PyroEpsilon
Pyrometer with 4-20 mA Output and Adjustable Emissivity Setting

- Temperature ranges from -20°C to 500°C
- Two-wire 4-20 mA output
- Adjustable emissivity via continuously variable 4-20 mA input - measure a wide range of target materials
- Choice of precision optics for large or small targets
- Fast response with high stability
- Stainless steel housing, sealed to IP65
- Quick and easy installation
- Wide range of accessories
- Conforms to industrial EMC standards

The PyroEpsilon is a simple infrared temperature sensor with an adjustable emissivity setting. It is ideal if the target is partially reflective.

The emissivity setting is adjustable via a two-wire 4-20 mA input, and can be adjusted continuously using a variable 4-20 mA source.

To set the emissivity manually, the optional PyroTune emissivity adjuster is available. The sensor is also compatible with PLC outputs or indicating controllers that can provide a 4-20 mA signal.

If no 4-20 mA input is provided, the emissivity setting will revert to 0.95, making the sensor suitable for measuring non-reflective non-metal materials (or painted metals) out of the box.

OPTICS

All models can measure at longer distances than shown, with a larger measured spot size.

Diagrams show the diameter of the measured target spot versus the distance from the sensing head (90% energy).

SPECIFICATIONS

General

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>Two-wire 4-20 mA</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>LT = -20 to 100 °C</td>
</tr>
<tr>
<td></td>
<td>MT = 0 to 250 °C</td>
</tr>
<tr>
<td></td>
<td>HT = 0 to 500 °C</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1% of reading or ±1°C, whichever is greater</td>
</tr>
<tr>
<td>Repeatability</td>
<td>± 0.5% of reading or ± 0.5°C, whichever is greater</td>
</tr>
<tr>
<td>Emissivity Setting</td>
<td>Variable 0.2 to 1.0 via continuous 4-20 mA input</td>
</tr>
<tr>
<td>Response Time</td>
<td>240 ms (90% response)</td>
</tr>
<tr>
<td>Spectral Range</td>
<td>8 to 14 μm</td>
</tr>
<tr>
<td>Supply Voltage (at Sensor)</td>
<td>6 V DC to 28 V DC</td>
</tr>
<tr>
<td>Max. Loop Impedance</td>
<td>900 Ω (output loop)</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 Ω (input loop)</td>
</tr>
<tr>
<td>Max. Current Draw</td>
<td>20 mA</td>
</tr>
</tbody>
</table>

Mechanical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>Dimensions</td>
<td>18 mm diameter x 103 mm long</td>
</tr>
<tr>
<td>Thread Mounting</td>
<td>M16 x 1 mm pitch</td>
</tr>
<tr>
<td>Cable Length</td>
<td>1 m (longer lengths available to order)</td>
</tr>
<tr>
<td>Weight with Cable</td>
<td>95 g</td>
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</tbody>
</table>

Environmental

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental (IP) Rating</td>
<td>IP65</td>
</tr>
<tr>
<td>Ambient (Operating)</td>
<td>0°C to 70°C</td>
</tr>
<tr>
<td>Temperature Range</td>
<td></td>
</tr>
<tr>
<td>Ambient (Operating) Humidity</td>
<td>95% max. non-condensing</td>
</tr>
</tbody>
</table>
**DIMENSIONS (mm)**

- Standard length: 1 m
- Longer cable available (30 m max)
- Ø 18
- Thread: M16 x 1 mm

**CONNECTIONS**

- Power Supply
- Display/Controller
- PyroTune or PLC*

* A choice of indicating controllers, providing emissivity adjustment for the PyroEpsilon sensor, as well as temperature display and relay outputs, is also available. Contact Calex for more information.

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**PYROTUNE**

The optional PyroTune emissivity adjuster provides a continuous 4-20 mA current signal to the PyroEpsilon sensor. Simple push-button controls allow the emissivity setting to be adjusted. The built-in LCD display shows the emissivity or mA value.

**PyroTune Specifications**

- **Output**: 4-20 mA for emissivity adjustment of PyroEpsilon sensor
- **Supply Voltage**: 24 V DC (13 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)
- **Construction**: Polycarbonate with gasket
- **Dimensions**: 65 (h) x 50 (w) x 35 (d) mm
- **Weight**: 72 g
- **IP Rating**: IP65
- **Ambient Temp.**: 0°C to 70°C (operating temperature)
- **Relative Humidity**: 95% max (non condensing)

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**MODEL NUMBERS**

<table>
<thead>
<tr>
<th>PE</th>
<th>151</th>
<th>MT</th>
<th>WJ</th>
<th>3M</th>
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</table>

- Optional
- Example Model Numbers: PE151MT, PE301HTWJ-5M

**Cable Length**

- Standard 1 metre cable length
- Extended cable, length n metres (30 m max)
- User may extend cable further

**Temperature range**

- LT: -20°C to 100°C
- MT: 0°C to 250°C
- HT: 0°C to 500°C

**Field of view**

- 21: 2:1 divergent optics
- 151: 15:1 divergent optics
- 301: 30:1 divergent optics
- CF: Close-focus optics (focal spot size 5 mm at 100 mm distance)

**Series**

- PE: PyroEpsilon
- General purpose infrared temperature sensor with 4-20 mA output and adjustable emissivity setting via separate 4-20 mA input

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**ACCESSORIES**

- Laser sighting tool LSTS
- Dual laser sighting bracket, adjustable DLSBAS or fixed DLSBFS
- Fixed mounting bracket FBS
- Adjustable mounting bracket ABS
- Air or water cooled jacket with air purge collar WJ (factory-fitted - see Model Numbers)
- Air purge collar for 2:1 optics APSW or for all other optics (shown above) APSN

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Calex Electronics Limited
PO Box 2, Leighton Buzzard, Bedfordshire, England LU7 4AZ
Tel: +44 (0) 1525 373178 | mail@calex.co.uk | www.calex.co.uk

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Specifications subject to change without notice