PyroMini 2.2
Miniature Infrared Temperature Sensor for Demanding Applications with Optional Touch Screen

- Short-wavelength measurement for low-emissivity targets such as steel rollers and many other metal surfaces
- Miniature head and configurable electronics module
- Touch screen (optional) for temperature indication and configuration. Screen turns bright red in alarm condition for maximum visibility
- Temperature ranges from 100°C to 2000°C
- Adjustability setting on all models
- Data logging to MicroSD Card (optional) on touch screen models
- to 20mA or RS485 Modbus outputs
- Alarm relay outputs rated 24 V DC (optional) - no need for separate trip amplifier
- Resistant to interference from movement of sensing head cable - ideal for mounting on robot arms
- Maximum, minimum, average and instantaneous readings, peak or valley hold, energy compensation
- Optional mounting brackets, air purge collar and laser sighting tool
- Sensing head sealed to IP65

Model shown includes optional touch screen interface

GENERAL SPECIFICATIONS

Temperature Range
PT models: 100°C to 400°C
MT models: 250°C to 1000°C
HT models: 450°C to 2000°C

Maximum Temperature Span (MT models) 100°C

Output
4 to 20 mA or RS485 Modbus (up to 247 sensors may be installed on a single Modbus network)

Field of View
See table of Model Numbers

Accuracy
± 2°C or 1% of reading, whichever is greater

Repeatability
± 0.5°C or 0.5% of reading, whichever is greater

Emissivity Setting Range
0.10 to 1.00

EMC Directive
EN61326-1:2006 Electrical equipment for measurement, control and laboratory use – Industrial

IMMUNITY
IEC 61000-4-2 Electrostatic Discharge Immunity
IEC 61000-4-3 Electromagnetic Field Immunity
IEC 61000-4-4 Burst Immunity
IEC 61000-4-5 Surge Immunity

EMISSIONS
IEC 61000-4-6 Conducted RF Immunity
EN 55022A RF Emissions Class A
EN 55022B RF Emissions Class B

ELECTROMAGNETIC COMPATIBILITY STANDARDS:

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<tr>
<th>Class</th>
<th>Standard</th>
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MECHANICAL

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<tr>
<th>Sensing head</th>
<th>Electronics Module</th>
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<tbody>
<tr>
<td>Construction</td>
<td>Stainless Steel 316, Cast aluminium</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Ø 18 x 45 mm (see diagram) 98(w) x 64(h) x 36(d) mm</td>
</tr>
<tr>
<td>Mounting</td>
<td>M16 x 1 mm thread Two M4 screw holes for wall mounting (see diagram)</td>
</tr>
<tr>
<td>Cable Length (sensing head to electronics module)</td>
<td>1 m (standard), up to 30 m (optional)</td>
</tr>
<tr>
<td>Weight with 1 m Cable</td>
<td>390 g (approx)</td>
</tr>
<tr>
<td>Cable Connections</td>
<td>Removable screw terminal blocks (see Connections)</td>
</tr>
<tr>
<td>Output Cable Gland</td>
<td>Suitable for cable diameters 3.0 to 6.5 mm</td>
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ENVIRONMENTAL

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<td>Relative Humidity</td>
<td>Maximum 95% non-condensing</td>
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TOUCH SCREEN
(-CRT AND -BRT MODELS)

The optional backlit touch screen interface mounted in the lid of the electronics module provides a large, bright display of the measured temperature, as well as controls allowing full configuration of the sensor. The graph view shows the history of the measured temperature.

In alarm conditions, the display changes colour to provide an immediate and obvious alarm indication. Alarm modes and levels can be configured via the touch screen.

TOUCH SCREEN SPECIFICATIONS

Touch Screen Display Format
2.83" (72 mm) resistive touch TFT, 320 x 240 pixels, backlit

Configurable Parameters
Temperature range, temperature units, emissivity setting, reflected energy compensation, alarms, signal processing, Modbus address (-BRT models), date and time, data logging

Temperature Units
°C or °F configurable

Temperature Resolution
0.1°

Alarm Configuration
Two alarms with adjustable level, individually configurable as Hi or LO. Alarm 2 can be set to target temperature or sensing head internal temperature

Signal Processing
Average, peak hold, valley hold, minimum, maximum

EXAMPLE SCREENSHOTS

Screen shown with red background to indicate alarm condition

DATA LOGGING SPECIFICATIONS

Data Logging Interval
1 to 86,400 seconds (1 day)

MicroSD Card
Max. capacity: 2 GB (not included)

Internal Clock Battery
1 x BR 1225 3V (not included)

Variables Logged
Target temperature, sensing head temperature, electronics module temperature, max, min, average, emissivity setting, reflected energy compensation temperature, alarm events

File format .csv

Configurable Parameters
Sample period, number of samples, scheduled start date and time

DATA LOGGING (-CRT AND -BRT MODELS)

The PyroMini can be used as a standalone data logger.

PyroMini models -CRT and -BRT include a MicroSD card slot for data logging, which can be configured via the touch screen interface. The user can select the sample rate and the number of samples to be taken and schedule the data logging to start at a certain time.

With a 2 GB card, the user can store 28.4 million readings, which provides almost 1 year's worth of data at the fastest possible sample rate of 1 per second.

Data is stored on the MicroSD card in .csv format and can be viewed and edited easily using spreadsheet software. Alarm events can also be logged to the MicroSD Card.

A MicroSD card with SD card adapter is available as an optional accessory.

The MicroSD card slot and battery holder are located on the touch screen circuit board in the lid of the PyroMini. Readings are time and date stamped using the sensor's internal clock. The clock is reset when the power is disconnected, or it will continue if the optional battery is fitted.
**SERIES PM2.2**

PyroMini 2.2 series infrared temperature sensor with miniature sensing head and separate electronics module

**MODEL NUMBERS**

<table>
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<th>Series</th>
<th>Field of View</th>
<th>Measurement Temperature Range</th>
<th>Output and Interface</th>
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<td>PM2.2</td>
<td>151 PT</td>
<td></td>
<td>CB CB</td>
</tr>
<tr>
<td></td>
<td>251 MT</td>
<td></td>
<td>CRT CRT</td>
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<tr>
<td></td>
<td>751 HT</td>
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<td>BB BB</td>
</tr>
<tr>
<td></td>
<td>CF</td>
<td></td>
<td>BRT BRT</td>
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**OUTPUT AND INTERFACE**

- **-CB** 4 to 20 mA output, no screen
- **-CRT** 4 to 20 mA output and two alarm relay outputs, with touch screen
- **-BB** RS485 Modbus output, no screen
- **-BRT** RS485 Modbus output and two alarm relay outputs, with touch screen

**MEASUREMENT TEMPERATURE RANGE (°C)**

- **PT**
- **MT**
- **HT**

**EXAMPLE: PM2.2-251-MT-BRT**

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<td>251</td>
<td>250°C to 1000°C</td>
<td>BRT RS485 Modbus output and two alarm relay outputs, with touch screen</td>
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**FIELD OF VIEW**

Diameter of target spot measured versus distance from sensing head - 90% energy

**MEASURED TEMPERATURE RANGE (°C)**

Model shown does not include screen
**CONNECTIONS**

- **-CB and -CRT models**
  - TP+ TP TH+ GND OP+ OP PWR- PWR+
  - Emissivity switches on -CB models only
  - 24 V DC 100 mA
  - 4 to 20 mA

- **-BB and -BRT models**
  - GND
  - RS- RS+
  - Modbus Master
  - 24 V DC 100 mA

**DIMENSIONS AND ACCESSORIES**

**Electronics Module**
- 98
- 86
- 64
- 36
- Touch screen (optional) 72 mm (2.83"
- 20
- 48
- 36
- 18
- Cable glands: 14 mm AF

**Sensing Head**
- Ø 18.6
- Ø 18
- Thread M16 x 1 mm
- 4
- Standard length 1000 mm
- 15
- 45
- 12
- 18
- 86 Mounting holes: use M4 CSK screws (supplied)

**Air Purge Collar**
- 1/8” BS P air fitting
- 18
- 40
- 29
- 25
- 50

**Mounting Nut** (included)
- 4

All dimensions in mm

**ACCESSORIES ALSO AVAILABLE**

- MSD  MicroSD Card with SD Card adapter: stores logged data (-CRT and -BRT models)
- PM2.2CE  cable Extended between sensing head and electronics module (up to 30 m length)
- CALCERTA  Laser sighting tool
- LSTS  Adjustable mounting bracket
- ABS  Fixed mounting bracket
- FBS  Dual Laser Sighting Bracket
- APSN  Air purge collar
- PM180  6-channel Modbus temperature indicator with touch screen interface and data logging