

# PyroCube

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



- 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

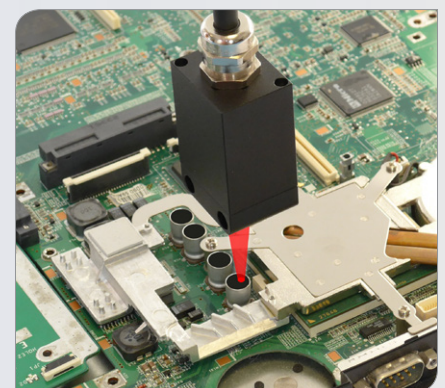
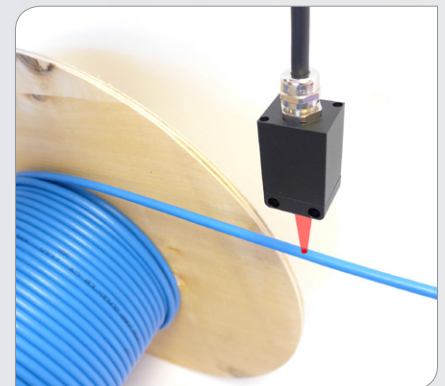
These functions are selectable via RS232C and share a common connection, which is configurable either as an input to switch the LED sighting on/off, or an open drain alarm output, but not both at once.

#### Sensor with PM030

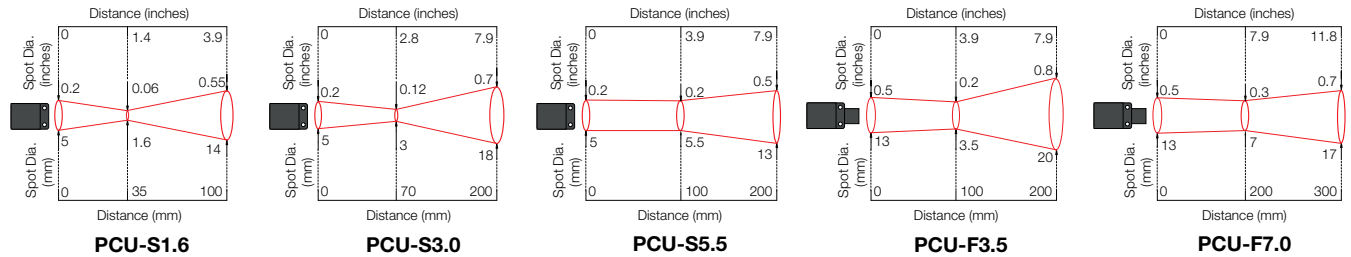
These functions may be configured via the PM030 interface. Two alarm relay outputs are provided in place of the open drain output.

† 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

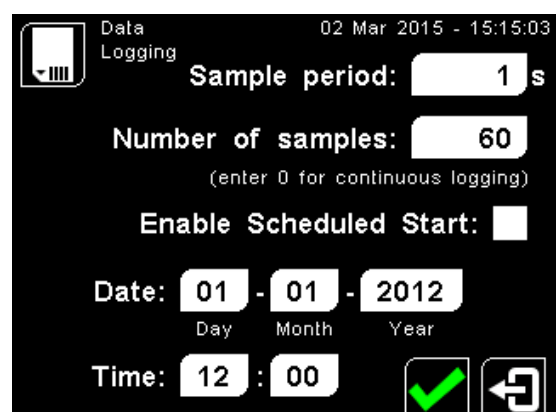
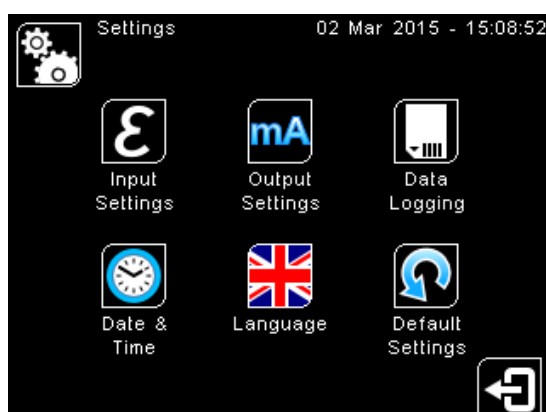
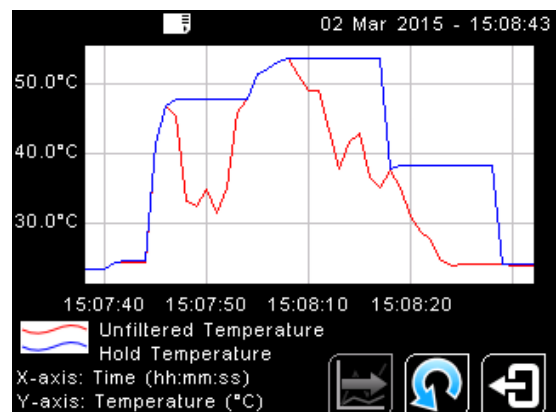
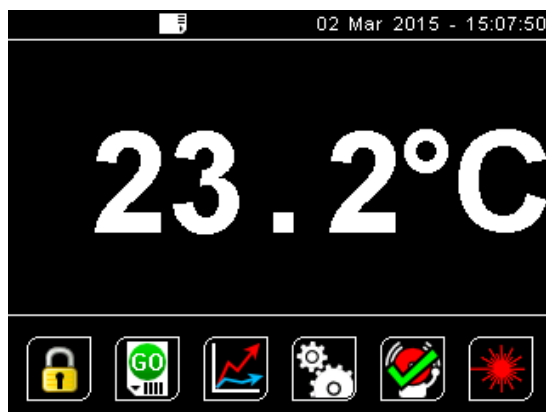
### Configurable Parameters

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  
1 second to 1 day (configurable)  
1 x BR 1225, 3 V (not included)  
Instantaneous measured temperature, hold temperature, alarm events

### Sample Interval

### Internal Clock Battery

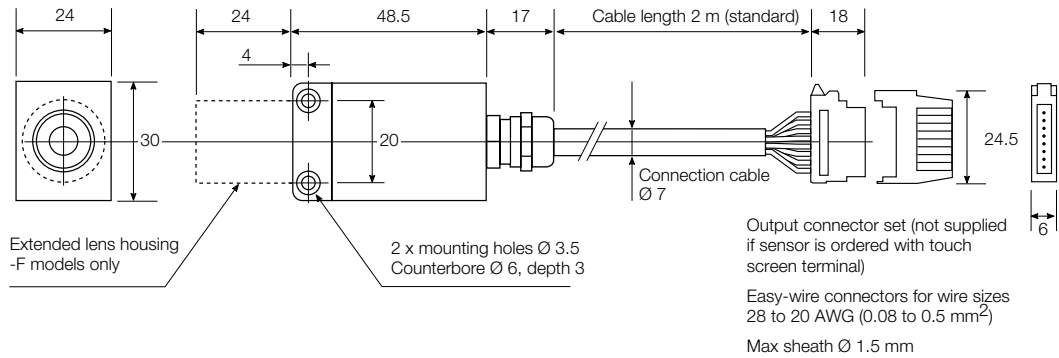
### Variables Logged

### Configurable Parameters

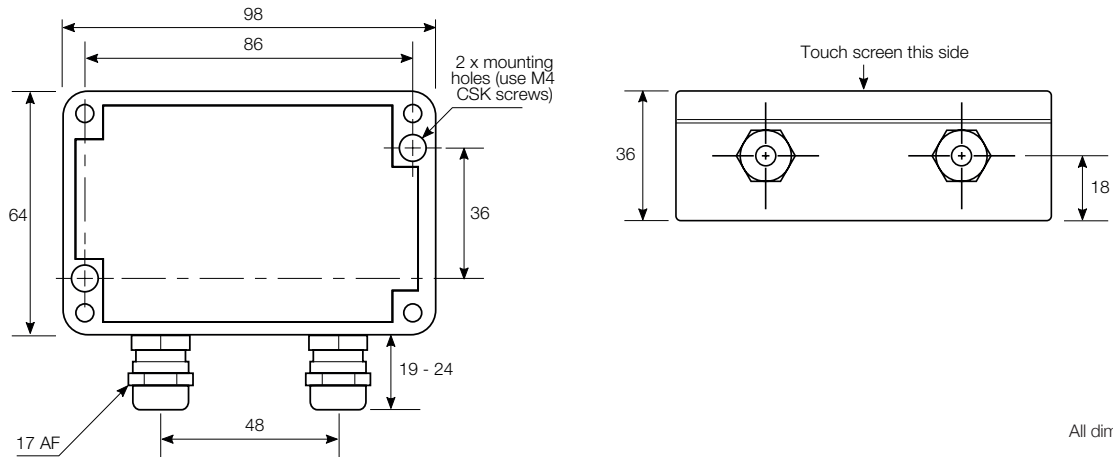
Data logging: Sample period  
Number of samples  
Scheduled start  
Alarm logging: Log times when triggered, acknowledged, reset  
Log data while triggered

## DIMENSIONS

PyroCube Sensor

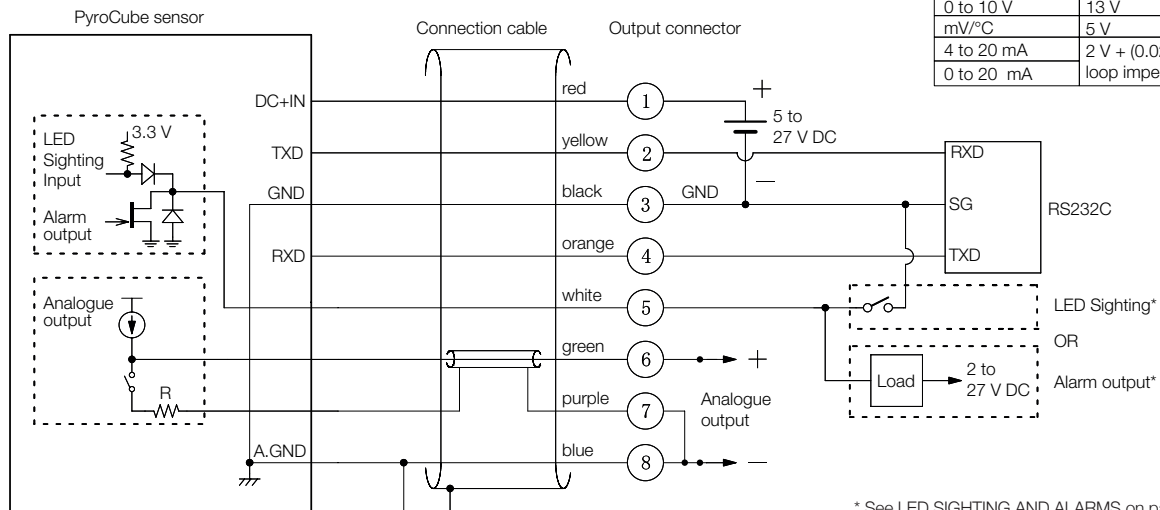


PM030 Touch Screen Interface



All dimensions in mm

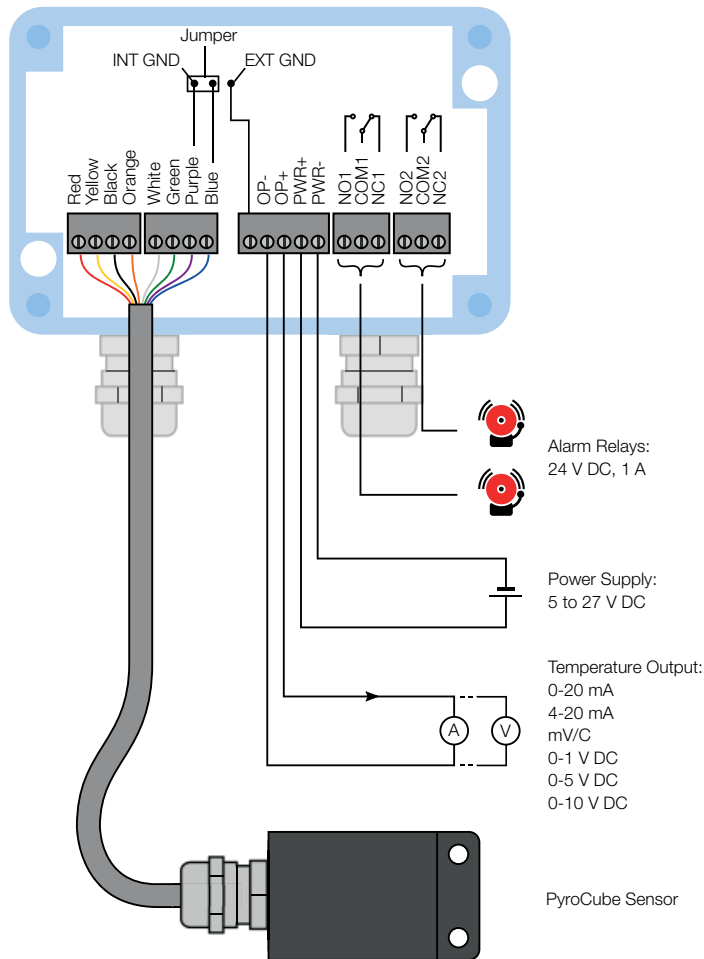
## PYROCUBE CONNECTIONS - SENSOR ONLY



Analogue output	Minimum supply voltage
0 to 1 V	5 V
0 to 5 V	8 V
0 to 10 V	13 V
mV/°C	5 V
4 to 20 mA	2 V + (0.02 A x loop impedance [Ω])
0 to 20 mA	

\* 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