

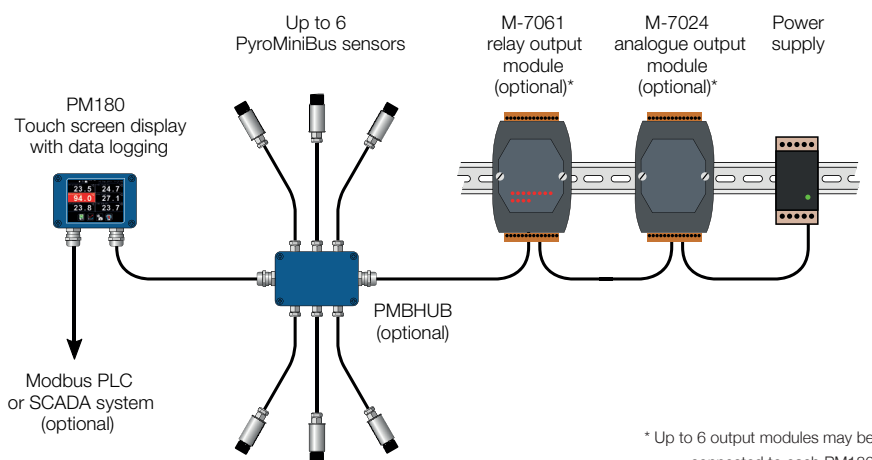
# PyroMiniBus

## Multi-Channel Infrared Temperature Monitoring System



- Miniature non-contact temperature sensors with RS485 Modbus communications
- Touch screen terminal for configuration, display, alarms and data logging
- Low-cost standalone 6-channel system
- Build larger systems using the PM180's isolated Modbus Master and Slave interfaces
- Analogue and alarm relay outputs via optional modules
- Conforms to industrial EMC standards

### PM180 AS MODBUS MASTER



The PyroMiniBus is an industrial infrared temperature monitoring system, with miniature sensing heads and optional display modules.

PyroMiniBus sensors are designed to measure the surface temperature of non-reflective materials in industrial applications, from -20°C to 1000°C. They are sealed to IP65, built from 316 stainless steel, and fully tested to industrial EMC standards.

They can measure food, paper, thick plastics, asphalt, paint, bulk materials and organic materials, as well as most dirty, rusty or oily surfaces.

### ROBUST

PyroMiniBus sensors have an operating temperature rating of up to **120°C** with no need for cooling.

### COMPACT

The sensors measure just 45 mm long (plus cable gland), so they can fit into the smallest of spaces.

### CONFIGURABLE

Up to 6 sensors can be connected to the optional PM180 interface module, which provides temperature display, configuration, and high-capacity data logging to a MicroSD Card. Analogue and relay outputs are available via separate DIN rail mounted modules.

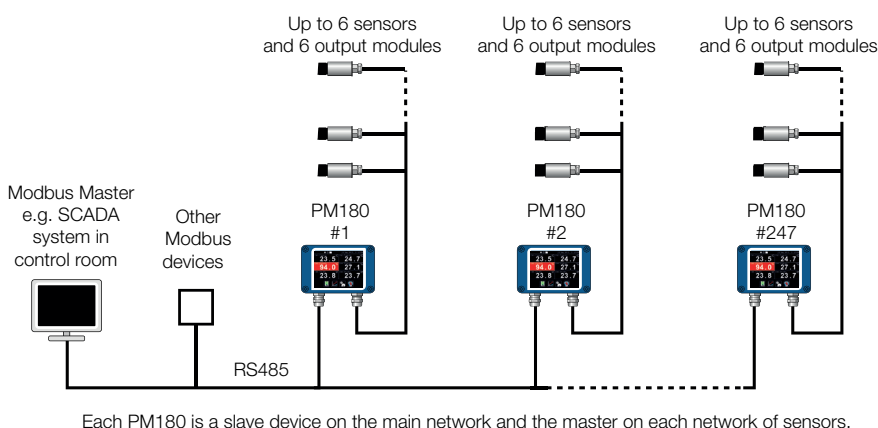
### LOW COST

With up to 6 sensors connected to one PM180, the PyroMiniBus is an ideal low-cost non-contact temperature measurement system.

### NETWORKABLE

To measure more than 6 locations, PyroMiniBus sensors and PM180 sub-networks may be connected to an RS485 Modbus SCADA system or PLC. It is possible to measure the temperature of hundreds or thousands of locations on the same network.

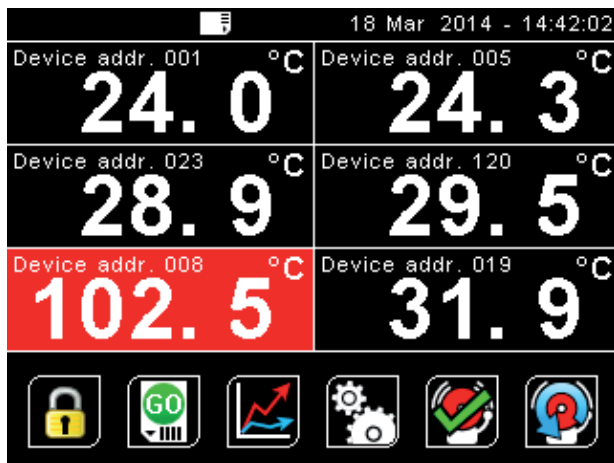
### PM180 AS MODBUS SLAVE



## PM180 6-CHANNEL TOUCH SCREEN TERMINAL

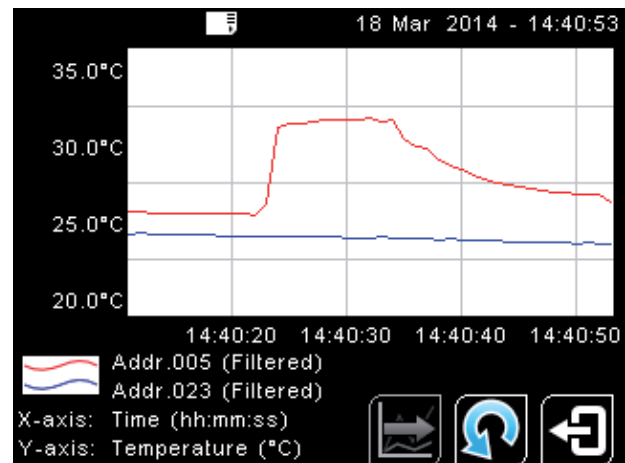


- Configure, display and log data and alarms from up to 6 sensors per terminal unit, simultaneously or individually
- Operates as Modbus master and Modbus slave
- High capacity data logging to MicroSD Card
- Bright touch screen with backlight
- Analogue and relay outputs via optional ICP DAS modules
- 2-channel scrolling temperature chart



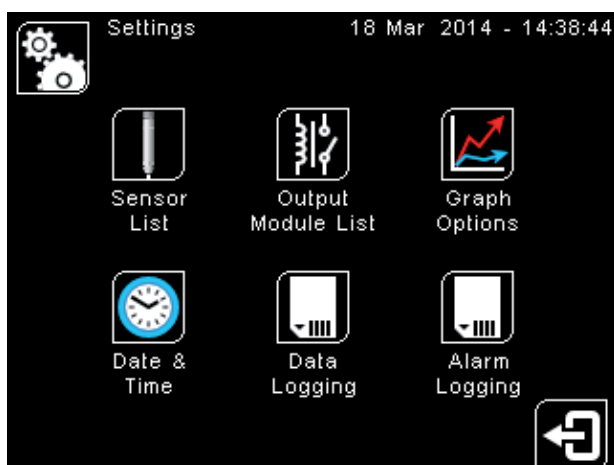
### Intuitive touch screen interface

Display and configure all 6 channels individually or simultaneously. The display for each channel turns red in an alarm condition



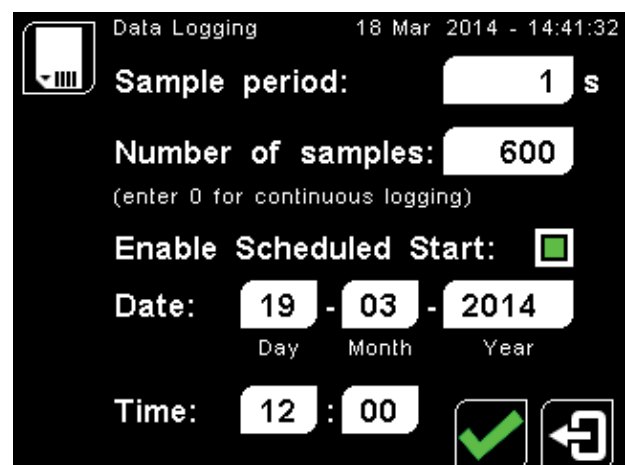
### Temperature chart

Display temperature data from two channels in a scrolling graph



### Password-protected settings

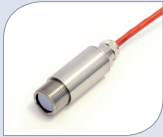
Configure options for each sensor and the PM180 itself via the touch screen interface



### Data logging

Schedule a start time, or start and stop logging at the touch of an icon. Temperature data and alarm events may be logged to a MicroSD Card (not supplied)

## SPECIFICATIONS



### PYROMINIBUS SENSOR SPECIFICATION

**Temperature Range**

-20°C to 1000°C

**Interface**

RS485 Modbus RTU

**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,  $t_{90}$** 

125 ms (90% response)

**Spectral Range**

8 to 14  $\mu$ m

**Supply Voltage**

6 to 28 V DC

**Supply Current**

50 mA max.

**Baud Rate**

9600 baud \*

**Format**

8 data bits, no parity, 1 stop bit \*

\* Other configurations available upon request

### CONFIGURATION

**Configuration Method**

Via PM180 touch screen, or directly via RS485 Modbus

**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**

1m (longer lengths available to order)

**Weight with Cable**

85 g

### ENVIRONMENTAL

**Environmental Rating**

IP65

**Ambient Temperature**

0°C to 120°C

**Relative Humidity**

95% max. non-condensing

### CONFORMITY

See PM180 Specification (right)



### PM180 SPECIFICATION

**Compatible Sensor Types**

PyroMiniBus (all models), PyroBus (all models), PyroMini (-BB and -BRT models)

**Display**

2.83" (72 mm) resistive touch TFT, 320 x 240 pixels, backlit

**Supply Voltage**

10 to 30 V DC

**Maximum Current Draw**

100 mA

**Configurable Parameters (global)**

Temperature units, date and time, data logging, graph channels, alarm logging

**Configurable Parameters (per channel)**

Signal processing, emissivity setting, reflected energy compensation, alarms, Modbus address

**Alarm Configuration**

12 alarms (2 per sensor) with adjustable level, individually configurable as HI or LO.

**Temperature Units**

°C or °F selectable

**Temperature Resolution**

0.1°

**Signal Processing**

Averaging with configurable period

**Display Sample Period**

120 ms per sensor (720 ms in total for 6 sensors)

### DATA LOGGING

**Logging Interval**

1 to 86,400 seconds (1 day)

**MicroSD Card**

Max. capacity: 32 GB (not included - stores years of logged data)

**Internal Clock Battery**

1 x BR 1225 3V (not included)

**Variables Logged**

Target temperature, sensing head temperature, alarm events

**File Format**

.csv (can be imported to Excel)

**Configurable Parameters**

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

### MECHANICAL

**Construction**

Die Cast Aluminium

**Electrical Connections**

Removable screw terminals, 28 AWG to 18 AWG

**Dimensions**

98(w) x 64(h) x 36(d) mm excluding cable glands

**Weight**

280 g

### ENVIRONMENTAL

**Environmental Rating**

IP65

**Ambient Temperature Range**

0°C to 60°C

**Relative Humidity**

Maximum 95%, non-condensing

### CONFORMITY

**RoHS Compliant**

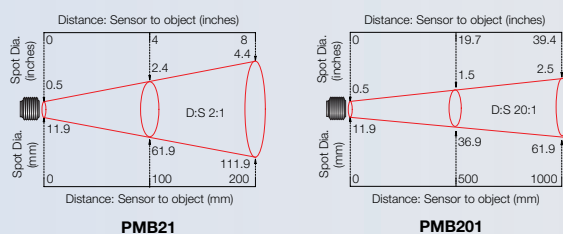
Yes

**Electromagnetic Compatibility**

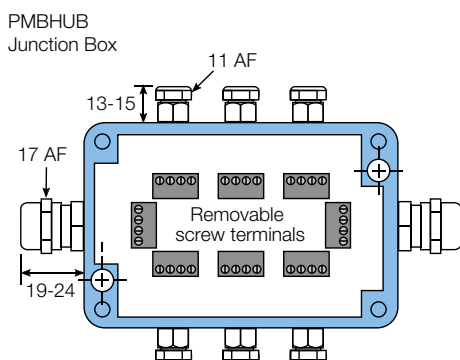
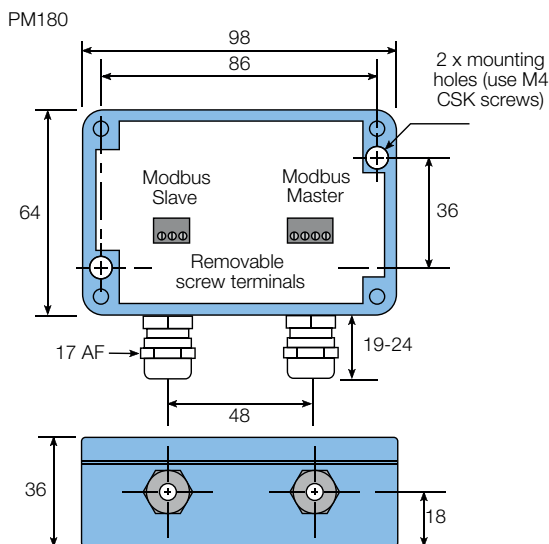
EN61326-1, EN61326-2-3 (Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements - **Industrial**)

### OPTICS

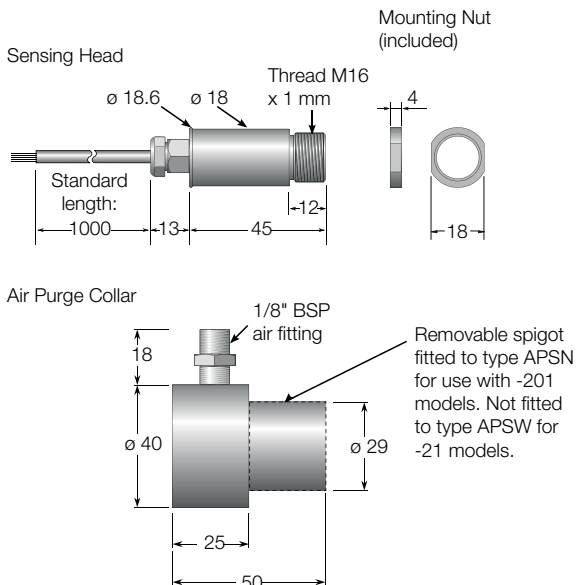
Diameter of target spot measured versus distance from sensing head (90% energy)



## MAJOR DIMENSIONS



All dimensions in mm



## PMBHUB SPECIFICATIONS

### Construction

Die Cast Aluminium

### Electrical Connections

Removable screw terminals, 28 AWG to 18 AWG

### Weight

250 g

### Environmental Rating

IP65

### Enclosure Dimensions

Same as PM180

## MODEL NUMBERS



**PMB**

**201**

### Field of view

21 = 2:1 divergent optics  
201 = 20:1 divergent optics

### Series

**PMB** = PyroMiniBus sensor



**PM180**

6-channel touch screen terminal with data logging

## SENSOR ACCESSORIES

IP65 junction box for 6 sensors **PMBHUB**

Adjustable mounting bracket **ABS**

Fixed mounting bracket **FBS**

Extended cable **PMBCE**

Calibration certificate **CALCERTA**

Laser sighting tool **LSTS**

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

## PM180 ACCESSORIES

International AC mains power supply for PM180

### PM180MA

MicroSD Card for PM180 data logging **MSD**

12-channel Modbus relay output module **M-7061**

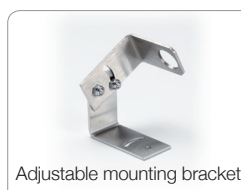
4-channel Modbus voltage or current analogue output module **M-7024**



Laser sighting tool



Air purge collar



Adjustable mounting bracket



Fixed mounting bracket

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Specifications subject to change without notice