



# Miniature Infrared Temperature Sensor

## With Optional High-Ambient Sensing Head and Touch Screen Display

### OS-MINI Series



Optional

#### Models with Display Only

- ✓ Miniature Sensing Head and Configurable Electronics Module
- ✓ Screen Color Change Indicates Alarm Mode
- ✓ Data Logging to MicroSD Card on Touch Screen Models
- ✓ 4 to 20 mA or RS485 MODBUS® Outputs
- ✓ Alarm Relay, Outputs Rated 24 Vdc— No Need for Separate Trip Amplifier
- ✓ Maximum, Minimum, Average and Instantaneous Readings, Peak or Valley Hold, Reflected Energy Compensation

#### Standard Features for Models with or without Display

- ✓ High-Ambient Sensing Head Withstands Up to 180°C (356°F) Without Cooling
- ✓ Adjustable Emissivity Setting— Suitable for a Wide Range of Target Materials Such as Paper, Plastics, Food, Painted Surfaces and Many More
- ✓ Temperature Ranges from -20 to 1000°C (-4 to 1832°F)
- ✓ Resistant to Interference from Movement of Sensing Head Cable— Ideal for Mounting on Robot Arms



OS-MINI302-D-MA shown smaller than actual size.

Touch screen for temperature indication and configuration.



Comes with miniature sensing head.

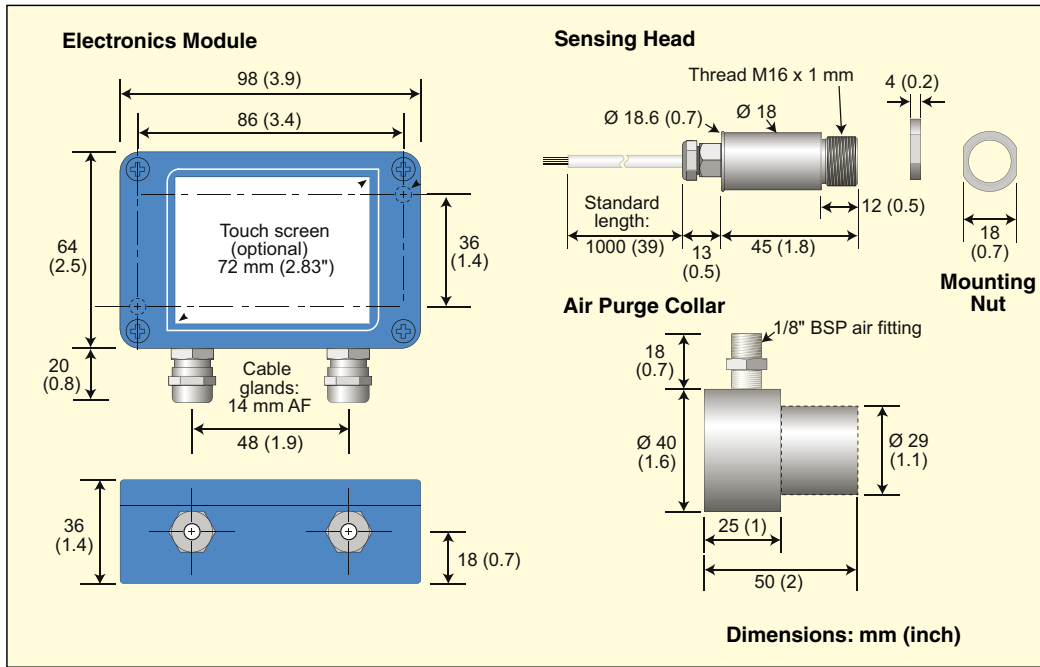
- ✓ Optional Mounting Brackets, Air Purge Collar, Laser Sighting Tool and Protective Window
- ✓ Sensing Head Sealed to IP65

The new OMEGA® mini infrared pyrometer is packed full of exciting new features. Its miniature sensing head measures just 18 x 45 mm (0.71 x 1.8"), making it ideal for mounting in tight spaces. A high ambient version is capable of withstanding temperatures of up to 180°C (356°F) without water or air-cooling, allowing significant energy and cost savings to be made. Manufactured from 316 stainless steel and sealed to IP65, the OMEGA mini sensing head is ideal for food and pharmaceutical applications among many others.

A wide selection of optics allows the OMEGA mini to focus on small or large targets at short or long distances.

The special low-noise interconnecting cable is resistant to interference from movement, making the sensing head ideal for mounting on robot arms. It can be supplied in lengths from 1 to 30 m (3.3 x 98').

The electronics module is also available with a number of different options: The backlit touch screen interface provides a large, bright display of the measured temperature in digital format and a graph view that shows the history of the measured temperature. It also enables full configuration of



the sensor including temperature range setting between -20 to 1000°C (-4 to 1832°F), adjustable filtering, peak or valley hold processing, emissivity setting and reflected energy compensation. In alarm conditions, the whole display changes color to provide an immediate and obvious alarm indication. Alarm modes and levels can be configured via the touch screen. When fitted with

a MicroSD card, the OMEGA mini also functions as a data logger, providing a useful means of recording process temperatures for quality assurance and traceability. 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 2 GB card, the user can store 28.4 million time and date

stamped readings, which provides almost 1 year's worth of data at the fastest possible sample rate of 1 per second. Output options include 4 to 20 mA, RS485 MODBUS and alarm relays, which are rated 24 Vdc so there is no need for a separate trip amplifier. Other options include mounting brackets, an air purge collar, protective lens cover and laser sighting tool.

### Touch Screen Specifications

**Touch Screen 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 (C4-R-D models), date and time, data logging

**Temperature Units:** °C or °F configurable

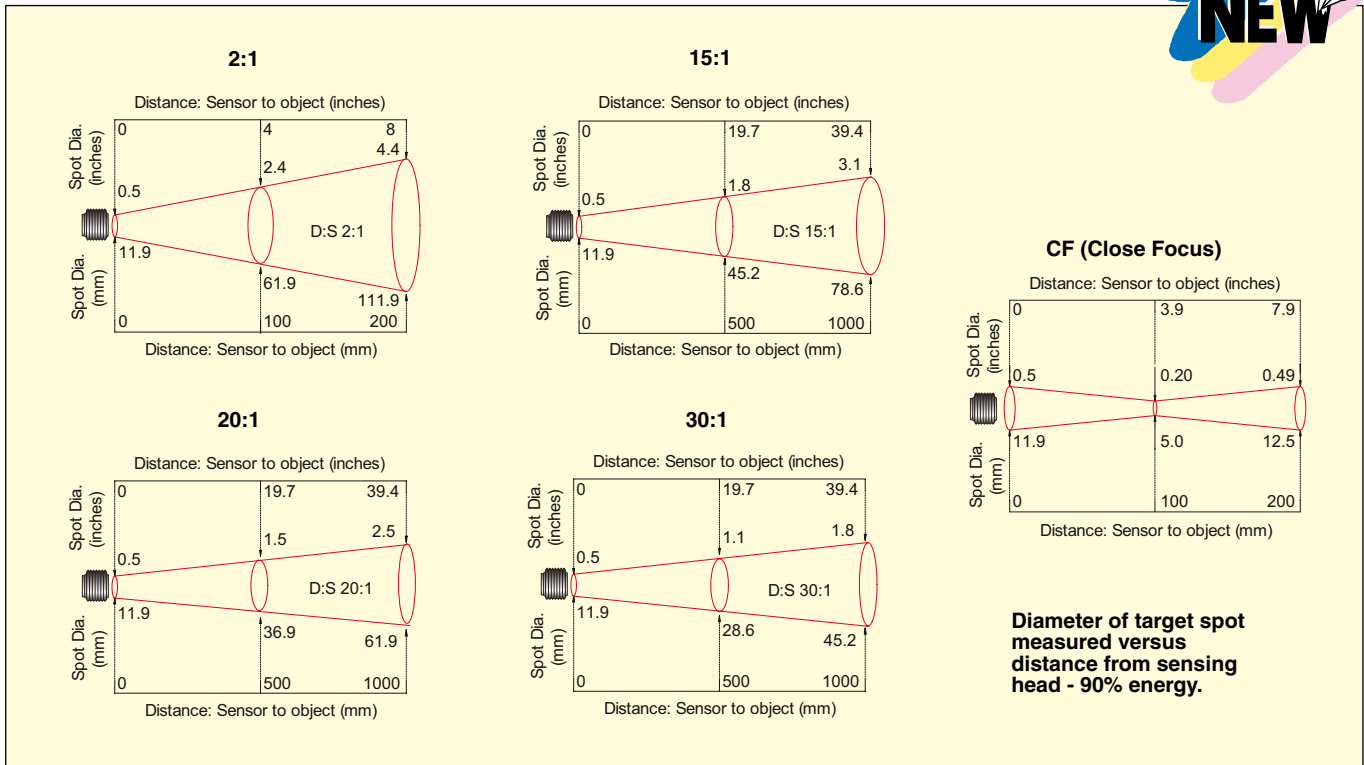
**Temperature Resolution:** 0.1°

**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

Object Temperature  
Sensing Head Temperature  
X-axis: Time  
Y-axis: Temperature (°C)

## Field of View



## Specifications

### Maximum Temperature Span (Touch Screen Models):

1020°C (1868°F)

### Minimum Temperature Span (Touch Screen Models):

100°C (212°F)

### Output: 4 to 20 mA or RS485 MODBUS

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

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

### Emissivity Setting Range:

0.20 to 1.00

### Emissivity Setting Method:

**MA Models:** Via two rotary switches in electronics box

### MODBUS Display Models:

Via RS485; via touch screen

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

### Spectral Range: 8 to 14 $\mu$ m

### Supply Voltage: 24 Vdc ± 5%

### Maximum Current Draw: 100 mA

### Maximum Loop Impedance (MA and MA-R-D Models):

900  $\Omega$  (4 to 20 mA output)

### Alarm Relays (MA-R-D and CR-R-D Models):

2 x single pole changeover alarm relays rated 24 Vdc, 1 A, isolated 500 Vdc

### Cable Length (Sensing Head to Electronics Module):

1 m (3.3') (standard), up to 30 m (98.4') (optional)

### Ambient Temperature (Sensing Head):

0 to 60°C (32 to 140°F)

### Weight with 1 m (3.3') Cable:

Approximately 390 g (14 oz)

### Cable Connections:

Removable screw terminal blocks (see connections diagram to right)

### Conductor Size: 28 to 18 AWG

### Output Cable Gland: Suitable for cable diameters 3.0 to 6.5 mm

### Sensing Head: 316 stainless steel (see diagram on previous page)

### Dimensions: $\varnothing$ 18 x 45 mm

### Mounting: M16 x 1 mm thread

### Electronics Module: Die-cast aluminum

### Dimensions: 98 W x 64 H x 36 mm D (3.9 x 2.5 x 1.4")

### Mounting: Two M4 screws for wall mounting (see diagram on previous page)



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

## Connections

### MA and MA-R-D



24 Vdc  
100 mA

4 to 20 mA

### C4 and C4-R-D



24 Vdc  
100 mA

GND  
RS-  
RS+  
MODBUS Master



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Models with touch screen display, 2 GB microSD card, adaptor, standard relay output and configurable temperature range -20 to 1000°C (-4 to 1832°F)

Model No.	Description
<b>OS-MINI212-D-MA</b>	2:1 optics and 4 to 20 mA output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI152-D-MA</b>	15:1 optics and 4 to 20 mA output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI302-D-MA</b>	30:1 optics and 4 to 20 mA output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI802-D-MA</b>	Close focus (CF) optics (measured spot diameter 5 mm at distance 100 mm) and 4 to 20 mA output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI-HA201-D-MA</b>	High ambient sensing head, ambient temperature range 0 to 180°C (32 to 356°F), 20:1 optics and 4 to 20 mA output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI212-D-C4</b>	2:1 optics and RS485 MODBUS output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI152-D-C4</b>	15:1 optics and RS485 MODBUS output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI302-D-C4</b>	30:1 optics and RS485 MODBUS output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI802-D-C4</b>	Close focus (CF) optics (measured spot diameter 5 mm at distance 100 mm) and RS485 MODBUS output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface
<b>OS-MINI-HA201-D-C4</b>	High ambient sensing head, ambient temperature range 0 to 180°C (32 to 356°F), 20:1 optics and RS485 MODBUS output, two single pole changeover alarm relay outputs rated 24 Vdc, 1 A, fully configurable, with touch screen interface

**Basic models for ambient temperature range 0 to 60°C (32 to 140°F) with current output (without touch screen display, relay and SD card)**

Model No.	Description
<b>OS-MINI212-MA-(* )</b>	4 to 20 mA output, adjustable emissivity setting via two rotary switches inside electronics module, without touch screen interface, 2:1 optics
<b>OS-MINI152-MA-(* )</b>	4 to 20 mA output, adjustable emissivity setting via two rotary switches inside electronics module, without touch screen interface, 15:1 optics
<b>OS-MINI302-MA-(* )</b>	4 to 20 mA output, adjustable emissivity setting via two rotary switches inside electronics module, without touch screen interface, 30:1 optics
<b>OS-MINI802-MA-(* )</b>	4 to 20 mA output, adjustable emissivity setting via two rotary switches inside electronics module, without touch screen interface close focus (CF) optics (measured spot diameter 5 mm at distance 100 mm)

\* Specify temperature range from table on next page.



## Measurement Temperature Range

Model No.	Description
-LT	-20 to 100°C (-4 to 212°F)
-MT	0 to 250°C (32 to 482°F)
-HT	0 to 500°C (32 to 932°F)
-XT	0 to 1000°C (32 to 1832°F)

### Basic models for high ambient temperature sensing head with current output (without touch screen display, relay and SD card)

Model No.	Description
OS-MINI-HA201-MA-HT	Measurement temperature range 0 to 500°C (32 to 932°F), 20:1 optics
OS-MINI-HA201-MA-XT	Measurement temperature range 0 to 1000°C (32 to 1832°F), 20:1 optics



Air purge collar.



Laser sighting tool.



Protective plastic window.\*\*\*

## Options and Accessories

Model No.	Description
MINI-MSD	Spare 2 GB MicroSD card with SD card adaptor, for OMEGA mini touch screen models, for storage and transfer of logged data
OS210-FBS	Fixed bracket for compact sensors
OS210-ABS	Adjustable bracket for compact sensors
OS210-APSW	Air purge collar for OS-MINI212
OS210-APSN	Air purge collar for OS-MINI152, 302, 802, and CF Models
OS210-LSTS	Laser sighting tool for compact sensors
MINI-PMCE-(**)	Extended sensing head cable (-MA output)
MINI-PMCEHT-(**)	Extended sensing head cable, high temperature (-HT models)

Comes complete with sensing head and 1 m (3.3') cable and operator's manual. Display models come with 2 GB microSD card with SD card adaptor.

\* To order, specify model number, temperature range, output and interface, for an additional cost.

\*\* Insert cable length in meters. Extended cable is added to standard cable length, add suffix to model number, for an additional cost.

\*\*\* To order, add suffix "-PWS" to model number, for an additional cost.

**Ordering Examples:** OS-MINI152-D-MA, miniature infrared temperature sensor with 15:1 optics, touch screen and configurable temperature range from -20 to 1000°C (-4 to 1832°F).

OS-MINI302-MA-XT, miniature infrared temperature sensor with 30:1 optics, 4 to 20 mA output and fix range from 0 to 1000°C (32 to 1832°F).

OS-MINI-HA201-D-C4, miniature infrared temperature sensor with high ambient sensing head and 20:1 optics, RS485 MODBUS, relay and touch screen. OCW-3, OMEGACARE<sup>SM</sup> extends standard 2-year warranty to a total of 5-year warranty.

OS-MINI152-MA-MT-MINI-PMCE-(3), miniature infrared temperature sensor with 15:1 optics, 4 to 20 mA output, 0 to 250°C (32 to 932°F) range and 3 m (10') of extension cable.

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