

# PyroMiniUSB

## USB Infrared Temperature Sensor for Benchtop, Laboratory and Education



- Miniature non-contact temperature sensor with USB communications
- Measures surface temperatures from -20°C to 1000°C without contact
- USB cable and PC software included for data logging and configuration
- Open Modbus protocol - use your own software to communicate with the sensor

SPECIFICATIONS	
Temperature Range	-20°C to 1000°C
Interface	USB
Accuracy	±1% of reading or ±1°C whichever is greater
Repeatability	± 0.5% of reading or ± 0.5°C whichever is greater
Emissivity Setting	0.2 to 1.0
Response Time, t90	125 ms (90% response)
Spectral Range	8 to 14 µm
Supply Voltage	5 V DC (provided by USB)
Supply Current	50 mA max.
VIRTUAL COM PORT	
Baud Rate	9600 baud *
Format	8 data bits, no parity, 1 stop bit *
Protocol	Modbus RTU over Serial Line
* Other configurations available upon request	
CONFIGURATION	
Configuration Method	Via USB using CalexConfig software (included), CalexSoft 2, or third-party Modbus software
Configurable Parameters	Emissivity Setting, Averaging, Reflected Energy Compensation
MECHANICAL	
Construction	Stainless Steel
Dimensions	18 mm diameter x 45 mm long
Thread Mounting	M16 x 1 mm pitch
Cable Length	1.5 m
Weight with Cable	85 g
ENVIRONMENTAL	
Environmental Rating	IP65
Ambient Temperature	0°C to 75°C (PMUXCF: 0°C to 70°C)
Relative Humidity	95% max. non-condensing
CONFORMITY	
RoHS Compliant	Yes
Electromagnetic Compatibility	EN61326-1, EN61326-2-3 (Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements - Industrial)

The PyroMiniUSB is a miniature infrared sensor that measures the surface temperature of a solid or liquid without contact. It can measure non-metal surfaces between -20°C and 1000°C, with a response time of just 125 ms.

Materials including paper, thick plastics, rubber, food and organic materials, as well as painted metals and most dirty, rusty or oily surfaces, are measured accurately, safely and cleanly.

A choice of optics is available to measure small or large targets at distances ranging from a few millimetres up to tens of metres.

It has a rugged stainless steel housing, sealed to IP65, and is built to withstand ambient temperatures of up to 75°C.

### COMPACT

The sensor is just 45 mm long (plus cable gland), so it can fit into very small spaces. The USB interface is built into the sensor, so there is no need for additional bulky interface modules.

### BENCHTOP AND LABORATORY

With the precision and robustness of our industrial pyrometers, and the plug-and-play convenience of USB, the PyroMiniUSB is the ideal benchtop temperature sensor for testing and experimentation.

### EDUCATION

The PyroMiniUSB is ideal for teaching science concepts such as emissivity, reflectivity, thermal conductivity, energy transfer, insulation and internal energy.

**CALEX**  
ELECTRONICS LIMITED

## SOFTWARE

Two Windows applications are available:

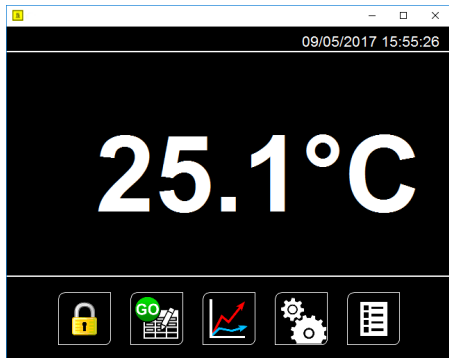
CalexConfig is simple, touch-friendly software for use with one sensor. It is supplied with the sensor.

CalexSoft 2 is capable of displaying, graphing and acquiring temperature data from multiple sensors at the same time. It is available as a free download from [www.calex.co.uk](http://www.calex.co.uk).

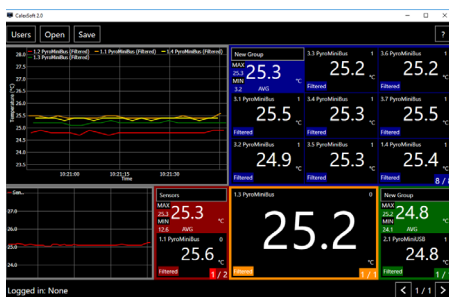
Both programs allow temperature display, temperature graphs, data logging and sensor configuration.

For more information, please see the CalexConfig / CalexSoft 2 data sheet.

It is also possible to use third-party Modbus software to communicate directly with the sensor.

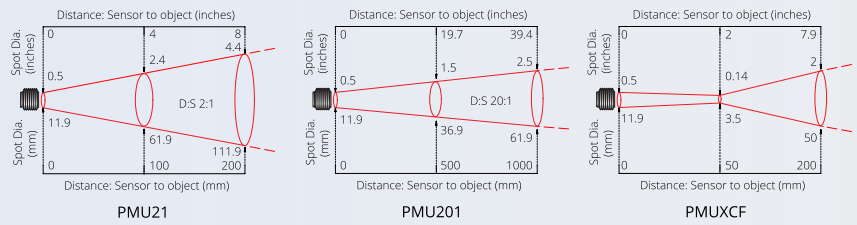


CalexConfig



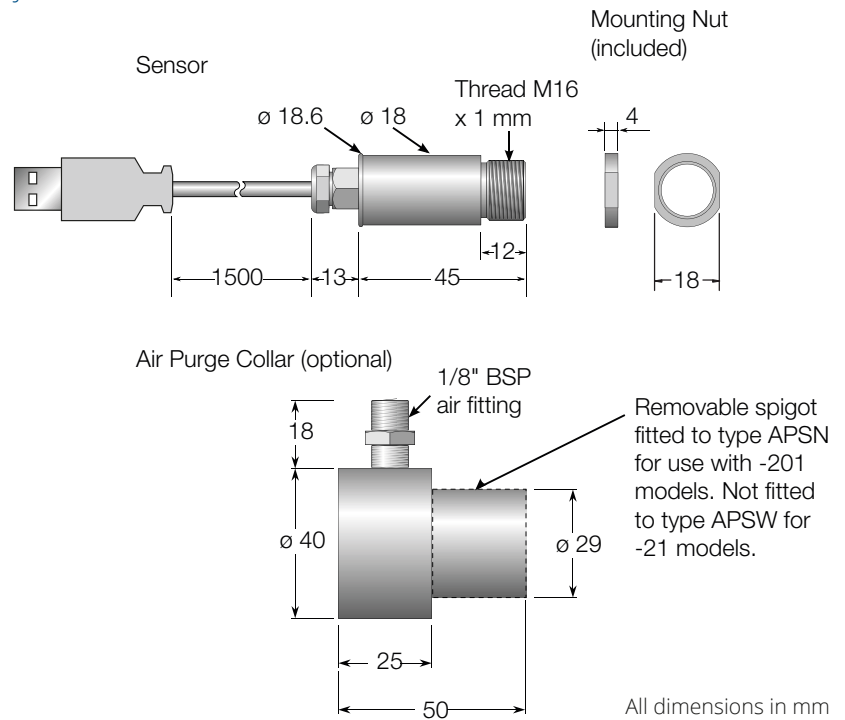
CalexSoft 2

## OPTICS



Diagrams show the diameter of the measured spot versus the distance from the lens of the sensor. The measured spot sizes shown here contain 90% of the energy the sensor detects. We normally recommend the target size should be at least twice the measured spot size for maximum accuracy. All PyroMiniUSB models will measure at longer distances than the diagrams show, with a larger measured spot size.

## MAJOR DIMENSIONS



## ACCESSORIES



Adjustable mounting bracket **ABS**

Fixed mounting bracket **FBS**

Calibration certificate **CALCERTA**

Laser sighting tool **LSTS**

Fixed or Adjustable mounting bracket with continuous laser sighting **DLSBFS / DLSBAS**

## MODEL NUMBERS



**PMU** **201**

**Field of view**  
**21** 2:1 wide-angle divergent optics  
**201** 20:1 general-purpose divergent optics  
**XCF** Close Focus optics (3.5 mm spot diameter at 50 mm distance)

**Series**  
**PMU** PyroMiniUSB sensor