PyroMini
Miniature Infrared Temperature Sensors with Optional Touch Screen Interface

**FEATURES**
- Two-part sensor with miniature sensing head and configurable electronics module
- Touch screen (optional) for temperature indication and configuration
- Screen turns bright red in alarm condition for maximum visibility
- Adjustable emissivity setting on all models
- Data logging to MicroSD Card (optional) on touch screen models
- 4 to 20 mA or RS485 Modbus outputs
- Alarm relay outputs rated 24 V DC (optional) - no need for separate trip amplifier
- Maximum, minimum, average and instantaneous readings, peak or valley hold, reflected energy compensation

**PYROMINI GENERAL PURPOSE**
- High-ambient sensing heads (optional) withstand up to 120°C or 180°C without cooling
- Suitable for a wide range of target materials such as paper, plastics, food, painted surfaces, coated metal and many more
- Resistant to interference from movement of sensing head cable (-JA, -HA models) - ideal for mounting on robot arms
- Temperature ranges from -20°C to 1000°C

**PYROMINI 2.2 HIGH TEMPERATURE**
- Short-wavelength measurement for improved accuracy on reflective targets such as steel rollers and many other metal surfaces
- Temperature ranges from 100°C to 2000°C
- Choice of optics, including narrow options for long-distance measurements of very hot objects

**GENERAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th></th>
<th>PyroMini General Purpose</th>
<th>PyroMini 2.2 High Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature Range</strong></td>
<td>Choice of ranges from -20°C to 2000°C (see Model Numbers)</td>
<td>Choice of ranges from 100°C to 2000°C</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>4 to 20 mA or RS485 Modbus (up to 247 sensors may be installed on each Modbus network)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Alarm Relays (-CRT and -BRT models)</strong></td>
<td>2 x Single Pole Changeover alarm relays rated 24 V DC, 1 A, isolated 500 V DC</td>
<td>-</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>± 1°C or 1% of reading, whichever is greater</td>
<td>± 2°C or 1% of reading, whichever is greater</td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>± 0.5°C or 0.5%, whichever is greater</td>
<td>-</td>
</tr>
<tr>
<td><strong>Field of View</strong></td>
<td>Choice of optics (see Model Numbers on page 3)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Emissivity Setting Range</strong></td>
<td>0.20 to 1.00</td>
<td>-</td>
</tr>
<tr>
<td><strong>Emissivity Setting Method</strong></td>
<td>-CRT and -BRT models: via touch screen</td>
<td>-CRT models: via touch screen</td>
</tr>
<tr>
<td><strong>Response Time, t90</strong></td>
<td>240 ms (90% response)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Spectral Range</strong></td>
<td>8 to 14 μm</td>
<td>2.0 to 2.6 μm</td>
</tr>
<tr>
<td><strong>Supply Voltage</strong></td>
<td>24 V DC ± 5%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Maximum Current Draw</strong></td>
<td>100 mA</td>
<td>-</td>
</tr>
<tr>
<td><strong>Maximum Loop Impedance</strong></td>
<td>CB and -CRT models: 900 k (4 to 20 mA output)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Max Temp Span (-CRT models)</strong></td>
<td>Full temperature range</td>
<td>-</td>
</tr>
<tr>
<td><strong>Min Temp Span (-CRT models)</strong></td>
<td>100°C</td>
<td>-</td>
</tr>
</tbody>
</table>

**MECHANICAL**

<table>
<thead>
<tr>
<th></th>
<th>Sensing Head</th>
<th>Electronics Module</th>
<th>Electronics Module (with touch screen)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td>Stainless Steel 316</td>
<td>Cast aluminium</td>
<td>-</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Ø 18 x 45 mm (see diagram)</td>
<td>98(w) x 64(h) x 36(d) mm</td>
<td>-</td>
</tr>
<tr>
<td><strong>Mounting</strong></td>
<td>M16 x 1 mm thread</td>
<td>Two M4 screw holes for wall mounting (see diagram)</td>
<td>-</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL**

<table>
<thead>
<tr>
<th></th>
<th>Sensing Head</th>
<th>Electronics Module (without screen)</th>
<th>Electronics Module (with touch screen)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental Rating</strong></td>
<td>IP65 (NEMA 4)</td>
<td>IP65 (NEMA 4)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ambient Temperature Range</strong></td>
<td>See below *</td>
<td>0°C to 80°C</td>
<td>0°C to 60°C</td>
</tr>
<tr>
<td><strong>Relative Humidity</strong></td>
<td>Maximum 95% non-condensing</td>
<td>Maximum 95% non-condensing</td>
<td>Maximum 90% non-condensing</td>
</tr>
<tr>
<td><strong>RoHS Compliant</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Ambient Temperature Range (Sensing Head)
PyroMini: Ranges from 0°C to 180°C, depending on model (see Model Numbers)
PyroMini 2.2: 0°C to 70°C

**ELECTROMAGNETIC COMPATIBILITY STANDARDS**

Conforms to EMC Directive EN61326-1:2006 (Electrical equipment for measurement, control and laboratory use – Industrial) as well as industrial standards for electromagnetic immunity and emissions.
TOUCH SCREEN
(-CRT AND -BRT MODELS)

The optional backlight 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.

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.
**SENSING HEAD OPERATING TEMPERATURE RANGE**  
(General Purpose models only)

- **MA** 0°C to 60°C
- **JA** 0°C to 120°C
- **HA** 0°C to 180°C

The sensing head on -JA and -HA models is able to withstand ambient temperatures of up to 120°C (-JA) and 180°C (-HA) without cooling. Both models are available with 20:1 optics.

There is no need to supply cooling air or water, and the miniature sensing head is much smaller than bulky, cooled sensors.

**MEASUREMENT TEMPERATURE RANGE (°C)**

**EXAMPLE:** PM-MA-301-CT-BRT

**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
CONNECTIONS

- CB and -CRT models
  - TP+ and TP-
  - TH+ and GND
  - OP+ and OP-
  - PWR+ and PWR-
  - TP+ and TP-
  - TH+ and GND
  - OP+ and OP-
  - PWR+ and PWR-
  - 24 V DC 100 mA
  - 4 to 20 mA

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

DIMENSIONS AND ACCESSORIES

Electronics Module

- Touch screen (optional)
- 72 mm (2.83”)
- Cable glands: 14 mm AF
- Mounting holes: use M4 CSK screws (supplied)

Sensing Head

- ø 18 ø 18
- ø 40
- ø 29
- 1/8” BSP air fitting
- Removable spigot fitted to type APSN for use with all models except -21.
- Not fitted to type APSWN for -21 models.
- ø 18
- ø 40
- ø 29
- 12
- 45
- 1000
- 13
- Standard length

Air Purge Collar

- 1/8” BSP air fitting
- Removable spigot fitted to type APSN for use with all models except -21.
- Not fitted to type APSWN for -21 models.

ACCESSORIES ALSO AVAILABLE

- MicroSD Card with SD Card adapter: stores logged data (-CRT and -BRT models) MSD
- Extended cable between sensing head and electronics module (PyroMini -MA models) PMCE, (PyroMini -HA and -JA models) PMCEHT, (PyroMini 2.2 models) PM2.2CE
- Calibration certificate CALCERTA
- Laser sighting tool LSTS
- Mounting bracket, Adjustable ABS, Fixed FBS
- Dual Laser Sighting Bracket, Adjustable DLSBAS, Fixed DLSBFS
- 6-channel Modbus temperature indicator with data logging PM180
- Protective plastic or silicon window in stainless steel holder (General Purpose models only) PWS / SIWS
- Panel Mounting Kit PMK

All dimensions in mm