

## Infrared Sensors

### Through Beam Modules

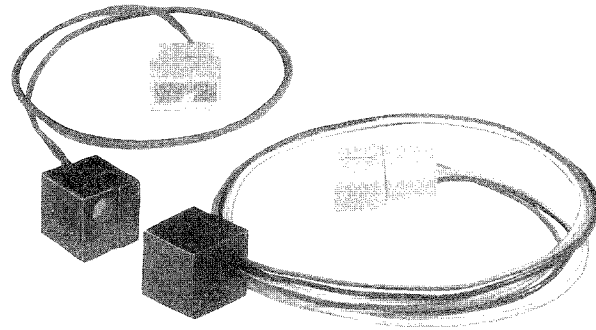
## SPX 1189 Series

#### FEATURES

- Emitter and detector in separate modules for variable spacing
- Terminated with Molex connectors on 12 inch leads
- Internal current limiting resistor
- Direct TTL interface
- Buffer logic
- Fast response time
- Ambient light immunity

#### TYPICAL APPLICATIONS

- Edge detection
- Position control
- Parts counting
- Mail sorting



SPX1189 Series through beam infrared sensor modules work together as a pair. The IRED (infrared emitting diode), SPX1189-002, and the detector (phototransistor), SPX1189-003, are enclosed in black thermoplastic housings. The 12 inch (305 mm) long 26 AWG leadwires are terminated with Molex 03-06-2032 connectors.

The detector's NPN output switches whenever an opaque object blocks the beam path. The buffer logic provides a logic high when the optical path is clear, and a logic low when the optical path is interrupted. The internal current limiting resistor in the emitter module eliminates the need for an external interface circuit. The detector contains an IR transparent filter, minimizing the effect of visible ambient light.

The SPX1189 Series through beam modules are tested for coupled characteristics at a gap of 4 inches (101,6 mm). This gap can easily be changed for applications with other spacing requirements.

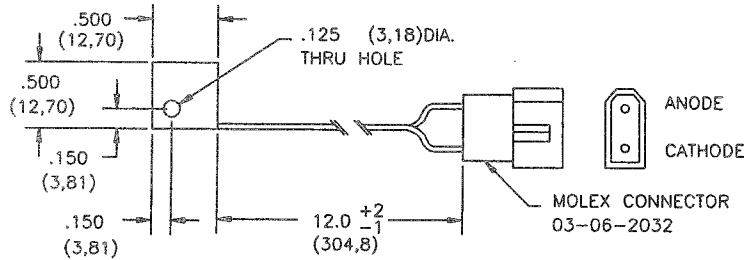
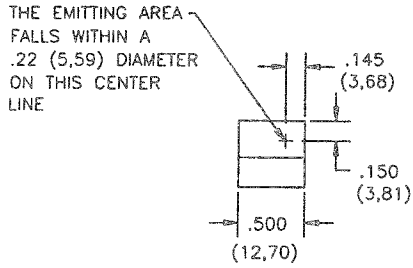
# Infrared Sensors

## Through Beam Modules

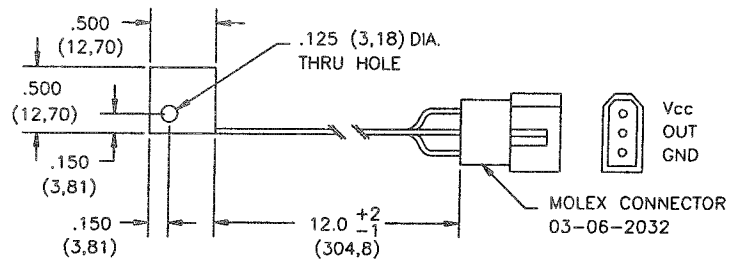
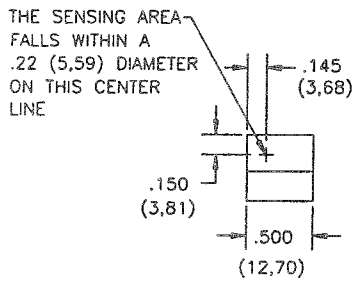
SPX1189 Series

### MOUNTING DIMENSIONS (for reference only)

#### Emitter, SPX1189-002

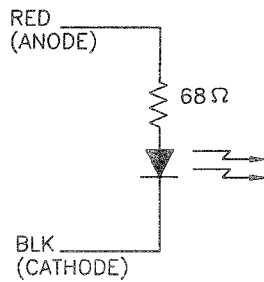


#### Detector, SPX1189-003

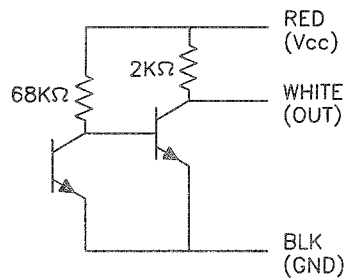


### SCHEMATIC

#### Emitter, SPX1189-002



#### Detector, SPX1189-003



### NOTICE

Housing material is Valox. Do not expose to chlorinated hydrocarbons and ketone. Recommended cleaning agents are methanol and isopropanol.

# Infrared Sensors

## Through Beam Modules

## SPX1189 Series

### ABSOLUTE MAXIMUM RATINGS

(25°C Free air temperature unless otherwise noted)

|                                   |                             |
|-----------------------------------|-----------------------------|
| Emitter module operating voltage  | 2 to 7 V                    |
| Detector module operating voltage | 5 to 12 V                   |
| Operating temperature             | 0 to +50°C (32 to +122°F)   |
| Storage temperature               | -20 to +85°C (-4 to +185°F) |

### NOTICE

Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

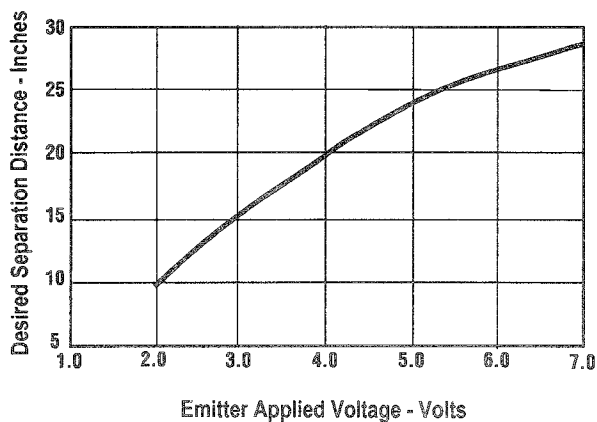
### SPECIFICATIONS

| Parameter                 | Symbol   | Value                  | Test Condition   |
|---------------------------|----------|------------------------|--|
| Operating Voltage         | $V_{CC}$ | 5 V $\pm$ 10%          | $T_A = 25^\circ\text{C}$   |
| Low Level Output Voltage  | $V_{OL}$ | 0.4 V Max.             | $V_{CC} = 5\text{ V}$ , $I_{OL} = 10\text{ mA}$ , Light path blocked (see Note)    |
| High Level Output Voltage | $V_{OH}$ | 4.5 V Min.             | $V_{CC} = 5\text{ V}$ , $I_{OH} = 0\text{ mA}$ , Light path not blocked (see Note) |
| Output Sink Current       | $I_{OL}$ | 10 mA                  | $V_{CC} = 5\text{ V}$ , $V_{OL} = 0.4\text{ V}$                                    |
| Response Time             |          |                        |  |
| Output Rise Time          | $T_r$    | 5 $\mu\text{s}$ Typ.   | $V_{CC} = 5\text{ V}$ , $R_L = 1000\ \Omega$                                       |
| Output Fall Time          | $T_f$    | 200 $\mu\text{s}$ Typ. | $V_{CC} = 5\text{ V}$ , $R_L = 1000\ \Omega$                                       |

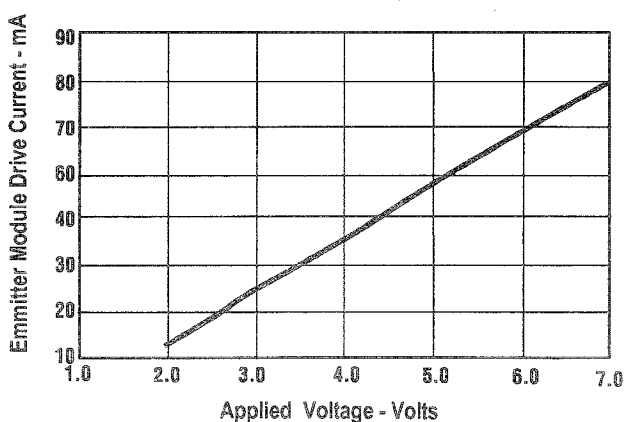
**NOTE:** Emitter and detector are tested at 4.0 inch (101,6 mm) separation.

### TYPICAL PERFORMANCE CURVES

Separation Distance vs Emitter Applied Voltage



Emitter Module Drive Current vs Applied Voltage



# Infrared Sensors

## Through Beam Modules

## SPX1189 Series

### ORDER GUIDE

| Catalog Listing | Description   |
|-----------------|---|
| SPX1189-002     | Through beam emitter module, connector termination  |
| SPX1189-003     | Through beam detector module, connector termination |

### SALES AND SERVICE

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