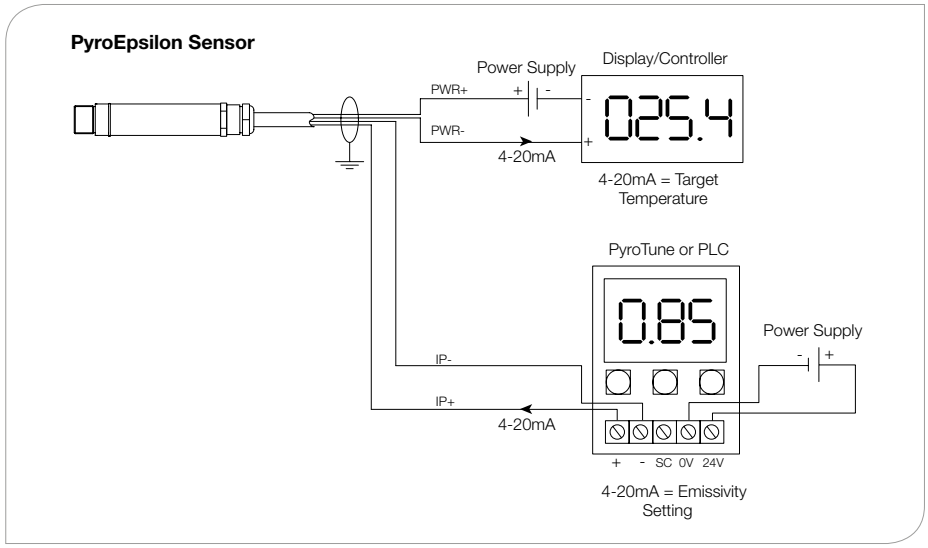
PyroEpsilon

Compact Non-Contact Temperature Sensor with Controllable Emissivity Setting

PyroEpsilon sensor with optional PyroTune emissivity adjuster

- Temperature range: -20°C to 500°C
- Two-wire 4-20 mA output proportional to target temperature
- 4-20mA 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

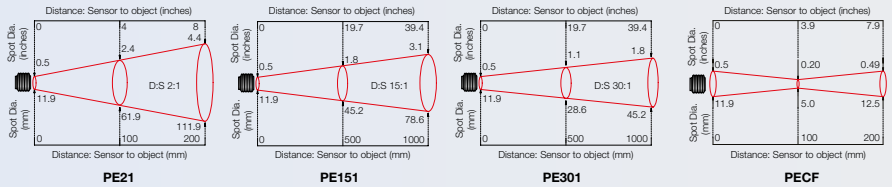


The PyroEpsilon Series is a range of high quality, low cost, compact sensors which measure the temperature of inaccessible or moving objects and materials. They measure temperatures from -20°C to 500°C, accurately and consistently, with an outstanding response time of 240 ms.

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.

DIAMETER OF TARGET SPOT MEASURED VERSUS DISTANCE FROM SENSING HEAD



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

CALEX ELECTRONICS LIMITED

PYROEPSILON SPECIFICATIONS

Temperature Range vs Field-of-View table

Field of View	-20ºC to 100ºC	0ºC to 250ºC	0ºC to 500ºC
2:1	PE21LT	PE21MT	-
15:1	PE151LT	PE151MT	PE151HT
30:1	PE301LT	PE301MT	PE301HT
ø5mm @ 100mm	PECFLT	PECFMT	PECFHT

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

Cooling
- **(blank)** = Sensor without cooling
- **WJ** = Air/water cooled jacket with air purge collar

Temperature range
- **LT** = -20 to +100 ºC
- **MT** = 0 to 250 ºC
- **HT** = 0 to 500 ºC (not normally available on PE21 models)

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 100mm distance)

ACCESSORIES

FIXED MOUNTING BRACKET

The L-shaped fixed mounting bracket offers a rigid support for the sensor and allows fine adjustment in a single plane.

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 70°C 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.

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