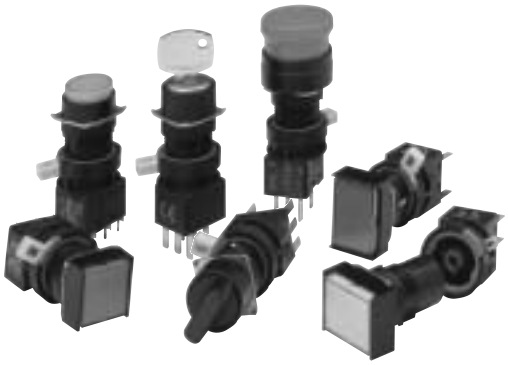
L6 Series — Miniature Switches and Pilot Devices

Key features of the 5/8" L6 Series include:

- **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

TÜV Rheinland

Registration No. R9551089 (E-stops)
Registration No. J9551458 (all other switches)
Registration No. J9650511 (Pilot Lights)

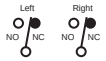
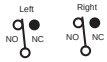
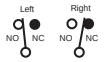
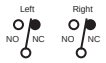
Contact Ratings	**Conforming to Standards**	EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 N0.14
	Operating Temperature	Operation: –25 to +55°C (without freezing), 45 to 85% rh Storage: -30 to +80°C (without freezing)
	Vibration Resistance	5 to 55Hz, 1.0 peak-peak amplitude max
	Shock Resistance	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	100 MΩ minimum (using 500V DC megger)
	Rated Insulation Voltage	250 V AC/DC
	Rated Thermal Current	Gold Contacts (pcb): 3A Silver Contacts (solder): 5A
	Contact Resistance	50 Ω maximum initial value
	Rated Operating Current	**Silver Contacts** (Solder Terminals): 30V / 125V / 250V AC resistive: - / 3A / 2A AC inductive: - / 2A / 1.5A DC resistive: 2A / 0.4A / - DC inductive: 1A / 0.2A / - **Gold Clad Contacts** (PCB terminals): 30V / 125V AC inductive: - / 0.1A DC resistive: 0.1A / -
	Minimum Recommended Load (reference value for silver contacts)	5 VAC/DC, 1mA
	Terminal Style	0.110" Solder Tab /PCB
	Contact Form	Snap Action, Double Throw
	Contact Material	Solder Tab: Pure Silver /PCB thermal 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 Ratings	**Lamp Current Draw**	5V DC LED: 8mA 6V LED: 7mA — 6V incandescent: 100 mA 12V LED: 8mA — 12V incandescent: 50 mA 24V LED: 8mA — 24V incandescent: 25 mA
	Lamp Life	Incandescent: 2000 hours./LED: 50,000 hours. (on pure DC, half-life intensity)
Buzzer Ratings	**Frequency**	2 khz ± 500 HZ
	Amplitude	80db @ 0.1m (at rated voltage)
	Operating Voltage	6V AC/DC or 12 - 24V AC/DC ± 10%
	Adjustable Cycle	55 to 600 cycles per minute
	Current Draw	DC: 7mA AC: 20mA
	Life	1000 hrs. minimum
	Insulation Voltage	60V AC/DC
	Operating Temperature	-20 to 55 C (no freezing), 45 to 85% rh

Key Switches (Assembled)

Part Numbers: Key Switches

Style		Operation		Contacts	Terminal Type	
					Solder Tab	PCB
Round 	90 2-Position	Maintained	L R	DPDT	LA1K-2C6③	LA1K-2C2V③
		Spring return from right	L R	DPDT	LA1K-21C6B	LA1K-21C2VB
	45 °3-Position	Maintained	L C R	DPDT	LA1K-3C6③	LA1K-3C2V③
		Spring return from right	L C R	DPDT	LA1K-31C6③	LA1K-31C2V③
		Spring return from left	L C R	DPDT	LA1K-32C6③	LA1K-32C2V③
		2-Way spring return	L C R	DPDT	LA1K-33C6D	LA1K-33C2VD
Square 	90° 2-Position	Maintained	L R	DPDT	LA2K-2C6③	LA2K-2C2V③
		Spring return from right	L R	DPDT	LA2K-21C6B	LA2K-21C2VB
	45 °3-Position	Maintained	L C R	DPDT	LA2K-3C6③	LA2K-3C2V③
		Spring return from right	L C R	DPDT	LA2K-31C6③	LA2K-31C2V③
		Spring return from left	L C R	DPDT	LA2K-32C6③	LA2K-32C2V③
		2-Way spring return	L C R	DPDT	LA2K-33C6D	LA2K-33C2VD
Rectangular 	90 °2-Position	Maintained	L R	DPDT	LA3K-2C6③	LA3K-2C2V③
		Spring return from right	L R	DPDT	LA3K-21C6B	LA3K-21C2VB
	45 °3-Position	Maintained	L C R	DPDT	LA3K-3C6③	LA3K-3C2V③
		Spring return from right	L C R	DPDT	LA3K-31C6③	LA3K-31C2V③
		Spring return from left	L C R	DPDT	LA3K-32C6③	LA3K-32C2V③
		2-Way spring return	L C R	DPDT	LA3K-33C6D	LA3K-33C2VD
Oversize Round 	90 °2-Position	Maintained	L R	DPDT	HA1K-2C6③	HA1K-2C2V③
		Spring return from right	L R	DPDT	HA1K-21C6B	HA1K-21C2VB
	45 °3-Position	Maintained	L C R	DPDT	HA1K-3C6③	HA1K-3C2V③
		Spring return from right	L C R	DPDT	HA1K-31C6③	HA1K-31C2V③
		Spring return from left	L C R	DPDT	HA1K-32C6③	HA1K-32C2V③
		2-Way spring return	L C R	DPDT	HA1K-33C6D	HA1K-33C2VD

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.

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-2C2V③ becomes LA1K-2C6V③.*

Key Switches (Sub-Assembled)

Contacts	+	Safety lever lock	+	Operator	=	Complete Part




Part Numbers: Operators

Style	Positions	Operation	Part Number
Round 	2	Maintained Spring from right	LA1K-2③ LA1K-21B
	3	Maintained Spring from right Spring from left Spring from both	LA1K-3③ LA1K-31③ LA1K-32③ LA1K-33D
Square 	2	Maintained Spring from right	LA2K-2③ LA2K-21B
	3	Maintained Spring from right Spring from left Spring from both	LA2K-3③ LA2K-31③ LA2K-32③ LA2K-33D
Rectangular 	2	Maintained Spring from right	LA3K-2③ LA3K-21B
	3	Maintained Spring from right Spring from left Spring from both	LA3K-3③ LA3K-31③ LA3K-32③ LA3K-33D
Oversize Round 	2	Maintained Spring from right	HA1K-2③ HA1K-21B
	3	Maintained Spring from right Spring from left Spring from both	HA1K-3③ HA1K-31③ HA1K-32③ HA1K-33D

1. In place of ③ specify key removable code from table on right.
2. Operator includes two keys.

Part Numbers: Contacts

Appearance		Contacts	Terminal Style: Solder Tab	Terminal Style: PCB
	Gold	SPDT DPDT	HA-C1 HA-C2	HA-C1V HA-C2V
	Silver	SPDT DPDT	HA-C5 HA-C6	HA-C5V HA-C6V

1. All assembled selectors listed on previous page use DPDT contacts.
2. SPDT contacts are for use on 2 position key switches only.

Part Number: Safety Lever Lock

Appearance	Part Number
	HA9Z-LS

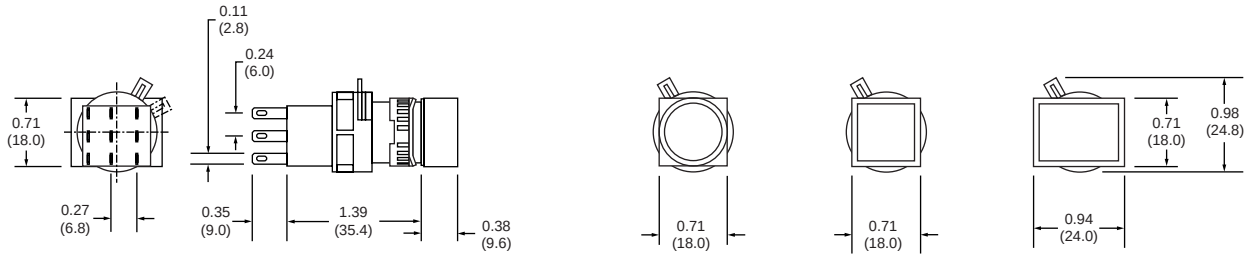
③ Key Retention Option Codes

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)

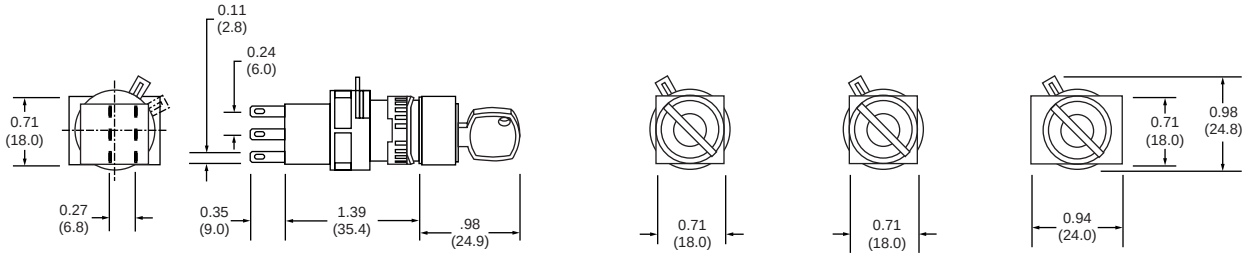
Key cannot be removed from a spring-return position.

Dimensions con't

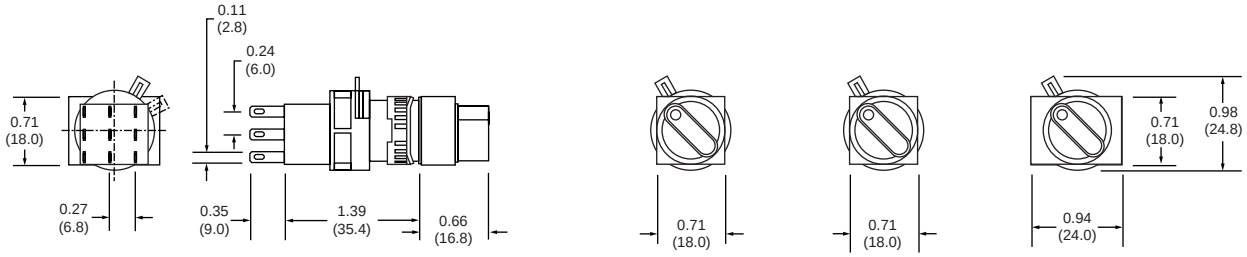
Illuminated Pushbuttons (LA*L)



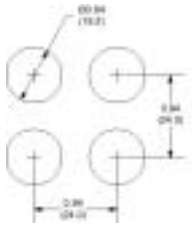
Key Switches (LA*K)



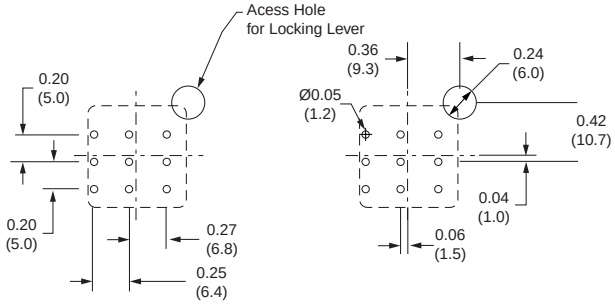
Selector Switches (LA*S)



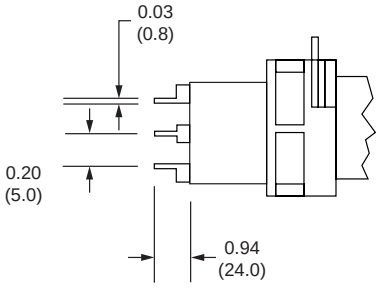
Panel Cut-Out



PCB Layout (except for Buzzer and E-Stop)



PCB Pins



HA1B E-Stop

PCB Mounting Pattern