

# Miniature Infrared Temperature Sensor for High Temperature Targets and Metals



OS-MINI22 Series



- ✓ Short Wavelength Measurement for Low-Emissivity Targets Such as Steel Rollers and Other Metal Surfaces
- ✓ Ranges from 100°C to 2000°C (212 to 3632°F)
- ✓ 4 to 20 mA or RS485 Modbus® Output Models
- ✓ Miniature Sensing Head to Fit Most Applications with Configurable Electronics Package
- ✓ Optional Touch Screen Display for Temperature Indication and Configuration
- ✓ Bright Red Alarm Screen
- ✓ Adjustable Emissivity on All Models
- ✓ Data Logging SD Card (Optional) on All Touch Screen Models
- ✓ MAX/MIN/AVG and Instantaneous Read Modes, Peak or Valley Hold, Reflected energy Compensation
- ✓ Sensing Head Sealed to IP65 (NEMA 4)
- ✓ Resistant to Errors Due to Moving Cables as on Robotic Arms

The OS-MINI has miniature sensing head to fit most applications and configurable electronics package. They use short wavelength measurement for low-emissivity targets such as steel rollers and other metal surfaces. Field of views from 15:1 to 75:1 plus a close focus model are designed to fill most industrial



OS-MINI22-SN151-D-MA-MT miniature sensor with display, shown smaller than actual size.

requirements. The optional backlit touch screen interface mounted in the electronics module, provides an easy-to-read large, bright display of the measured Temperature, as well as controls allowing full configuration of the sensor. The graph view allows viewing the history of the measured temperature.

In alarm condition, the display turns bright red to provide an immediate and obvious alarm indication. The alarm levels and modes can be configured from the touch screen.

## Specifications

**Min/Max Adjustable Span (D-MA Model):** 100°C (212°F)/up to 1550°C (2822°F) within the full range

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

**Field of View:** See To Order chart on next page

**Accuracy:** ±2°C or 1% reading, whichever is greater

**Repeatability:** ±0.5°C or 0.5% reading, whichever is greater

**Emissivity Setting Range:** 0.10 to 1.00

**Emissivity Setting Method:**

**-MA Models:** Two rotary switches in electronics package

**C4 and /D-C4 Models:** RS485

**D-MA/D-C4 Models:** Touch screen

**Response Time,  $t_{90}$ :** ≥240 ms (90% response)

**Spectral Range:** 2.0 to 2.6  $\mu\text{m}$

**Supply Voltage:** 24 Vdc ±5%

**Maximum Current Draw:** 100 mA

**Maximum Loop Impedance (4 to 20 mA Output Models):** 900 $\Omega$

**“D-” Models Alarm Relays:**

2 x Single Pole alarm relays 24 Vdc, 1A, 500 Vdc isolation

## MECHANICAL

**Sensing Head:**

**Material:** 316 SS

**Dimensions:** 18 dia. x 45 mm (see diagram above)

**Mounting:** M16 x 1 mm thread, nut included

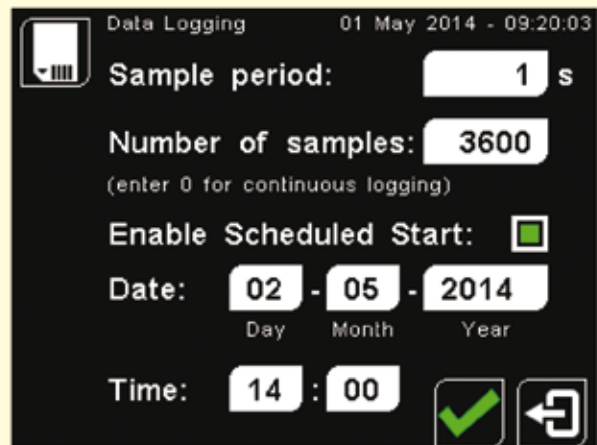
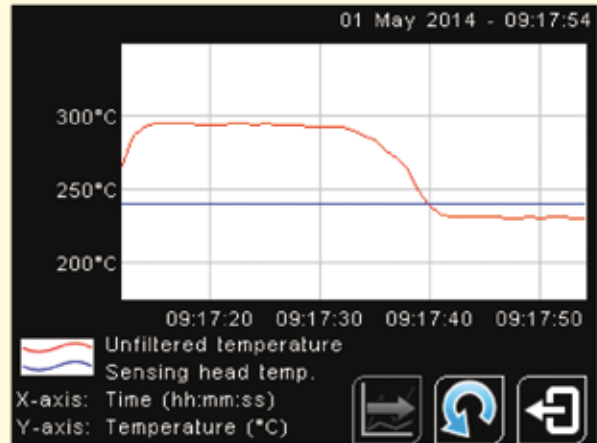
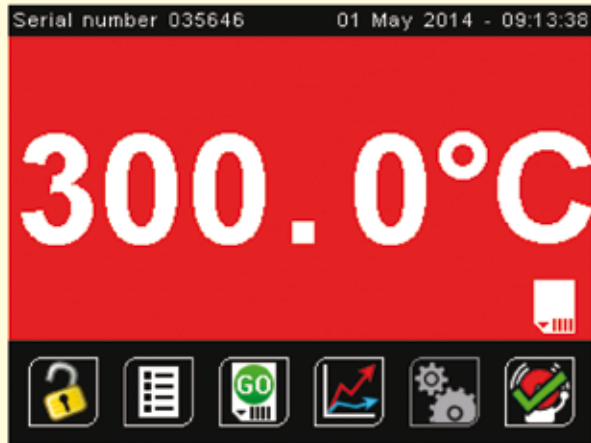
**Electronics Module:**

**Material:** Cast aluminum

**Dimensions:** 98 L x 64 W x 36 mm D (3.9 x 2.5 x 1.4")

The touch screen option can also be used as a data logger. They include a MicroSD card slot for data logging which can be configured using the touch screen. The user can select the sample rate, the number of samples to be taken and schedule the start time. Using the optional 2 GB card, the unit can store 28.4 million readings (which is approximately a 1-years worth of data at the highest

sampling rate of 1 reading per second). Alarm events can also be logged. Readings are time and date stamped using the sensor internal clock. Data is stored in .csv format which is easily viewed and stored by spreadsheet programs. The clock resets when power is disconnected or will continue if the optional battery is installed.



## ENVIRONMENTAL

**Environmental Sealing:**  
NEMA 4 (IP65)

**Ambient Range:** 0 to 70°C  
(32 to 158°F)

**Relative Humidity:** 95% non-condensing

### Electronics Module:

**Environmental Sealing:** NEMA 4 (IP65) models with touch screen

**Ambient Range:** 0 to 60°C  
(32 to 140°F)

**Relative Humidity:**  
95% non-condensing

### Electromagnetic Standards:

**EMC Directive:** EN61326-1:2006

**Immunity:** IEC 61000-4-2,  
IEC 61000-4-3, IEC 61000-4-4,  
IEC 61000-4-5, IEC 61000-4-6,  
EN 55022A, EN 55022B

**Data Logging (Models with Display Data Logging Interval):**  
1 to 86,400 sec (1-day)

**MicroSD Card:** 2 GB max capacity (not included)

**Internal Clock Battery:** 1 x BR1225 3V (not included)

**Variables Logged:** Target temp, Sensing head temp, electronics module temp, max, min, average, emissivity setting, reflected energy compensation, alarm events

**File Format:** .csv

**Configurable Parameters:** Sample period, number of samples, scheduled start date and time

## TOUCH SCREEN DISPLAY

**Display Format:** 72 mm (2.83") resistive touch TFT, 320 x 240 pixels, backlit

### Configurable Parameters:

Temperature range, temperature units, emissivity setting, reflected energy compensation, alarms, signal processing, Modbus address (D-C4 models), date, time, data logging

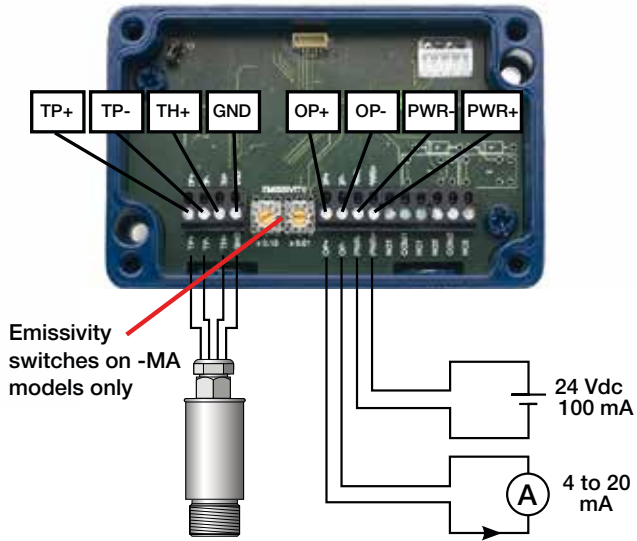
**Temperature Units:** °C, °F

**Temperature Resolution:** 0.1°

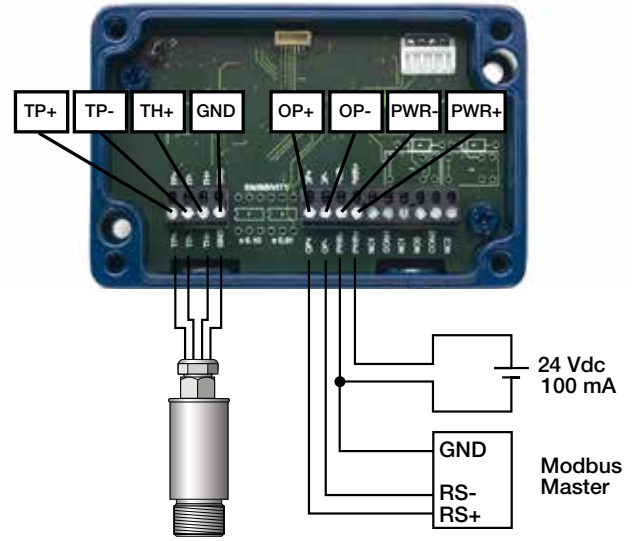
**Alarm Configuration:** Two alarms with adjustable levels, individually configurable as HI or LO; Alarm 2 can be set to target temperature or sensing head internal temperature

**Signal Processing:** Average, peak hold, valley hold, minimum, maximum

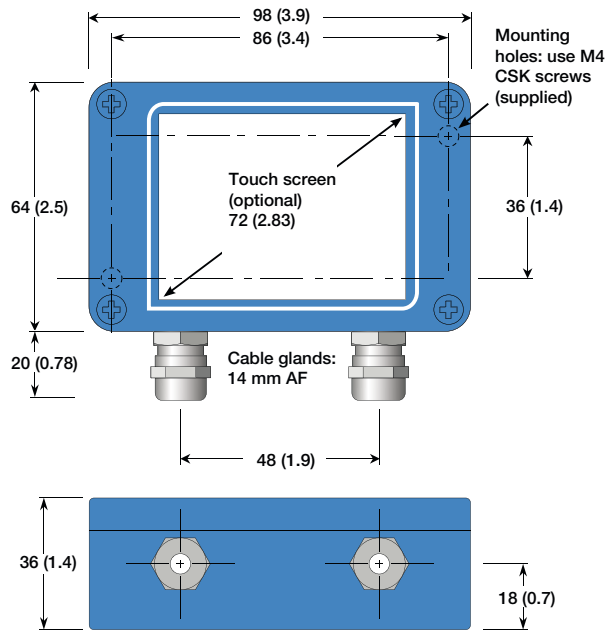
### MA and D-MA models



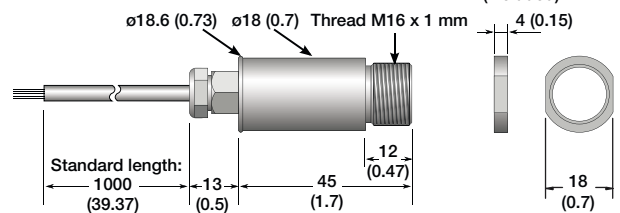
### C4 and D-C4 models



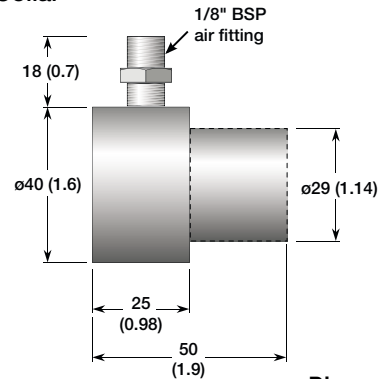
### Electronics Module



### Sensing Head



### Air Purge Collar



Dimensions: mm (in)  
 $\phi$  = diameter

<b>To Order</b>		
<b>OS-MINI22-SN[ * ]- [**-][***]- [XXX]</b>		
<b>Field of View [ * ]</b>	<b>151</b>	15:1 optics [all ranges, 0 to 60°C (32 to 140°F) head]
	<b>251</b>	25:1 optics [all ranges, 0 to 60°C (32 to 140°F) head]
	<b>751</b>	75:1 optics [all ranges, 0 to 60°C (32 to 140°F) head]
	<b>801</b>	Close focus optics 60 mm @ 1500 mm (2.4" @ 59.1") [all ranges, 0 to 60°C (32 to 140°F) head]
<b>Output Display [**]</b>	<b>MA</b>	4 to 20 mA (no display) fixed range
	<b>D-MA</b>	4 to 20 mA, touch screen display, adjustable range, 2 alarm relays
	<b>C4</b>	RS485 Modbus output (no display), digital output, full temperature range
	<b>D-C4</b>	RS485 Modbus output, touch screen display, full temperature range, 2 alarm relays
<b>Temperature Range [***]</b>	<b>PT</b>	100 to 400°C (212 to 752°F) only valid for 15:1 optics
	<b>MT</b>	250 to 1000°C (482 to 1832°F)
	<b>HT</b>	450 to 2000°C (842 to 3632°F)
<b>Extra Cable Length [XXX]</b>	Add total length in meters up to 30 m (98') [1 m (3') is standard]	

#### Accessories

<b>Model No.</b>	<b>Description</b>
<b>MINI-MSD</b>	Micro SD card
<b>CALA</b>	Calibration certificate
<b>OS210-LSTS</b>	Laser sighting tool
<b>OS210-ABS</b>	Adjustable mounting bracket (3-axis)
<b>OS210-FBS</b>	Fixed mounting bracket (1-axis)
<b>OS210-DLSB</b>	Dual laser sighting bracket
<b>OS210-APSN</b>	Air purge collar
<b>OSMINI-D6</b>	6-channel Modbus temperature indicator with touch screen display and data logging

*Comes with OS-MINI22, sensing head and 1 m (3') cable, electronics module and operators manual.*

**Ordering Example:** OS-MINI22-SN251-D-MA-MT, OS-MINI with 2.2 μm spectral range, 25:1 field of view, touch screen display, 4 to 20 mA output and 2 alarm relays, and 250 to 1000°C (482 to 1832°F) temperature range.