

Overview

KEMET's Pyroelectric Infrared Sensors have a low profile design and can be used without a lens to enable miniaturized designs and are ideal to detect human proximity by IR presence.

KEMET's proprietary piezoelectric ceramic material and structural development of the pyroelectric infrared sensor enables human presence detection through solid plastic materials or glass, which allows more mechanical and optical appearance design possibilities of the end product. The sensor can be used without a lens or, to extend the detection range, a proprietary KEMET lens can be used in 3 different colors.

The sensors now packaged in our module solution are even easier to install and the driving being already included in the package, makes it really just "plug and sense".

Benefits

- Equipped with AMP circuit and comparator circuit
- Digital output
- Available with or without lens
- Flat top surface of the lens
- Microcomputer installed
- Connector mounting
- Excellent radio wave performance in high-frequency band
- Compact (15.00 x 15.00 x 5.65 mm)

Applications

Typical applications include human presence detection sensing for energy saving functions in:

- Contact less switching
- Office automation equipment
- Home appliances
- Lighting
- Display products
- Air-conditioners
- TV
- PC monitors
- Rice cookers
- Smart toilets

Without lens module



Natural Lens



White Lens



Black Lens



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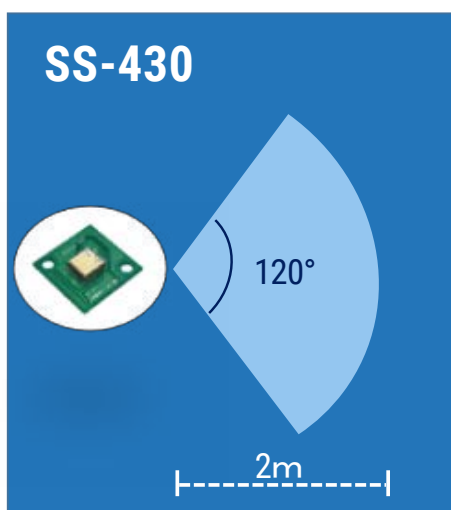
Ordering Information

| SS- | 430 | L-N |
|--------|-------------|---|
| Series | Module Type | Lens Type |
| SS | 430 | Blank = Without lens L-BK = With lens, black L-N = With lens, natural L-W = With lens, white |

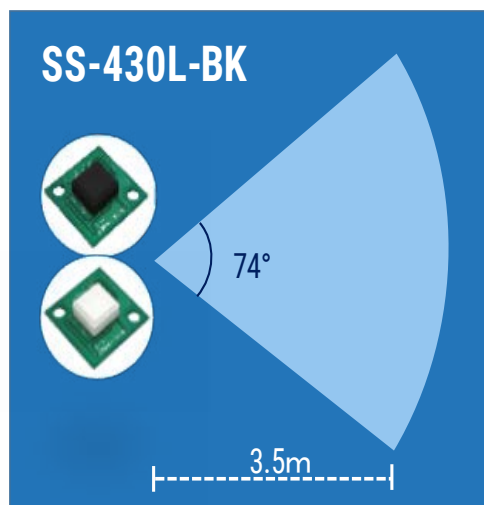
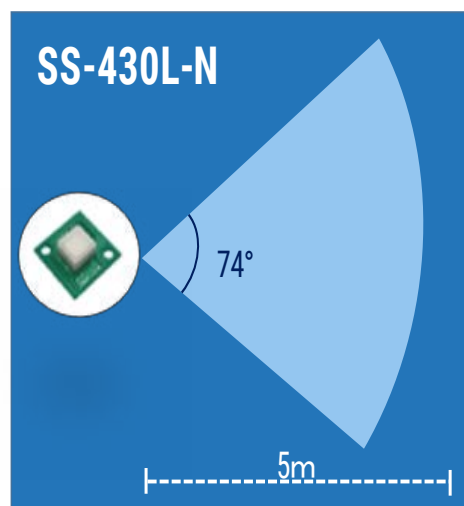
Performance Characteristics

Detected Distance (m)

Without lens module

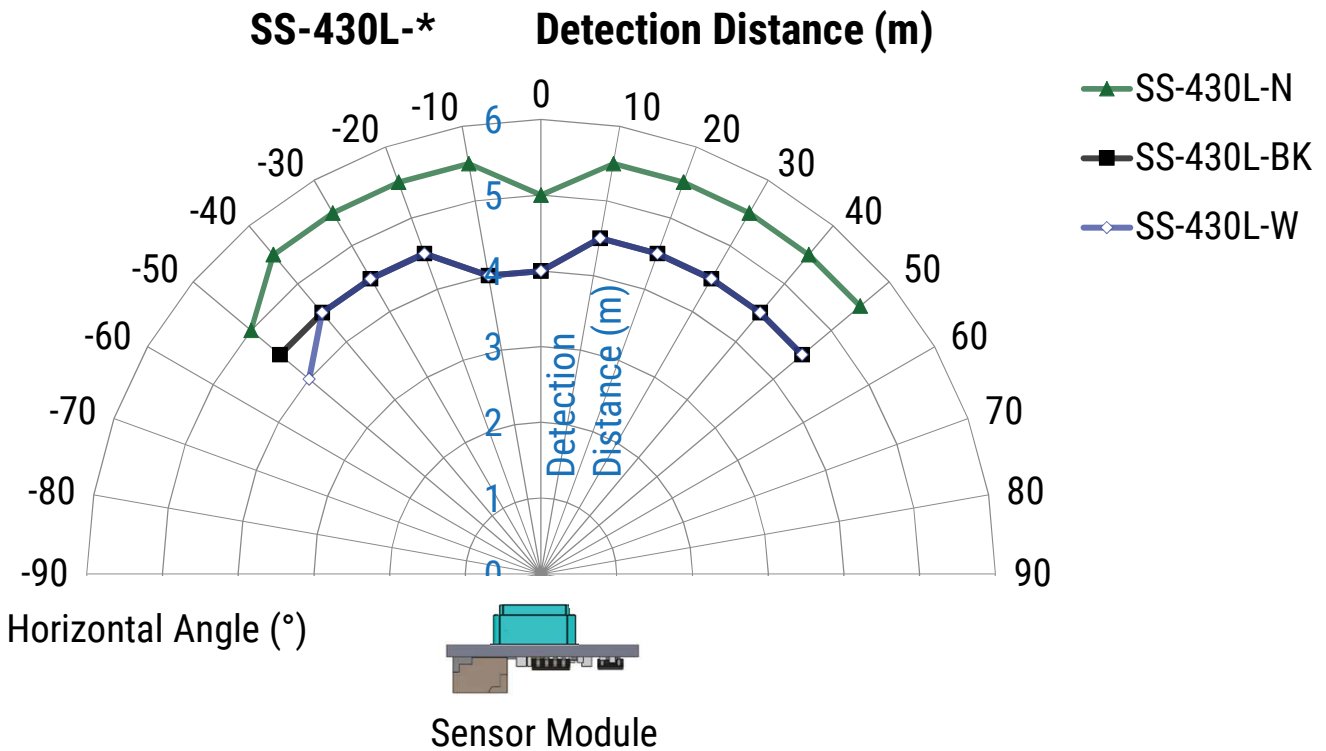
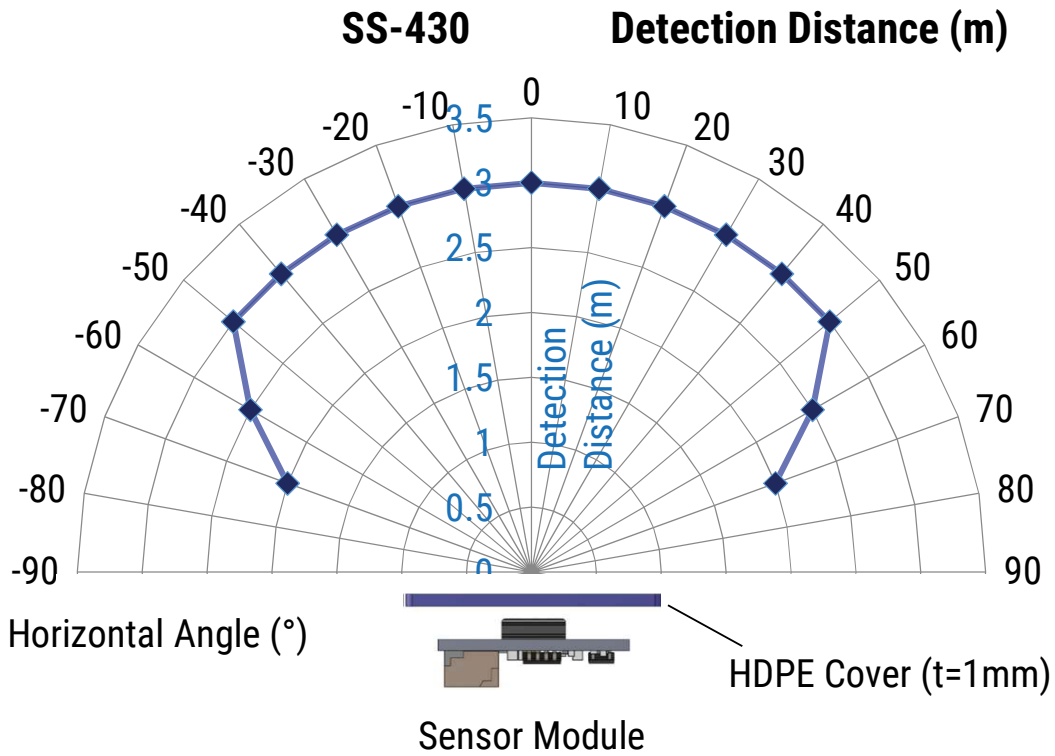


With lens module



Performance Characteristics cont.

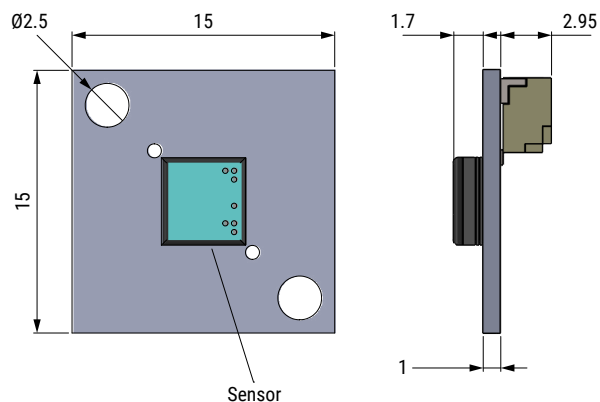
Detection Distance in Measured Value (m)



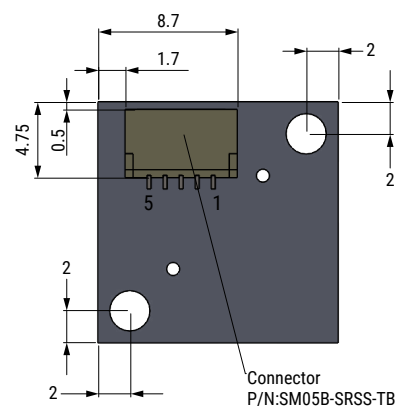
Dimensions

Without lens module

Dimensions in mm



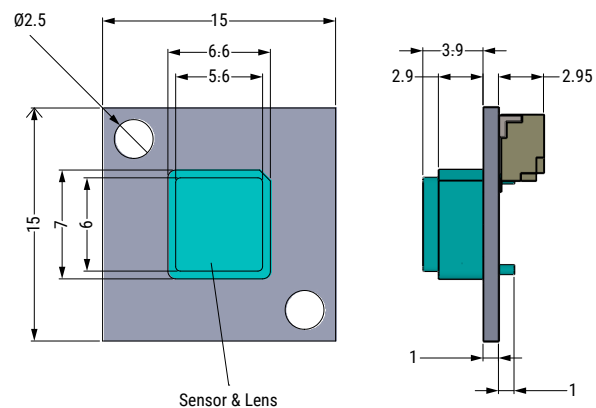
Pin Assignment



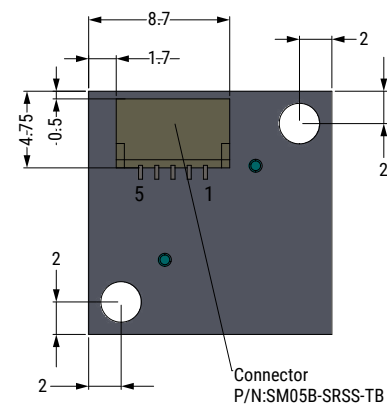
| Pin No. | Pin Name | Remarks |
|---------|------------------|-------------------|
| 1 | V _{in} | 3.5 ~ 5.5 VDC |
| 2 | TX | NC |
| 3 | RX | NC |
| 4 | V _{out} | Comparator output |
| 5 | GND | Ground |

With lens module

Dimensions in mm



Pin Assignment



| Pin No. | Pin Name | Remarks |
|---------|------------------|-------------------|
| 1 | V _{in} | 3.5 ~ 5.5 VDC |
| 2 | TX | NC |
| 3 | RX | NC |
| 4 | V _{out} | Comparator output |
| 5 | GND | Ground |

Table 1 – Ratings & Part Number Reference

| Part Number | Supply Voltage (VDC) | Output Voltage (VDC) | Consumption Current (μ A) Maximum | Detection Output Voltage on Time (secs) | Warm up Time ¹ (seconds) Maximum | Threshold Level (LSB) |
|-------------|----------------------|--|--|---|---|-----------------------|
| SS-430 | 3.5 ~ 5.5 | Detection : 3.0 Non-Detection : 0.0 | 800 | 0.2 | 30 | \pm 180 |
| SS-430L-N | 3.5 ~ 5.5 | Detection : 3.0 Non-Detection : 0.0 | 800 | 0.2 | 30 | \pm 180 |
| SS-430L-BK | 3.5 ~ 5.5 | Detection : 3.0 Non-Detection : 0.0 | 800 | 0.2 | 30 | \pm 180 |
| SS-430L-W | 3.5 ~ 5.5 | Detection : 3.0 Non-Detection : 0.0 | 800 | 0.2 | 30 | \pm 180 |

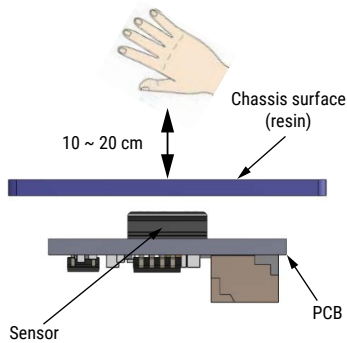
| Part Number | Field of View ($^{\circ}$) | Lens Color | Detection Distance ² (m) | Operating Temperature ($^{\circ}$ C) | Storage Temperature ($^{\circ}$ C) | Weight (g) |
|-------------|---|------------|-------------------------------------|---------------------------------------|--------------------------------------|------------|
| SS-430 | Horizontal: \pm 60 $^{\circ}$ Vertical : \pm 60 $^{\circ}$ | - | 2.0 | -20 $^{\circ}$ C to +60 $^{\circ}$ C | -20 $^{\circ}$ C to +70 $^{\circ}$ C | 0.7 |
| SS-430L-N | Horizontal: \pm 37 $^{\circ}$ Vertical : \pm 28 $^{\circ}$ | Natural | 5.0 | -20 $^{\circ}$ C to +60 $^{\circ}$ C | -20 $^{\circ}$ C to +70 $^{\circ}$ C | 0.8 |
| SS-430L-BK | Horizontal: \pm 37 $^{\circ}$ Vertical : \pm 28 $^{\circ}$ | Black | 3.5 | -20 $^{\circ}$ C to +60 $^{\circ}$ C | -20 $^{\circ}$ C to +70 $^{\circ}$ C | 0.8 |
| SS-430L-W | Horizontal: \pm 37 $^{\circ}$ Vertical : \pm 28 $^{\circ}$ | White | 3.5 | -20 $^{\circ}$ C to +60 $^{\circ}$ C | -20 $^{\circ}$ C to +70 $^{\circ}$ C | 0.8 |

¹ The warm up time is defined by the time needed for the source voltage to reach a rated value after the sensor's power supply has been turned on.

² Detection distance measurement conditions: $\Delta T = 4^{\circ}$ C, moving speed = 1 m/s.

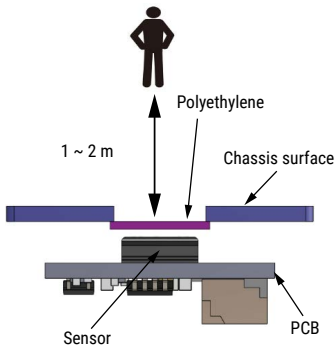
Applications

Non-contact Switch



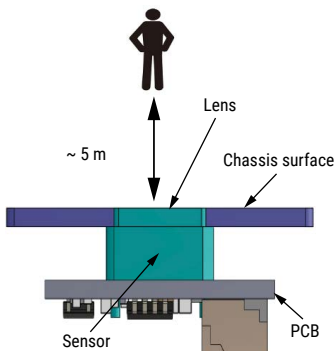
Detecting distance will vary by the chassis material used.

Common Application



Detecting distance increased to a few meters by using a polyethylene plate.

Use of Lens for up to 5 m Detection



A lens is required to detect up to 5 m.
Detecting range variations will depend on the usage environment.

Tape & Reel Packaging Information

| Series | Packaging Type | Pieces per Tray | Pieces per Box |
|--------|----------------|-----------------|----------------|
| SS | Tray | 50 | 200 |

Handling Precautions

Pyroelectric Infrared Sensors should be kept away from indirect and direct sunlight, the headlights of cars, wind, and exposure to strong vibration and strong shock. Do not use in water, alcohol ETA, corrosive gas or undersea breeze. Do not drop or apply any mechanical stress.

Pyroelectric Infrared Sensors should be stored in normal working environments. Do not expose to high temperatures, high humidity, corrosive atmospheres, and avoid long-term storage. KEMET recommends that maximum storage temperature not exceed 25°C and maximum storage humidity not exceed 50% relative humidity. Atmospheres should be free of chlorine and sulfur-bearing compounds.

Temperature fluctuations should be minimized to avoid condensation on the parts. The stock of sensors should be used promptly, preferably within six months of receipt.

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