



**THE DATASHEET OF
SPX1189-003**



Infrared Sensors

Through Beam Modules

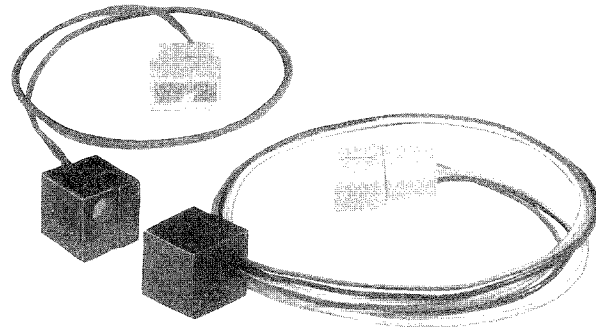
SPX 1189 Series

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.

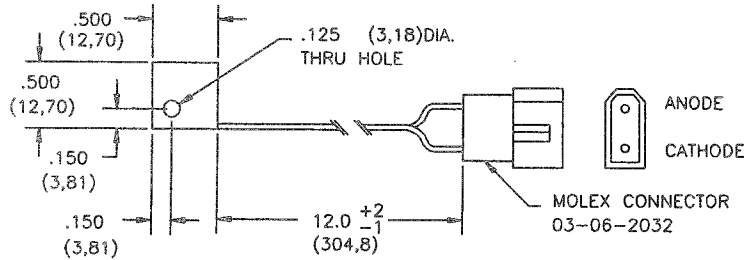
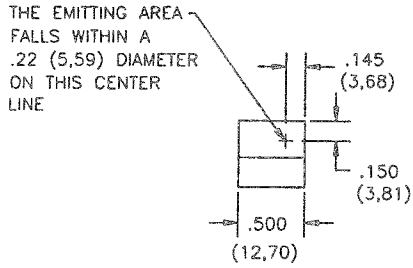
Infrared Sensors

Through Beam Modules

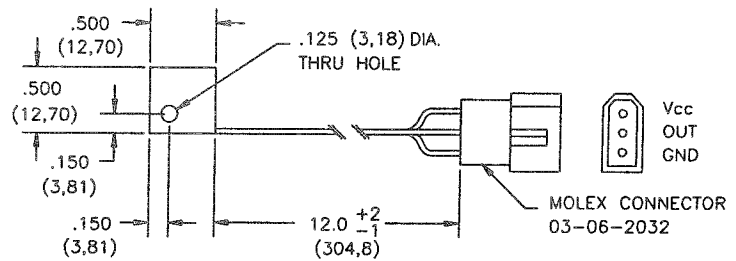
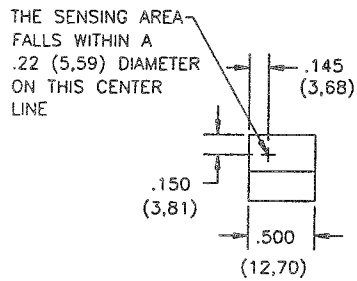
SPX1189 Series

MOUNTING DIMENSIONS (for reference only)

Emitter, SPX1189-002

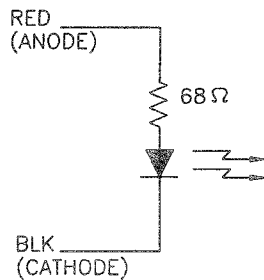


Detector, SPX1189-003

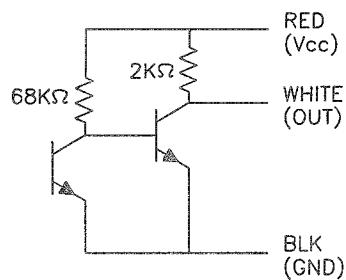


SCHEMATIC

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.

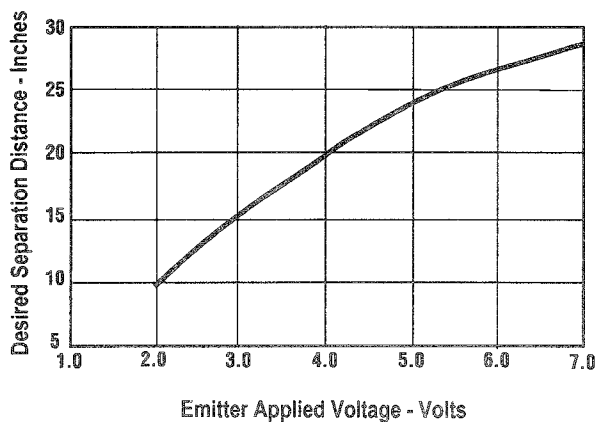
SPECIFICATIONS

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 μs Typ.	$V_{CC} = 5\text{ V}$, $R_L = 1000\ \Omega$
Output Fall Time	T_f	200 μs Typ.	$V_{CC} = 5\text{ V}$, $R_L = 1000\ \Omega$

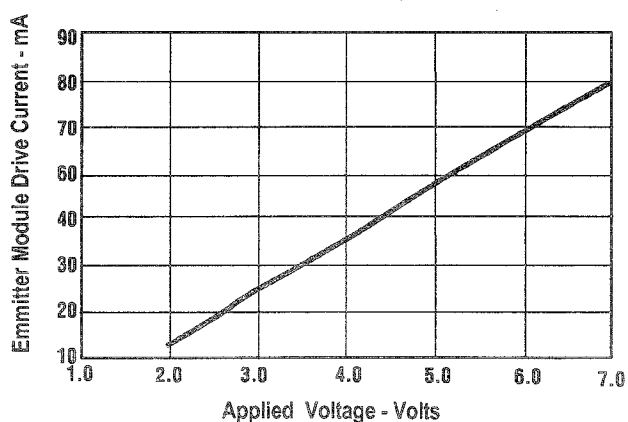
NOTE: Emitter and detector are tested at 4.0 inch (101,6 mm) separation.

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

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