PyroCube XSA & XSB

IR Temperature Sensor

Focused optics for measuring extremely small targets

PyroCube XSA & XSB sensor with optional touch screen interface

The PyroCube XSA and XSB are infrared temperature sensors with tightly focused optics that can measure very small areas.

Built-in LED sighting precisely illuminates the exact area being measured by the sensor.

Both models are available with or without a touch screen interface.

- Temperature ranges from 0°C to 500°C
- Measured spot as small as 0.7 mm
- Response time as fast as 10 ms
- Continuous LED sighting shows the position and size of the measured spot while readings are being taken
- Multilingual touch screen interface (optional)

PYROCUBE G SENSOR SPECIFICATIONS

MEASUREMENT

Temperature Range
0°C to 500°C
Response Time (95%)
-XSA models: 10 ms
-XSB models: 50 ms
Adjustable up to 5 s via averaging function
Measured Spot Diameter
From 0.7 mm depending on measurement distance and choice of optics
(see Field of View Diagrams below)
Target Sighting
Red LED built-in as standard on all models, shows the position and size of the measurement area. Switchable on/off.
Accuracy of Measurement
-XSA models: ± 3°C or 1%, whichever is greater
-XSB models: ± 5°C
Repeatability
-XSA models: ± 1°C
-XSB models: ± 2°C
Temperature Resolution
-XSA models: 1°C below 50°C; 0.5°C below 50°C
-XSB models: 3°C below 100°C; 1.5°C below 100°C
Emissivity Setting
Adjustable, 0.3 to 1.0, via RS232C or optional touch screen interface

MECHANICAL

Weight (without cable)
-XSA models: 200 g
-XSB models: 80 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. Sensor is available with or without display.

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 optional PM030 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
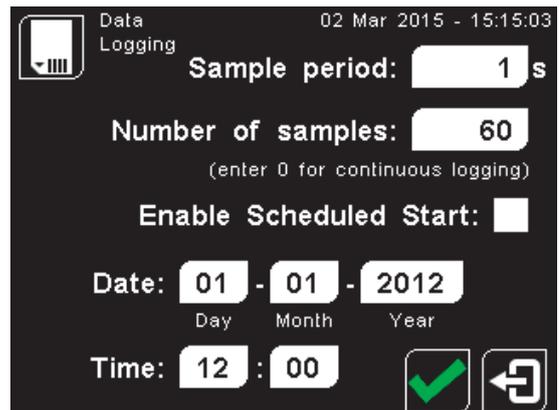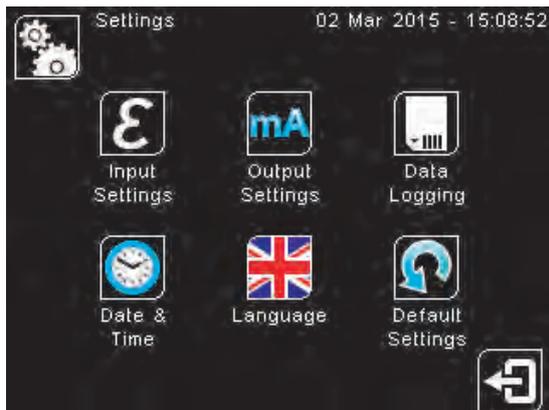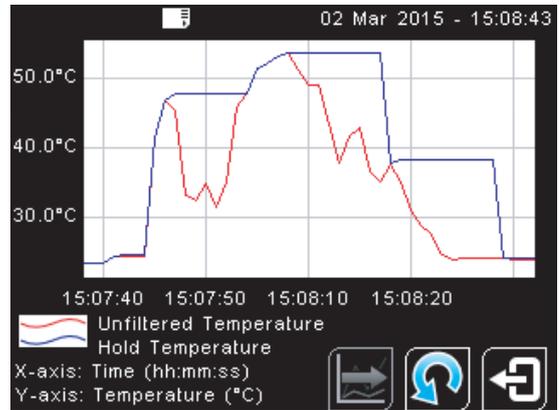RS232C Modbus RTU, non-isolated
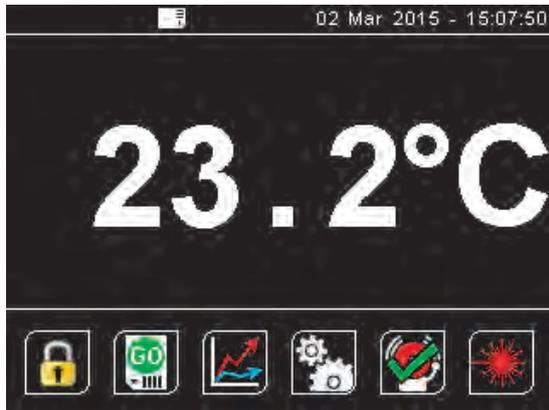**Output Cable Connection to Sensor**
-XSA models: Connector built into sensor
-XSB models: Hardwired

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.

Applications

The PyroCube XSA and XSB pyrometers measure the temperature of extremely small areas, at temperatures from 0°C to 500°C.

All models have an extremely small measured spot size. Applications include measuring the temperature of individual electronic components on circuit boards, flame polishing of the insulation jacket on electrical wire, and plastic welding where the seam is very narrow.

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,
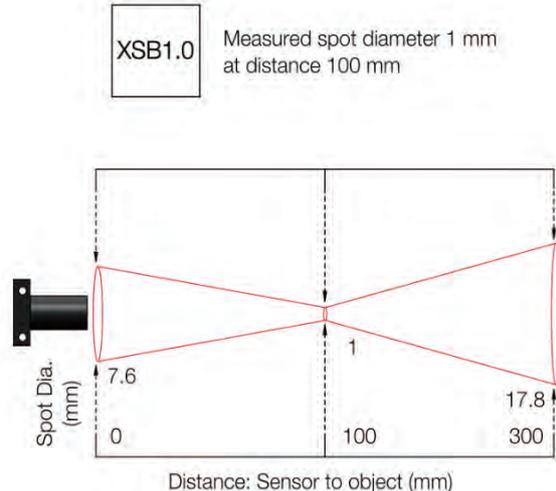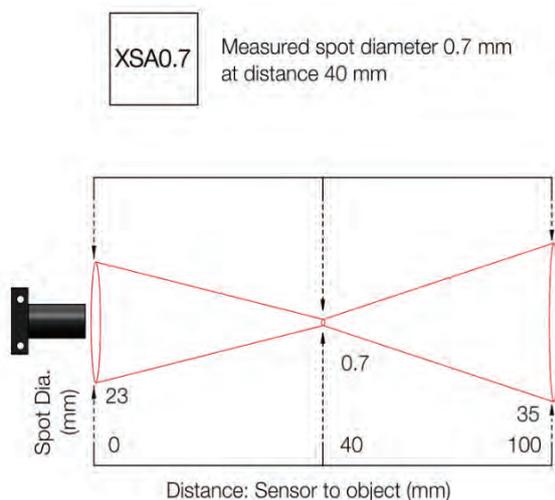   reset Log data while triggered

PM030 SPECIFICATIONS

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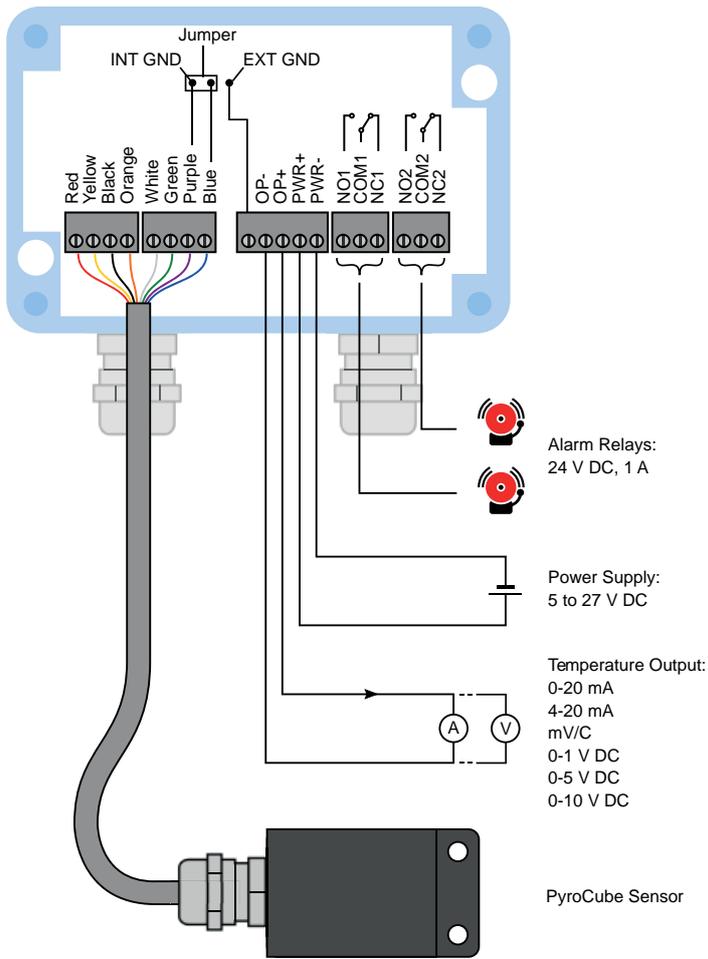2.83" (72 mm) resistive touch TFT, 320x240 pixels, backlit

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

Field of View Diagrams

XSA0.7 — Measured spot diameter 0.7 mm at distance 40 mm

XSB1.0 — Measured spot diameter 1 mm at distance 100 mm

PM030 CONNECTIONS

Jumper

INT GND   EXT GND

Red
Yellow
Black
Orange
White
Green
Purple
Blue

OP-
OP+
PWR+
PWR-

NO1
COM1
NC1

NO2
COM2
NC2

Alarm Relays:
24 V DC, 1 A

Power Supply:
5 to 27 V DC

Temperature Output:
0-20 mA
4-20 mA
mV/C
0-1 V DC
0-5 V DC
0-10 V DC

PyroCube Sensor

ACCESSORIES

Mounting bracket

MODEL NUMBERS

PCU-XSA

PCU-XSB

| PCU | - | XSA0.7 | - | 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.
If voltage output is not required, choose 1V.

Cable length
2M = 2 metres
5M = 5 metres
10M = 10 metres

Field of view
XSA0.7 = 0.7mm measured spot diameter at 40mm distance
XSB1.0 = 1mm measured spot diameter at 100mm distance

Series
PCU = PyroCube sensor

PM030   Touch screen interface module for PyroCube sensor

124.3°C