

FibreMini

Fibre Optic Infrared Temperature Sensor for Harsh Applications



- Temperature ranges from 250°C to 2000°C
- Miniature sensing head withstands 200°C ambient temperature
- Short measurement wavelength for improved accuracy on metals
- No electronics in the sensing head - ideal for use near induction heaters and strong electromagnetic fields
- Touch screen display with configuration and data logging
- Choice of analogue or digital output
- Alarm relays on all models
- Advanced signal processing functions
- Built-in laser sighting, simultaneous with measurement

GENERAL SPECIFICATIONS

Temperature Range

MT models: 250°C to 1000°C

HT models: 450°C to 2000°C

Maximum Temperature Span (-CRT models)

Full temperature range (up to 1550°C)

Minimum Temperature Span (-CRT models)

100°C

Output

4 to 20 mA or RS485 Modbus (up to 247 sensors may be installed on a single Modbus network)

Field of View

Choice of optics (see Optics)

Accuracy

±1% of reading

Repeatability

±0.5% of reading

Emissivity Setting Range

0.10 to 1.00

Emissivity Setting Method

-BRT models: via RS485

-CRT and -BRT models: via touch screen

Response Time, t_{90}

≥240 ms (90% response)

Spectral Range

2.0 to 2.6 μ m

Supply Voltage

24 V DC ± 5%

Maximum Current Draw

100 mA

Maximum Loop Impedance

-CRT models: 900 Ω (4 to 20 mA output)

Alarm Relays

2 x Single Pole Changeover alarm relays rated 24 V

DC, 1 A, isolated 500 V DC

MECHANICAL

	Sensing head	Electronics Module
Construction	Stainless Steel 316	Cast aluminium
Dimensions	Ø 12 x 48 mm (see diagram)	98(w) x 64(h) x 36(d) mm
Mounting	M12 x 1.5 mm thread	Two M4 screw holes for wall mounting (see diagram)

Fibre Optic Cable Length

(sensing head to electronics module)

3 m, 5 m or 10 m

Cable Connections

Removable screw terminal blocks (see Connections)

Conductor size: 28 AWG to 18 AWG

Output Cable Gland

Suitable for cable diameters 3.0 to 6.5 mm

ENVIRONMENTAL

	Sensing head	Electronics Module (without touch screen)	Electronics Module (with touch screen)
Environmental Rating	IP65 (NEMA 4)	IP65 (NEMA 4)	
Ambient Temperature Range	0°C to 200°C	0°C to 60°C	0°C to 60°C
Relative Humidity	Maximum 95% non-condensing	Maximum 95% non-condensing	Maximum 95% non-condensing
CE Marked	Yes	Yes	Yes
RoHS Compliant	Yes	Yes	Yes

ELECTROMAGNETIC COMPATIBILITY STANDARDS:

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

TOUCH SCREEN

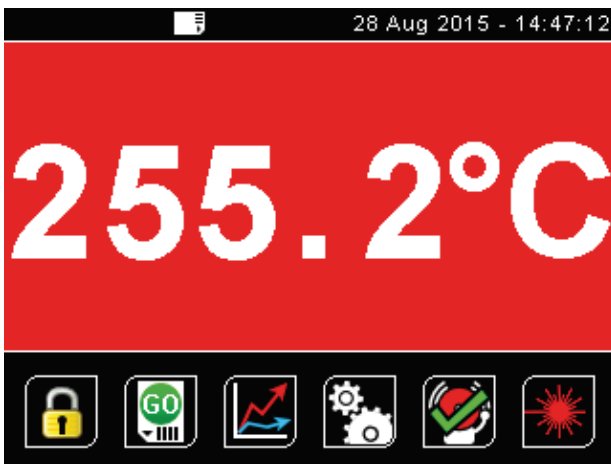
The backlit touch screen interface mounted in the lid of the electronics module provides a large, bright display of the measured temperature, as well as controls allowing full configuration of the sensor. The graph view shows the history of the measured temperature.

In alarm conditions, the display turns bright red to provide an immediate and obvious alarm indication. Alarm modes and levels can be configured via the touch screen.

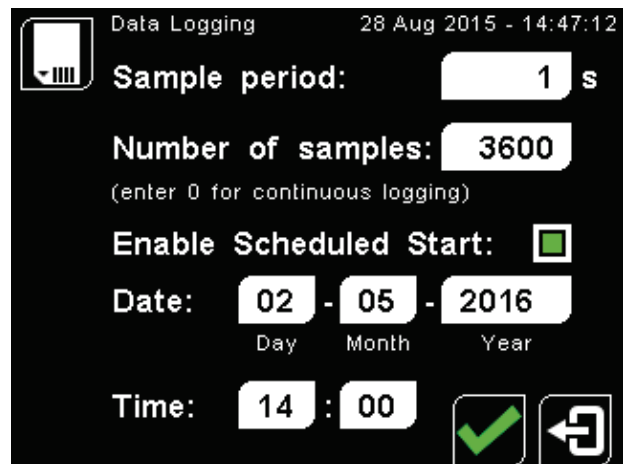
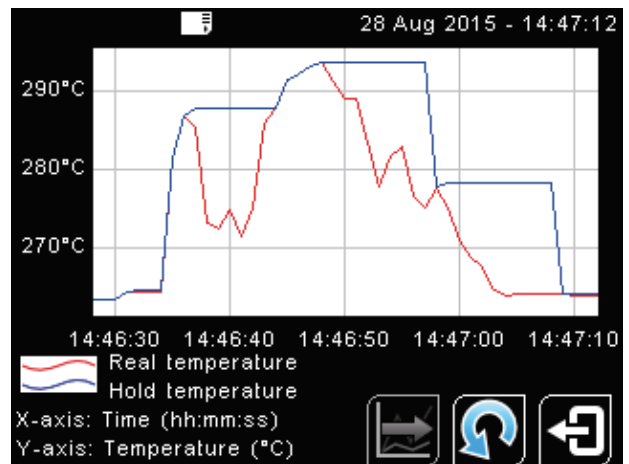
TOUCH SCREEN SPECIFICATIONS

Touch Screen Display Format	2.83" (72 mm) resistive touch TFT, 320 x 240 pixels, backlit
Configurable Parameters	Temperature range (-CRT models), temperature units, emissivity setting, reflected energy compensation, alarms, signal processing, Modbus address (-BRT models), date and time, data logging
Temperature Units	°C or °F configurable
Temperature Resolution	0.1°
Alarm Configuration	Two alarms with adjustable level, individually configurable as HI or LO. Alarm 2 can be set to target temperature or sensing head internal temperature
Signal Processing	Average, peak hold, valley hold, minimum, maximum

EXAMPLE SCREENSHOTS



Screen shown with red background to indicate alarm condition



DATA LOGGING SPECIFICATIONS

Data Logging Interval	1 to 86,400 seconds (1 day)
MicroSD Card	Max. capacity: 32 GB (not included)
Internal Clock Battery	1 x BR 1225 3V (not included)
Variables Logged	Target temperature, electronics module temperature, max, min, average, emissivity setting, reflected energy compensation temperature, alarm events
File format	.csv
Configurable Parameters	Sample period, number of samples, scheduled start date and time

DATA LOGGING (-CRT AND -BRT MODELS)

The FibreMini can be used as a standalone data logger.

All models include a MicroSD card slot for data logging, which can be configured via the touch screen interface. The user can select the sample rate and the number of samples to be taken and schedule the data logging to start at a certain time.

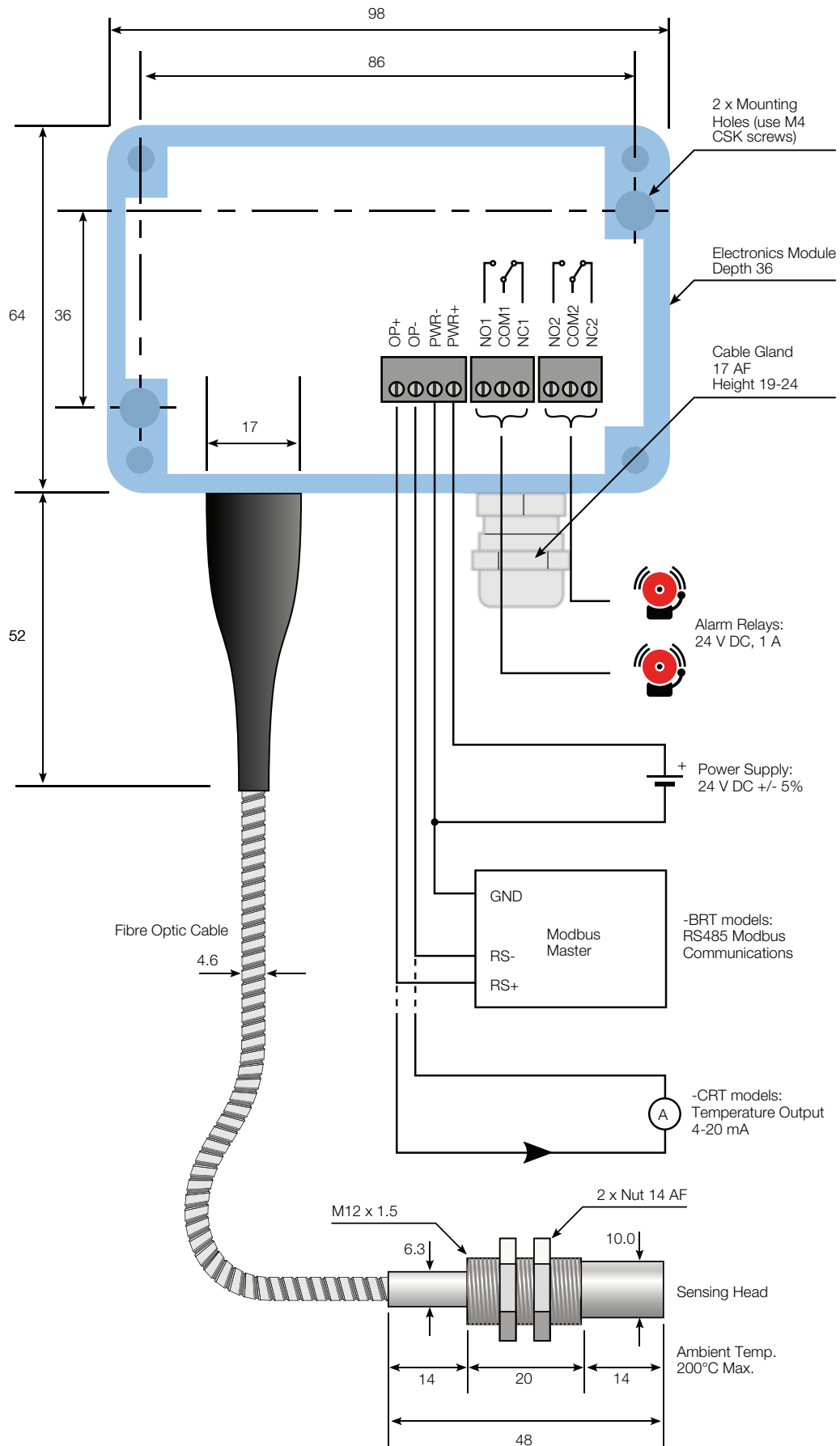
With a MicroSD card larger than 2 GB, years of data can be stored, even at the fastest possible sample rate of 1 per second.

Data is stored in .csv format and can be viewed and edited easily using spreadsheet software. Alarm events can also be logged to the MicroSD Card.

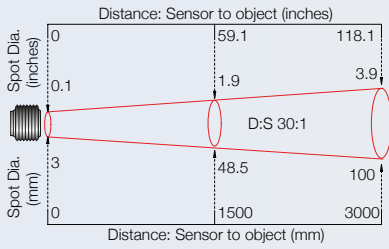
A MicroSD card with SD card adapter is available as an optional accessory.

The MicroSD card slot and battery holder are located inside the electronics module. Readings are time and date stamped using the sensor's internal clock. The clock is reset when the power is disconnected, or it will continue if the optional battery is fitted.

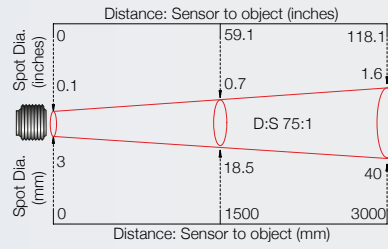
CONNECTIONS AND DIMENSIONS



FIELD OF VIEW



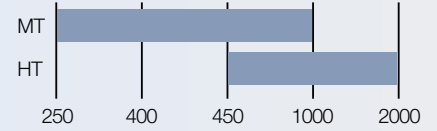
-301



-751

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

MEASUREMENT TEMPERATURE RANGE (°C)



-CRT models: 4 to 20 mA output is configurable within this range

-BRT models: Digital output, full temperature range

MODEL NUMBERS



FM2.2 - **301** - **HT** - **CRT** - **5M**

Fibre Optic Cable Length

3M = 3 metres
5M = 5 metres
10M = 10 metres

Output and Interface

CRT = 4-20 mA output, two alarm relay outputs, with touch screen
BRT = RS485 Modbus output, two alarm relay outputs, with touch screen

Temperature Range

MT = 250°C to 1000°C
HT = 450°C to 2000°C

Field of view

301 = 30:1 divergent optics
751 = 75:1 divergent optics

Series

FM2.2 = FibreMini with 2.2 µm spectral response

ACCESSORIES ALSO AVAILABLE

- MSD** MicroSD Card with SD Card adapter: stores logged data
- CALCERTA** Calibration certificate
- ABF** Adjustable mounting bracket
- FBF** Fixed mounting bracket
- APF** Air purge collar
- PM180** 6-channel Modbus temperature indicator with touch screen interface and data logging