	2132GP	Gold Plated contacts
PC	2350PC	Printed Circuit board pins
PD	2132PD	modified plunger to match (Clare) Pendar switch / lens
PH	PH2128	Plastic Housing switch case
W	W2250	Water resistant seal (IP64)

Part Number Table:

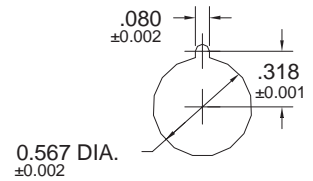
Action	— SPST —		— 2PST —			1PDT	2PDT	Notes:
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.			
Momentary	2128	2129	2130	2131	2132	2149	2150	Artificial click in momentary travel.
Snap Feel Momntry	2428	2429	2430	2431	2432	2449	2450	
Push-On/Push-Off	2228	2229	2230	2231	2232	2249	2250	
Push-On/Remain-In/ Push-Off	2328	2329	2330	2331	2332	2349	2350	Button is physically depressed in down position.
Terminals Used:	1-2	2-3	1-2, 4-5	2-3, 5-6	1-2, 5-6	1-2-3	1-2-3, 4-5-6	See schematic below for terminal location.

For non-illuminated version, specify the digit "1" in the first position (e.g. 1150).

Series 2100 (not to scale)



SCHEMATIC



RECOMMENDED MOUNTING HOLE



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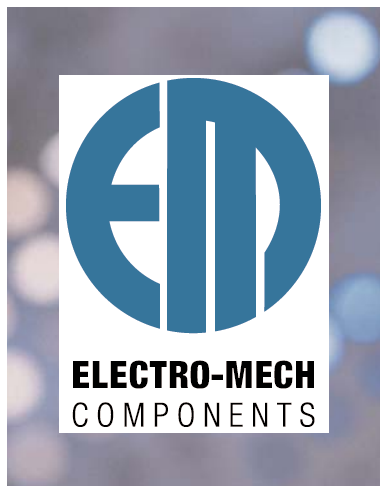


Series 2600

Sub Panel Mount

Pushbutton Switch

Illuminated and Non-Illuminated Models



- * Momentary or Alternate Action switching actions
- * 2PDT - 6PDT switch circuitry
- * T 1-3/4 midget flange-based lamp enhanced by replaceable lens covers available in standard EMC colors
- * Environmentally sealed models available (specify modification code "W")
- * Multi-station interlocking assemblies (see Series 400/500)
- * Snap-in front panel mounting (see Mounting Adapters)



Electro-Mech Series 2600 switches provide substantial long life and reliability in a highly versatile design, serving as an industry standard since its inception.

Standard models are available from 2PDT to 6PDT in 160 different configurations, including non-illuminated versions.

Applications include panel control switching in any front panel application for avionics, broadcasting, communications, heavy industrial controls, and transportation industries.

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Series 2600

Sub Panel Mount

Pushbutton Switch

Illuminated and Non-Illuminated Models



Page 2 of 3

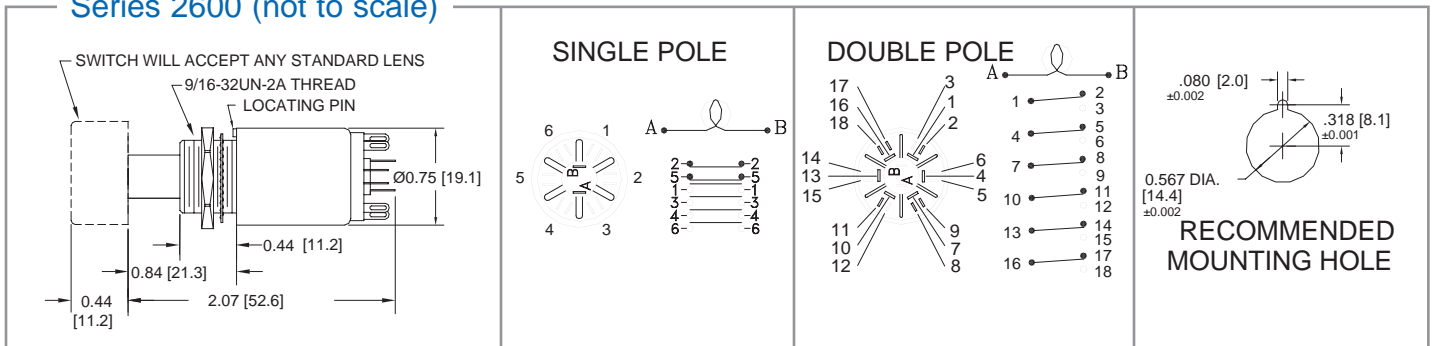
Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23 g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (908g ± 454g)
Plunger Travel:	0.187 nominal (4.7mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates any standard EMC lens. See Single Lamp Lenses.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

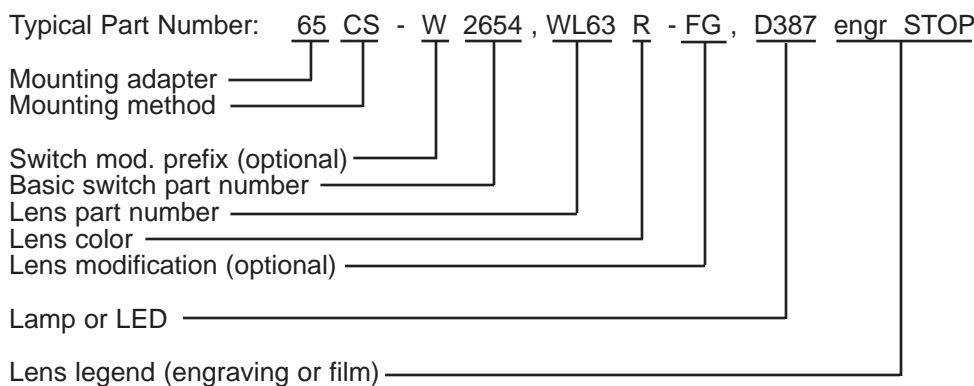
Modification Code Options (partial list):

Code	P/N w/ Code	Description
AF	2652AF	9/16"-32 round slotted nut
BR	BR2754	1/2"-32 threaded neck
BA	BA2846	Black Anodized switch case
F1	2752PDF1	Special length threaded plunger
F3	2846PDF3	Special length plunger
GH	GH2654	1/2" grooved neck with c-clip for mounting in 400/500 assys
GP	2854GP	Gold Plated contacts
PC	2453PC	Printed Circuit board pins
PD	2454PD	modified plunger to match (Clare) Pendar switch / lens
PH	PH2633	Plastic Housing switch case
W	W2448	Water resistant seal (IP64)

Series 2600 (not to scale)



How to Order:



Multi-Switch Assemblies:

Switch has a 1/2" diameter neck and is attached with a c-clip. Specify "GH" before switch part number (e.g. GH2652). Switches can be mounted on 3/4" center to center dimension. See Series 400/500 for more details.

Front Panel Mounting Adapters:

The 2600 Series switches can be mounted to the front panel using EMC adapters 65-, 67-, 68-, 72-, 73-, and 75-. Specify flush mounted lenses by adding modification code "EL" (e.g. 75EL-2654).



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Series 2600

Sub Panel Mount

Pushbutton Switch

Illuminated and Non-Illuminated Models



Part Number Table:

Snap Feel Momentary	Momentary	Push-On Push-Off	Push-Off Remain-In Push-Off	Circuitry	Normally Open Terminals	Normally Closed Terminals	
2530	2630	2730	2830	2PST - 2 N.O.	2, 5	-	
2531	2631	2731	2831	2PST - 2 N.C.	-	2, 5	
2532	2632	2732	2832	2PST - 1 N.O., 1 N.C.	2	5	
2533	2633	2733	2833	3PST - 3 N.O.	2, 4, 6	-	
2534	2634	2734	2834	3PST - 3 N.C.	-	2, 4, 6	
2535	2635	2735	2835	3PST - 1 N.O., 2 N.C.	2	4, 6	
2536	2636	2736	2836	3PST - 2 N.O., 1 N.C.	2, 4	6	
2537	2637	2737	2837	4PST - 4 N.O.	1, 2, 4, 5	-	
2538	2638	2738	2838	4PST - 4 N.C.	-	1, 2, 4, 5	
2539	2639	2739	2839	4PST - 1 N.O., 3 N.C.	1	2, 4, 5	
2540	2640	2740	2840	4PST - 2 N.O., 2 N.C.	2, 4	1, 5	
2541	2641	2741	2841	4PST - 3 N.O., 1 N.C.	1, 2, 4	5	
2542	2642	2742	2842	6PST - 6 N.O.	1, 2, 3, 4, 5, 6	-	
2543	2643	2743	2843	6PST - 6 N.C.	-	1, 2, 3, 4, 5, 6	
2544	2644	2744	2844	6PST - 1 N.O., 5 N.C.	1	2, 3, 4, 5, 6	
2545	2645	2745	2845	6PST - 2 N.O., 4 N.C.	2, 5	1, 3, 4, 6	
2546	2646	2746	2846	6PST - 3 N.O., 3 N.C.	2, 4, 6	1, 3, 5	
2547	2647	2747	2847	6PST - 4 N.O., 2 N.C.	1, 3, 4, 6	2, 5	
2548	2648	2748	2848	6PST - 5 N.O., 1 N.C.	2, 3, 4, 5, 6	1	
					Terminals used		
2550	2650	2750	2850	2PDT	4, 5, 6		13, 14, 15
2551	2651	2751	2851	3PDT	1, 2, 3	7, 8, 9	13, 14, 15
2552	2652	2752	2852	4PDT	1, 2, 3	4, 5, 6	10, 11, 12 13, 14, 15
2553	2653	2753	2853	5PDT	1, 2, 3	4, 5, 6	7, 8, 9 10, 11, 12 13, 14, 15
2554	2654	2754	2854	6PDT	1, 2, 3	4, 5, 6	7, 8, 9 10, 11, 12 13, 14, 15 16, 17, 18

For non-illuminated version, specify the digit "1" in the first position (e.g. 1652).





Hall Effect Switch SW44335

Features

- ◆ solid state circuitry
- ◆ 2PST, 2 N.O., momentary
- ◆ 3/4" square button
- ◆ 7/8" square mounting hole
- ◆ LED or incandescent lamp illum.

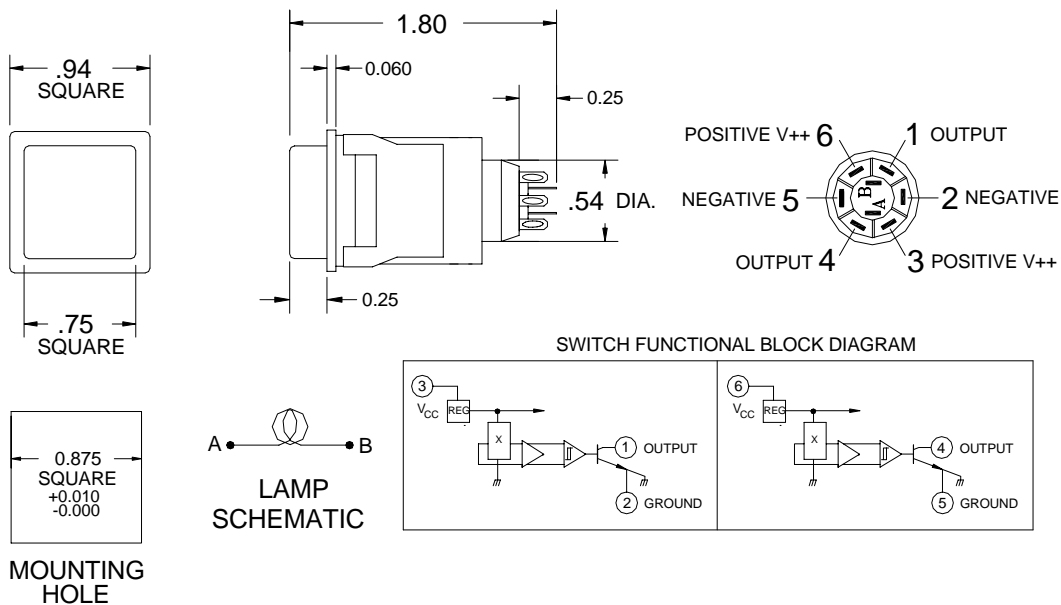
Electro-Mech introduces the SW44335 Hall Effect pushbutton switch. Featuring Hall-effect integrated circuitry, the SW44335 provides reliable performance and long service life in a compact size to meet a wide variety of small form factor requirements. Designed as a SPST or 2PST momentary illuminated switch, the SW44335 is suitable for virtually any high volume front panel switch application including industrial/ avionics displays and controls or instrument panel controls.



Specifications:

Ratings:	3.8vdc min supply voltage; 5mA max supply current
Life (at rated load):	500,000 cycles minimum at rated load
Weight:	3 grams (approx.)
Operating Pressure:	12 oz. \pm 4 oz.
Plunger Travel:	0.10" (nom.) (0.050 min. travel to make)
Switch Action:	momentary
Hardware Supplied:	snap in aluminum adapter
Terminals:	solder lug terminals
Pushbutton Lens:	3/4" square, any color
Lamp/LED:	accommodates one T 1-3/4 (5mm) mfb lamp or LED
Ordering info:	order as drawing SW44335

Specifications (not to scale) (Drawing SW44335):



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 Web: www.electromechcomp.com

ELECTRO-MECH
COMPONENTS

Series S520

Subminiature Snap Action Momentary Switch

Illuminated and Non-Illuminated Models



- * Compact design requires only 3/4" behind panel
- * SPST, N.O., Momentary
- * Easy lamp replacement from front
- * T-1 sub-midget flange-based bulb or LED enhanced by replaceable lens covers available in standard EMC colors*
- * Sealed models available

Ideally suited for a wide range of uses, particularly in aircraft and avionics applications such as cockpit and passenger seating unit (PSU) light indicators, or any high-density display requirement, the Series S520 offers a miniature, easy-to-install unit with excellent reliability characteristics. The compact design requires only 3/4" depth behind front panels, and bulb or LED replacement can be completed from the front.

Featuring momentary snap action, SPST, with a T-1 (3mm) sub-midget flange-based bulb or LED, lighting intensity and color is enhanced with the unit's choice of standard, 1/4 inch diameter replaceable lens buttons which are available in standard EMC colors: amber, blue, green, red, white, yellow, orange and black (non-lit). The unlighted version meets MIL-S-8805/64 requirements. An optional environmental sealed design is available.

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Series S520

Subminiature Snap Action Momentary Switch

Illuminated and Non-Illuminated Models



Formerly manufactured as Pendar/Clare Pendar and General Instruments S520. Series S520 models can be provided with wire leads, ribbon cable or direct-mount PCB pins. For non-illuminated Series S510, contact factory for applicable custom drawing(s).

Specifications:

Ratings:	30 volts DC or 125 volts AC; 1a resistive, 0.5a inductive
Operating Pressure:	24 oz.± 8 oz. (680g ± 226g)
Plunger Travel:	0.070 nominal (1.8mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires.
Switch type:	Momentary snap-feel, SPST, 1 N.O. circuit, illuminated, base is sealed to case.
Lens:	Accommodates 0.25" (6.4mm) dia. lens. For lens colors, see Ordering Information.
Lamp or LED:	Accommodates a T-1 (3mm) sub-midget flange base lamp or LED. None supplied. Lamp circuit is independent.

Ordering Information:

Order as drawing number SW43877c
where "c" indicates lens color as in table.

Example: SW43877A (S52010A)
Specifies part number SW43877 with amber lens.

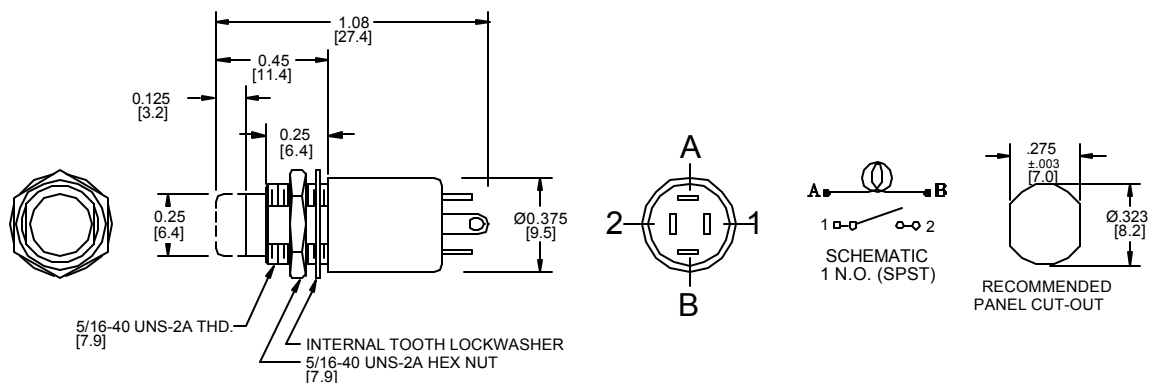
Please contact factory for other options and modifications.

Ordering Information - Lens Colors:

Code	Color
A	Amber
B	Blue
G	Green
G(DK)	Green, Dark
R	Red
W	White
Y	Yellow

Example: SW43877A (S52010A)
Specifies part number SW43877 with amber lens

Drawing SW43877 (S52010) (not to scale)



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Series S570

Sub Panel Mount, DPDT or 4PDT Snap Action Pushbutton Switch Metal Case



ELECTRO-MECH
COMPONENTS



P/N S570-22,L7161GRY

- * Compact size
- * DPDT or 4PDT circuitry
- * 1/2" or 9/16" diameter mounting hole
- * Rugged snap action design

Electro-Mech Series S570 is a compact, snap-action DPDT (or 4PDT) switch with an independent lamp circuit. The switch series is available in both 2 Form C (DPDT) or 4 Form C (4PDT) versions which are ideal for reliable power circuit operation where snap-action switching is preferred. The S570 is a rugged switch (designed to meet Mil-PRF-22885) that has been increasingly applied in the most demanding commercial and industrial applications. This product series was formerly manufacturing by Pendar/General Instruments/Pollak Pendar Switchlight Division.

Ordering Information:

Series S570 is available with a choice of three switching actions:

- S570 Momentary
- S571 Alternate Action
- S572 Push-On/Remain-In/ Push-Off

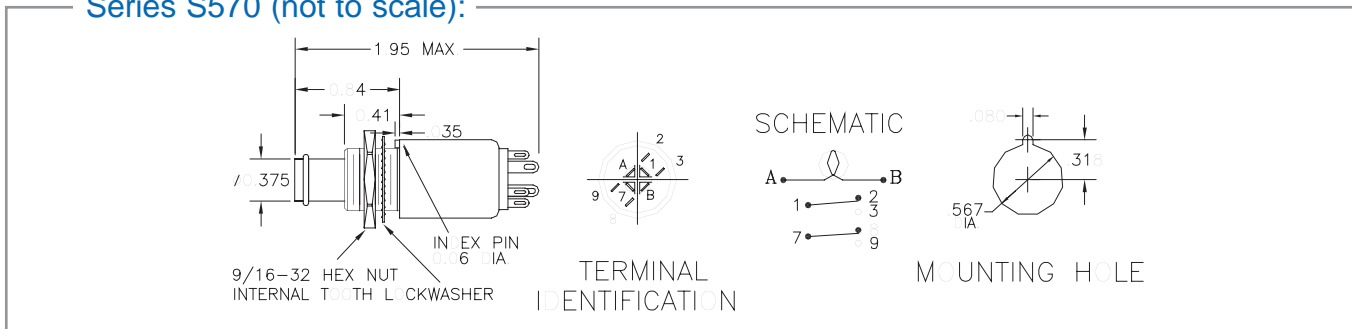
Specify S57x-22 for 2PDT circuitry.
Specify S57x-44 for 4PDT circuitry.

There are several standard modifications available per the EMC modification codes including: AE, AF, BA, GP, W

Specifications:

Ratings:	at 28vdc: 2A resistive, 0.5A ind. at 125vac: 1A resistive
Contact Bounce:	500 microsecond nominal
Contact Resistance:	0.015 ohm initially 0.025 ohm after life
Dielectric Strength:	1,000 VRMS
Insulation Resistance:	1,000 megaohm at 500vdc
Life at Rated Load:	50,000 cycles minimum
Weight:	0.6 oz. (17g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (908g ± 454g)
Plunger Travel:	0.125 approx. (3.2mm)
Lens Retention:	4 lbs. ± 1 lb. (1.8kg ± 454g)
Hardware Supplied:	hex nut (9/16"-32) and lockwasher
Terminals:	Special solder lug terminals only.
Lens:	Accommodates special PD style lens, any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

Series S570 (not to scale):



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CUSTOM PRODUCT ANNOUNCEMENT

Application Requirements

CUSTOMER: Custom designed for Teletrac (formerly AirTouch Teletrac), Leawood, Kansas.

CUSTOMER REQUIREMENTS: Rugged, sealed, non-illuminated pushbutton switch to be foot activated in the floor panel of an automobile or taxicab. Resistant to water, sand, salt, mud, snow, and boot heels.

PRODUCT APPLICATION: Panic switch: Cellular warning system in vehicles in case of attempted robbery or carjacking.

INSTALLATIONS: 14,000 as of June, 1997

RESULTS: In the first month of installation, a taxi driver was being held up. He hit the foot panic switch and signalled a police patrol. Within 5 minutes, the robbery suspect was apprehended.

Electro-Mech Components Switch Design: drawing SW43518

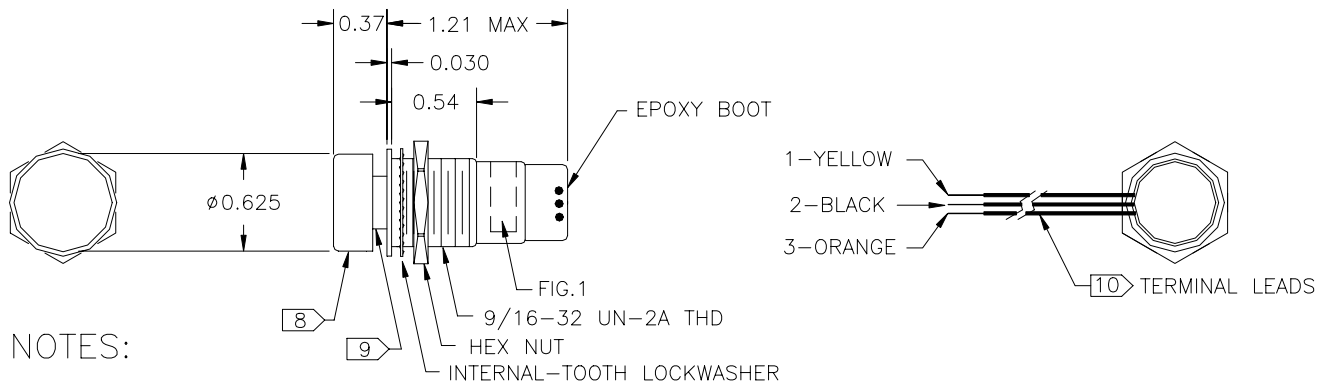
SWITCH: modified 5400 Series pushbutton switch, SPDT, non-illuminated.

LENS: solid nickel-plated brass button bottoms out on switch case preventing damage when depressed by driver's foot.

WIRE LEADS: 18" wire leads for customer installation.

SEALED BASE: epoxy encapsulation of terminal base and wire terminations to seal switch.

Specifications (not to scale):



NOTES:

1. RATINGS: 30VDC OR 115VAC.
2 AMPS RESISTIVE, 0.5 AMP INDUCTIVE.
2. OPERATING PRESSURE: 3 LBS ±1 LB.
3. PLUNGER TRAVEL: 0.100 APPROX.
4. ACTUATIONS: 100,000
5. CONTACTS: SILVER PLATED
6. TERMINALS: STANDARD EMC SOLDER LUG.
7. SWITCH TYPE: SPDT, NON-ILLUMINATED, WATERPROOF.
8. LENS: SPECIAL METAL BUTTON P/N SW43518-100 REV-A.
9. METAL BUTTON IS SEALED TO PLUNGER WITH EPOXY.
10. TERMINAL LEADS: 18 AWG, 18" LONG, STRIPPED AND TINNED AT ENDS 1/2".
11. SWITCH IS COMPLETELY SEALED AND WILL WITHSTAND ALL MOISTURE INCLUDING SALT SPRAY/WATER.



Series 3000

Solenoid Hold Down Switches 2PST-6PDT Pushbutton Switch

Illuminated



ELECTRO-MECH
COMPONENTS



P/N W3947PD,L7121R

Electro-Mech Series 3000 Solenoid Hold Down Illuminated pushbutton switches offer added panel and system control flexibility in a combined reliable lighted PB switch (2PST to 6PDT), and electrically energized solenoid holding coil.

When the coil is energized, the switch will be held in the down position after being actuated. When the coil is de-energized, the switch returns to its relaxed position. When the coil is not energized, the switch functions as a momentary action switch. When external power is supplied to the solenoid coil, the switch can be remotely released.

Twenty-four standard models are available, in a variety of normally open (N.O.) and normally closed (N.C.) circuit configurations.

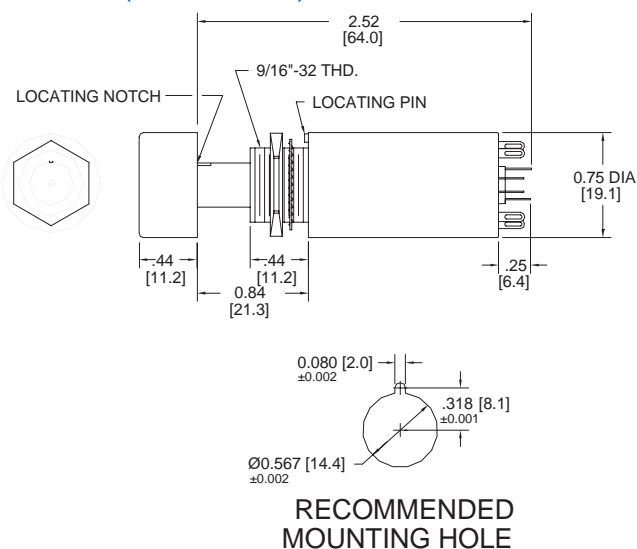
Double throw circuitry units are available 2PDT to 6PDT, with either 12vdc or 28vdc solenoid coils:

- 12vdc coil rated at 90mA, 133 ohms \pm 10%
- 28vdc coil rated at 60mA, 500 ohms \pm 10%

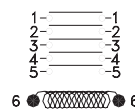
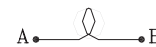
Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23 g) (approx.)
Operating Pressure:	32 oz. \pm 16 oz. (908g \pm 454g)
Plunger Travel:	0.187 approx. (4.7mm)
Actuations:	100,000 minimum
Contacts:	Silver plated
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates any standard EMC lens. See Single Lamp Lenses.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) MFB lamp or LED. Lamp circuit is independent.

Series 3000 (not to scale):

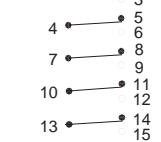
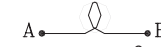
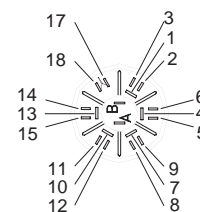


3PST-6PST SWITCHES



SCHEMATIC

2PDT-6PDT SWITCHES



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Series 3000

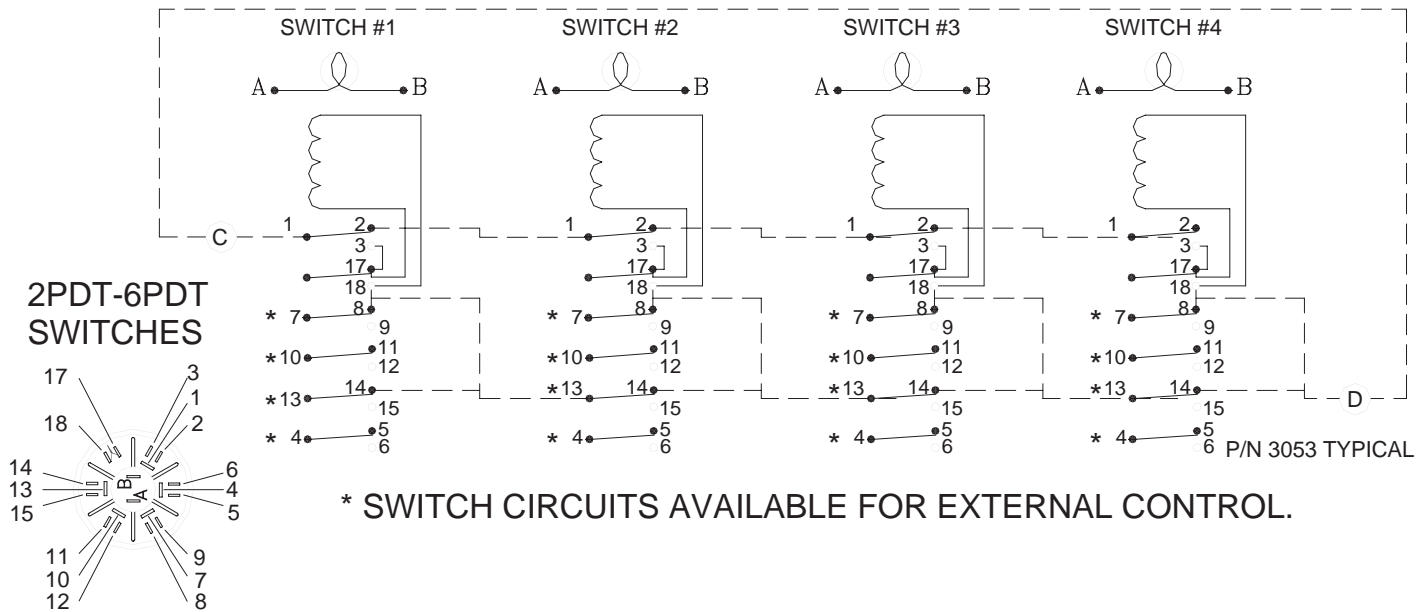
Solenoid Hold Down Switches 2PST-6PDT Pushbutton Switch

Illuminated



ELECTRO-MECH
COMPONENTS

Bailing Circuit for Solenoid Hold Down Switches



Part Number Table

Part No.	Circuitry	28-30 Volt Coils	
3030	2PST	2NO	2 Form A
3031	2PST	2NC	2 Form B
3032	2PST	1NO,1NC	1 Form A, 1 Form B
3033	3PST	3NO	3 Form A
3034	3PST	3NC	3 Form B
3035	3PST	1NO,2NC	1 Form A, 2 Form B
3036	3PST	2NO,1NC	2 Form A, 1 Form B
3037	4PST	4NO	4 Form A
3038	4PST	4NC	4 Form B
3039	4PST	1NO,3NC	1 Form A, 3 Form B
3040	4PST	2NO,2NC	2 Form A, 2 Form B
3041	4PST	3NO,1NC	3 Form A, 1 Form B
3042	6PST	6NO	6 Form A
3043	6PST	6NC	6 Form B
3044	6PST	1NO,5NC	1 Form A, 6 Form B
3045	6PST	2NO,4NC	2 Form A, 5 Form B
3046	6PST	3NO,3NC	3 Form A, 3 Form B
3047	6PST	4NO,2NC	4 Form A, 2 Form B
3048	6PST	5NO,1NC	5 Form A, 1 Form B
3050	2PDT		2 Form C
3051	3PDT		3 Form C
3052	4PDT		4 Form C
3053	5PDT		5 Form C
3054	6PDT		6 Form C

♦ Any number of switches can be used requiring that only one switch be operated at a time, operating any switch releases any other switch.

♦ A switch may be installed in either or both points "C" and "D" to clear all switches.

♦ This circuit design offers a design advantage because no mechanical linkage system is required.

♦ Dashed lines indicate external wiring to switches.

For 12-14 volt coils, specify modification code "AG" (e.g. 3050AG).

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Series 3600/3700 (Alt-Action)

Series 3800/3900 (Fail-Safe)



Illuminated Solenoid Release Switches

ELECTRO-MECH
COMPONENTS



P/N W3947PD,L7121R

- 3600/3700 Alternate Action switch can be remotely released
- 3800/3900 Fail-Safe operation protects circuitry/systems
- Waterproofed for environmental or military applications
- Designed and manufactured to meet MIL-PRF-22885
- Accepts all standard EMC lenses, filters, and lamps/LED's (specify L7xxx PD style lens)
- 64 standard styles: 3PST, 4PST, and 6PST

This Electro-Mech Series of solenoid release switches provides an excellent choice of conventional alternate action or increasingly popular *fail-safe* alternate action switching in a variety of styles.

Proven in critical applications such as military and avionics installations, the fail-safe reliability of the Series 3800/3900 offers an ideal switch consideration for emerging industrial controls, process and instrumentation uses in commercial, yet vital areas of dependable solenoid-style switching functions.

SOLENOID RELEASE SWITCH

Series 3600PD - Alternate Action
Series 3700PD - Alternate Action (Remain In)

Units can be remotely released from the activated (depressed) state by energizing the solenoid release coil. Coil is rated for intermittent duty (30 seconds maximum). Based on an industry standard, 3/4" [19mm] panel mount switch design, the Series 3600/3700 is provided in a compact 3.00" [76.2mm] housing (2.16" [54.9mm] behind the panel). Units are configured similar to Electro-Mech Series 2700 (~3600) push-on/push-off and Series 2800 (~3700) push-on/remain-in/push-off switches except for the solenoid release operation feature.

FAIL-SAFE SOLENOID SWITCH

Series 3800PD - Alternate Action
Series 3900PD - Alternate Action (Remain In)

Most common usage of this fail-safe switch is to release the switch from the ON position if the power fails. When the solenoid coil is energized, the switch operates as an alternate action switch. Units are configured similar to Electro-Mech Series 2700 (~3800) push-on/push-off and Series 2800 (~3900) push-on/remain-in/push-off switches. When the solenoid is de-energized, the switch will return to the OFF position and then will operate as a momentary snap feel switch, similar to EMC Series 2500.

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Series 3600/3700 (Alt-Action)

Series 3800/3900 (Fail-Safe)



Illuminated Solenoid Release Switches

Page 2 of 2

ELECTRO-MECH
COMPONENTS

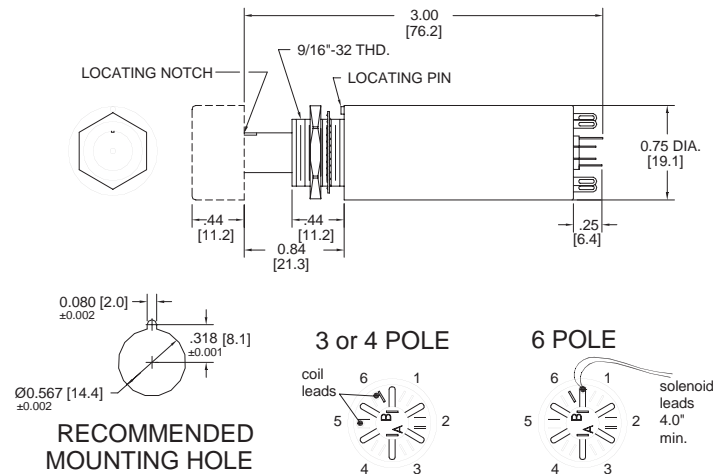
Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (22g) (approx.)
Operating Pressure:	2 lbs.± 1 lb. (454g ± 227g)
Plunger Travel:	0.187 approx. (25.4mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires.
Lens:	Accommodates all standard EMC lenses with "PD" modified plunger (L7xxx).
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.
Coil Rating:	---3600/3700--- ---3800/3900--- *28VDC, 25ohms 28VDC, 480ohms (will release @ 15vdc) (will operate @ 15vdc)
"AG" Modification:	*14VDC, 8.5ohms 14VDC, 125ohms (will release @ 10vdc) (will operate @ 10vdc)
Must Release VDC:	n/a 2VDC

* 30 seconds maximum duration

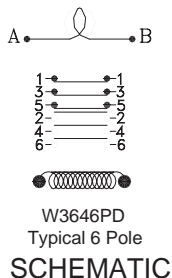
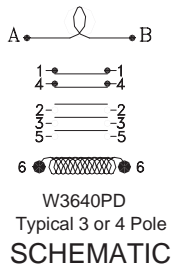
Environmental, all units: Waterproof ("W") modification is standard on all units. Includes o-ring seal at plunger and epoxy sealed base. Designed and manufactured to meet MIL-PRF-22885 specifications.

Specifications (not to scale):



All units available only in "PD" version.
Uses lens style p/n L7xxx for proper fit
(e.g. W3947PDAF, L7163R).

Cross Reference to Clare Pendar (Pollak)



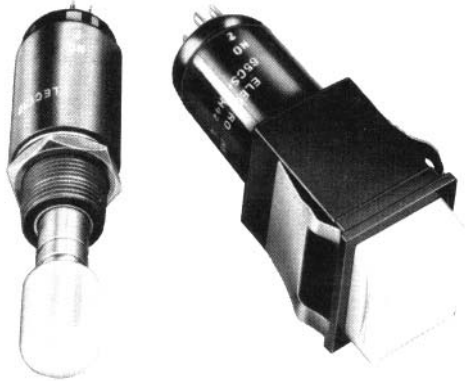
Pendar - Old -	Pendar - Last -	EMC Part No.	Switch Action	Circuitry	Open Circuits	Closed Circuits	Coil
37-10xx	S225-xx	3000	Momentary (see Series 3000)	3PST, 3 N.O.	2,3,4	---	5-6
38-11xx	S226-xx	W36xxPD	Alternate Action, Release	3PST, 3 N.C.	---	2,3,4	5-6
38-12xx	S227-xx	W37xxPD	Alternate Action - Remain-In, Release	3PST, 1 N.O., 2 N.C.	2	3,4	5-6
39-11xx	S228-xx	W38xxPD	Alternate Action, Fail-Safe	3PST, 2 N.O., 1 N.C.	2,3	4	5-6
39-12xx	S229-xx	W39xxPD	Alternate Action - Remain-In, Fail-Safe	4PST, 4 N.O.	1,2,3,4	---	5-6
3x-xx30	S22x-30	W3x33PD		4PST, 4 N.C.	---	1,2,3,4	5-6
3x-xx03	S22x-03	W3x34PD		4PST, 1 N.O., 3 N.C.	1	2,3,4	5-6
3x-xx12	S22x-12	W3x35PD		4PST, 2 N.O., 2 N.C.	2,3	1,4	5-6
3x-xx21	S22x-21	W3x36PD		4PST, 3 N.O., 1 N.C.	2,3,4	1	5-6
3x-xx40	S22x-40	W3x37PD		6PST, 6 N.O.	1,2,3,4,5,6	---	flying leads
3x-xx04	S22x-04	W3x38PD		6PST, 6 N.C.	---	1,2,3,4,5,6	flying leads
3x-xx13	S22x-13	W3x39PD		6PST, 1 N.O., 5 N.C.	1	2,3,4,5,6	flying leads
3x-xx22	S22x-22	W3x40PD		6PST, 2 N.O., 4 N.C.	2,5	1,3,4,6	flying leads
3x-xx31	S22x-31	W3x41PD		6PST, 3 N.O., 3 N.C.	2,4,6	1,3,5	flying leads
3x-xx60	S22x-60	W3x42PD		6PST, 4 N.O., 2 N.C.	1,3,4,6	2,5	flying leads
3x-xx06	S22x-06	W3x43PD		6PST, 5 N.O., 1 N.C.	2,3,4,5,6	1	flying leads
3x-xx15	S22x-15	W3x44PD					
3x-xx24	S22x-24	W3x45PD					
3x-xx33	S22x-33	W3x46PD					
3x-xx42	S22x-42	W3x47PD					
3x-xx51	S22x-51	W3x48PD					

Series 4000

Rated 10 Amps resistive Pushbutton Switch Illuminated



ELECTRO-MECH
COMPONENTS

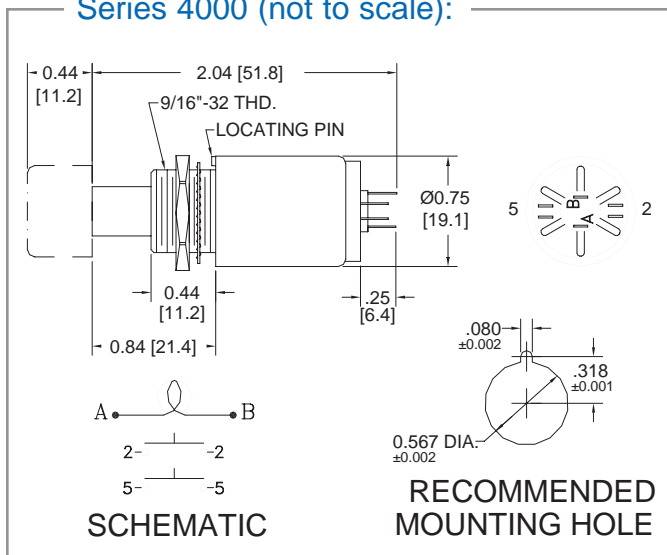


- * Low profile, matches EMC Series 2600 sizes
- * Momentary or alternate action switching
- * Front panel mount or sub panel mount

Applications requiring front-panel power switch to 10A will find this popular sized, compact unit to meet every requirement. Designed for UL applications, the Series 4000 is available in standard metal housing for sub-panel mounting, front panel mounting with bezel adapter, or all-plastic unitized housing.

Snap-action performance is reliable, and circuitry and terminals are ruggedly designed for full current capacity. Popular, low-profile design matches other low-current EMC product Series. Special options on other EMC Series' also available on the Series 4000.

Series 4000 (not to scale):



Specifications:

Ratings:	30 volts DC or 125 volts AC; 10.0A resistive, 5.0A inductive
Weight:	0.8 oz. (22g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (454g ± 227g)
Plunger Travel:	0.187 approx. (25.4mm)
Actuations:	100,000 minimum
Circuitry:	2PST, 2 N.O. only + lamp circuit
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates any EMC lens for sub panel mount; only 3/4" square lens for 6x- bezel mount, p/n L63 or L53; any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

For 6x-4x30 dimensions (switches with bezels), refer to "Mounting Adapters" specifications.

Snap-In or Hard-Mount Installation:

Above items may be specified for Clip Springs (standard) or Hard Mount ("HM") backup channel with screws. Ordering example: 65HM-4130.

All Plastic Unitized Housing is available on 65-, 67-, and 68- models only. Add "PH" to suffix when specifying. Ordering example: 65HM-PH4230. Clip springs provided unless HM specified. Plastic mounting adapters provided with metal switch housing for 72- and 73- models (see Mounting Adapters).

Part Number Table:

Lens Size (Inches)	Switch Function		
	Momentary	Push-On/ Push-Off	PO/Rem-In/ Push-Off
No Adapter (Any Lens)	4130	4230	4330
3/4" Square Lens	6x-4130	6x-4230	6x-4330
3/4" Round Lens	72-4130	72-4230	72-4330
3/4" x 1-1/2" Rect. Lens	73-4130	73-4230	73-4330

4000 10/2003

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Series 5100

Front Panel Mount, SPST-2PDT Momentary Pushbutton Switch Illuminated and Non-Illuminated Models



ELECTRO-MECH
COMPONENTS

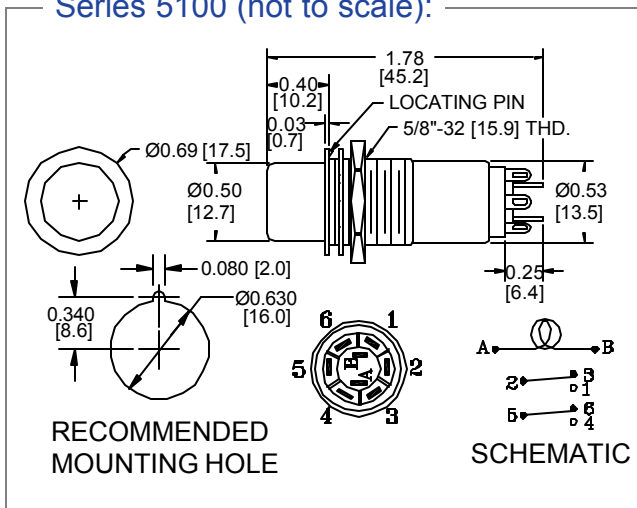
- * Short housing requires <1.38" behind panel
- * Momentary switching
- * Recessed lens design
- * Light operating pressure
- * Accommodates 0.50" [12.7] dia. round lens



The Electro-Mech Series 5100 provides momentary switching in a compact, 1.375" behind the panel housing, saving up to 25% of usually required space needed by other popular models. These small switches are ideal for keyboard matrix assemblies and with their new recessed lens they offer even greater compactness and beauty.

Positive action, reliable circuitry, and proven low-bounce characteristics are offered in this fully enclosed aluminum housing design, ideal for tight packaging requirements and keyboard assemblies. Standard models are supplied with slide-action silver contact circuitry usually found in larger units. Gold plated contacts can be supplied for dry circuit applications.

Series 5100 (not to scale):



Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23g) (approx.)
Operating Pressure:	8 oz. ± 4 oz. (228g ± 114g)
Plunger Travel:	0.100 nominal (2.54mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates p/n L121, 1/2" dia. lens cap, any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

Part Number Table:

	— SPST —		— 2PST —				
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT
Illuminated	5128	5129	5130	5131	5132	5149	5150
Non-Illuminated	5228	5229	5230	5231	5232	5249	5250

Printed Circuit Board Terminals:
Applications requiring direct mounting to a PC board may be specified with modification code PC for PC pins (custom EMC pin-out). Ordering example: 5150PC.

5100 03/2003

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Series 5300

Front Panel Mount, SPST-2PDT Momentary Pushbutton Switch Illuminated and Non-Illuminated Models



ELECTRO-MECH
COMPONENTS

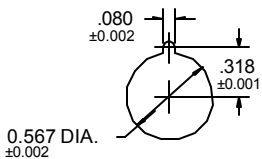
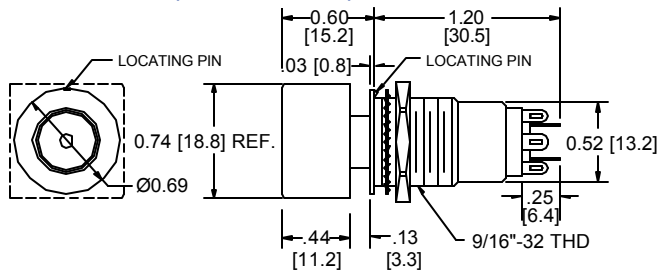


- * Short housing design requires <1.25" behind the panel
- * Momentary switching
- * High density, 3/4" centers mounting available
- * Light operating pressure
- * Accommodates all EMC standard lenses

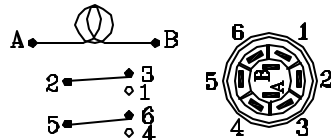
Electro-Mech is offering a miniature lighted or non-lighted pushbutton switch to be used in all types of keyboard matrix assemblies. These small switches feature momentary switching in a compact, 1.25" behind the panel housing. With an extra light touch of just 8 oz., these miniature switches are ideal for any type of keyboard. High density mounting is also capable side-by-side on 3/4" centers with an optional round slotted nut.

Positive action, reliable circuitry, and proven low-bounce characteristics are offered in this fully enclosed aluminum housing design, ideal for tight packaging requirements and keyboard assemblies. They also utilize Electro-Mech's unique design concept of silver slide bar action which makes it possible for them to handle low amperage switching, for a half million actuations minimum life. Gold plated contacts can be supplied for dry circuit applications.

Series 5300 (not to scale):



RECOMMENDED MOUNTING HOLE



SCHEMATIC

Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23 g) (approx.)
Operating Pressure:	12 oz. ± 4 oz. (341g ± 114g)
Plunger Travel:	0.100 nominal (2.54mm)
Actuations:	500,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates any standard EMC lens. See Single Lamp Lenses.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

High Density Panel Mounting: Series 5300 switches may be mounted on 3/4" centers by specifying an AF modification code (round slotted nut). Ordering example: 5350AF.

Printed Circuit Board Terminals: Applications requiring direct mounting to a PC board may be specified with modification code PC for PC pins (custom EMC pin-out). Ordering example: 5328PC.

Part Number Table:

	— SPST —		— 2PST —				
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT
Illuminated	5328	5329	5330	5331	5332	5349	5350
Non-Illuminated	5428	5429	5430	5431	5432	5449	5450

5300 02/2003

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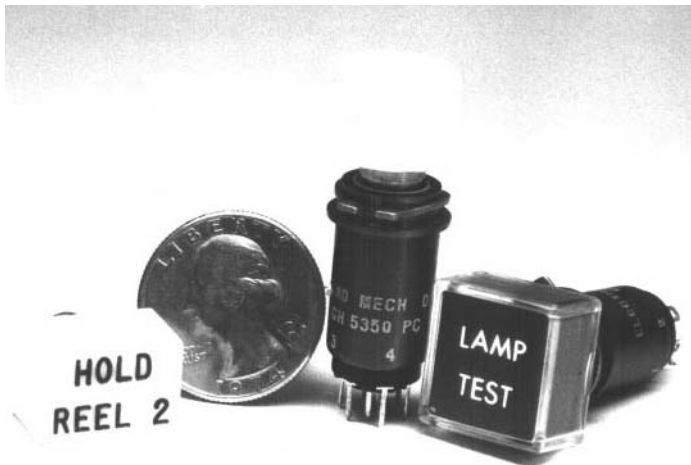
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Series GH5300

Sub Panel Mount, SPST-2PDT
Momentary Pushbutton Switch
Illuminated and Non-Illuminated Models



ELECTRO-MECH
COMPONENTS



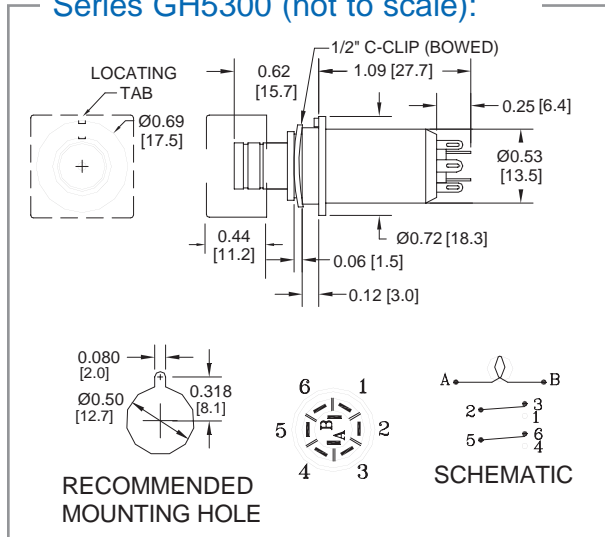
Features

- * Momentary switching
- * High density, 5/8" centers mounting available
- * Light operating pressure
- * Accommodates all EMC standard lenses
- * 500,000 actuations minimum at 0.5A resistive

Electro-Mech Series GH5300 lighted pushbutton switch provides momentary switching in a compact sub-panel mount design, eliminating threaded type hardware which enables switch mounting on 5/8" [15.9mm] centers. These small switches mount through a 1/16" [1.6mm] thick panel and are secured in place by a retaining ring (c-clip) (supplied). Custom matrix designs and gang assemblies are readily fabricated to meet customer needs.

The Series GH5300 has all of the features offered in the Series 5300, including positive action, reliable circuitry, and proven low-bounce characteristics in a fully enclosed aluminum housing design. This switch also utilizes Electro-Mech's unique design concept of silver slide bar action which makes it possible for them to handle low amperage switching, for half million actuations without failure. Gold plating can be specified for dry circuit applications.

Series GH5300 (not to scale):



Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23 g) (approx.)
Operating Pressure:	12 oz.+ 4 oz. (341g ± 114g)
Plunger Travel:	0.100 nominal (2.54mm)
Actuations:	500,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates any standard EMC lens. See Single Lamp Lenses.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

Gold Plated Contacts: Series GH5300 switches may be specified with gold plated contacts for dry switching applications (typically less than 100mA). Specify "GP" code. Ordering example: GH5350GP

Printed Circuit Board Terminals: Applications requiring direct mounting to a PC board may be specified with modification code PC for PC pins (custom EMC pin-out). Ordering example: GH5328PC.

Part Number Table:

	SPST		2PST			
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT 2PDT
Illuminated	GH5328	GH5329	GH5330	GH5331	GH5332	GH5349 GH5350
Non-Illuminated	GH5428	GH5429	GH5430	GH5431	GH5432	GH5449 GH5450

GH5300 12/2003

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Series 6100

Front Panel Mount, SPST-2PDT Pushbutton Switch

Illuminated, Short Housing



ELECTRO-MECH
COMPONENTS

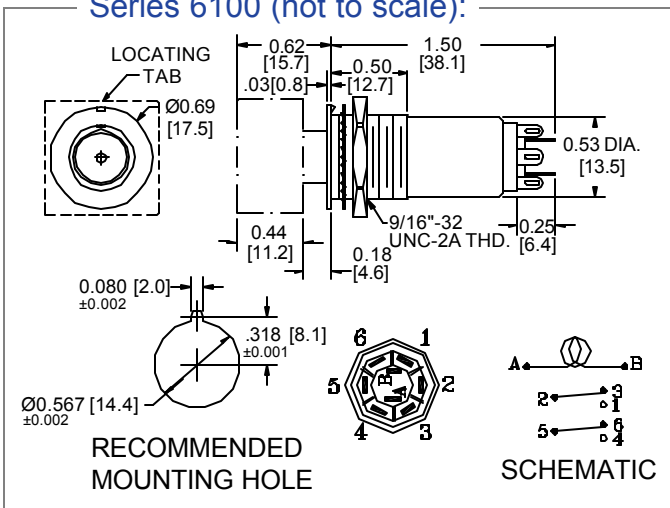


- * Short housing requires <math><1.50\text{''}</math> behind panel
- * Momentary or alternate action switching
- * High density 3/4" centers mounting available
- * Accommodates full selection of EMC lenses

The Electro-Mech Series 6100 Lighted Pushbutton Switch provides momentary or alternate action switching modes in a compact, 1.50" behind the panel housing, saving up to 25% of usually required space needed by other popular models. High density mounting is also capable side by side on 3/4" centers with an optional round slotted nut.

Positive action, reliable circuitry, and proven low-bounce characteristics are offered in this fully enclosed aluminum housing design, ideal for tight packaging requirements and keyboard matrix assemblies. Standard models are supplied with slide-action, silver contact circuitry usually found only in larger units. Gold plated contacts can be specified for dry circuit applications.

Series 6100 (not to scale):



Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.5 oz. (14g) (approx.)
Operating Pressure:	8 oz. \pm 4 oz. (228g \pm 114g) (mom) 24 oz. \pm 8 oz. (684g \pm 228g) (alt)
Plunger Travel:	0.140 \pm 0.010 (3.56 \pm 0.25mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates any EMC lens cap, any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

High Density Panel Mounting: Series 6100 switches may be mounted on 3/4" centers by specifying the "AF" modification code to include a 9/16"-32 round slotted nut. Ordering example: 6250AF.

Printed Circuit Board Terminals: Applications requiring direct mounting to a PC board may be specified with modification code "PC" for PC pins (custom EMC pin-out). Ordering example: 6128PC.

Part Number Table:

	— SPST —		— 2PST —				
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT
Momentary	6128	6129	6130	6131	6132	6149	6150
Push-On/Push-Off	6228	6229	6230	6231	6232	6249	6250
Push-On/R-1/Push-Off	6328	6329	6330	6331	6332	6349	6350
Mom. Snap Feel	6428	6429	6430	6431	6432	6449	6450

6100 04/2003

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Series 61

Front Panel Mount, SPST-2PDT
Pushbutton Switch
Illuminated, 1/2" Square Lens



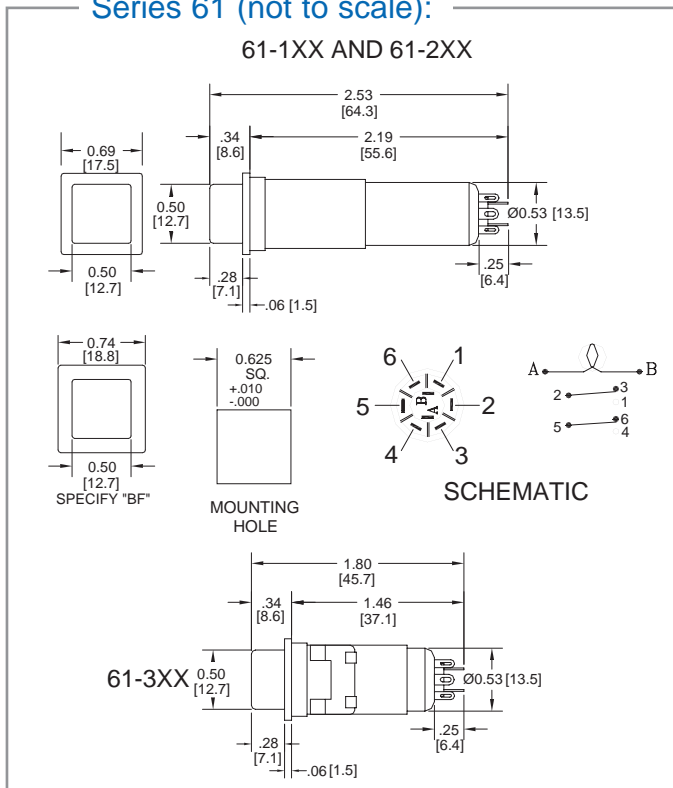
ELECTRO-MECH
COMPONENTS



- * Full sized displays in compact size
- * Momentary or alternate action switching
- * SPST - 2PDT with independent lamp circuitry
- * Accommodates 1/2" square EMC lens

The Electro-Mech Series 61 switches are provided in 1/2" square (lens), snap-in or hardmount configurations. Each low profile unit features a silhouetted appearance and is available in any switch circuitry SPST-2PDT, each controlled with independent circuitry for reliability. The all plastic, unitized housing assures easy handling and helps insulate the switch from other surrounding components. The Series 61 is also available in standard PC pins for direct mounting to PCB. Mounting hardware is with either aluminum Clip Springs (CS) or hardmount backup channel (HM).

Series 61 (not to scale):



Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.5 oz. (14g) (approx.)
Operating Pressure:	9 oz.± 4 oz. (256g ± 114g) (mom)(-3xx) 20 oz.± 8 oz. (570g ± 228g) (mom)(-1xx) 20 oz.± 8 oz. (570g ± 228g) (alt)(-2xx)
Plunger Travel:	0.190 ± 0.010 (4.82 ± 0.25mm)(-1xx,-2xx) 0.100 ± 0.010 (2.54 ± 0.25mm)(-3xx)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates 1/2" square EMC lens, any EMC color (p/n L61c).
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.
Flange:	Standard is 0.69" (17.5mm) square. Specify "BF" (Big Flange) for 0.74" square.

Optional Front Panel Mounting: Series 61 switches may be mounted with either: CS = clip springs for push in mounting HM = hardmount back up channel which attaches from the rear of the panel.

Printed Circuit Board Terminals: Applications requiring direct mounting to a PC board may be specified with modification code "PC" for PC pins (custom EMC pin-out). Example: 61-328PC.

Matching Indicators: Specify 61CS-210

Part Number Table:

	— SPST —		— 2PST —				
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT
Momentary	61-128	61-129	61-130	61-131	61-132	61-149	61-150
Push-On/Push-Off	61-228	61-229	61-230	61-231	61-232	61-249	61-250
Momentary, Short	61-328	61-329	61-330	61-331	61-332	61-349	61-350

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1826 Floradale Avenue • South El Monte, CA 91733-3689 USA * (626) 442-7180 * (888) 442-7180 * Fax (626) 350-8070



Series 20

Front Panel Mount, Plastic Case Pushbutton Switch

Illuminated and Non-Illuminated Models



P/N: 29-228PC,L619C-Y



P/N: 21-250,L611B

- * Momentary or Alternate Action switching actions
- * SPST - DPDT switch circuitry
- * Easy lamp replacement from front
- * T 1-3/4 midget flange-based lamp or LED enhanced by replaceable lens covers available in standard EMC colors
- * Seven button sizes all mount into same sized 5/8" diameter mounting hole
- * Low profile appearance in one unitized switch housing.

Available options include:

GP = gold plated contacts for low level switching

PC = printed circuit board terminals

AF = round slotted nut

Other custom designs have included matching indicator lights, non-lighted switches, clip spring mounting. Housing color can be custom molded.

Electro-Mech's Series 20 switches are provided in 1/2", 5/8", and 3/4" square or round, and 1/2" x 3/4" display configurations, all mounting in the same size 5/8" diameter round mounting hole from the front of the panel. These low profile units are available in any switching mode with independent lamp circuitry from SPST to DPDT. The all plastic, unitized housing assures ease in handling (no adapters, clamps, or brackets). Just drop the switch in the round hole and secure with a hex nut or round slotted nut from behind the panel.

Series 20 switches have the same internal parts as the all metal Series 6100, including positive action, reliable circuitry and proven low bounce characteristics made possible by our unique design concept of silver slide bar action.

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Series 20

Front Panel Mount, Plastic Case

Pushbutton Switch

Illuminated and Non-Illuminated Models



Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23 g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (908g ± 454g)
Plunger Travel:	0.125 nominal (3.2mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. 'PC' pins avail.
Lens:	Accommodates EMC Series 20 lens. See Lens Table at right.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.
'LK' Option:	Optional anti-rotation Locating Key.

Lens Table

Model	Lens P/N*	Description
21-xxx	L611	1/2" square lens
22-xxx	L612	1/2" round lens
23-xxx	L613	5/8" square lens
24-xxx	L614	5/8" round lens
25-xxx	L615	3/4" square lens
26-xxx	L616	3/4" round lens
29-xxx	L619	1/2" x 3/4" rectangular lens

How to Order:

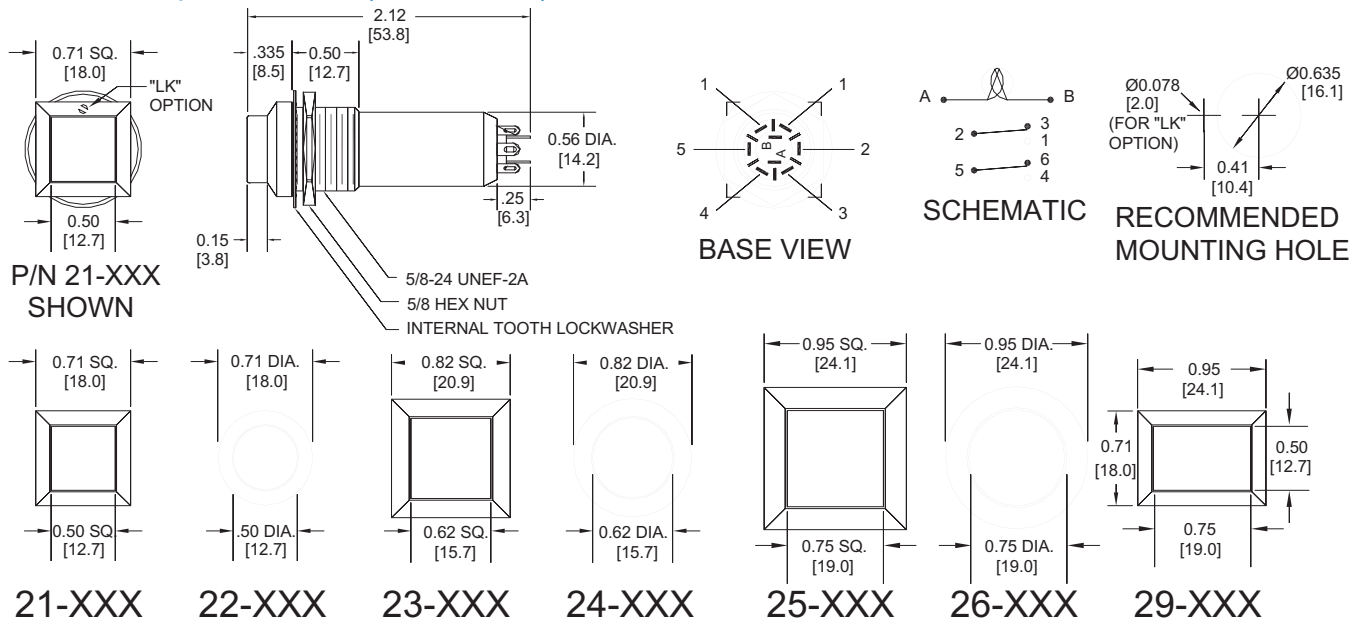
L61NX = solid color lens (e.g. L612W)
 L61NX/X = solid color lens w/ color filter (e.g. L611W/G)
 L61NC-X = clear overcap w/ legend plate (e.g. L616C-R)
 L61NC-X/W = clear cap w/ plate & filter (e.g. L615C-W/Y)
 * All solid colored lens caps include a filter layer for better light diffusion.

Part Number Table:

Action	— SPST —		— 2PST —					Notes:
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT	
Momentary	2x-128	2x-129	2x-130	2x-131	2x-132	2x-149	2x-150	Artificial click in momentary travel.
Snap Feel Mom.	2x-428	2x-429	2x-430	2x-431	2x-432	2x-449	2x-450	
Push-On/Push-Off	2x-228	2x-229	2x-230	2x-231	2x-232	2x-249	2x-250	Button is physically depressed in down position.
Push-On/Remain-In/ Push-Off	2x-828	2x-829	2x-830	2x-831	2x-832	2x-849	2x-850	
Terminals Used:	2-5	2-5	1-2, 4-5	2-3, 5-6	1-2, 5-6	1-2-3	1-2-3, 4-5-6	See schematic below for terminal location.

For non-illuminated version, specify the digit "1" as prefix to three digit circuitry (e.g. 2x-1150). Indicator only is 2x-210.

Series 20 Specifications (not to scale)



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EMC-20 3/2012

Series 60

Front Panel Mount, SPST-2PDT Pushbutton Switch

Illuminated, Unitized Plastic Housing



ELECTRO-MECH
COMPONENTS



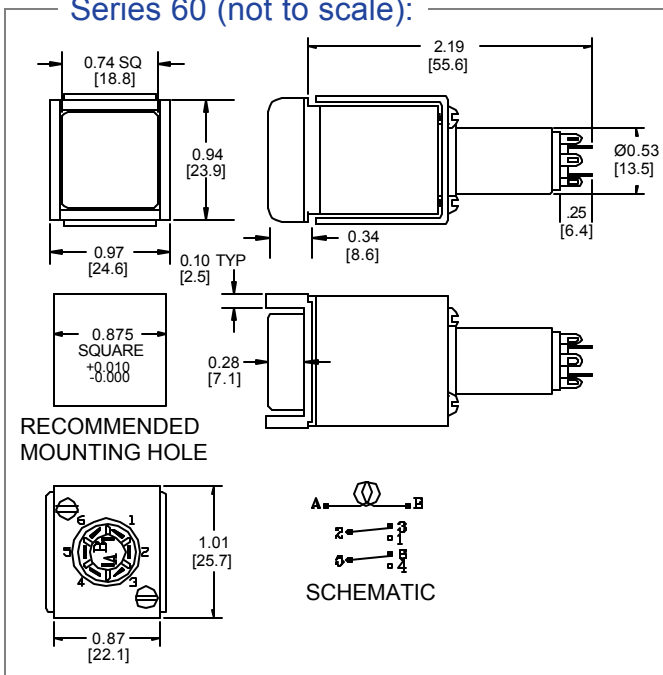
P/N 67LGCS-230PC,
L63R engr STOP (white fill)

OPTIONAL LENS
GUARD SHOWN

- * Front panel mount with backup or clip springs
- * Momentary or alternate action switching
- * High density 7/8" centers mounting available
- * Accomodates 3/4" square EMC lenses
- * Protective Lens Guard (LG) available on 67-

The Series 60 Lighted Pushbutton Switch features Electro-Mech's Series 2100 switch incorporated as an integral part of the mounting hardware, with no metal case. This switch is designed for mounting from the front of the panel into a standard "hard mount" fixture, a "U" shaped bracket which is quickly fastened to the back of the panel with two mounting screws. Snap in mounting using two aluminum clip springs is also available (specify modification code "CS", e.g. 65CS-150). Twist lock pins are also available in place of threaded screws (specify "TL", e.g. 65TL-228).

Series 60 (not to scale):



- Adapter options:
- | | |
|--------|----------------------|
| 65-xxx | No barriers/ears |
| 67-xxx | Double barriers/ears |
| 68-xxx | Single barrier/ear |

Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (22g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (454g ± 227g)
Plunger Travel:	0.187 approx. (25.4mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates 3/4" square lens, p/n L63 or L53, any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

Part Number Table:

	— SPST —		— 2PST —				
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT
Momentary	6x-128	6x-129	6x-130	6x-131	6x-132	6x-149	6x-150
Push-On/Push-Off	6x-228	6x-229	6x-230	6x-231	6x-232	6x-249	6x-250
Momentary, Short	6x-328	6x-329	6x-330	6x-331	6x-332	6x-349	6x-350
Mom. Non-Illuminated	6x-428	6x-429	6x-430	6x-431	6x-432	6x-449	6x-450

High Density Panel Mounting: Series 60 switches may be mounted on 7/8" centers by ordering a series of 67- and 68- parts and installing in one rectangular mounting hole ((N x 7/8)" wide by 0.875" high).

Printed Circuit Board Terminals: Applications requiring direct mounting to a PC board may be specified with modification code "PC" for PC pins (custom EMC pin-out). Ordering example: 65-128PC.

60 05/2003

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Series 60

Front Panel Mount, 3PST-6PDT Pushbutton Switch

Illuminated, Unitized Plastic Housing



ELECTRO-MECH
COMPONENTS



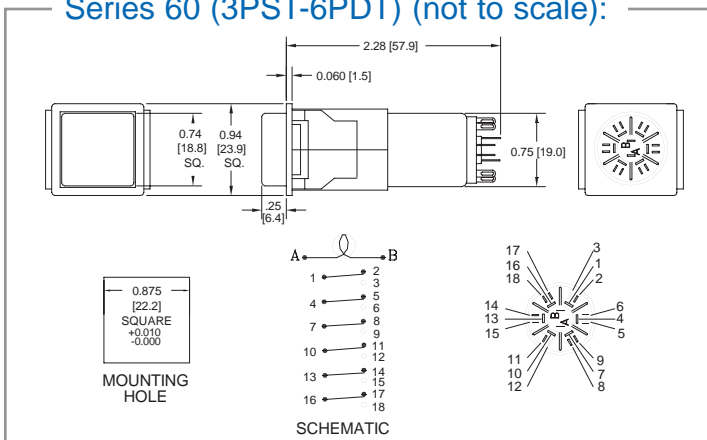
P/N 67CS-837,L63R-FG

- * Front panel mount with backup or clip springs
- * Momentary or alternate action switching
- * High density 7/8" centers mounting available
- * Accomodates 3/4" square EMC lenses
- * Protective Lens Guard (LG) available on 67-

The Series 60 Lighted Pushbutton Switch features Electro-Mech's Series 2100 switch incorporated as an integral part of the mounting hardware, with no metal case. This switch is designed for mounting from the front of the panel into a standard "hard mount" fixture, a "U" shaped bracket which is quickly fastened to the back of the panel with two mounting screws. Snap in mounting using two aluminum clip springs is also available (specify modification code "CS", e.g. 65CS-654). Twist lock pins are also available in place of threaded screws (specify "TL", e.g. 65TL-730).

For circuitry SPST-DPDT, please refer to Series 60, page 1.

Series 60 (3PST-6PDT) (not to scale):



Part Number Table:

S. Feel	Psh-On	PO/RI		
Mom.	Mom.	Psh-Off	Psh-Off	Circuitry
6x-530	6x-630	6x-730	6x-732	2PST - 2 N.O.
6x-531	6x-631	6x-731	6x-831	2PST - 2 N.C.
6x-532	6x-632	6x-732	6x-832	2PST - 1 N.O., 1 N.C.
6x-533	6x-633	6x-733	6x-833	3PST - 3 N.O.
6x-534	6x-634	6x-734	6x-834	3PST - 3 N.C.
6x-535	6x-635	6x-735	6x-835	3PST - 1 N.O., 2 N.C.
6x-536	6x-636	6x-736	6x-836	3PST - 2 N.O., 1 N.C.
6x-537	6x-637	6x-737	6x-837	4PST - 4 N.O.
6x-538	6x-638	6x-738	6x-838	4PST - 4 N.C.
6x-539	6x-639	6x-739	6x-839	4PST - 1 N.O., 3 N.C.
6x-540	6x-640	6x-740	6x-840	4PST - 2 N.O., 2 N.C.
6x-541	6x-641	6x-741	6x-841	4PST - 3 N.O., 1 N.C.
6x-542	6x-642	6x-742	6x-842	6PST - 6 N.O.
6x-543	6x-643	6x-743	6x-843	6PST - 6 N.C.
6x-544	6x-644	6x-744	6x-844	6PST - 1 N.O., 5 N.C.
6x-545	6x-645	6x-745	6x-845	6PST - 2 N.O., 4 N.C.
6x-546	6x-646	6x-746	6x-846	6PST - 3 N.O., 3 N.C.
6x-547	6x-647	6x-747	6x-847	6PST - 4 N.O., 2 N.C.
6x-548	6x-648	6x-748	6x-848	6PST - 5 N.O., 1 N.C.
6x-550	6x-650	6x-750	6x-850	2PDT
6x-551	6x-651	6x-751	6x-851	3PDT
6x-552	6x-652	6x-752	6x-852	4PDT
6x-553	6x-653	6x-753	6x-853	5PDT
6x-554	6x-654	6x-754	6x-854	6PDT

* For terminals used, see Series 2600, page 3 of 3.

Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (22g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (454g ± 227g)
Plunger Travel:	0.187 approx. (25.4mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates 3/4" square lens, p/n L63 or L53, any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

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Series 60-350

Front Panel Mount, SPST-2PDT Momentary Pushbutton Switch

Illuminated or Non-Illuminated, Unitized Plastic Housing



ELECTRO-MECH
COMPONENTS

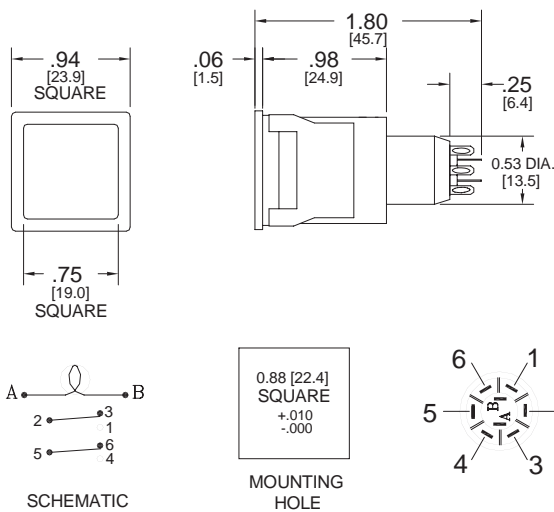


P/N 65ELCS-350,L63R
EL option = flush mount lens

- * Front panel mount with backup or clip springs
- * Momentary switching only
- * High density 7/8" centers mounting available
- * Accommodates 3/4" square EMC lenses
- * 9 ounces operating pressure

The Series 60-350 is a shorter behind panel length than the EMC Series 60. The switch is designed for mounting from the front of the panel into a standard "hard mount" fixture, a "U" shaped bracket which is quickly fastened to the back of the panel with two mounting screws. Snap in mounting using two aluminum clip springs is also available (specify modification code "CS", e.g. 65CS-150). Switches can be individually mounted or, in the case of the 67- and 68- configurations, can be stacked in a row. Mounting hole for stacking: width is 0.875, length is 0.875 x # of switches.

Series 60-350 (not to scale):



- Adapter options:
- | | |
|--------|----------------------|
| 65-xxx | No barriers/ears |
| 67-xxx | Double barriers/ears |
| 68-xxx | Single barrier/ear |

Note: Hardmount standard. For Clip Springs, specify "CS"

Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (22g) (approx.)
Operating Pressure:	12 oz.+ 4 oz. (340g ± 113g)
Plunger Travel:	0.100 approx. (2.5mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates 3/4" square lens, p/n L63 or L53, any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

High Density Panel Mounting: Series 60 switches may be mounted on 7/8" centers by ordering a series of 67- and 68- parts and installing in one rectangular mounting hole ((N x 7/8)" wide by 0.875" high).

Printed Circuit Board Terminals: Applications requiring direct mounting to a PC board may be specified with modification code "PC" for PC pins (custom EMC pin-out). Ordering example: 65-128PC.

60-350 07/2003

Part Number Table:

	— SPST —		— 2PST —				
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT
Illuminated							
No Barrier	65-328	65-329	65-330	65-331	65-332	65-349	65-350
Double Barrier	67-328	67-329	67-330	67-331	67-332	67-349	67-350
Single Barrier	68-328	68-329	68-330	68-331	68-332	68-349	68-350
Non-Illuminated							
No Barrier	65-428	65-429	65-430	65-431	65-432	65-449	65-450
Double Barrier	67-428	67-429	67-430	67-431	67-432	67-449	67-450
Single Barrier	68-428	68-429	68-430	68-431	68-432	68-449	68-450

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Series 73

Front Panel Mount, SPST-2PDT Momentary Pushbutton Switch

Illuminated or Non-Illuminated, Rectangular Plastic Housing



ELECTRO-MECH
COMPONENTS



P/N 73HM-330,L67R

- * Front panel mount with backup or clip springs
- * Momentary switching only
- * Large, legible displays
- * Accommodates 3/4" x 1-1/2" rectangular lens
- * 9 ounces operating pressure

Series 73 switches feature convenient, 1-1/2" wide x 3/4" high illuminated pushbuttons for all types of fast read and emergency switching applications. Easy snap-in ("CS") or hardmount ("HM") mounting options are available. All plastic unitized housing provides insulation. Switching circuitry is available from SPST to DPDT plus the lamp circuit.

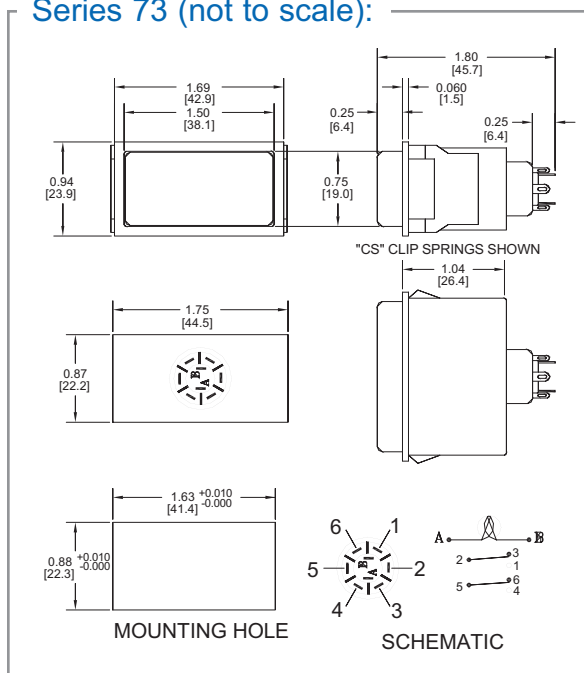
Mounting Specifications

Mounting hole size of 1.625 (+0.010/-0.000) x 0.875 (+0.010/-0.000). Standard mounting clip spring ("CS") fits panel thicknesses up to 0.125". For panel thicknesses 0.125"-0.250", specify "CSZ" (e.g. 73CSZ-349).

Filters and Part Number Options

Standard lenses and filter colors are white(W), red(R), blue(B), green(G), yellow(Y), and amber(A). See Single Lamp Lenses. Available in both solid colored lens cap (p/n L67c) and removeable clear cap option lens assembly (p/n L57c).

Series 73 (not to scale):



Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (22g) (approx.)
Operating Pressure:	9 oz.+ 4 oz. (255g ± 113g)
Plunger Travel:	0.100 approx. (2.5mm)
Actuations:	100,000 minimum @ 2.0A 500,000 minimum @ 0.5A
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates 3/4"x1-1/2" lens, p/n L67 or L57, any EMC color.
Lamp or LED:	Accommodates one T 1-3/4 (5mm) midget flange base lamp or LED. Lamp circuit is independent.

Alternate Action Switching Options:

If front panel mounting, matching alternate action switches are desired, 73- mounting adapter with Series 2200 or 2700 metal case switches may be specified.

Printed Circuit Board Terminals:

Applications requiring direct mounting to a PC board may be specified with modification code "PC" for PC pins (custom EMC pin-out). Ordering example: 73-128PC.

Matching Indicators: Specify p/n 73-210.

Part Number Table:

	SPST		2PST				
	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.	1PDT	2PDT
<u>Illuminated</u>							
Momentary	73-328	73-329	73-330	73-331	73-332	73-349	73-350
<u>Non-Illuminated</u>							
Momentary	73-428	73-429	73-430	73-431	73-432	73-449	73-450

73 11/2014

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Series EL

Pushbutton Switch Mounting Options Flush Mount Switch



ELECTRO-MECH
COMPONENTS



P/N 75EL-2128,L123B-ELFG

A complete selection of industry standard, flush mounted, lighted pushbutton switches and indicators is offered by Electro-Mech, for applications requiring accident-proof operating and non-removeable lenses (optional). Popular 1/2" and 3/4" square lenses, plus rectangular and round pushbutton lens configurations are available as a standard design on existing snap-in or hard mount switches with circuitry SPST-6PDT.

Mounted flush with the switch housing or mounting panel surface, the lens cannot be removed from the front of the panel, but is removeable by pushing the lens out from behind the panel, an important feature in applications in public areas such as vending machines and video gaming machines. As a safety feature, flush button surface of the lens cannot be accidentally actuated. Solid colors or clear top caps in GE Lexan™ polycarbonate may be specified in all standard EMC colors, along with engraved lens legends or mylar film legend inserts.

Applications:

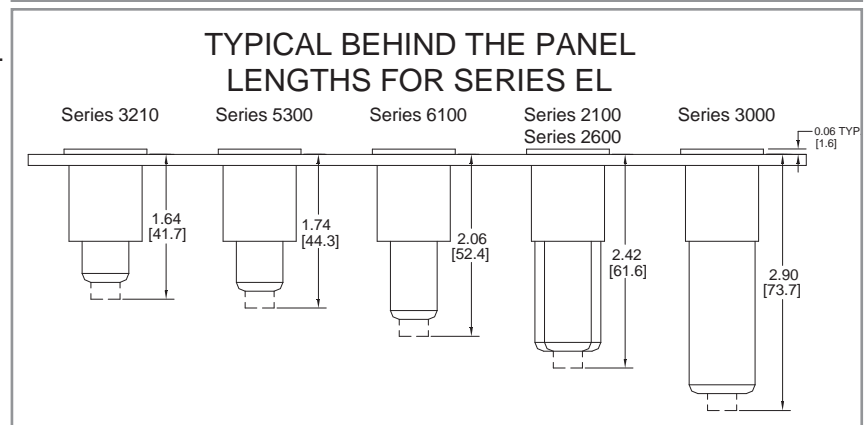
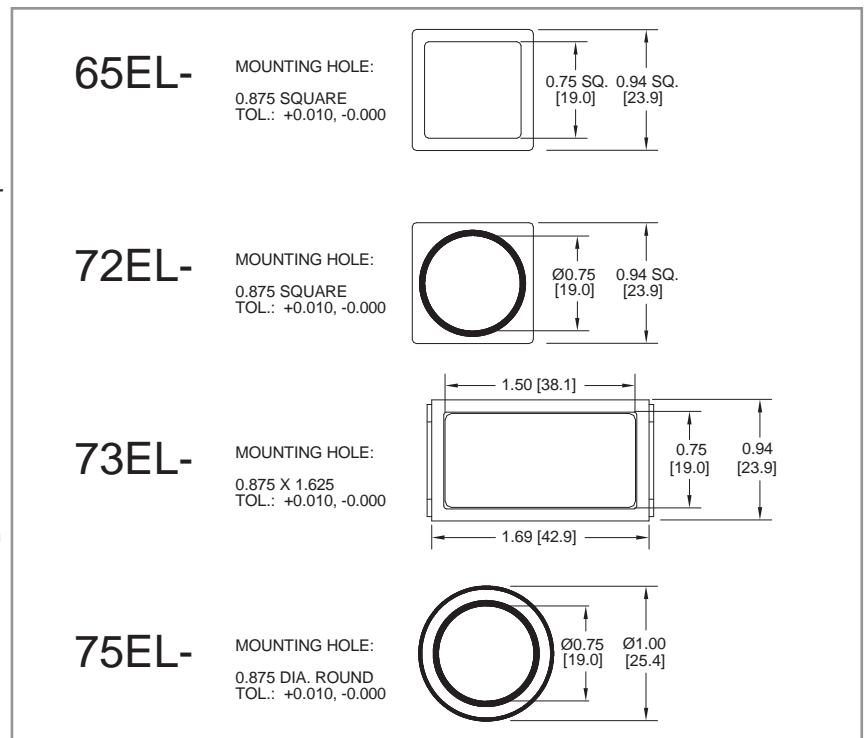
"EL" flush mount may be utilized on any switch or indicator mounted into a plastic or metal mounting adapter. For more information, see EMC Mounting Adapters.

Ordering Information:

Specify modification code "EL" as a suffix to the Mounting Adapter / Bezel part number:
e.g. 73EL-2654, 65ELCS-350.

EL 07/2007

- ◆ Flush mounted lens
- ◆ Low profile mounting bezels
- ◆ Accomodates full line of EMC switches
- ◆ Theft proof
- ◆ Helps prevent accidental actuation



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Mounting Adapters

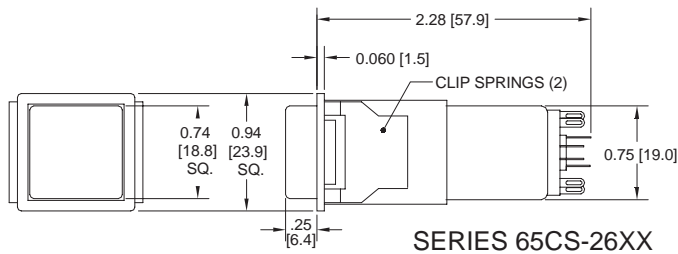
Series 2100, 2600, 5300, 6100 Switch Accessories

Series 65, 67, 68, 72, 73, 75 and 98



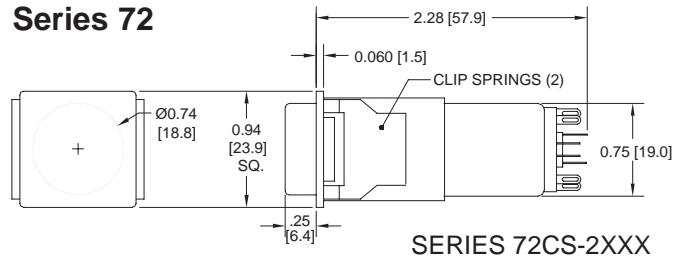
Series 65

- CS option snaps in from front of panel.
- HM option uses U-shaped bracket from back of panel.
- Mounts in panel thickness up to 1/8".
- For panels 1/8"-1/4" thick, specify 65ZCS.
- Uses L63 lens (0.74" square).
- Fingernail grooves in lens (L63W-FG) are recommended for easy lens removal.
- Series 65 is supplied with a 0.94" square flange.
- Mounts in a 0.875" (+0.010,-0.000) square hole.

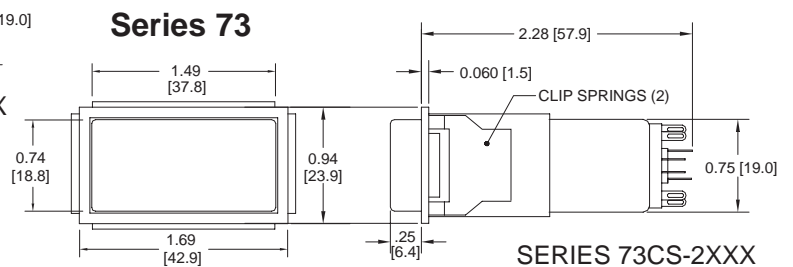


P/N 67LGCS-230,L63R-FG engr STOP (white fill)

Series 72

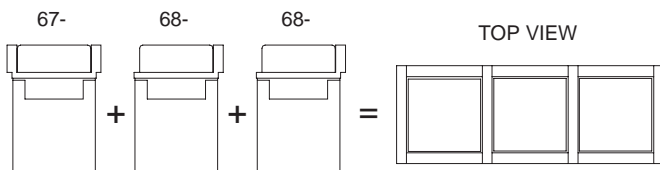
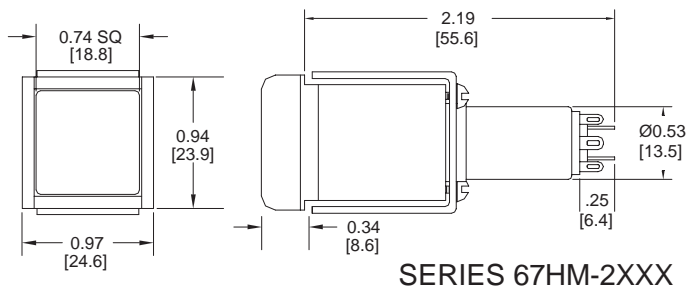


Series 73

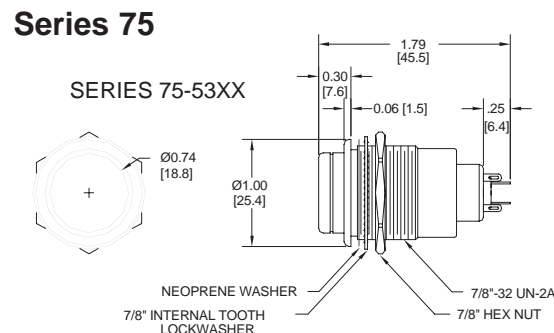


Series 67 and 68

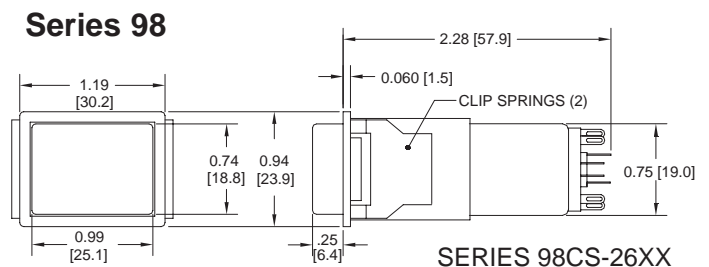
- CS option snaps in from front of panel.
- HM option uses U-shaped bracket from back of panel.
- Mounts in panel thickness up to 1/8".
- For panels 1/8"-1/4" thick, specify 67ZCS or 68ZCS.
- Uses L63 lens (0.74" square).
- Fingernail grooves in lens (L63W-FG) are recommended for easy lens removal.
- Mounts in a 0.875" (+0.010,-0.000) square hole.
- One 67- bezel and several 68- bezels may be mounted in a single rectangular cut-out.



Series 75



Series 98



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Series 3200

Indicator Lights Push-to-Test Indicator Lights



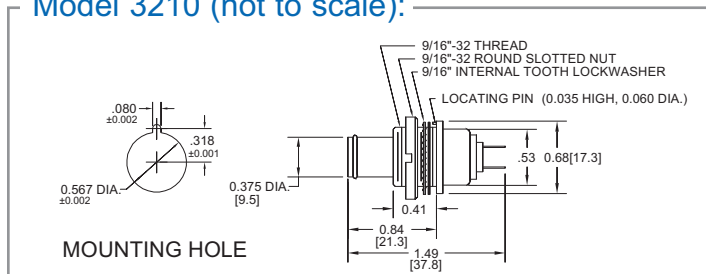
ELECTRO-MECH
COMPONENTS



Model 3210 Indicator

- * Accomodates all standard EMC lenses.
- * Lens accomodates one T 1-3/4 (5mm) M.F.B. lamp or LED.
- * Sub panel mount with 9/16"-32 threaded neck.
- * Mount to front panel with EMC Mounting Adapters.

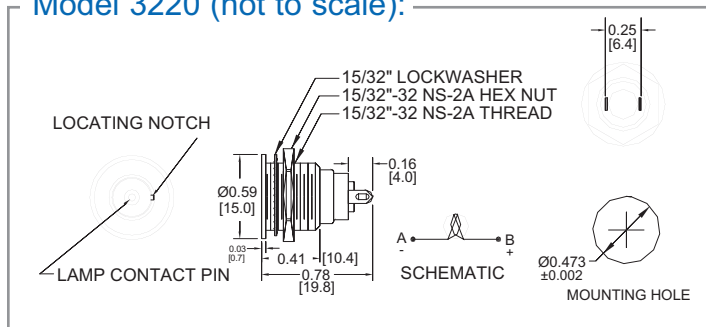
Model 3210 (not to scale):



Model 3220 Indicator

- * Accomodates all standard EMC lenses.
- * Lens accomodates one T 1-3/4 (5mm) M.F.B. lamp or LED.
- * Mount to front panel with 15/32"-32 threaded nut.

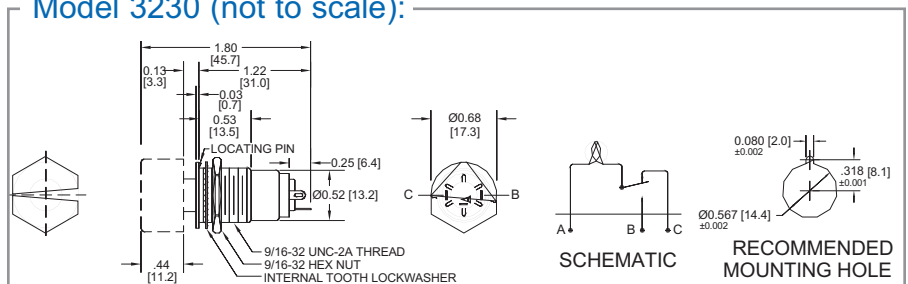
Model 3220 (not to scale):



Model 3230 Push-to-Test Indicator

- * Push-to-Test circuit option to test lamp or LED functionality.
- * Accomodates all standard EMC lenses.
- * Lens accomodates one T 1-3/4 (5mm) M.F.B. lamp or LED.
- * Mount to front panel with 9/16"-32 threaded neck

Model 3230 (not to scale):



29

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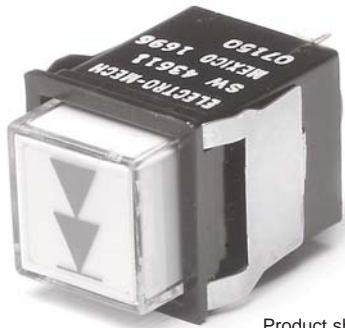
Series 65-210 & 73-210

Front Panel Mount Indicator Lights

Square and Rectangular Bezel Housing



ELECTRO-MECH
COMPONENTS



Product shown is similar to:
P/N 65CS-210,L53W



Product shown is similar to:
P/N 73HM-210,L67R

Model 65-210

Available in two mounting styles:

“CS” = snap in from front of the panel with Clip Springs
sample part number: 65CS-210,L63R

“HM” = mounts from back of the panel, and is attached to the panel by a U-shaped bracket and 2 screws
e.g. 65HM-210,L53W or just 65-210,L53W

Mounting Hole: 0.875” square (+0.010/-0.000)

CS: Standard “CS” for panels up to 0.125” thick

CSZ: For panels 0.125-0.250, specify “CSZ”

Material: Black GE Lexan (also available in white or grey)

Lens: Accepts EMC L53* or L63* size pushbutton lens

Lamp: Lens accepts one T 1-3/4 (5mm) mfb lamp or LED

Model 73-210

Available in two mounting styles:

“CS” = snap in from front of the panel with Clip Springs
sample part number: 73CS-210,L63R

“HM” = mounts from back of the panel, and is attached to the panel by a U-shaped bracket and 2 screws
e.g. 73HM-210,L57W or just 73-210,L57W

Mtg Hole: 1.625 (+0.010/-0.000) x 0.875 (+0.010/-0.000)

CS: Standard “CS” for panels up to 0.125” thick

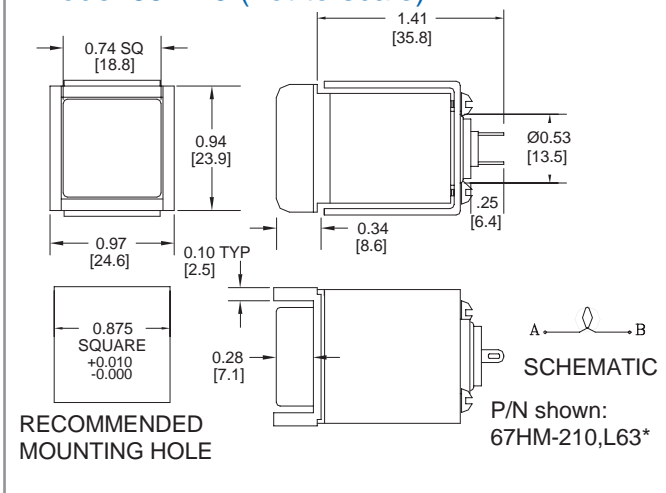
CSZ: For panels 0.125-0.250, specify “CSZ”

Material: Black GE Lexan (also available in white or grey)

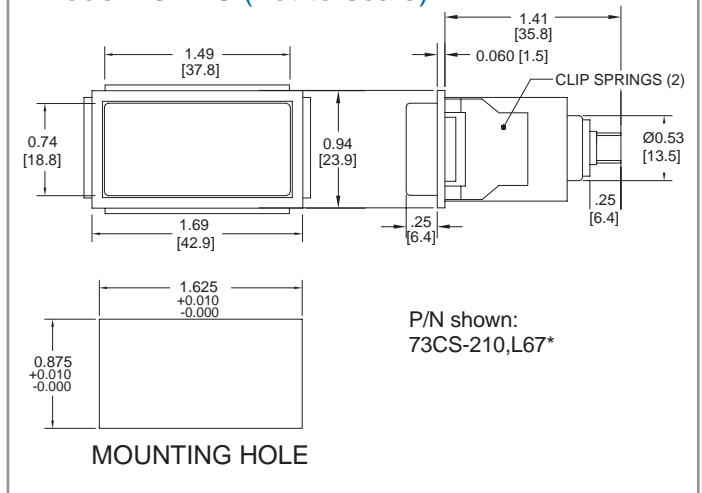
Lens: Accepts EMC L57* or L67* size pushbutton lens

Lamp: Lens accepts one T 1-3/4 (5mm) mfb lamp or LED

Model 65-210 (not to scale):



Model 73-210 (not to scale):



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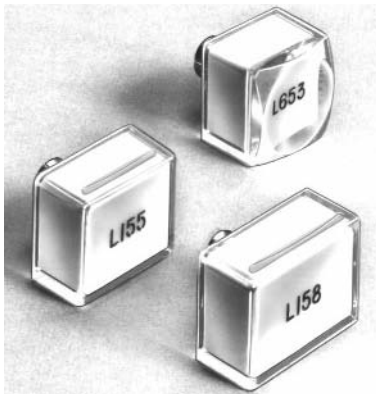
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Series L150

Replaceable Legend Lenses and Filters Pushbutton Lenses Single Lamp/LED



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COMPONENTS

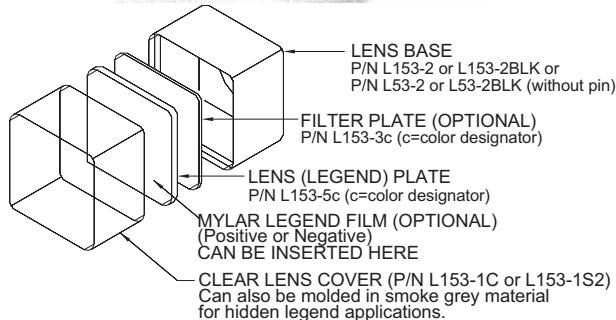


Applications

Versatile interchangeability with other switch models, choice of color and engravings and non-wearing, clear, acrylic design enables wide-ranging uses of the Electro-Mech Series L150 Replaceable Legend Lens. Lenses may be ordered with a variety of options including clear, frosted or smoke grey top lens cap, and photo positive or negative mylar film legending. Available for most EMC switches.

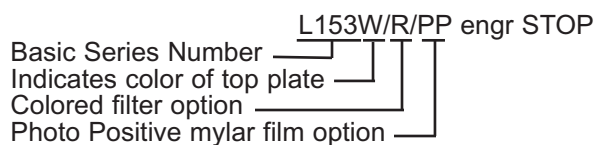
Description

Electro-Mech Series L150 Replaceable Legend Lenses are essentially non-wearing, utilizing a GE Lexan™ molded top over cap which protects lens legend. Engravings or films on face of lens display are protected by the lens cover. Opaque sides prevent light spill-over. Filters may be specified in a variety of colors. Legends are replaceable enabling display changes and ultimately broader usage and flexibility of the same basic switch or indicator light across several applications. Translucent lens plate conceals color filter until lamp/LED is illuminated. All lenses accommodate one T 1-3/4 midget flange based lamp or LED. Lenses are removeable from the front panel for re-lamping.



Part Number Options:

Series L150 lenses may be ordered with the following lens options. Specify desired lens engraving and special requirements when ordering. Special colors are available.



Ordering Information:

With Locating Pin	Without Locating Pin	Surface Dimension
L153c	L53c	0.74" square
L155c	L55c	0.74" x 0.87"
L157c	L57c	0.74" x 1.49"
L158c	L58c	0.74" x 0.99"
L653c	L1653c	0.74" sq., contour
c=color designation <u>under</u> clear cap (e.g. L153G)		

Series L150 (not to scale):



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Pushbutton Lenses

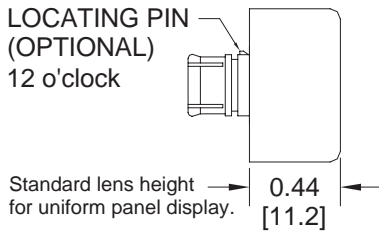
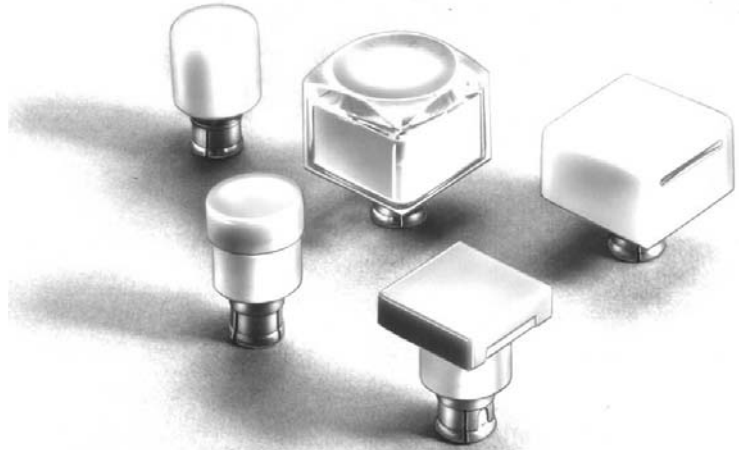
Solid Colored with Optional Filters
Flat or Contoured
Single Lamp or LED



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COMPONENTS

Applications

Electro-Mech Components offers standard lenses in a wide variety of sizes, shapes and colors to fit every requirement for its OEM customers. These lenses are designed to accommodate one T 1-3/4 (5mm) midget flange base lamp or LED. Lenses are removeable for relamping from the front panel (specify Series EL for non-removeable flush mounted lenses). Lenses can be supplied with engraved or painted legend lenses. Available lens colors are amber, blue, green, grey, orange, red, white and yellow. Some custom colors are available.



Part Numbers:

ROUND

With Locating Pin

L121c
L122c
L123c

Without Locating Pin

L21c
L22c
L23c

Surface Dimension
0.49" dia.
0.62" dia.
0.74" dia.

SQUARE

L161c
L162c
L163c
L164c

L61c
L62c
L63c
L64c

0.49" square
0.62" square
0.74" square
0.99" square

RECTANGULAR

L165c
L167c
L169c
L198c

L65c
L67c
L69c
L98c

0.74" x 0.87"
0.74" x 1.49"
0.49" x 0.74"
0.74" x 0.99"

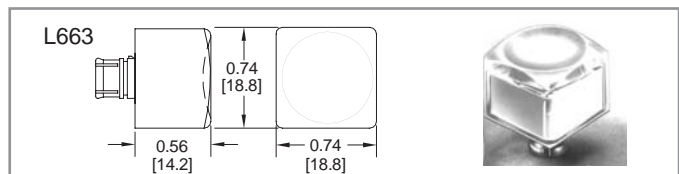
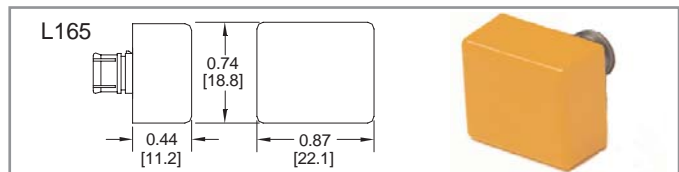
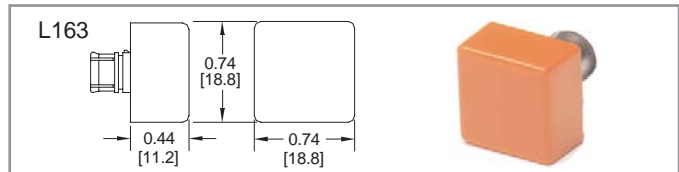
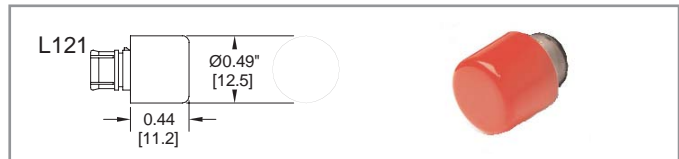
CONTOURED

L761c
L661c
L662c
L663c
L669c

L1761c
L1661c
L1662c
L1663c
L1669c

0.44"H 0.49" square
0.56"H 0.49" square
0.56"H 0.62" square
0.56"H 0.74" square
0.56"H 0.49" x 0.74"

c=color designation



Please contact the factory for additional drawings, specifications, and custom drawings.

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Pushbutton Lenses

Single Lamp or LED



ELECTRO-MECH
COMPONENTS



P/N SJ0624,L7163O



P/N SW43611

Part Numbers:

With Locating Pin	Without Locating Pin	Dimension	Surface Height	Shape / Description
L221c	L1221c	0.49" dia.	0.37	Round
L261c	L1261c	0.49" sq.	0.56	Square
L263c	L1263c	0.74" sq.	0.62	Square
L362c	L1362c	0.62" sq.	0.28	Square
L553c	L1553c	0.74" sq.	0.56	Clear contoured cap over 0.62" sq. lens
L561c	L1561c	0.49" sq.	0.44	Square, opaque sides
L562c	L1562c	0.62" sq.	0.44	Square, opaque sides
L563c	L1563c	0.74" sq.	0.44	Square, opaque sides
L569c	L1569c	0.49" x 0.74"	0.44	Rect., opaque sides
L320		0.33" dia.	0.17	Round
	L611c	0.49" sq.		Series 20 only
	L612c	0.49" dia.		Series 20 only
	L613c	0.62" sq.		Series 20 only
	L614c	0.62" dia.		Series 20 only
	L615c	0.74" sq.		Series 20 only
	L616c	0.74" dia.		Series 20 only
	L619c	0.49" x 0.74"		Series 20 only

c=color designation

Lens Colors:

Color	Code	Std. Mat'l	Material No.	Filters
Amber	A	Tenite	516A6T024	W/A
Blue	B	Lexan	141-2204	W/B
Black	BLK	Lexan	940-701	OPAQUE
Green	G	Lexan	940P-GN5018X	W/G
Green, Dark	G(DK)	Lexan	141-3205	W/G(DK)
Grey	GRY	Lexan	141P-GY6023X	
Orange	O	Lexan	940-6213	W/O
Red	R	Lexan	940P-RD3057	W/R
White	W	Lexan	141-9204	
Yellow	Y	Lexan	141-4223 ("school bus")	W/Y
Yellow, Bright	Y(Brt)	Lexan	940-YW7103X	

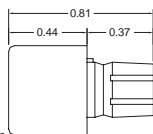
Modification Codes:

Code	Description
AM	RFI filter internally (e.g. L63R-AM)
FG	Fingernail Grooves, 12 o'clock and 6 o'clock standard (e.g. L63R-FG)
FG39	Fingernail Grooves at 3 & 9 o'clock
FG4	Fingernail Grooves on all four sides
L7xxx	Modified lens insert for PD (Pollak/Pendar) style switch plunger (long)
L9xxx	Modified lens insert for PD (Pollak/Pendar) style switch plunger (short)
OS	Opaque sides on lens (standard on Series L150)
W	Water-resistant (e.g. WL163W) (includes rubber o-ring on lens insert)

Pendar (PD) Style Lenses

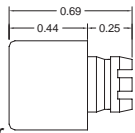
L7XXX

Long lens
Insert fits
PD style
switch plunger



L9XXX

Short lens
Insert fits
PD style
switch plunger



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Pushbutton Lenses

Single Lamp or LED

Engraved Legends ○ Silk Screened Legends

Hidden Legends ○ Photo Positive & Negative Film Legends



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Lens Legend Engraving:

Lens Surface	Width of Surface	Character Style					
		Regular Block			Condensed Block		
		Height of Chars. 0.125	0.187	0.250	Height of Chars. 0.125	0.187	0.250
		Number of Characters/Line			Number of Characters/Line		
Round	0.50	3	2	1	4	3	2
Round	0.63	4	2	1	6	3	2
Round	0.75	5	3	2	7	4	4
Square or Rectangular	0.50	3	2	1	5	3	2
Square or Rectangular	0.63	5	3	2	6	4	3
Square or Rectangular	0.75	5	3	2	8	4	3
Square or Rectangular	0.88	6	4	3	9	5	4
Square or Rectangular	1.00	8	5	3	10	7	4
Square or Rectangular	1.50	12	8	5	16	10	8
Stroke of Character:		0.012	0.020	0.025	0.012	0.020	0.025
Spacing Between Lines:	2 lines:	0.125 standard					
	3 lines:	0.063 standard					
	4 lines:	0.032 standard					
Color of Fill:	Black is standard color fill. White fill available. White fill recommended for blue (B) and dark green (G(DK)) lenses. Order as "ENGR STOP (white fill):"						
Pin Orientation:	Anti-rotation pin orientation is at 12 o'clock standard relative to the lens engraving.						
Fingernail Grooves:	Standard location is at 6 and 12 o'clock relative to the lens engraving. For FG grooves on the sides, specify FG39 (e.g. WL163W-FG39).						

Lens Ordering Information:

	W	L163	W	(L)	/R	- FG, D327 engr	POWER
Waterproof O-Ring (optional)	_____	_____	_____	_____	_____	_____	_____
2-4 digit lens part number	_____	_____	_____	_____	_____	_____	_____
Lens color	_____	_____	_____	_____	_____	_____	_____
Specifies custom material (optional)	_____	_____	_____	_____	_____	_____	_____
Filter color (optional)	_____	_____	_____	_____	_____	_____	_____
Fingernail groove (optional)	_____	_____	_____	_____	_____	_____	_____
Lamp or LED (optional)	_____	_____	_____	_____	_____	_____	_____
Lens legend (optional)	_____	_____	_____	_____	_____	_____	_____
Other Options:	/PP = Photo positive mylar film (for Series L150 lenses)						
	/PN = Photo negative mylar film (for Series L150 lenses)						
	<i>Please call the factory for custom lenses and display options and capabilities.</i>						

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Series 600/800

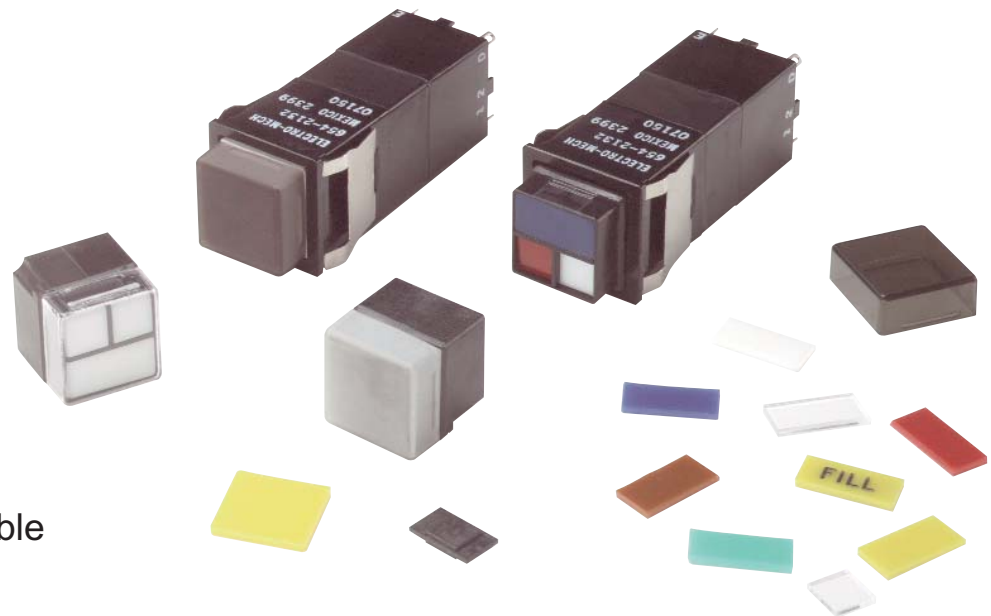


Multi-Image

3/4" Square or 3/4" x 7/8" Rectangular

Lighted Pushbutton Switches

Page 1 of 5



- Single Module, Multi-Image Display Design Saves Valuable Panel Space
- Horizontal & Vertical Split Screen Images
- Easy Snap-In Installation, Replaceable Lenses/Filters
- SPST - 6PDT Switching Functions

Ideal for a variety of applications where several switching functions or status indicators are needed, the Series 600/800 provides remarkable display versatility and multi-lamp/LED redundancy. These compact, low-profile switches can be specified for exacting requirements in both switch function, versatility of lens and legend displays. For added flexibility, legends, filters, and colors can be easily changed in the field.

Series 600 (3/4" square) and Series 800 (3/4" x 7/8" rectangular) units can be specified in singular or multiple switch circuit functions from SPST to 6PDT, with momentary or alternate action switching actions. Independent circuitry increases reliability and a unitized, insulated housing assures proper insulation. Models may be specified with a choice of 2 or 4 lamps or LED's. An optional clear lens cover protects and enhances replaceable filters. Units snap-in from front of panel with a low-profile flush bezel or dividing barriers. Hidden legends also available.

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Series 600/800



Multi-Image

3/4" Square or 3/4" x 7/8" Rectangular Lighted Pushbutton Switches

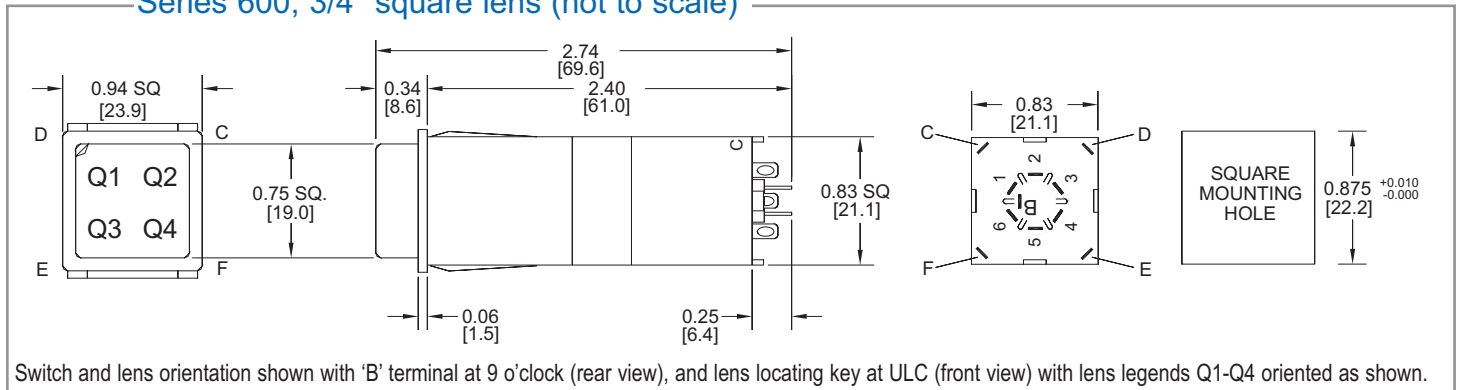


Specifications:

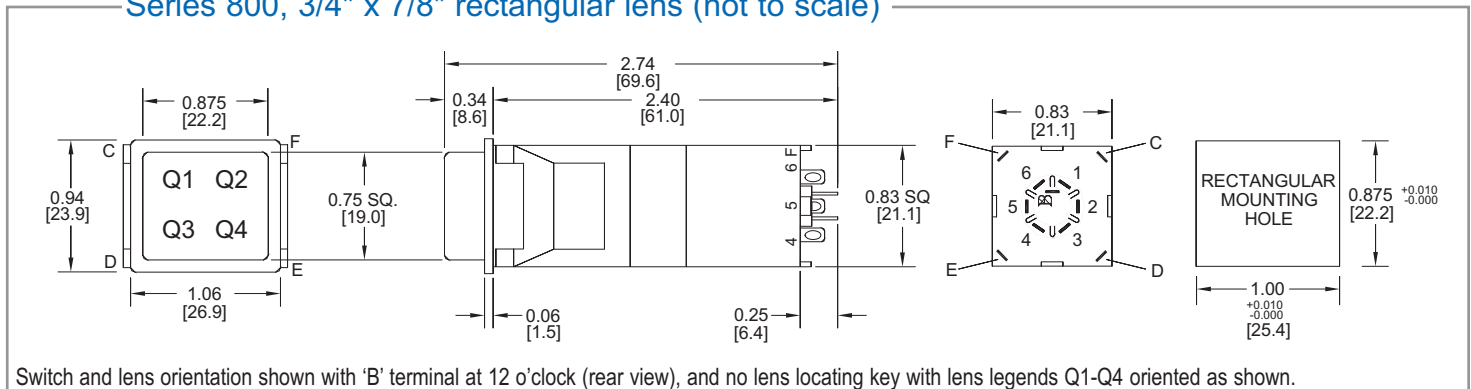
Ratings:	30 volts DC or 125 volts AC, 2.0A res., 0.5A ind.
Life:	100,000 cycles minimum
Weight:	0.8 oz. (23 g) (max.)
Operating Pressure:	2 lbs. \pm 1 lbs. (908g \pm 454g)
Plunger Travel:	0.187" (4.7mm) (approx.)
Terminals:	EMC solder lug terminals. Accepts two 20 AWG wires. PC pins or pigtailed also available.
Pushbutton Lenses:	See part number table (2x or 4x lamp/LED).
Lamps:	Lens accommodates two or four T-1-3/4 (5mm) MFB lamps or LED's. P/N must be specified.
LED's:	Polarity must be specified; see schem. page 3.

Warning: Illuminating 3 or all 4 lamps at one time will create excessive heat and may melt lens base. LED's recommended.

Series 600, 3/4" square lens (not to scale)



Series 800, 3/4" x 7/8" rectangular lens (not to scale)

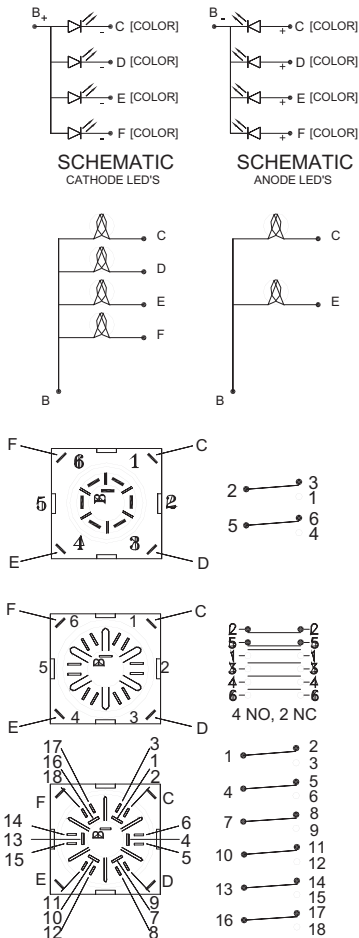
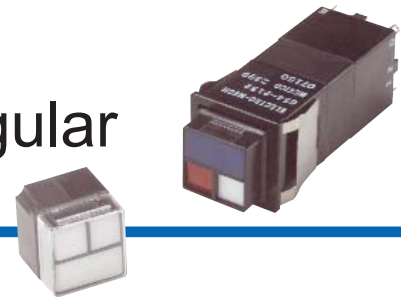


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Series 600/800

Multi-Image

3/4" Square or 3/4" x 7/8" Rectangular
Lighted Pushbutton Switches



Lens Option Description	3/4" Sq. Horizontal Key ULC*	3/4" Sq. Vertical Key URC*	3/4" x 7/8" Rectangular No Key
Dual light with no barriers	L811	L851	L831
Dual light with horizontal barrier	L812	L852	L832
Dual light with vertical barrier	L813	L853	L833
Quad light with no barriers	L814	L854	L834
Quad light with horizontal barrier	L815	L855	L835
Quad light with horizontal barrier plus vertical barrier in top half	L816	L856	L836
Quad light with horizontal barrier plus vertical barrier in bottom half	L817	L857	L837
Quad light with horizontal and vertical barriers	L818	L858	L838
Quad light with vertical barrier	L819	L859	839
Quad light with vertical barrier plus horizontal barrier in left half	L820	L860	L840
Quad light with vertical barrier plus horizontal barrier in right half	L821	L861	L841

*ULC = upper lefthand corner, horizontal mount; URC = upper right-hand corner, vertical mount.

Specifying Series 600/800 Dual and Quad Lamp Lens Filters and Legends:

1. Specify lens part number from table above. (If lens assembly will accommodate MFB Based LEDs, add a '2' after the L8.. (e.g. L8211C) as the lens assembly will be built with two internal L814-3 lamp retainer clips).

2a. If replaceable legend lens is required, specify "C" (clear), "F" (frosted), "S1" (smoke grey, glossy finish) or "S2" (smoke grey, with sand blasted finish). This cap will be removeable and legend and filter plates can be changed.

2b. If non-replaceable legend lens is required, specify "W" (white) or other color code (R, B, etc.). Lens cap will be epoxied to lens base.

3. Standard lens base is white. To order black, specify "black base." (Often used with PN/hidden legend appearance.)

4. Specify photo positive (PP) or photo negative (PN) lens legends after lens cap designation.

5. Specify all four quadrants of the lens assembly regardless of lens part number. The four quadrants are specified 1,2 across the top and 3,4 across the bottom. The four color codes before the slash are the non-illuminated lens color in the replaceable legend lens assembly. After the slash, the color codes are the filter colors. If no filter required, specify "CCCC".

Examples: L812W-RRGG/CCCC L815C/PP-GGWW/CCCC engr CKT A, CKT B
L838F-WRGY/YCCC L812S2/PN-WWWW/CCCC blk base engr READY, CAUTION

We have created many custom lenses including hidden legends, photo positive and negative legend films, and matte finishes. Please contact us regarding your specific requirements. (600-800 7/2015)

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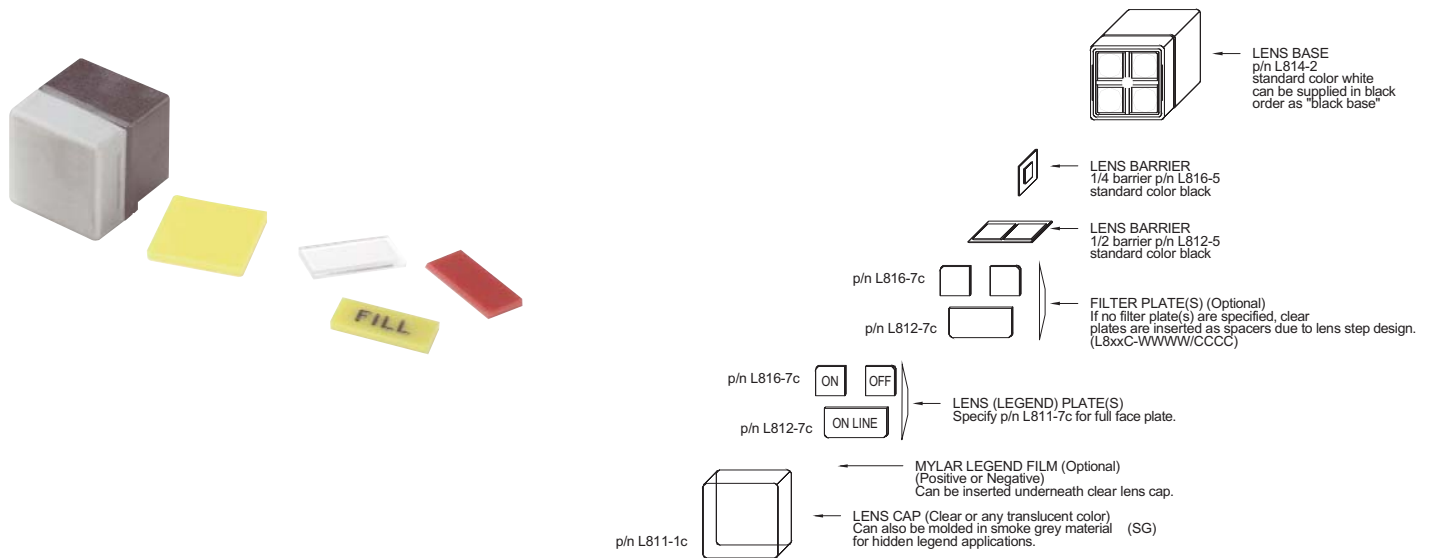
600/800 Series

Multi-Image

3/4" Square or 3/4" x 7/8" Rectangular Lighted Pushbutton Switches

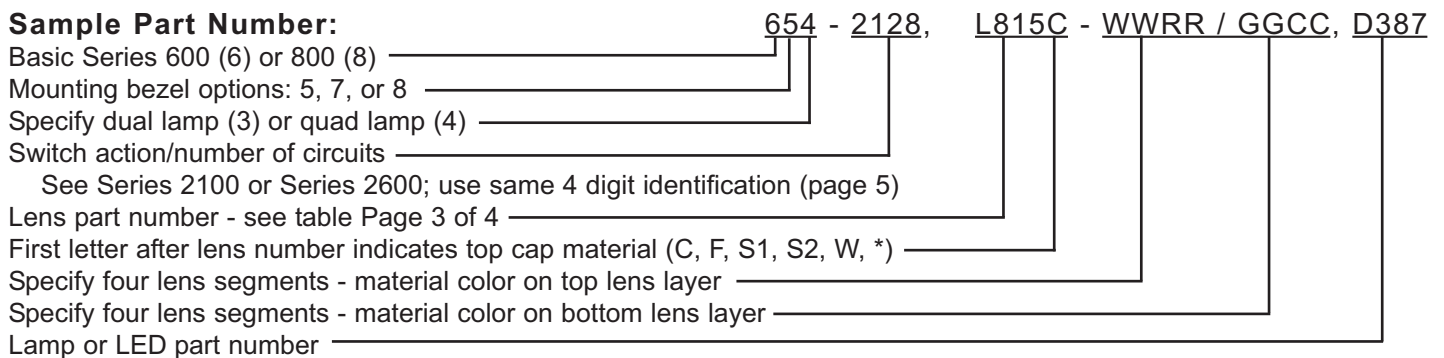
INTERCHANGEABLE LEGENDS/FILTERS

Series 600/800 models may be specified with standard lenses shown on Page 3 of 4 or these replaceable lens/filters for added versatility.



Ordering Information:

Sample Part Number:



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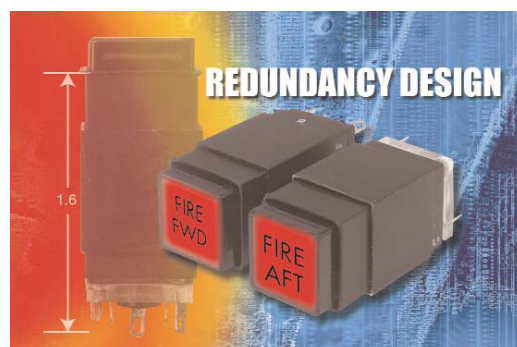


Series 644-2100

Front Panel Mount, Dual or Quad Lamp/LED
Pushbutton Switch
with Split Legend and Hidden Legend Lenses



- * Momentary, Momentary Snap Feel, or Alternate Action switching actions
- * SPST - DPDT switch circuitry
- * Easy lamp replacement from front
- * Up to four T-1 sub-midget flange-based lamps or LED's enhanced by hidden legend lens covers
- * Environmentally sealed models available (specify modification code "W")
- * Industry standard 0.698" square mtg. hole
- * < 3.0" behind panel depth
- * Matching annunciator (p/n 644-3210)



Electro-Mech has introduced its Series 644-2100 compact quad lamp / LED pushbutton switch assembly. It mounts in a 0.698 square mounting hole and accomodates up to four T-1 sub midget flange based lamps or LED's for maximum brightness or lamp redundancy. With circuitry up to 2PDT, this switch offers maximum display versatility in a compact package.

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Series 644-2100

Front Panel Mount, Dual or Quad Lamp/LED

Pushbutton Switch

with Split Legend & Hidden Legend Lenses

Specifications:

Ratings:	30 volts DC or 125 volts AC; 2.0A resistive, 0.5A inductive
Weight:	0.8 oz. (23 g) (approx.)
Operating Pressure:	2 lbs. ± 1 lb. (908g ± 454g)
Plunger Travel:	0.187 nominal (4.7mm)
Actuations:	100,000 minimum
Contacts:	Silver plated (gold plating optional)
Terminals:	Standard EMC solder lug. Accepts two 20 AWG wires. PC pin terminals also available.
Lens:	Accommodates a 0.645" (16.4mm) square lens.
Lamp or LED:	Accommodates four T-1 (3mm) sub-midget flange base lamp or LED. Lamp circuit is independent.

Front Panel Mounting

The switch mounts to the front panel using a mounting case that slides on from behind the panel and attaches to the switch case with a locking arm behind the panel. The locking arm is tightened with a screw located beneath the pushbutton lens which is removeable from the front panel. Lamp replacement also possible from the front panel.

HOW TO ORDER: All configurations in this product Series 644-2100 require a custom part number assigned by Electro-Mech due to many switch, lens, display, filters, and legend configuration options. Please call (626) 442-7180 for a custom part number (e.g. SW44xxx-xxx).

Part Number Table:

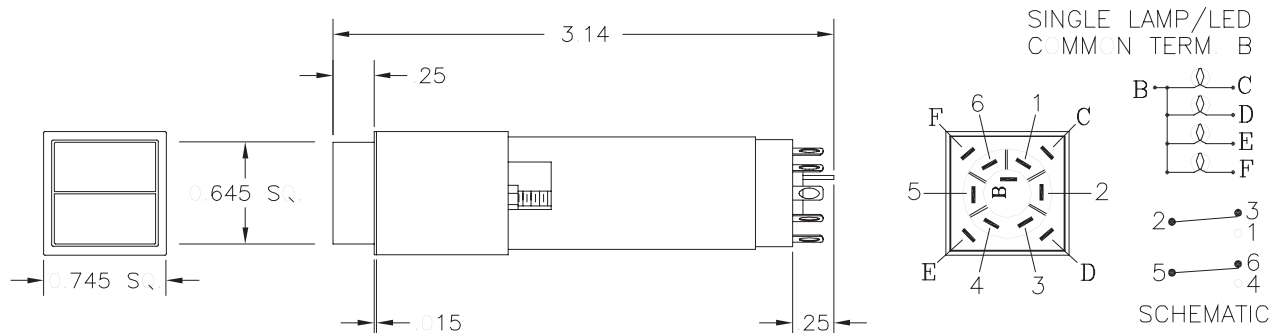
644-xxxx	2PST					1PDT	2PDT	Notes:
	SPST		1N.O.					
Action	1N.O.	1N.C.	2N.O.	2N.C.	1N.C.			
Momentary	2128	2129	2130	2131	2132	2149	2150	
Snap Feel Mom.	2428	2429	2430	2431	2432	2449	2450	Artificial click in momentary travel.
Push-On/Push-Off	2228	2229	2230	2231	2232	2249	2250	
Push-On/Remain-In/ Push-Off	2328	2329	2330	2331	2332	2349	2350	Button is physically depressed in down position.
Terminals Used:	1-2	2-3	1-2, 4-5	2-3, 5-6	1-2, 5-6	1-2-3	1-2-3, 4-5-6	See schematic below for terminal location.

For non-illuminated version, specify the digit "1" in the first position (e.g. 1150).

For indicator/annunciator only, specify part number 644-3210.

For LED installation, verify LED polarity: if V+ connected to terminal B (common), cathode LED's should be specified.

Series 644-2100 (not to scale)



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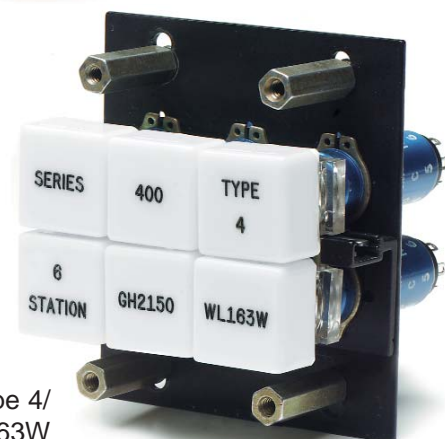
Series 400

Multi-Switch Interlocking Assembly Sub Panel Mounting Interlocking or Independent Stations



ELECTRO-MECH
COMPONENTS

P/N SW43281,WL161G seven station assembly



P/N 421-6/Type 4/
GH2150,WL163W

- ◆ Uses Series 2100 or 2600 Switches
- ◆ SPST - 6PDT switch circuitry
- ◆ Easy lamp replacement from front
- ◆ T 1-3/4 midget flange-based lamp or LED with replaceable lens covers in standard EMC colors
- ◆ 2 to 24 stations standard; Larger assemblies available
- ◆ No barriers between stations

Electro-Mech's Series 400 Multi-Station Switch Assemblies provide numerous configurations to meet a wide range of applications. Many standard mounting frames are available, and custom designs can be readily provided with custom "SW" drawing specifications.

Several types of mechanical/lockout actions between switch stations can be provided. The mechanical linkage between switch stations is made with electrofilmed steel parts, and is actuated by stainless steel pins. All Series 2100 and Series 2600 switches from SPST to 6PDT can be used in the multi-station assemblies.

More than one style of intelock/lockout relationship can be utilized in the same assembly. For example, in a five station assembly, three switches can be interlocked and locked out, and the other two switches operated independently. In addition, switches can be wired so the light comes on when the switch is action (standard lamp circuit is independent of switch circuit).



P/N 401-3/Type 1/GH3050,WL163W

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Series 400

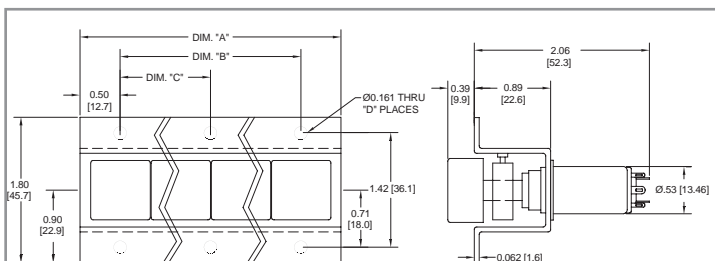
Multi-Switch Interlocking Assembly Sub Panel Mounting Interlocking or Independent Stations



P/N 421-6/Type 4/GH2150,WL163W

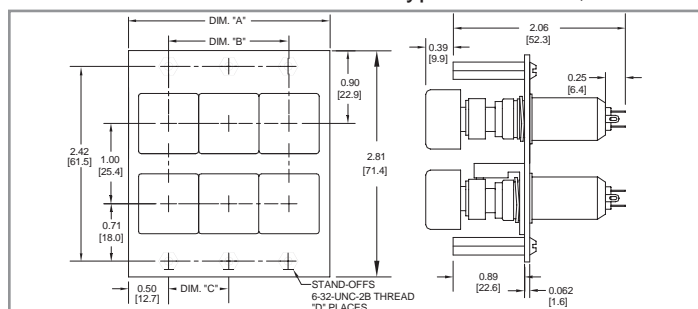
GENERAL SPECIFICATIONS: (Series 2100 or 2600)

- Ratings: 30 volts DC or 125 volts AC;
2.0A resistive, 0.5A inductive
- Operating Pressure: 2 lbs.± 1 lb. (908g ± 454g)
- Plunger Travel: 0.187 nominal (4.7mm)
- Switches accommodate standard EMC lenses and options.
- Lenses accommodate one T 1-3/4 mfb lamp or LED.



3/4" Centers/401=Single Row/421=Double Row

# Stns	1	2	3	4	5	6	7	8
Dim. A	1.00	1.75	2.50	3.25	4.00	4.75	5.50	6.25
Dim. B		0.75	1.50	2.25	3.00	3.75	4.50	5.25
Dim. C	(applies to units wider than 8 stations)							
Dim. D	2	4	4	4	4	4	4	4



1" Centers/403=Single Row/423=Double Row

# Stns	1	2	3	4	5	6	7	8
Dim. A	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00
Dim. B		1.00	2.00	3.00	4.00	5.00	6.00	7.00
Dim. C	(applies to units wider than 6 stations)							
Dim. D	2	4	4	4	4	4	6	6

ASSEMBLY TYPES AND FUNCTIONS - Series 400 and 500 Assemblies

TYPE 1: INDEPENDENT. Mounting frame only. No interaction between switches.

TYPE 2: MOMENTARY AND LOCKOUT. Each switch has momentary action, no two switches can be actuated at the same time (uses GH2100 momentary switch).

TYPE 3: INDEPENDENTLY MAINTAINED AND LOCKED OUT. Each switch locks down when depressed and can only be released by depressing it again; no two switches can be operated at the same time (uses GH2300/GH2800 switches).

TYPE 4: INTERLOCK AND LOCKOUT. Each switch locks down when depressed, and is released by pushing any other switch in the same assembly; no two switches can be operated at the same time (uses GH2100/GH2600) switches. (Note: interlock mechanism is external to switch action and thus uses momentary switches).

TYPE 5: MAINTAINED WITH MASTER RELEASE. Each switch locks down when depressed, and is released only by pushing a master release button mounted in the same assembly. One or more switches can be actuated at the same time and all actuated switches are released when the master release button is depressed.

TYPE 6: MAINTAINED WITH REMOTE MASTER RELEASE. Same as Type 5 except release button can be located in any remote location. Release button is wired to a solenoid in the assembly which releases the depressed station(s).

TYPE 7: MAINTAINED WITH REMOTE MASTER RELEASE AND MASTER RELEASE LOCKOUT. Same as Type 6 except that when the master release button is actuated and releases the depressed switches, it prevents further actuation of any of the switches. The master release must then be re-actuated to release the lockout.

TYPE 8: INTERLOCK AND LOCKOUT WITH MASTER RELEASE. Each switch locks down when depressed and is released by any other switch in the assembly or by a master release button in the same assembly.

TYPE 9: INTERLOCK AND LOCKOUT WITH REMOTE MASTER RELEASE. Same as Type 8 except the master release can be located in any remote location. Release button is wired to a solenoid in the assembly which releases the depressed switch.

TYPE 10: INTERLOCK AND LOCKOUT WITH REMOTE MASTER RELEASE AND MASTER RELEASE LOCKOUT. Same as Type 9 except that when the master release button is actuated and releases the locked switch, it prevents further actuation of the switches. The master release must then be re-actuate to release the lockout.

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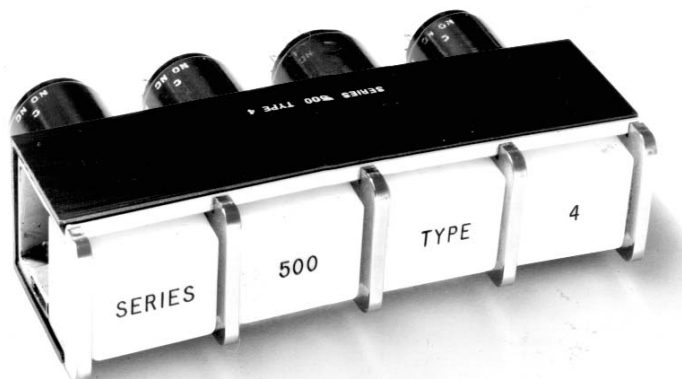
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Series 500

Multi-Switch Interlocking Assembly Front Panel Mounting

Chrome Plated Barriers Between Stations



P/N 503-4/Type 4/GH2652,WL165W-FG,D327 engr SERIES,500,TYPE,4

P/N 502-2/Type 4/Ver/GH2654,WL163G,R-FG,
D327 engr ON, OFF (white fill)

Electro-Mech Series 500 offers a line of front panel mounting assemblies which utilize Series 2100 or Series 2600 pushbutton switches. These assemblies feature long lasting chrome barriers that border each individual lens and adds a clean and durable appearance to the front panel. Assemblies are available in four styles with each being able to utilize all ten types of tracking action and switching sequences, as listed with the Series 400 specifications. The chart below shows the dimensional configurations for three of the four different styles (single row or double row, 0.87" or 1.00" centers) and can be custom modified to meet specific requirements.

Mounting: Series 500 assemblies push in from the front of the panel and attach with a mating "U" shaped mounting bracket behind the panel. Mounting bracket is attached to the switch assembly with screws as provided behind the panel.



Series 502 (uses L163 lens)
Single Row - 7/8" Centers

Series 503 (uses L165 lens)
Single Row - 1" Centers

Series 522 (uses L163 lens)
Double Row - 7/8" Centers - 1" bet. Rows

# Stns	A	B	C	D	E	F
1	0.976	0.488	1.35	1.00	0.986	0.877
2	1.851	0.488	1.35	1.00	1.861	0.877
3	2.726	0.488	1.35	1.00	2.736	0.877
4	3.601	0.488	1.35	1.00	3.611	0.877
5	4.476	0.488	1.35	1.00	4.486	0.877
6	5.351	0.488	1.35	1.00	5.361	0.877
7	6.226	0.488	1.35	1.00	6.236	0.877
8	7.101	0.488	1.35	1.00	7.111	0.877
9	7.976	0.488	1.35	1.00	7.986	0.877
10	8.851	0.488	1.35	1.00	8.861	0.877
11	9.726	0.488	1.35	1.00	9.736	0.877
12	10.601	0.488	1.35	1.00	10.611	0.877

# Stns	A	B	C	D	E	F
1	1.100	0.55	1.35	1.00	1.11	0.877
2	2.100	0.55	1.35	1.00	2.11	0.877
3	3.100	0.55	1.35	1.00	3.11	0.877
4	4.100	0.55	1.35	1.00	4.11	0.877
5	5.100	0.55	1.35	1.00	5.11	0.877
6	6.100	0.55	1.35	1.00	6.11	0.877
7	7.100	0.55	1.35	1.00	7.11	0.877
8	8.100	0.55	1.35	1.00	8.11	0.877
9	9.100	0.55	1.35	1.00	9.11	0.877
10	10.100	0.55	1.35	1.00	10.11	0.877
11	11.100	0.55	1.35	1.00	11.11	0.877
12	12.100	0.55	1.35	1.00	12.11	0.877

# Stns	A	B	C	D	E	F
2	0.976	0.488	1.35	2.00	0.986	1.88
4	1.851	0.488	1.35	2.00	1.861	1.88
6	2.726	0.488	1.35	2.00	2.736	1.88
8	3.601	0.488	1.35	2.00	3.611	1.88
10	4.476	0.488	1.35	2.00	4.486	1.88
12	5.351	0.488	1.35	2.00	5.361	1.88
14	6.226	0.488	1.35	2.00	6.236	1.88
16	7.101	0.488	1.35	2.00	7.111	1.88
18	7.976	0.488	1.35	2.00	7.986	1.88
20	8.851	0.488	1.35	2.00	8.861	1.88
22	9.726	0.488	1.35	2.00	9.736	1.88
24	10.601	0.488	1.35	2.00	10.611	1.88

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Ordering Information for Multi-Switch Assemblies

Series 400 and Series 500

Series 400

Sub Panel Mounting

<u>Series #</u>	<u># of Rows</u>	<u>Centers Dim.</u>	<u>Hardware</u>
400	Single Row	5/8" centers	Extruded channel
401	Single Row	3/4" centers	Extruded channel
402	Single Row	7/8" centers	Extruded channel
403	Single Row	1" centers	Extruded channel
411	Single Row	3/4" centers	Flat plate with standoffs
412	Single Row	7/8" centers	Flat plate with standoffs
413	Single Row	1" centers	Flat plate with standoffs
421	Double Row	3/4" centers	3/4" between switches and rows
422	Double Row	7/8" centers	7/8" between switches and rows
423	Double Row	1" centers	1" between switches and rows

Series 500

Front Panel Mounting

502	Single Row	7/8" centers	uses 3/4" square lenses
503	Single Row	1" centers	uses 3/4" x 7/8" lenses
522	Double Row	7/8" centers between switches in the row, 1" centers between rows; uses 3/4" square lenses	
523	Double Row	1" centers between switches and rows; uses 3/4" x 7/8" lenses	

Notes:

1. **Chrome barriers are supplied unless otherwise specified.** Other colors are black, grey, & white.
2. Special requirements such as different switches, lenses, and lens legends at different stations require a drawing number (SW4xxxx) to be assigned at no charge.

Part Number Description for Multi-Station Switch Assemblies

Sample part number:	<u>502-5/Type 4/GH2150,WL163W-FG,D327</u>
Series number _____	
Number of stations _____	
Type of switch interaction (see page 42) _____	
Modification code GH for switches (required) _____	
Switch part number (see pages 1-5) _____	
Lens part number (see pages 31-34) _____	
Lens color (see page 26) _____	
Modification code FG for fingernail groove on lens (optional) _____	
Lamp part number (see page 45) _____	

Lens legends: Specify legends by appending "engr " plus the actual characters on the lens. Separate each station by a comma. Separate lines on a single lens with a slash (e.g. engr STOP, READY, STATION/4). Specify photo positive (PP) or photo negative (PN) legend films after the lens color (e.g. L153W/PP).



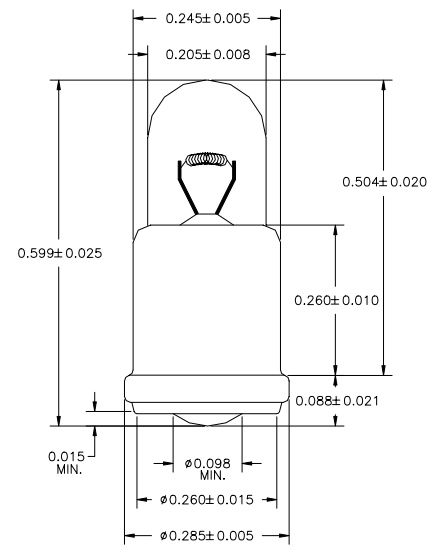


Electro-Mech Components offers four methods to illuminate its switches and lenses:

- (1) T 1-3/4 midget flange base incandescent lamps: see the Incandescent Lamp table below.
- (2) T 1-3/4 midget flange base LED's with built in resistor: see LED information below.
- (3) custom LED solutions where the LED (single color or multi color) is built into the switch/lens assembly. Please call the factory for specific capabilities.
- (4) T 1-3/4 midget flange base neon lamp with built-in 18K resistor: D5-18. No resistor: D3.

(1) Incandescent Lamps: T 1-3/4 (5mm) Midget Flange Base Size

Part Number	Design Volts	Design Amps	Ave. MSCd	Filament Shape	Life (hours)
D783	5.0	.06	.05	C-2R	100,000
D428	5.0	.18	.35	C-2R	3,000
D332	6.0	.20	.10	C-2F	50,000
D328	6.0	.20	.34@5V	C-2R	1,000
D380	6.3	.04	.03	C-2V	50,000
D350	6.3	.15	.45	C-2R	3,000
D381	6.3	.20	.40	C-2F	20,000
D349	6.3	.20	.55	C-2R	5,000
D394	12.0	.04	.12	C-2F	10,000
D6038	12.0	.06	.15	C-2F	16,000
D382	14.0	.08	.30	C-2F	50,000
D330	14.0	.08	.50	C-2F	1,500
D385	28.0	.04	.20	C-2F	25,000
D387	28.0	.04	.30	C-2F	7,000
D327	28.0	.04	.34	C-2F	4,000



(2) Specifications for T 1-3/4 (5mm) midget flange based LED's:

MF200 C - XXXX - VVH

MF200 = physical size designator
(MF200=T 1-3/4 (5mm) midget flange base)

C = cathode (optional; Anode standard)
XXXX = LED color and brightness specifications
(call factory for full specifications)

VV = Voltage (built-in resistor)
(05,06,12,24,28 VDC)

(3) Custom LED illumination: single color and bi-color LED's can be built into the switch (non-replaceable). We have built several custom configurations for a variety of applications in different voltages. Please call the factory for specific switch/lens/LED design capabilities.





Series LG and LGSL

Pushbutton Switch Accessory Safety Lens Cover



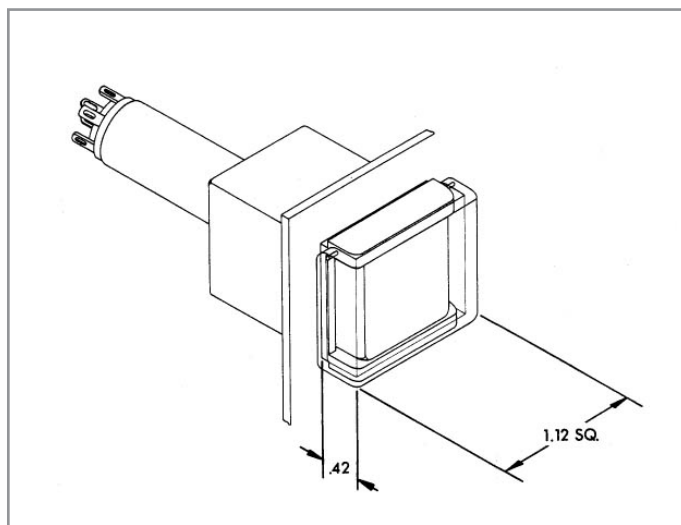
- ◆ Safety lens cover protects against accidental activation.
- ◆ Mar resistant
- ◆ Clear GE Lexan™ “see thru” design
- ◆ With or Without Spring Loaded Return

Available on the following Electro-Mech Switch/Annunciator Series’:

- ◆ **Series 60:** single lamp/LED, SPST-2PDT, momentary or alternate action
- ◆ **Series 600-800:** dual or quad lamp/LED, SPST-6PDT, momentary or alternate action
- ◆ **Series 644-2100:** dual or quad lamp/LED, SPST-4PDT, momentary or alternate action

How to Order:

- ◆ Specify “LG” or “LGSL” (spring loaded) after the adapter part number:
e.g. 67LGCS-350, 674LGSL-2350



P/N 67LGCS-230,L63R-FG engr STOP (white fill)

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Modification Codes

<u>Code</u>	<u>Example</u>	<u>Description</u>
A	L163A	Amber color
AE	2650AE	2 hex nuts and a washer
AF	2232AF	round slotted nut instead of a hex nut (std)
AF4	2150AF4	4 grooves on round slotted nut
AG	3054AG	12 volt solenoid coil
AH	2128AH	12 ounces \pm 4 ounces operating pressure
AM	L162W-AM	RFI shield in lens
AN	2649AN	16 ounces \pm 4 ounces operating pressure
AP	2430AP	9 ounces \pm 4 ounces operating pressure
AR	AR2150	1/2"-32 thread, 5/16" neck height
AY	2750AY	7 ounces \pm 4 ounces operating pressure
B	L23B	Blue color
BA	BA2228	Black Anodized switch case
BF	61BF-150	3/4" square (Big) Flange on 61- square bezel
BH	2650BH	22 ounces \pm 4 ounces operating pressure
BLK	L165BLK	Black color
BM	BM2128	alodine finish on switch case
BR	BR2450	1/2"-32 thread, 7/16" neck height
C	67C-2129	Chrome plated bezel
CA	2728CA	make before break circuit
CS	65CS-228	Clip Spring mounting on bezel
CSZ	65CSZ-149	Clip Spring mounting on bezel for 1/8"-1/4" panel
EL	65EL-350	Extra Long switch for flush mounted lens
F1	2850F1	special threaded plunger
F3	2149F3	special threaded plunger
FG	L63W-FG	Fingernail Groove on lens for easier removal
G	L63G	Green color
GH	GH2150	Gang Housing , 1/2" dia. neck, no thread, for assys.
GP	2130GP	Gold Plated contacts
GY	L23GY	Gray color
HM	65HM-2150	Hard Mount back-up mounting
L7xxx	L7163W	Long lens insert for PD style lens
L9xxx	L9123R	Short lens insert for PD style lens
LG	67LG-150	Lens Guard for 67- bezel (see page 34)
LK	21LK-250	Locating Key
NK	5350NK	No locating Key on case
NR	L167W-NR	Non-Removeable flange on bottom of lens
O	L65O	Orange color
PC	2128PC	Printed Circuit pins instead of solder lug terminals
PCM	2128PCM	Miniature printed circuit pins
PD	2132PD	Pendar modified switch
PH	65-PH2128	Plastic Housing: bezel and switch are unitized part
R	L62R	Red color
RG	2350RG	Rubber Gasket for sealing switch from panel
SB	65SB-150	Short mounting Bracket (1/8" shorter) for thick panel
TL	67TL-128	Twist Lock back-up mounting
W	W2150	Water resistant switch: epoxy bead and O-ring seal
W	L61W	White color
Y	L63Y	Yellow color
ZCS	61ZCS-350	Clip spring mounting on bezel for 1/8"-1/4" panel

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