The PyroCouple 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.

Two-wire PyroCouple sensors transmit the target temperature as a 4-20 mA output and four-wire temperature measurement applications.

Four-wire PyroCouple sensors transmit the target temperature as a 0-50 mV or thermocouple output (type J, K or T) plus the internal sensor temperature as a 4-20 mA output. This second output can be used to ensure that the sensor is being operated within the correct ambient temperature limits and prevent damage caused by overheating or overcooling. It can also be used to give an approximate indication of the air temperature surrounding the sensor.

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All PyroCouple sensors are fitted with precision Germanium lenses for accurate optics. Model PC21 has 2:1 optics making it suitable for most applications where the sensor can be mounted close to the target. Model PC151 is designed for small or distant targets and has an optical resolution of 15:1. Model PC301 is designed for very small or distant targets and has an optical resolution of 30:1. Model PCCF is designed for targets as small as ø5mm at a distance of 100mm from the sensor.
### GENERAL SPECIFICATIONS

**Temperature Range vs Field-of-View table**

<table>
<thead>
<tr>
<th>Field of View</th>
<th>-20°C to 100°C</th>
<th>0°C to 250°C</th>
<th>0°C to 500°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1</td>
<td>PC21LT-x</td>
<td>PC21MT-x</td>
<td>-</td>
</tr>
<tr>
<td>15:1</td>
<td>PC151LT-x</td>
<td>PC151MT-x</td>
<td>PC151HT-x</td>
</tr>
<tr>
<td>30:1</td>
<td>PC301LT-x</td>
<td>PC301MT-x</td>
<td>PC301HT-x</td>
</tr>
<tr>
<td>ø5mm @ 100mm</td>
<td>PCCFLT-x</td>
<td>PCCFMT-x</td>
<td>PCCFH-x</td>
</tr>
</tbody>
</table>

Note: -x denotes the output type, see table below

### Output table

<table>
<thead>
<tr>
<th>Model-X</th>
<th>Target Temperature Output</th>
<th>Sensor Temperature Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0</td>
<td>4-20 mA</td>
<td>Not available</td>
</tr>
<tr>
<td>-1</td>
<td>0-50 mV</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>-2</td>
<td>Type T thermocouple</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>-3</td>
<td>Type J thermocouple</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>-4</td>
<td>Type K thermocouple</td>
<td>4-20 mA</td>
</tr>
</tbody>
</table>

*Example: Model PC151HT-4 has a 15:1 field of view and provides a type K thermocouple output representing target temperatures of 0°C to 500°C plus a 4-20 mA output proportional to internal sensor temperature.*

### Accuracy
- ±1% of reading or ±1°C whichever is greater
- ± 0.5% of reading or ± 0.5°C whichever is greater

### Emissivity
- Fixed at 0.95

### Response Time, t
- 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)

### Output Impedance
- 56 Ω (voltage/thermocouple output)

### 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**: 0°C to 70°C
- **Relative Humidity**: 95% max. non-condensing

### 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 BRACKETS**

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.

### MODEL NUMBERS

- **PCxxx xx-x xx**
  - **Cooling**
    - (blank) = Sensor without cooling
    - WJ = Air/water cooled jacket with air purge collar
  - **Output option**
    - 0 = 2 wire, 4-20mA
    - 1 = 4-wire, 0-50mV (target temp.), 4-20mA (sensor temp.)
    - 2 = 4-wire, T Thermocouple (target temp.), 4-20mA (sensor temp.)
    - 3 = 4-wire, J Thermocouple (target temp.), 4-20mA (sensor temp.)
    - 4 = 4-wire, K Thermocouple (target temp.), 4-20mA (sensor temp.)
  - **Temperature range**
    - LT = -20 to +100°C
    - MT = 0 to 250°C
    - HT = 0 to 500°C (not normally available on PC21 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)