

PyroCube

IR Temperature Sensor with Fast Response Time, Small Measured Spot and Continuous LED Sighting



PyroCube sensor with optional touch screen interface

- Response time 0.001 seconds (-F models) - the fastest in the world
- Measures from 0°C to 500°C
- Ideal for small targets - measurement area as small as 1.6 mm diameter
- Continuous LED sighting on all models - shows the position and size of the measurement spot while readings are being taken
- Multilingual touch screen interface (optional) for temperature display, data logging, sensor configuration and alarms
- Measures surface temperature of paper, thick plastics, food, rubber, electronic components, cable, ceramics, textiles, painted surfaces and some metals, as well as many other materials

PYROCUBE SENSOR SPECIFICATIONS

MEASUREMENT

Temperature range

0°C to 500°C

Response time (95% of step change)

-S models: 10 ms to 5 s

-F models: 1 ms to 5 s

Adjustable via averaging function

Target sighting

Red LED built-in as standard on all models.

Indicates the measured spot size. Switchable on/off*

Measurement accuracy†

-S models: $\pm 3^\circ\text{C}$ or 1%, whichever is greater

-F models: $\pm 3.5^\circ\text{C}$ or 1%, whichever is greater

Repeatability†

-S models: $\pm 0.5^\circ\text{C}$

-F models: $\pm 1^\circ\text{C}$

Resolution†

-S models: $< 0.5^\circ\text{C}$

-F models: $< 1.5^\circ\text{C}$ (0 to 50°C); $< 0.7^\circ\text{C}$ (above

50°C)

Emissivity setting

Adjustable 0.3 to 1.0 via RS232C or optional touch screen interface

Field of view

See OPTICS on page 2

ELECTRICAL

Outputs

1 analogue output and 1 alarm output

Analogue output

4-20 mA (set by default), 0-20 mA, mV/°C or voltage‡, selectable via RS232C or optional touch screen interface.

Alarm output

1 open drain alarm output, rated 27 V DC, 0.2 A *

Supply voltage

5 to 27 V DC, 100 mA max

Digital communications

RS232C Modbus RTU, non isolated

MECHANICAL

Weight (without cable)

85 g

ENVIRONMENTAL

Environmental rating

IP67

Operating ambient temperature

0°C to 50°C

Storage temperature

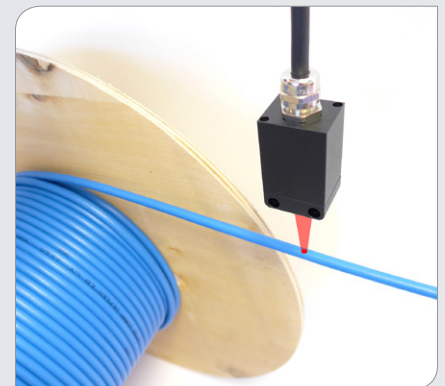
-15°C to 70°C

Operating ambient humidity

30% to 85% RH non condensing

DISPLAY

Optional PM030 touch screen terminal for indication, configuration, data logging and alarm outputs



* LED SIGHTING AND ALARMS

Sensor Only

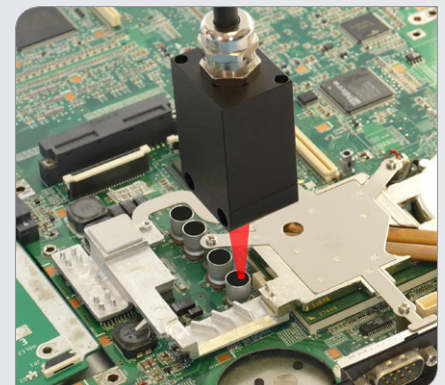
These functions are selectable via RS232C and share a common connection, which is configurable either as an input to switch the LED sighting on/off, or an open drain alarm output, but not both at once.

Sensor with PM030

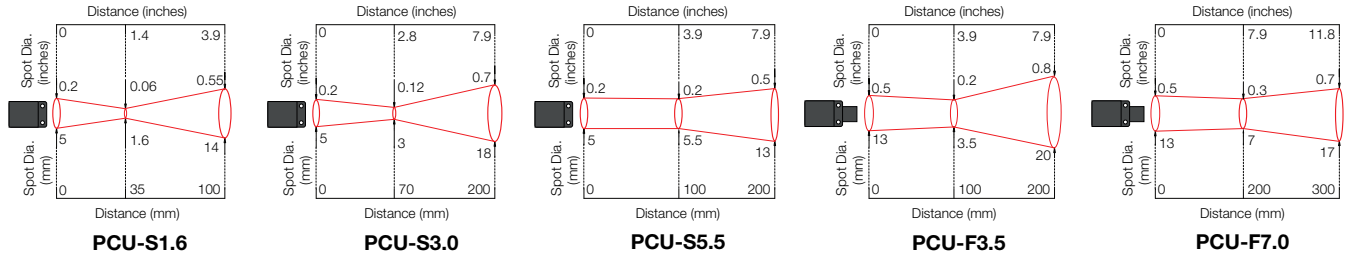
These functions may be configured via the PM030 interface. Two alarm relay outputs are provided in place of the open drain output.

† Ambient temperature $23 \pm 5^\circ\text{C}$, emissivity 1.0, averaging time 50 ms

‡ Voltage can be 0-1, 0-5, or 0-10 V DC, depending on model (see Model Numbers).



OPTICS



PM030 TOUCH SCREEN INTERFACE

- Optional wall-mounted display, data logging, configuration and alarm unit for PyroCube sensor
- **Read the temperature**
The large, bright backlit temperature display is visible from a distance and turns red in an alarm condition.
- **Record the temperature history**
See a graph of the measured temperature, and log more than a year of data to a single MicroSD Card. The data is stored in a simple text format that can be imported easily into Excel.
- **Configure the sensor**
All the sensor's configuration settings can be adjusted via the intuitive touch screen interface.
- **Trigger temperature alarms**
Two alarms are individually configurable as high, low, band or error. The screen turns bright red to signal an alarm condition, and the built-in 24 V, 1 A relay outputs can be connected directly to alarm sounders and beacons.
- **Accurate measurements, even with reflections of hot objects**
Place the sensor outside an oven or furnace and accurately measure the temperature of objects inside by using the Reflected Energy Compensation feature.

PM030 SPECIFICATIONS

Display Format

2.83" (72 mm) resistive touch TFT, 320x240 pixels, backlit

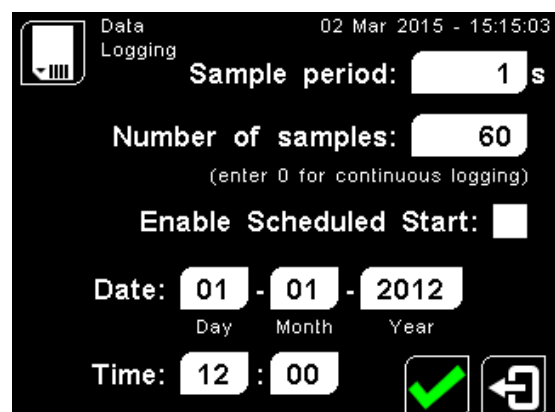
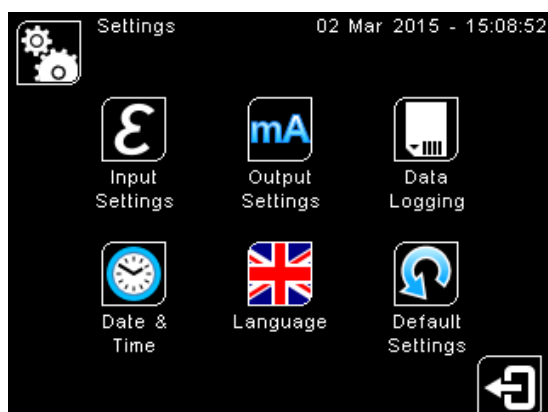
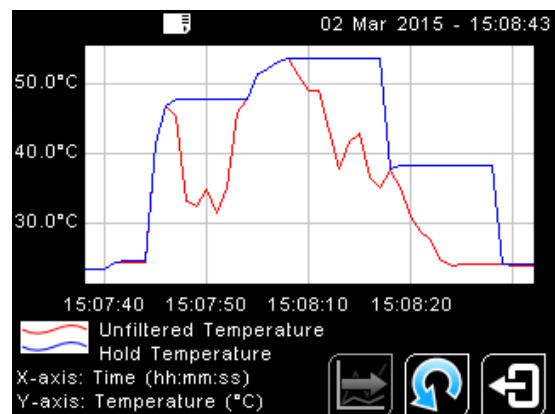
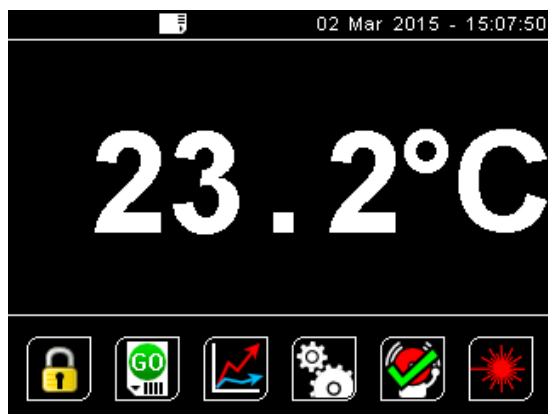
Configurable Parameters

Language (English, Chinese, Japanese)
 Temperature units °C/°F
 Displayed temperature
 LED sighting on/off
 Password
 Date & time (for data logging time stamps)
 Peak hold period, decay level
 Averaging period
 Correction (gain/offset)
 Emissivity setting (with teach function)
 Reflected energy compensation (with teach function)
 Output type
 Output temperature range
 Polarity on error
 Alarm mode, levels, hysteresis

Outputs (from touch screen module)

Retransmitted analogue output from sensor, plus 2 relays, rated 24 V DC, 1 A

Output Type	Effective Minimum Output	Output Accuracy (additional to Measurement Accuracy)
0 to 1 V DC	30 mV	±1.5 mV
mV/°C	30 mV	±1.5 mV
0 to 20 mA	0.2 mA	±0.02 mA
4 to 20 mA	4.0 mA	±0.02 mA



PM030 DATA LOGGING SPECIFICATIONS

Storage MicroSD Card (optional), max. 32 GB, equal to 16 years of data at the fastest sample rate of 1 per second

Sample Interval 1 second to 1 day (configurable)

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

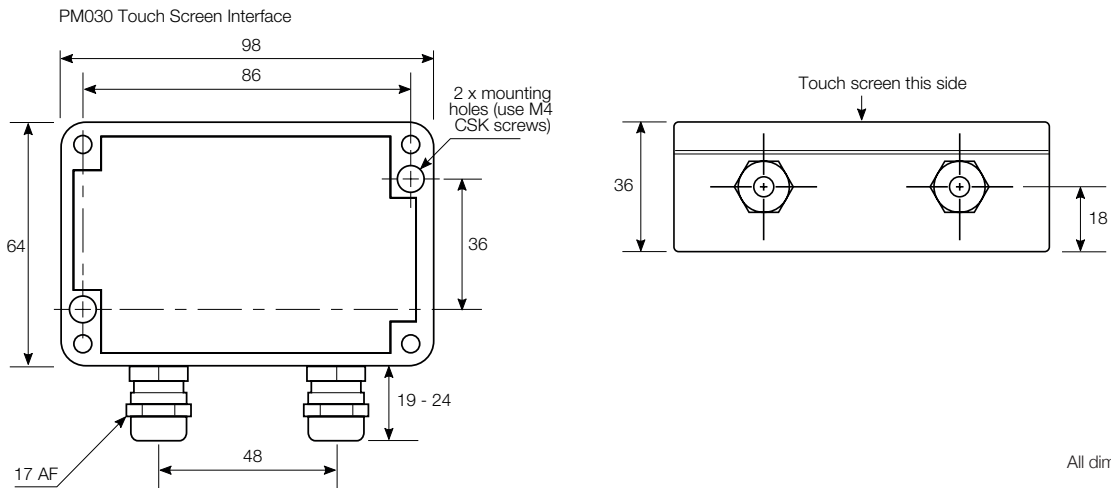
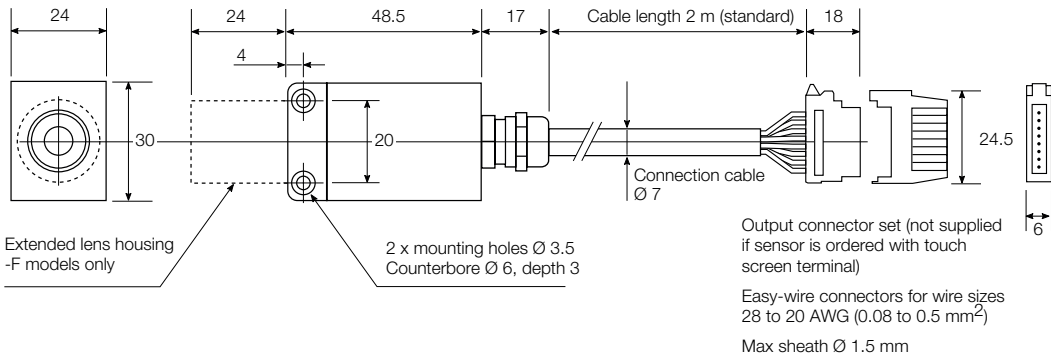
Variables Logged Instantaneous measured temperature, hold temperature, alarm events

Configurable Parameters Data logging: Sample period
Number of samples
Scheduled start

Alarm logging: Log times when triggered, acknowledged, reset
Log data while triggered

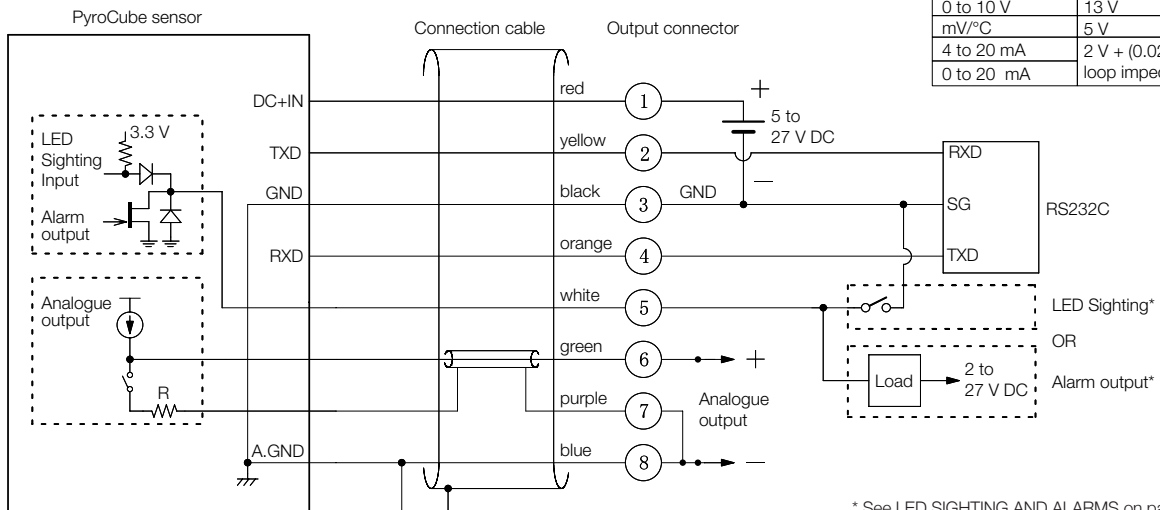
DIMENSIONS

PyroCube Sensor



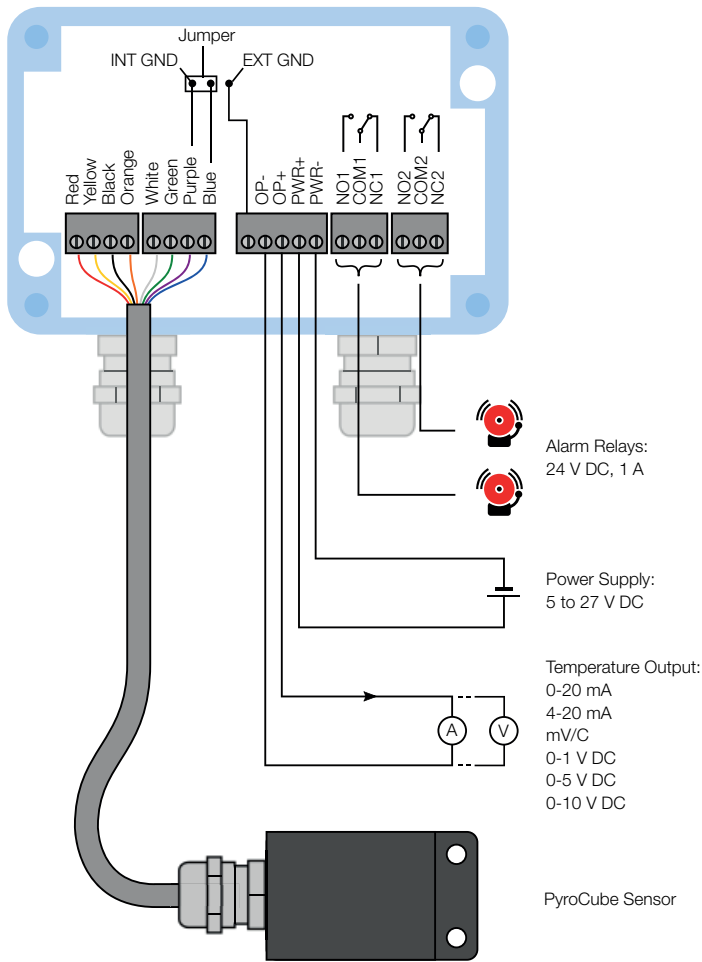
All dimensions in mm

PYROCUBE CONNECTIONS - SENSOR ONLY



* See LED SIGHTING AND ALARMS on page 1 (Specifications)

PM030 CONNECTIONS



ACCESSORIES



FBC Mounting bracket



PWC Protective lens cover



APC Air purge collar



ADP Airless dust protector



RAM Right angled mirror



WCJ Water Cooling Jacket



PCMCE5 5 m extension cable with connectors

MODEL NUMBERS



PCU - S1.6 - 2M - 1V

Voltage output option

1V = 0 to 1 V DC

5V = 0 to 5 V DC

10V = 0 to 10 V DC

Note: All models also have 0-20 mA, 4-20 mA, and mV/°C outputs as standard.

Cable length

2M = 2 metres

5M = 5 metres

10M = 10 metres

Response time and optics

S1.6 = 10 ms response, 1.6 mm spot at 35 mm distance

S3.0 = 10 ms response, 3.0 mm spot at 70 mm distance

S5.5 = 10 ms response, 5.5 mm spot at 120 mm distance

F3.5 = 1 ms response, 3.5 mm spot at 100 mm distance

F7.0 = 1 ms response, 7.0 mm spot at 200 mm distance

Series

PCU = PyroCube sensor



PM030

Touch screen interface module for PyroCube sensor

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Specifications subject to change without notice