

# Miniature Industrial, Non-Contact IR Temperature Sensor/Transmitters With Built-In LED Display Option

## OS100E Series



Optional

- ✓ -18 to 538°C (0 to 1000°F) Temperature Range
- ✓ Adjustable Emissivity from 0.10 to 1.0
- ✓ Fast, Accurate, Repeatable Readings
- ✓ Type K Thermocouple, 0 to 5 Vdc, 0 to 10 Vdc, 4 to 20 mA, or 1 mV/Deg Analog Output Models
- ✓ Built-In °C/°F-Switchable
- ✓ LED Display Model Available
- ✓ Rugged, Miniature Industrial Enclosure with Remote Sensor Head
- ✓ User-Adjustable High or Low Alarm Output
- ✓ PC Interface Standard on All Models
- ✓ OS100-SOFT Data Acquisition and Real-Time Temperature Display Software
- ✓ NEMA 4 (IP65) Rated Aluminum Housing
- ✓ Models with High-Temperature Sensor Head Available (See "To Order" Notes)

The OMEGA® OS100E Series miniature infrared transmitters measure a temperature range of -18 to 538°C (0 to 1000°F). They consist of a remotely mounted infrared sensor head connected to a high-performance, microprocessor-based signal conditioner. The miniature sensor head is ideal for measuring temperature in confined, hard-to-reach places and harsh environments. The sensor head is connected to the main electronics housing via a 1.8 m (6') shielded cable. The signal



Strain relief port for power and output leads.

OS102E-MV shown smaller than actual size.

conditioner's main electronics are mounted in a rugged NEMA 4 (IP65) rated die-cast aluminum housing. OS102E includes a built-in LED display that is switchable between °C and °F. Standard features include adjustable emissivity, field-adjustable alarm output, and RS232 PC interface. The unit has analog outputs such as 4 to 20 mA, 0/5 Vdc, 0/10 Vdc, 1 mV/Deg, and Type K thermocouple.

### Specifications

- Temperature Range:** -18 to 538°C (0 to 1000°F)
- Accuracy @ 22°C (72°F) Ambient Temperature and Emissivity of 0.95 or Greater:** ±2% rdg or 2.2°C (4°F), whichever is greater
- Optical Field of View:** 6:1 (distance/spot size)
- Sensor Head Cable Extension:** Up to 15 m (50') total
- Repeatability:** ±1% rdg
- Spectral Response:** 5 to 14 microns
- Response Time:** 100 ms (0 to 63% of final value)
- Emissivity Range:** 0.1 to 1.00, adjustable
- Display Option (102E):** 4-digit LED, °C/°F switchable
- Operating Temperature:**
  - Main Transmitter:** 0 to 50°C (32 to 122°F)
  - Sensor Head:** 0 to 70°C (32 to 158°F)
  - Sensor Head (-HT Model):** 0 to 85°C (32 to 185°F)
- Sensor Head with OS100-WC (Water Cooling Jacket):** 0 to 200°C (32 to 392°F)
- Operating Relative Humidity:** Less than 95% RH, non-condensing
- Water Flow Rate for OS100-WC:** 0.25 GPM, room temperature
- Thermal Shock:** About 30 minutes for 25°C (77°F) abrupt ambient temperature change
- Warm-Up Period:** 3 minutes



OS101E-MV

### Air Flow Rate for OS100-AP:

1 CFM (0.5 L/s)

**Power:** 12 to 24 Vdc @ 150 mA

**PC Communications:**

Serial RS232, 2-way

**Analog Outputs:**

**MV:** 1 mV/Deg

**K:** Type K thermocouple

**MA:** 4 to 20 mA

**V1:** 0 to 5 Vdc

**V2:** 0 to 10 Vdc

**Output Load Requirements:**

**Min Load:** 1 kΩ (0 to 5 Vdc),

2 kΩ (0 to 10 Vdc)

**Max Load (4 to 20 mA):**

(supply power - 4)/20 mA

**Transmitter Housing:**

NEMA 4 (IP65), die-cast aluminum

**Sensor Head Housing:**

NEMA 4 (IP65), aluminum

**Alarm Output:** Open drain, 100 mA

**Alarm Setpoint:** 0 to 100%, adjustable

**Alarm Deadband:** 5.5°C (10°F)



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.

## Available Accessories

OS100-LS laser sighting.



OS100-MB mounting bracket.

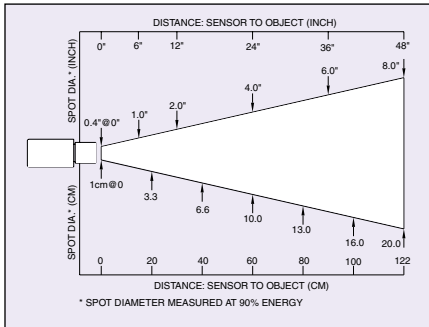
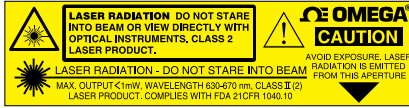


OS100-WC water cooling jacket.



OS100-AP air purge collar.

All models shown smaller than actual size.



Optical Field of View

### Dimensions:

#### Sensor Head:

25.4 OD x 63.5 mm L (1 x 2.5")

#### Main Housing:

65.5 W x 30.5 D x 115.3 mm L  
(2.58 x 1.2 x 4.54")

Weight: 272 g (0.6 lb)

### LASER SIGHT ACCESSORY (OS100-LS)

#### Wavelength (Color):

630 to 670 nm (red)

#### Operating Distance (Laser Dot):

Up to 9.1 m (30')

#### Max Output Optical Power:

Less than 1 mW @ 25°C (77°F)  
ambient temperature

**European Classification:** Class 2,  
EN60825-1/11.2001

#### Max Operating Current:

25 mA @ 3 Vdc

**FDA Classification:** Complies with  
21 CFR 1040.10, Class II Laser Product

**Beam Diameter:** 5 mm

**Beam Divergence:** <2 mrad

#### Operating Temperature:

0 to 50°C (32 to 122°F)

**Operating Relative Humidity:** Less  
than 95% RH, non-condensing

**Power Switch:** On/off slide switch on  
the battery pack

**Power Indicator:** Red LED

**Power:** Battery pack, 3 Vdc (consists of  
two 1.5 Vdc "AA" lithium batteries)

#### Dimensions:

38 Dia. x 50.8 mm L (1.5 x 2")

#### Software (Included):

Requires Windows 98 or newer  
Windows operating system

## To Order Visit [omega.com/os101e](http://omega.com/os101e) for Pricing and Details

Model Number	Description
OS101E-MV	Transmitter with 1 mV/°C or °F output
OS101E-V1	Transmitter with 0 to 5 Vdc output
OS101E-V2	Transmitter with 0 to 10 Vdc output
OS101E-MA	Transmitter with 4 to 20 mA output
OS101E-K	Transmitter with Type K thermocouple output
<b>Models with High-Temperature Sensing Head</b>	
OS101E-MV-HT	Transmitter with 1 mV/°C or °F output
OS101E-V1-HT	Transmitter with 0 to 5 Vdc output
OS101E-V2-HT	Transmitter with 0 to 10 Vdc output
OS101E-MA-HT	Transmitter with 4 to 20 mA output
OS101E-K-HT	Transmitter with Type K thermocouple output

### Models with Built-In LED Display

Model Number	Description
OS102E-MV	Transmitter with 1 mV/°C or °F output and LED display
OS102E-V1	Transmitter with 0 to 5 Vdc output and LED display
OS102E-V2	Transmitter with 0 to 10 Vdc output and LED display
OS102E-MA	Transmitter with 4 to 20 mA output and LED display
OS102E-K	Transmitter with Type K output and LED display
<b>Models with High-Temperature Sensing Head</b>	
OS102E-MV-HT	Transmitter with 1 mV/°C or °F output and LED display
OS102E-V1-HT	Transmitter with 0 to 5 Vdc output and LED display
OS102E-V2-HT	Transmitter with 0 to 10 Vdc output and LED display
OS102E-MA-HT	Transmitter with 4 to 20 mA output and LED display
OS102E-K-HT	Transmitter with Type K output and LED display

Comes complete with sensor head and 1.8 m (6') cable, sensor head mounting nut, main electronics housing, user software and operator's manual.

**Ordering Examples:** OS101E-MA + OS100-LS + OS100-CA15FT, transmitter with 4 to 20 mA output, laser sighting accessory and 4.6 m (15') sensor head extension cable.

OCW-3, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.

### Accessories

Model Number	Description
OS100-MB	Mounting bracket
OS100-DR	DIN rail mounting adaptor
OS100-AP	Air purge collar
OS100-WC	Water cooling jacket, up to 200°C
OS100-LS	Laser sighting accessory
OS100-CA15FT	Sensor head extension cable, 4.6 m (15')
OS100-CA25FT	Sensor head extension cable, 7.6 m (25')
TX8-100	Power/output cable, 30 m (100')
PSR-24S	Regulated power supply, US plug, 90 to 264 Vac input, 24 Vdc output, 400 mA, screw terminals, UL
PSR-24L	Regulated power supply, US plug, 90 to 264 Vac input, 24 Vdc output, 400 mA, stripped leads, UL
PSR-24L-230	Regulated power supply, European plug, 230 Vac input, 24 Vdc output, 400 mA, stripped leads, CE
PSU-93	Unregulated power supply, 16 to 23 Vdc, 300 mA max, screw terminal
CAL-3-IR	NIST-traceable calibration