

L6 Series – Miniature Switches and Pilot Devices

Key features:

- 5/8" (16mm) mounting holes
- Locking lever removable contact blocks
- Solder terminal or PCB terminal options
- Available assembled or as sub-components
- Worldwide approvals
- Incandescent or LED illumination
- Snap action contacts



UL Recognized
File No. E55996



CSA Certified
File No. LR21451



Registration No. R9551089 (E-stops)
Registration No. J9551458 (all other switches)
Registration No. R95650511 (Pilot Lights)

Switches & Pilot Devices

Signaling Lights

Relays & Sockets

Timers

Contactors




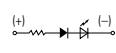
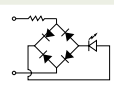

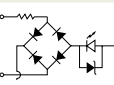
Terminal Blocks

Circuit Breakers

Contact Ratings





Conforming to Standards	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 NO.14					
Operating Temperature	Operation: -25 to +55°C (without freezing), 45 to 85% RH Storage: -30 to +80°C (without freezing)					
Vibration Resistance	5 to 55Hz, 1.0 peak-peak amplitude max					
Shock Resistance	Operating limit: 100 m/sec ² (approximately 10G) Damage limit: 1000 m/sec ² (approximately 100G)					
Mechanical Life	Momentary pushbuttons 2,000,000 operations minimum All others: 250,000 operations minimum					
Degree of Protection	IP65 (conforming to IEC 60529)					
Dielectric Strength	Switch unit: between live and ground: 2500 volt AC, 1 minute between terminals of different poles: 2500 volt AC, 1 minute between terminals of same pole: 1000 volt AC, 1 minute Illumination unit: between live part and ground: 2500 volt AC, 1 minute					
Insulation Resistance	100MΩ minimum (using 500V DC megger)					
Rated Insulation Voltage	250V AC/DC					
Rated Thermal Current	Gold Contacts (pcb): 3A Silver Contacts (solder): 5A					
Contact Resistance	50Ω maximum initial value					
Rated Operating Current		Silver Contacts (Solder Terminals)			Gold Clad Contacts (PCB terminals)	
		30V	125V	250V	30V	125V
	AC resistive	—	5A	2A	AC inductive	- 0.1A
	AC inductive	—	2A	1.5A	DC resistive	0.1A —
	DC resistive	3A	0.4A	—		
DC inductive	1A	0.2A	—			
Minimum Recommended Load (reference value for silver contacts)	5V AC/DC, 1mA					
Terminal Style	0.110" Solder Tab /PCB					
Contact Form	Snap Action, Double Throw					
Contact Material	Solder Tab: Pure Silver /PCB: Gold Plated Silver					
Electrical Life (at full load)	Momentary pushbuttons: 100,000 operations minimum (1800 operations / hour) All others: 100,000 operations minimum (1200 operations / hour)					
Lamp Current Draw	5V DC LED: 8mA					
	6V AC/DC LED: 7mA			6V AC/DC incandescent: 100 mA		
	12V AC/DC LED: 8mA			12V AC/DC incandescent: 50 mA		
	24V AC/DC LED: 8mA			24V AC/DC incandescent: 25 mA		
	120V AC = 8mA					
Lamp Life	Incandescent: 2000 hours./LED 50,000 hours. (on pure DC, half-life intensity)					

Built-in LED Lamp Ratings

Model	LFTD-5Ⓢ	LFTD-1Ⓢ	LFTD-2Ⓢ	LFTD-H2Ⓢ
Lamp Base	SX6S/8x5.4			
Rated Voltage	5V DC	12V AC/DC	24V AC/DC	120V AC
Operating Voltage	5V DC ±5%	12V AC/DC ±10%	24V AC/DC ±10%	120V AC ±5%
Current Draw	AC	9mA	9mA	8mA
	DC	8mA	8mA	—
Color Code Ⓢ	Specify a color code in place of Ⓢ in the Part No: A (amber), G (green), R (red), S (blue), W (white), Y (yellow)			
Lamp Base Color	Same as illumination color			
Voltage Marking	Stamped on the lamp base			
Life (reference value)	Approx. 50,000 hours			
Internal Circuit	A, R, W, Y	A, R, W, Y		 LED Chip  Protection Diode  Zener Diode
				
	G, S	G, S		
				

Non-Illuminated Pushbuttons (Assembled)

Non-Illuminated Pushbuttons

Style	Operation	Contact	Terminal Style	
			Solder Tab	PCB
Oversize Round Extended 	Momentary	SPDT	HA1B-M2C5-Ⓢ	HA1B-M2C1V-Ⓢ
		DPDT	HA1B-M2C6-Ⓢ	HA1B-M2C2V-Ⓢ
	Maintained	SPDT	HA1B-A2C5-Ⓢ	HA1B-A2C1V-Ⓢ
		DPDT	HA1B-A2C6-Ⓢ	HA1B-A2C2V-Ⓢ
Oversize Square Flush 	Momentary	SPDT	HA2B-M1C5-Ⓢ	HA2B-M1C1V-Ⓢ
		DPDT	HA2B-M1C6-Ⓢ	HA2B-M1C2V-Ⓢ
	Maintained	SPDT	HA2B-A1C5-Ⓢ	HA2B-A1C1V-Ⓢ
		DPDT	HA2B-A1C6-Ⓢ	HA2B-A1C2V-Ⓢ
Oversize Square Extended 	Momentary	SPDT	HA2B-M2C5-Ⓢ	HA2B-M2C1V-Ⓢ
		DPDT	HA2B-M2C6-Ⓢ	HA2B-M2C2V-Ⓢ
	Maintained	SPDT	HA2B-A2C5-Ⓢ	HA2B-A2C1V-Ⓢ
		DPDT	HA2B-A2C6-Ⓢ	HA2B-A2C2V-Ⓢ
Mushroom 	Momentary	SPDT	HA1B-M3C5-Ⓢ	HA1B-M3C1V-Ⓢ
		DPDT	HA1B-M3C6-Ⓢ	HA1B-M3C2V-Ⓢ
	Maintained	SPDT	HA1B-A3C5-Ⓢ	HA1B-A3C1V-Ⓢ
		DPDT	HA1B-A3C6-Ⓢ	HA1B-A3C2V-Ⓢ








Ⓢ Button Color Codes

Color	Code	Color	Code
Black	B	Blue	S
Green	G	White	W
Red	R	Yellow	Y

- In place of Ⓢ specify Button Color Code from table.
- Illuminated (translucent) style lenses also available, specify as such: instead of LA1B-M1C5-Ⓢ use LA1B-M1C5L-Ⓢ in place of Ⓢ (specify Lens Color Code from next page.)
- PCB terminal models also available with silver contacts (change "1" or "2" to "5" or "6" respectively, ie LA1B-M1C1V-Ⓢ becomes LA1B-M1C5V-Ⓢ).

Key Switches (Assembled)

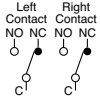
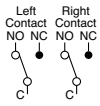
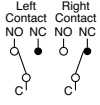
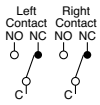
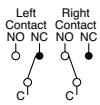
Key Switches


Style	Position	Contact	Terminal Style		
			Solder Tab	PCB	
 Oversize Round	90° 2-Position	Maintained 	DPDT	HA1K-2C6 ^③	HA1K-2C2V ^③
		Spring return from right 	DPDT	HA1K-21C6B	HA1K-21C2VB
	45° 3-Position	Maintained 	DPDT	HA1K-3C6 ^③	HA1K-3C2V ^③
		Spring return from right 	DPDT	HA1K-31C6 ^③	HA1K-31C2V ^③
		Spring return from left 	DPDT	HA1K-32C6 ^③	HA1K-32C2V ^③
		2-Way spring return 	DPDT	HA1K-33C6D	HA1K-33C2VD

1. In place of ^③ specify Key Retention Code from next page.
2. All assembled key switches have DPDT contacts. For SPDT see sub-assembled on next page.
3. PCB terminal models also available with silver contacts change "1" or "2" to "5" or "6" respectively, (ie LA1K-2C2V^③ becomes LA1K-2C6V^③).

Contact Operations


(for all selectors)

Contacts	Operator Position and Contact Operation	
2-pos. (DPDT)	Left	
	Right	
3-pos. (DPDT)	Left	
	Center	
	Right	

 As viewed from front of switch.

③ Key Retention Option Codes

Code	Description
A	Key not retained in any position (removable in all positions)
B	Key retained in right position only
C	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
H	Key retained left and center (3 position only)

 Key cannot be removed from a spring-return position.