

# PyroCouple

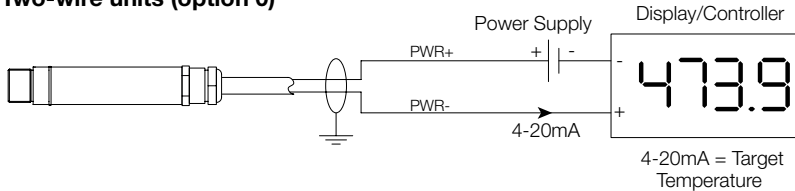
## Compact Non-Contact Temperature Sensor with optional Dual Output



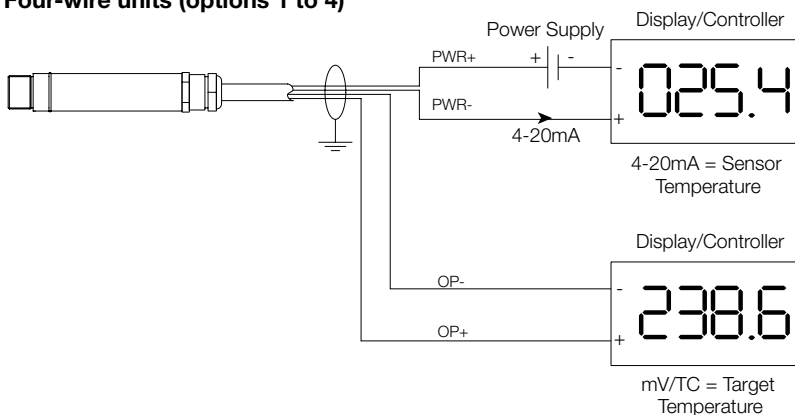
shown actual size

- Temperature range: -20°C to 500°C
- Emissivity setting: fixed at 0.95
- Two-wire 4-20 mA output or four-wire voltage/thermocouple output
- Four-wire unit also provides internal sensor temperature
- 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

### Two-wire units (option 0)



### Four-wire units (options 1 to 4)



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.

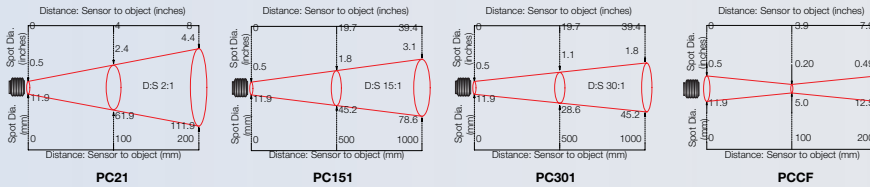
PyroCouple sensors are available as either two-wire or four-wire units.

Two-wire PyroCouple sensors transmit the target temperature as a 4-20 mA output and offer a simple solution for most non-contact 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.

For pricing, or any further, information please contact Omni Instruments Ltd  
Tel: +44 (0)845 9000 601 or visit our website at [www.omniinstruments.co.uk](http://www.omniinstruments.co.uk)

## DIAMETER OF TARGET SPOT MEASURED VERSUS DISTANCE FROM SENSING HEAD



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  $\varnothing 5\text{mm}$  at a distance of 100mm from the sensor.

## GENERAL SPECIFICATIONS

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

Field of View	-20°C to 100°C	0°C to 250°C	0°C to 500°C
2:1	PC21LT-X	PC21MT-X	-
15:1	PC151LT-X	PC151MT-X	PC151HT-X
30:1	PC301LT-X	PC301MT-X	PC301HT-X
$\varnothing 5\text{mm}$ @ 100mm	PCCFLT-X	PCCFMT-X	PCCFHT-X

### Output table

Model-X	Target Temperature Output	Sensor Temperature Output
-0	4-20 mA	Not available
-1	0-50 mV	4-20 mA
-2	Type T thermocouple	4-20 mA
-3	Type J thermocouple	4-20 mA
-4	Type K thermocouple	4-20 mA

e.g. 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. **For simplicity, the sensor temperature range is always set the same as the target temperature range**

<b>Accuracy</b>	$\pm 1\%$ of reading or $\pm 1^\circ\text{C}$ whichever is greater
<b>Repeatability</b>	$\pm 0.5\%$ of reading or $\pm 0.5^\circ\text{C}$ whichever is greater
<b>Emissivity</b>	Fixed at 0.95
<b>Response Time, <math>t_{90}</math></b>	240 ms (90% response)
<b>Spectral Range</b>	8 to 14 $\mu\text{m}$
<b>Supply Voltage</b>	24 V DC (28 V DC max.)
<b>Min. Sensor Voltage</b>	6 V DC
<b>Max. Loop Impedance</b>	900 $\Omega$ (4-20 mA output)
<b>Output Impedance</b>	56 $\Omega$ (voltage/thermocouple output)

## MECHANICAL

<b>Construction</b>	Stainless Steel
<b>Dimensions</b>	18 mm diameter x 103 mm long
<b>Thread Mounting</b>	M16 x 1 mm pitch
<b>Cable Length</b>	1m (longer lengths available to order)
<b>Weight with Cable</b>	95 g

## ENVIRONMENTAL

<b>Environmental Rating</b>	IP65
<b>Ambient Temperature Range</b>	0°C to 70°C
<b>Relative Humidity</b>	95% max. non-condensing

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## 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.