

## Solid State Sensors

Part Numbers	L074810000 NPN Sinking L074820000 PNP Sourcing
Switching Logic.....	NPN or PNP
Supply Voltage Range .....	10-30 VDC
On-State Voltage Drop.....	See Circuits Below
Current Output Range .....	Up to 100 mA at 12 VDC Up to 200 mA at 24 VDC
Burden Current.....	7 mA at 12 VDC 16 mA at 24 VDC
Leakage Current.....	10µA
LED Function.....	Red, Target Present
Minimum Current to Light LED.....	1 mA
Operating Temperature.....	14° to 140°F (-10° to 60°C)
Storage Temperature .....	-4° to 158°F (-20° to 70°C)
Enclosure Protection .....	Nema 6, IEC IP67
Lead Wire .....	3 conductor, 24 Gauge
Lead Wire Length .....	39 Inches, 1 Meter
Color of Cable.....	See Below
Switching Response.....	1000 Hz Maximum

## Reed Sensors

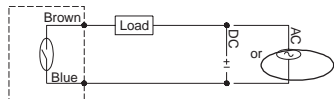
Part Number	L074800000
Switching Logic.....	Normally open, SPST (Form A)
Supply Voltage Range .....	85 to 125 VAC or 5-30 VDC <sup>1</sup>
On-State Voltage Drop.....	1.7 V Maximum
Power Rating .....	10 Watts (Resistive) 5 Watts (Capacitive)
Switching Current Range.....	30 mA to 200 mA (Resistive) 30 mA to 100 mA (Capacitive)
Leakage Current.....	0
LED Function.....	Red, Target Present
Minimum Current to Light LED.....	18 mA
Operating Temperature.....	14° to 140°F (-10° to 60°C)
Storage Temperature .....	-4° to 140°F (-20° to 60°C)
Enclosure Protection .....	Nema 6, IEC IP67
Lead Wire .....	2 conductor, 24 Gauge
Lead Wire Length .....	39 Inches, 1 Meter
Color of Cable.....	Black
Switching Response.....	300 Hz Maximum
Shock Resistance .....	30g
Vibration Resistance.....	10-55 Hz, 1.5 mm, Double Amplitude

<sup>1</sup>Polarity is restricted to DC operation: (+) to Brown (White\*) (-) to Blue (Black\*)  
If these connections are reversed the contacts will close, but the LED will not light.

## Circuits

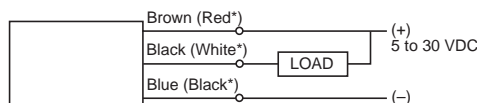
### Reed Sensor

Part No..... L074800000  
NOTE: Polarity must be observed  
for DC operation only.



### NPN Sensor – Sinking Output

Part No..... L074810000  
Color of Cable..... Black  
“On” State Voltage Drop.....0.7V Maximum



### PNP Sensor – Sourcing Output

Part No..... L074820000  
Color of Cable..... Gray  
“On” State Voltage Drop..... 0.2V Maximum

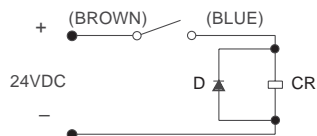


\*Wire colors in parentheses pertain to sensors manufactured before 10/15/93.

## Circuit for Switching Contact Protection (Inductive Loads)

### (Required for proper operation 24V DC)

Put Diode parallel to load (CR) following polarity as shown below.



D: Diode: select a Diode with the breakdown voltage and current rating according to the load.

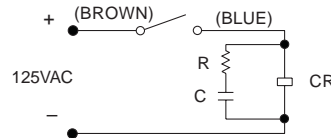
**Typical Example**—100 Volt, 1 Amp Diode  
CR: Relay coil (under 0.5W coil rating)

### (Recommended for longer life 125 VAC)

Put a resistor and capacitor in parallel with the load (CR). Select the resistor and capacitor according to the load.

#### Typical Example:

CR: Relay coil (under 2W coil rating)  
R: Resistor 1 KΩ – 5 KΩ, 1/4 W  
C: Capacitor 0.1 µF, 600 V



## Caution

- Use an ammeter to test reed sensor current. Testing devices such as incandescent light bulbs may subject the reed sensor to high in-rush loads.
- NOTE: When checking an unpowered reed sensor for continuity with a digital ohmmeter the resistance reading will change from infinity to a very large resistance (2 M ohm) when the sensor is activated. This is due to the presence of a diode in the reed sensor.
- Anti-magnetic shielding is recommended for reed sensors exposed to high external RF or magnetic fields.
- The magnetic field strength of the piston magnet is designed to operate with our sensors. Other manufacturers' sensors may not operate correctly in conjunction with these magnets.
- Current capabilities are relative to operational temperatures.
- Use relay coils for reed sensor contact protection.
- The operation of some 120 VAC PLC's (especially some older Allen-Bradley PLC's) can overload the reed sensor. The sensor may fail to release after the piston magnet has passed. This problem may be corrected by the placement of a 700 to 1K OHM resistor between the sensor and the PLC input terminal. Consult the manufacturer of the PLC for appropriate circuit.
- Sensors with long wire leads (greater than 15 feet) can cause capacitance build-up and sticking will result. Attach a resistor in series with the reed sensor (the resistor should be installed as close as possible to the sensor). The resistor should be selected such that  $R \text{ (ohms)} > E/0.3$ .