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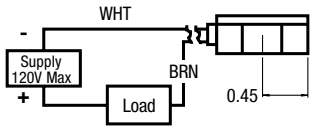
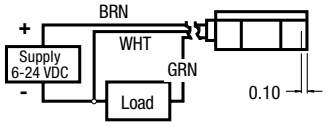
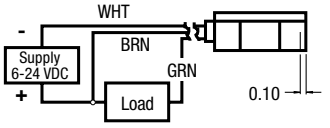
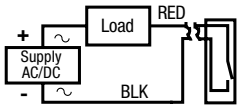
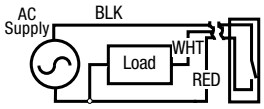
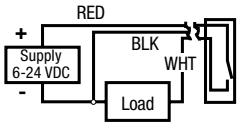
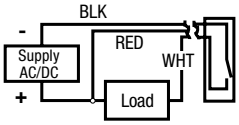
Service Bulletin 0914-G-E1

Series SA Switch Specifications

Issued: May, 2000
Supersedes: None

Specifications

Switch Model	LO77610000	LO77640000	LO77650000
Bore Sizes	1 1/8" thru 2 1/2"	1 1/8" thru 2 1/2"	1 1/8" thru 2 1/2"
Switch Type	Reed Switch, *MOV & Light	Hall Effect & Light, Sourcing PNP	Hall Effect & Light, Sinking NPN
Function	SPST Normally Open	Normally Open	Normally Open
Switching Voltage	5-120 VDC/VAC, 50/60 Hz	6-24 VDC	6-24 VDC
Switching Current	.5 Amp Max, .005 Amp Min	.5 Amp Max	.5 Amp Max
Switching Power	10 VA	12 Watts Max	12 Watts Max
Max Voltage Drop	3.5 Volts	.5 Volts	.5 Volts
Magnetic Sensitivity	85 Gauss	85 Gauss	85 Gauss
Enclosure Classification	NEMA 6 & CSA Approved	NEMA 6 & CSA Approved	NEMA 6 & CSA Approved
Temperature Range	-22°F to +176°F	-22°F to +176°F	-22°F to +176°F
Wiring Diagrams	 Center of Sensing Area	 Center of Sensing Area	 Center of Sensing Area

Switch Model	LO77620000	LO77630000	LO77660000	LO77670000
Bore Sizes	2" thru 8"*	2" thru 8"*	2" thru 8"*	2" thru 8"*
Switch Type	Reed Switch, *MOV & Light	Reed Switch, *MOV & Light, 3 Wire	Hall Effect & Light, Sourcing PNP	Hall Effect & Light, Sinking NPN
Function	Normally Open	Normally Open	Normally Open	Normally Open
Switching Voltage	5-240 VDC/VAC, 50/60 Hz	24-240 VAC, 50/60 Hz	6-24 VDC	6-24 VDC
Switching Current	1 Amp Max	4 Amp Max, 50 Amp Inrush	1 Amp Max	1 Amp Max
Switching Power	30 Watts Max	100 Watts Max	24 Watts Max	24 Watts Max
Max Voltage Drop	3 Volts	N/A	.5 Volts	.5 Volts
Magnetic Sensitivity	85 Gauss, Parallel	85 Gauss, Parallel	85 Gauss, Parallel	85 Gauss, Parallel
Enclosure Classification	NEMA 6 & CSA Approved	NEMA 6 & CSA Approved	NEMA 6 & CSA Approved	NEMA 6 & CSA Approved
Temperature Range	-22°F to +176°F	-22°F to +176°F	-22°F to +176°F	-22°F to +176°F
Wiring Diagrams				

Application Recommendations and Precautions

To provide maximum reliability:

1. Always stay within the specifications and power rating limitations of the unit installed.
2. Primary and control circuit wiring should not be mixed in the same conduit. Motors will produce high pulses that will be introduced into the control wiring if the wiring is carried in the same conduit.
3. Never connect the switch without a load present. The switch will be destroyed.
4. Some electrical loads may be capacitive. Capacitive loading may occur due to distributed capacity in cable runs over 25 feet. Use switch Model L077630000 whenever capacitive loading may occur.

In order to obtain optimum performance and long life, magnetically operated limit switches should not be subjected to: (1) strong magnetic fields, (2) extreme temperature, and (3) excessive ferrous filing or chip buildup.

Improper wiring may damage or destroy the switch. The wiring diagram, along with the listed power ratings, must be carefully observed before connecting power to the switch.

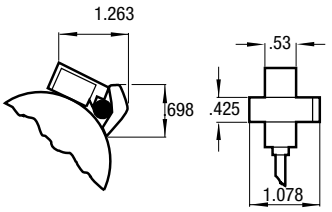
Lower power switches are designed for signaling electronic circuits. Do not use on relay loads or with incandescent bulbs. Resistive loads only.

*Metal Oxide Varistor Surge Suppression.
NOTE: All Switches are supplied with 9 foot leads.

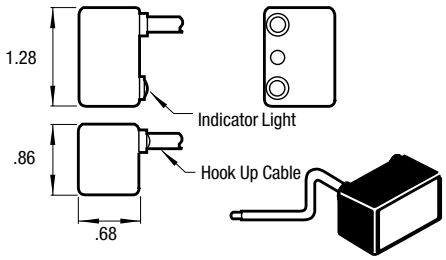
Switch & Mounting Bracket Dimensions

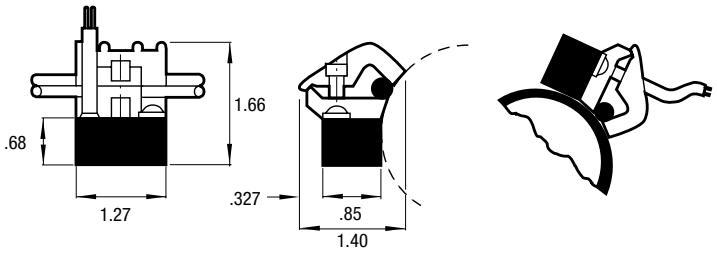
Current Rating	Sensor Type	Bore Sizes	
		1 1/8"-2 1/2 " Bore	2"-8" Bore
.5 amp max	Reed	L077610000	–
1 amp max	Reed	–	L077620000
4 amp max	Reed	–	L077630000
.5 amp max	NPN	L077650000	L077670000
.5 amp max	PNP	L077640000	L077660000

1 1/8" to 2 1/2" Bores Sizes (.5 amp max)



2" to 8" Bores Sizes





Installation Tips:

1. Current & voltage demands of the load must NOT exceed the current & voltage ratings of the selected switch (shown on the enclosed wiring diagram). Failure to use proper load will ruin the switch. For DC voltages always observe polarity.
2. Two wire versions can not be connected directly across the power supply without a series load. Failure to use a series load will damage the switch and possibly the power supply.
3. Never test switch with a filament light bulb as a load. Severe inrush currents will impair the switch or cause premature failure.
4. There are three types of loads:
   resistive (PC or PLC)
   capacitive (long wire runs)
   inductive (solenoids)
5. The shorter the wire runs, the lower the capacitive load and the longer the switch life.
6. Always keep the area around the switch clean and free from potentially magnetic field-carrying debris. The switches actuate on magnetic fields produced from the cylinder position. Stray magnetism can give unwanted switch actuation or change the switch point.
7. When using the switch to actuate a solenoid, always use a surge suppression version and/or Canfield MPC solenoid valve surge suppression connectors. Without it large inductive spikes can severely limit switch life expectancy.
8. Use the switch to indicate end of physical stroke. Do not rely on switch alone to stop cylinder travel.
9. Be sure the sensing area of the switch is installed completely against the cylinder wall.
10. Some Reed and Hall switches are equipped with indicator lights. Their light always depicts an output voltage from the switch. On these versions, the two wire hook-up necessitates a minimum current load rating which must be enough to light the LED (@ 0.005 Amps). Three wire hook-up versions take no minimum current rating to light the LED.

Trouble Shooting Notes:

Problem	***Solution***
Reed Switch Models	
Reed switch works but LED does not light	1. Check current draw of load. It must be > 5 mA for LED to light. 2. Check polarity: Red (+) and Black (-) if using DC power supply.
Reed switch sticks in closed position	1. Check current draw, power/VA and voltage of load and compare with specs of the appropriate model sensor. These can not be exceeded. 2. Voltage/Current spikes may be excessive for your particular load. External transient suppression may be required. 3. Long wire runs (greater than 25') can cause capacitance build-up and sticking will result.
Current or voltage leakage when reed switch is off.	1. Check current, power/VA and voltage rating of load and compare with specs of appropriate model sensor. Those can not be exceeded. 2. Reed element was damaged. Consult factory.
Reed switch will not turn on.	1. Check magnet strength on surface of sensor. It must be >85 Gauss. 2. Switch is damaged. Consult factory. 3. Check for proper wiring.
Reed switch turns on more than once as magnet passes beneath it.	1. Check for proper magnet polarity. The poles must be parallel to the switch as shown in the wiring diagram. 2. Check for dead spots on the magnet if polarity is correct.
Hall Effect Models	
Hall Effect switch stays on always	1. Power supply exceeds 24 VDC. Regulate if possible. 2. Switch is wired incorrectly. Check wiring diagram. 3. Switch was damaged possibly by transients, or excessive current draw. Consult factory.
Hall Effect switch will not turn on.	1. Check magnet strength on surface of sensor. It must be >85 Gauss. 2. Check for proper wiring. 3. Switch is damaged. Consult factory.
Hall Effect switch turns on more than once as magnet passes beneath it.	1. Check polarity of the magnet. The poles should be oriented as shown in the wiring diagram. 2. Check for dead spots on the magnet if polarity is correct.
Current or voltage leakage when Hall Effect switch is off.	1. Check current, and voltage rating of load and compare with specs of appropriate model sensor. Those can not be exceeded. 2. Check for proper wiring. 3. Hall Effect element was damaged. Consult factory.

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