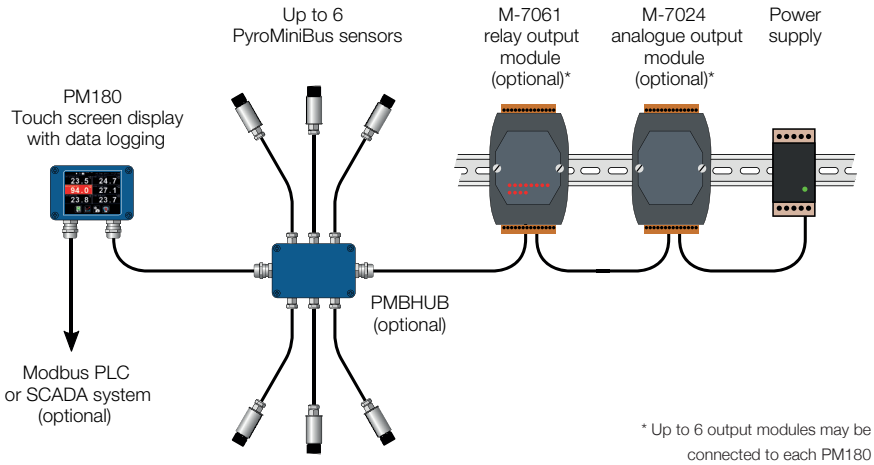
PyroMiniBus

Multi-Channel Infrared Temperature Monitoring System

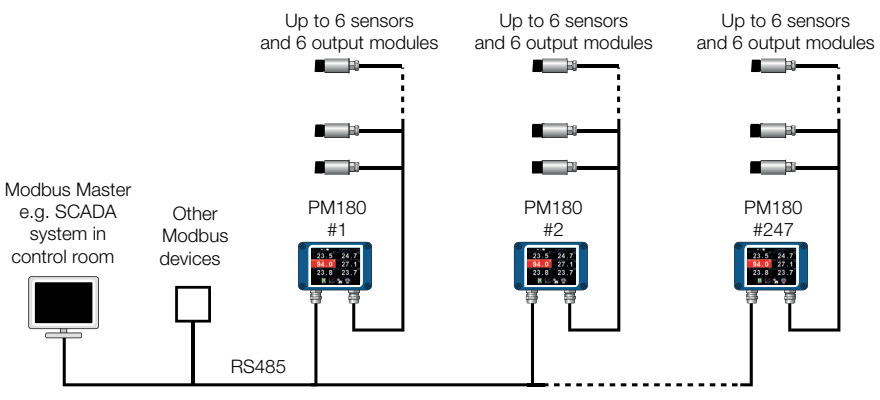
- Miniature non-contact temperature sensors with RS485 Modbus communications
- Touch screen terminal for configuration, display, alarms and data logging
- Low-cost standalone 6-channel system
- Build larger systems using the PM180's separate Modbus Master and Slave interfaces
- Analogue and alarm relay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

PM180 AS MODBUS MASTER



* Up to 6 output modules may be connected to each PM180

PM180 AS MODBUS SLAVE



Each PM180 is a slave device on the main network and the master on each network of sensors.

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.

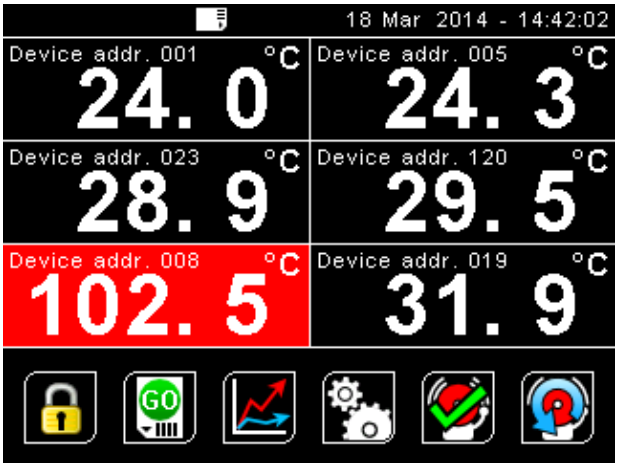
NETWORKABLE

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.

CALEX ELECTRONICS LIMITED

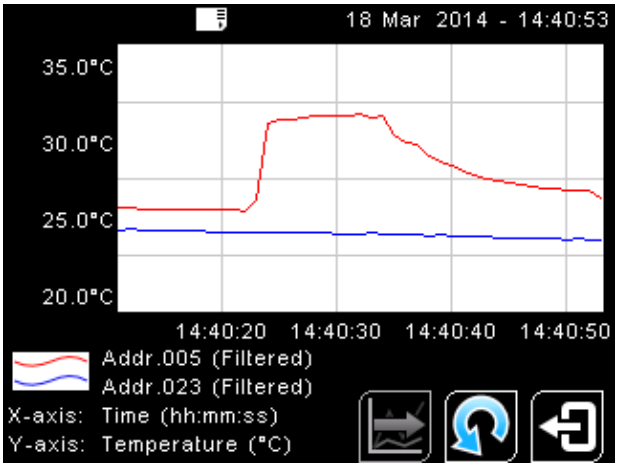
PM180 6-CHANNEL TOUCH SCREEN TERMINAL

- 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



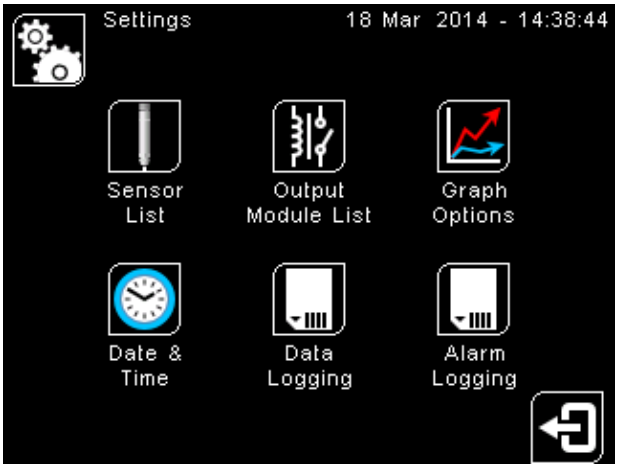
Intuitive touch screen interface

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



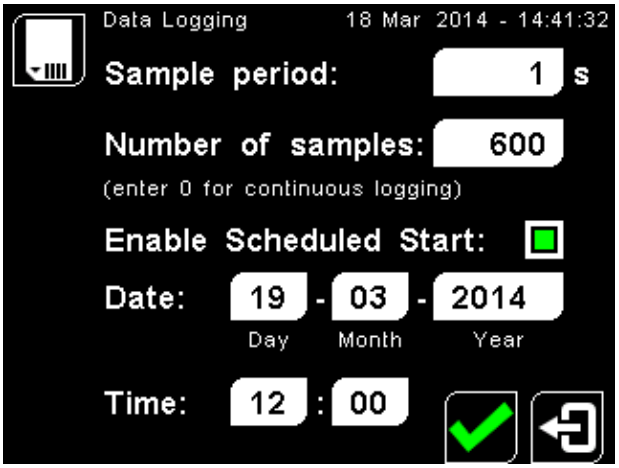
Temperature chart

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}
240 ms (90% response)
Spectral Range
8 to 14 µm
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, Peak/Valley Hold Processing, 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

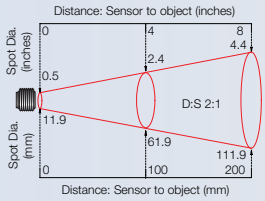
Environmental Rating
IP65
Ambient Temperature
0°C to 120°C
Relative Humidity
95% max. non-condensing

CONFORMITY

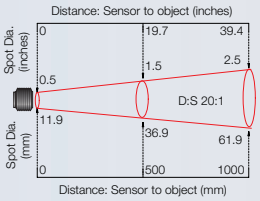
See PM180 Specification (right)

OPTICS

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



PMB21



PMB201

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
Average, peak hold, valley hold, minimum, maximum
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

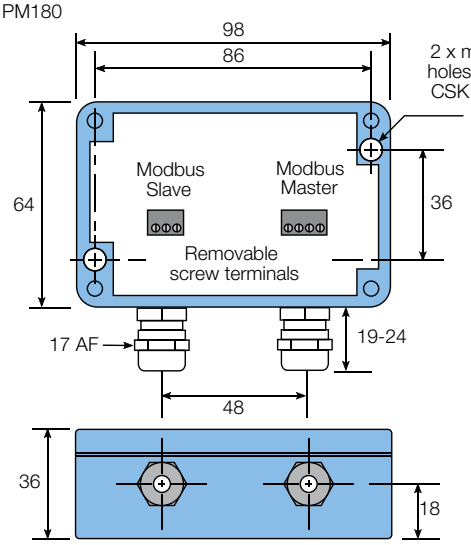
Environmental Rating
IP65
Ambient Temperature Range
0°C to 60°C
Relative Humidity
Maximum 95%, non-condensing

CONFORMITY

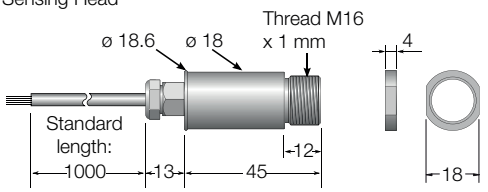
CE Marked
Yes
RoHS Compliant
Yes
Electromagnetic Compatibility
EN61326-1, EN61326-2-3 (Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements - **Industrial**)

MAJOR DIMENSIONS

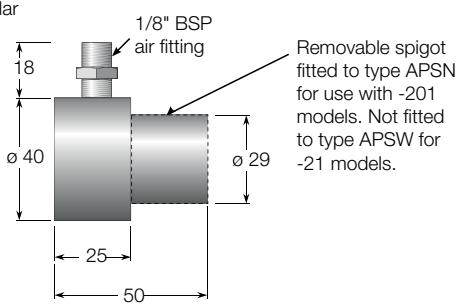
PM180



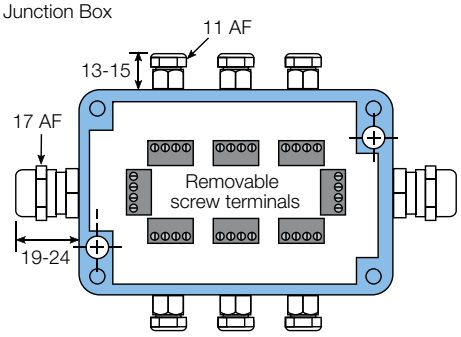
Sensing Head



Air Purge Collar



PMBHUB Junction Box



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**

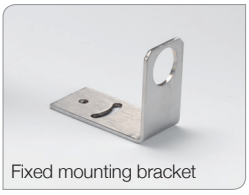
PM180 ACCESSORIES

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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