PyroEpsilon
Compact Non-Contact Temperature Sensor with Controllable Emissivity Setting

- Temperature range: -20°C to 500°C
- Two-wire 4-20 mA output proportional to target temperature
- 4-20 mA input to control emissivity setting
- Optional PyroTune manual emissivity adjuster
- Field of view: 2:1, 15:1, 30:1 or close focus
- Fast response with high stability
- Stainless steel housing, sealed to IP65
- Quick and easy installation
- Optional air/water cooled housing, air purge collar, laser sighting tool and mounting brackets

The PyroEpsilon Series is a range of high quality, low cost, compact sensors which measure the temperature of inaccessible or moving objects and materials. They measure temperatures from -20°C to 500°C, accurately and consistently, with an outstanding response time of 240 ms.

PyroEpsilon sensors transmit the target temperature as a 4-20 mA output.

The sensor’s emissivity setting can be adjusted from 0.2 to 1.0 to cope with different target materials and is controlled by a 4-20 mA input. This gives the opportunity to adjust the emissivity setting automatically from a programmable logic controller (PLC). Alternatively the emissivity setting can be adjusted manually using the optional PyroTune module. If the 4-20 mA input is left open or short-circuit the emissivity setting defaults to 0.95.

All PyroEpsilon sensors are fitted with precision Germanium lenses for accurate optics. Model PE21 has 2:1 optics making it suitable for most applications where the sensor can be mounted close to the target. Model PE151 is designed for small or distant targets and has an optical resolution of 15:1. Model PE301 is designed for very small or distant targets and has an optical resolution of 30:1. Model PECF is designed for targets as small as ø5 mm at a distance of 100 mm from the sensor.
PYROEPSILON SPECIFICATIONS

Temperature Range vs Field-of-View table

<table>
<thead>
<tr>
<th>Field of View</th>
<th>-20ºC to 100ºC</th>
<th>0ºC to 250ºC</th>
<th>0ºC to 500ºC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1</td>
<td>PE21LT</td>
<td>PE21MT</td>
<td></td>
</tr>
<tr>
<td>15:1</td>
<td>PE151LT</td>
<td>PE151MT</td>
<td>PE151HT</td>
</tr>
<tr>
<td>30:1</td>
<td>PE301LT</td>
<td>PE301MT</td>
<td>PE301HT</td>
</tr>
<tr>
<td>ø5mm @ 100mm</td>
<td>PECFLT</td>
<td>PECFMT</td>
<td>PECFHT</td>
</tr>
</tbody>
</table>

Output
- 4-20mA

Accuracy
- ±1% of reading or ±1ºC whichever is greater

Repeatability
- ± 0.5% of reading or ± 0.5ºC whichever is greater

Emissivity
- 0.2 to 1.0 via 4-20mA input

Response Time, t 90
- 240 ms (90% response)

Spectral Range
- 8 to 14 µm

Supply Voltage
- 24 V DC (28 V DC max.)

Min. Sensor Voltage
- 6 V DC

Max. Loop Impedance
- 900 Ω (4-20 mA output)

Input Impedance
- 50 Ω

MECHANICAL

Construction
- Stainless Steel

Dimensions
- 18 mm diameter x 103 mm long

Thread Mounting
- M16 x 1 mm pitch

Cable Length
- 1m (longer lengths available to order)

Weight with Cable
- 95 g

ENVIRONMENTAL

Environmental Rating
- IP65

Ambient Temperature Range
- 0ºC to 70ºC

Relative Humidity
- 95% max. non-condensing

PYROTUNE SPECIFICATIONS

Output
- 4-20mA

Supply Voltage
- 24 V DC (13 V to 28 V DC)

Display Format
- 3.5 digit LCD

Display Units
- Emissivity (0.2 to 1.0) or current (4 - 20 mA)

Adjustment
- Push-buttons (raise/lower/set)

MECHANICAL

Construction
- Polycarbonate with gasket, transparent lid (PC) and quick release screws

Mounting
- Surface

Dimensions
- 65 mm tall x 50 mm wide x 35 mm deep

Weight
- 72 g

ENVIRONMENTAL

Environmental Rating
- IP65

Ambient Temperature Range
- 0ºC to 70ºC

Relative Humidity
- 95% max. non-condensing

MODEL NUMBERS

PExxx xx xx

<table>
<thead>
<tr>
<th>Field of view</th>
<th>Temperature range</th>
<th>Cooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>-20ºC to +100ºC</td>
<td>Sensor without cooling</td>
</tr>
<tr>
<td>151</td>
<td>0 to 250ºC</td>
<td>WJ = Air/water cooled jacket with air purge collar</td>
</tr>
<tr>
<td>301</td>
<td>0 to 500ºC</td>
<td>(not normally available on PE21 models)</td>
</tr>
</tbody>
</table>

ADJUSTABLE MOUNTING BRACKET

The adjustable mounting bracket consists of a fixed mounting bracket plus another L-shaped bracket. When assembled as shown the adjustable mounting bracket offers a rigid support for the sensor and allows fine adjustment in two planes.

AIR PURGE COLLAR

The air purge collar is used to keep dust, fumes, moisture and other contaminants away from the lens. Air flows into the fitting on the side and out of the aperture at the front.

AIR/WATER COOLED HOUSING

The air/water cooled housing allows the sensor to withstand ambient temperatures which exceed the normal 70ºC limit. Air or water (depending on the degree of cooling required) flows into one of the fittings on the side and out of the other. To prevent condensation forming on the lens, the air/water cooled housing is supplied complete with an air purge collar. Please note, the air/water cooled housing must be ordered with the sensor and cannot be fitted by the user.

LASER SIGHTING TOOL

The Laser Sighting Tool screws onto the front of the sensor during installation and indicates precisely where the sensor is aiming. Once the sensor has been aimed at the centre of the target and locked in position the Laser Sighting Tool can be removed. The laser is activated by means of a push button on the front of the tool which has a latching mechanism.