

# High Speed Industrial Fiber Optic Infrared Transmitter



**Small Spot Size!**

## OS4000 Series



OS4001-V1 transmitter shown smaller than actual size.



L1-2-6-3 lens probe assembly sold separately.

- ✔ Temperature Ranges From 150 to 1600°C (302 to 2912°F)
- ✔ Very Fast Response Time of 1 msec
- ✔ 3 Standard Optical Field of Views
- ✔ 4 Standard Fiber Optic Cable Lengths, 0.3, 0.9, 1.8, and 3 m (1, 3, 6, and 10')
- ✔ Emissivity Adjustable from 0.05 to 0.99
- ✔ 4 Standard Analog Outputs
- ✔ Low and High Alarm Voltage Outputs
- ✔ RS232 PC Interface with Windows® Based Data Logging Software
- ✔ Peak-Hold and Sample-Hold Functions
- ✔ Built-In Laser Sighting For Target Alignment
- ✔ Mounting Bracket and Mounting Nuts are Included
- ✔ Polymer Bolt Fiber Optic Assemblies Available
- ✔ Glass and Quartz Tip Fiber Optic Cable Assemblies Available
- ✔ Optional Water Cool Jacket Accessory
- ✔ Optional Built-In Relays with Contact Closure Output
- ✔ Optional Custom Optical Field of Views and Temperature Ranges

The OS4000 Series industrial fiber optic transmitter measures temperature ranges from 150 to 1600°C (302 to 2912°F) using nine fiber optic lens probes, three polymer bolt probes, and twelve glass and quartz tip assemblies. This series offers many standard features such as adjustable emissivity, linear analog output, high and low alarm voltage output, RS232 PC interface, built-in laser sighting, and more. Through Windows based PC interface software, the user can select response time, peak-hold function, high and low alarm set points, and data logging. The OS4000 series is packaged in a space saving 63.5 OD x 152.4 mm (2.5 x 6") long.

### Specifications

**Power:** 15 to 24 Vdc  
**Temp Range:** 150 to 1600°C (302 to 2912°F)  
**Accuracy:** 1% of rdg  
**Lens Probe Optical Field of Views:**  
 5.6 @ 203 mm (0.22 @ 8")  
 2.2 @ 127 mm (0.086 @ 5")  
 0.63 @ 51 mm (0.025 @ 2")  
**Fiber Optic Cable Lengths:**  
 0.3, 0.9, 1.8, 3 m (1, 3, 6, 10')  
**Emissivity:** 0.05 to 0.99 adjustable  
**Time Constant (0 to 63% Final Value):**  
 1 msec (default) up to 3.2 seconds (programmable via PC software)  
**Peak and Hold:** Programmable via PC software  
**Holding Time:** 1 to 60 seconds

**Sample and Hold:** Programmable via PC software

**Holding Time:** 25 msec to 3.2 seconds

**Spectral Response:** 1.2 to 2.6 microns  
**Infrared Detector:** InGaAs photo detector

**Analog Output:** 0 to 5 Vdc, 0 to 10 Vdc, 4 to 20 mA, 1 mV/Deg

**PC Communication:** RS232, 2-way

**Alarm Set Points:** High and low programmable via PC software

**Alarm Output:** Two voltage outputs, 30 mA drive

**Optional Built-in Relay:**  
 Two 10A @ 24 Vdc SPST NO relays (high and low)

**Operating Ambient Temperature:**  
**Transmitter:** 0 to 50°C (32 to 122°F)

**Fiber Optic Lens Assembly:**  
 0 to 150°C (32 to 302°F)

**Polymer Bolt Probe:** Tip (450°C max), bolt (150°C)

**Glass Tip Assembly:** Tip (450°C max), fiber junction (150°C)

**Quartz Tip Assembly:** Tip (1000°C max), fiber junction (150°C)

**Glass or Quartz Rod Diameter:** 0.080"

**Glass Tip Field of View:** 1.2 (distance to spot size)

**Quartz Tip Field of View:** 1.8 (distance to spot size)

**Laser Sighting**

**Maximum Laser Power Output:**  
 Less than 1 mW

**Laser Beam Wavelength (Color):**  
 650 nm (red)

**FDA Classification:** Class II

**European Classification:** Class 2

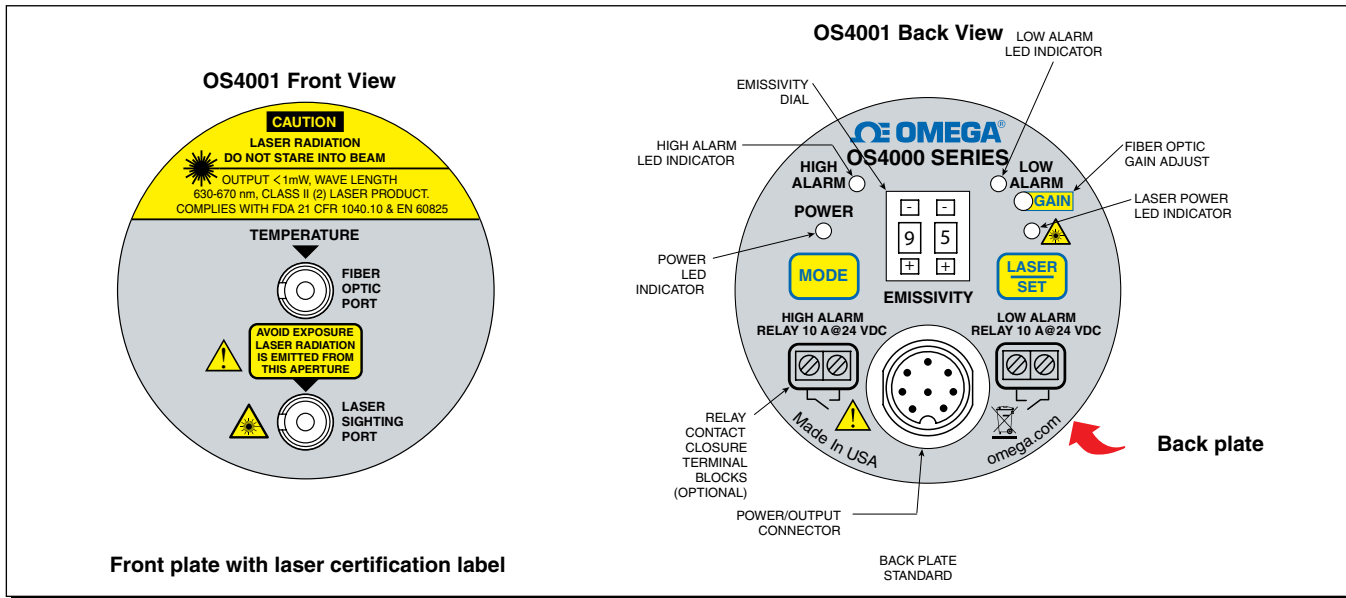
**Beam Diameter:** 5 mm (0.20")

**Dimensions:**

**Transmitter:** 63.5 OD x 152.4 mm L (2.5 x 6")

**Lens Probe:** 25.4 OD x 190.5 mm L (1 x 7.5")

**Weight:** 900 g (2 lb)

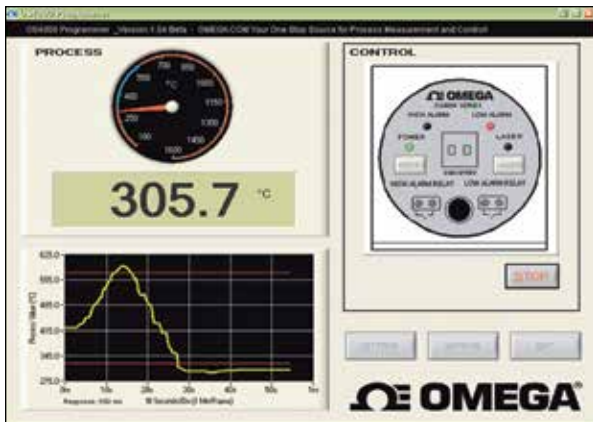


### PC Interface Software

The OS4000 series comes with a Windows® based PC interface software. The software runs on Windows 2000, XP and Vista. The software allows the user to do the following:

- Establish communication with the OS4001 and display temperature in real time both digitally and graphically

- Select sound, COM port, and temperature engineering unit
- Select the response time, and high and low alarm set points, and peak hold functions
- Select chart scale either manual or automatic and chart time base
- Display the temperature vs. time along with high and low alarm lines
- Save the temperature data to a file

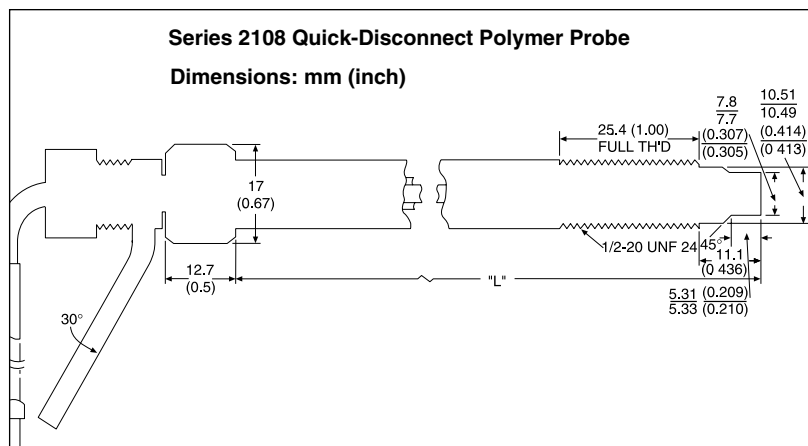
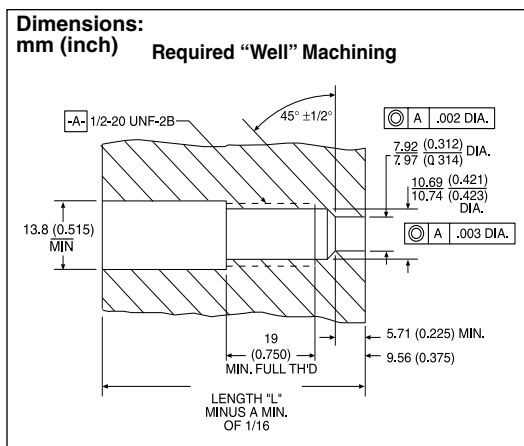
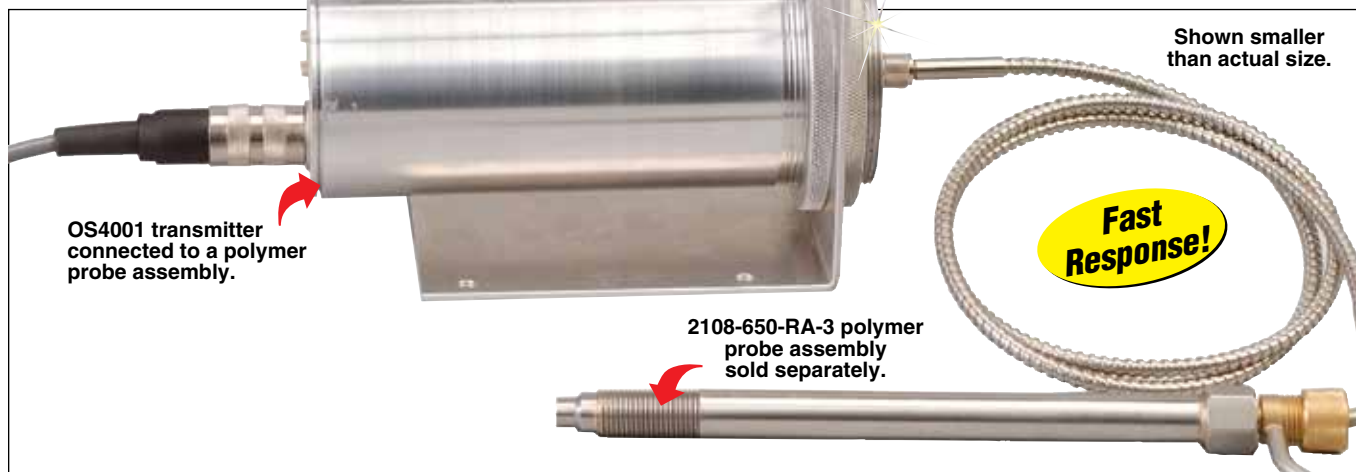


Main PC Software Menu



Settings Menu





<b>To Order</b>			
Model No.	Description		
OS4001-MV-(* )	Infrared fiber optic transmitter, 1 mV/Deg output		
OS4001-V1-(* )	Infrared fiber optic transmitter, 0 to 5 Vdc output		
OS4001-V2-(* )	Infrared fiber optic transmitter, 0 to 10 Vdc output		
OS4001-MA-(* )	Infrared fiber optic transmitter, 4 to 20 mA output		
<b>Fiber Optic Lens Assemblies - Required</b>			
Model No.	Temp Range	Spot Size	Cable Length
L1-7-3-1	200 to 800°C (392 to 1472°F)	0.22" @ 8"	0.9 m (3')
L1-7-6-2	250 to 1000°C (482 to 1832°F)	0.22" @ 8"	1.8 m (6')
L1-7-10-3	300 to 1200°C (572 to 2192°F)	0.22" @ 8"	3 m (10')
L1-2-3-2	250 to 1000°C (482 to 1832°F)	0.086" @ 5"	0.9 m (3')
L1-2-6-3	300 to 1200°C (572 to 2192°F)	0.086" @ 5"	1.8 m (6')
L1-2-10-4	350 to 1400°C (662 to 2552°F)	0.086" @ 5"	3 m (10')
L1-2-3-3	300 to 1200°C (572 to 2192°F)	0.025" @ 2"	0.9 m (3')
L1-2-6-4	350 to 1400°C (662 to 2552°F)	0.025" @ 2"	1.8 m (6')
L1-2-10-5	400 to 1600°C (752 to 2912°F)	0.025" @ 2"	3 m (10')

**Example: L1-7-6-2**  
**L1** – Lens assembly  
**7** – Fiber bundle diameter (7 = 0.070", 2 = 0.020")  
**6** – Fiber cable length in feet  
**2** – Temperature range (1 thru 5)

Comes complete with operator's manual, PC interface software CD, and power output cable.

**Note:** Transmitter and fiber optic lens assembly must be calibrated as a pair, please order a fiber optic lens assembly when ordering the transmitter.

\* Relay option available. To order with two built-in relays with contact closure output, add suffix "AL" to model number for additional cost.

**Ordering Example for Transmitter:** OS4001-MA-AL, infrared fiber optic transmitter with 4 to 20 mA analog output and two built-in relays.

**Ordering Example for Cable:** L1-2-6-3, temperature range: 300 to 1200°C, spot size of 0.086" @ 5", 1.8 m (6') of fiber cable.

### Polymer Bolt Assemblies (Right Angle - Quick Disconnect)

Model No.	Temp Range	Cable Length
2108-650-RA-1	150 to 450°C (302 to 842°F)	0.3 m (1'), right angle
2108-650-RA-3	150 to 450°C (302 to 842°F)	0.9 m (3'), right angle
2108-650-RA-6	175 to 450°C (347 to 842°F)	1.8 m (6'), right angle

Polymer probe length = 16.5 cm (6.5") standard, other lengths are available 7.6 to 30.5 cm (3 to 12").

Ordering Example: 2108-650-RA-6, 16.5 cm (6.5") polymer probe with 1.8 m (6') of right angle, quick disconnect fiber optic cable.

### Metal Encased Tip Assembly

Model No.	Temp Range	Cable Length
2615-G-(*)-2650-3	150 to 400°C (302 to 752°F)	0.9 m (3'), glass tip
2615-G-(*)-2650-6	175 to 400°C (347 to 752°F)	1.8 m (6'), glass tip
2615-G-(*)-2650-10	200 to 400°C (392 to 752°F)	3 m (10'), glass tip
2615-Q-(*)-2650-3	250 to 800°C (482 to 1472°F)	0.9 m (3'), quartz tip
2615-Q-(*)-2650-6	275 to 800°C (527 to 1472°F)	1.8 m (6'), quartz tip
2615-Q-(*)-2650-10	300 to 800°C (572 to 1472°F)	3 m (10'), quartz tip

\* Insert suffix "3" for 3" or "6" for 6" tip assembly, no additional cost.

Ordering Example: 2615-G-3-2650-6, metal encased 7.6 cm (3") glass tip with 1.8 m (6') of fiber optic cable.

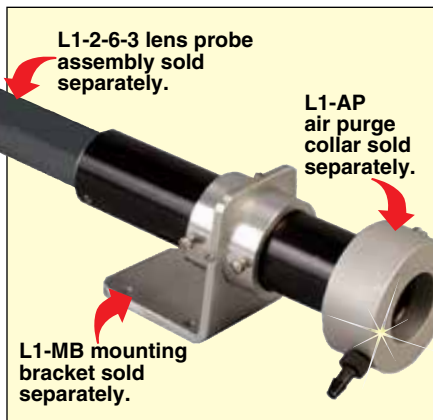
### Ceramic Encased Tip Assembly

Model No.	Temp Range	Cable Length
2610-G-(*)-2650-3	150 to 400°C (302 to 752°F)	0.9 m (3'), glass tip
2610-G-(*)-2650-6	175 to 400°C (347 to 752°F)	1.8 m (6'), glass tip
2610-G-(*)-2650-10	200 to 400°C (392 to 752°F)	3 m (10'), glass tip
2610-Q-(*)-2650-3	250 to 1000°C (482 to 1832°F)	0.9 m (3'), quartz tip
2610-Q-(*)-2650-6	275 to 1000°C (527 to 1832°F)	1.8 m (6'), quartz tip
2610-Q-(*)-2650-10	300 to 1000°C (572 to 1832°F)	3 m (10'), quartz tip

\* Insert suffix "3" for 3" or "6" for 6" tip assembly, no additional cost.

Ordering Example: 2610-G-3-2650-6, ceramic encased 7.6 cm (3") glass tip with 1.8 m (6') of fiber optic cable.

**When ordering vacuum bushing, please specify the fiber cable length from lens probe to the bushing (vacuum side).**



All shown smaller than actual size.



2615-G-3, replaceable 7.6 cm (3") glass tip sold separately.

### Accessories

Model No.	Description
OS4000-WC	Water cool jacket
L1-MB	Mounting bracket for fiber optic lens assembly
L1-AP	Air purge collar for fiber optic lens assembly
OS4000-VB-**	Vacuum bushing
2615-G-3	Replaceable 7.6 cm (3") glass tip, metal encased
2615-G-6	Replaceable 15.2 cm (6") glass tip, metal encased
2615-Q-3	Replaceable 7.6 cm (3") quartz tip, metal encased
2615-Q-6	Replaceable 15.2 cm (6") quartz tip, metal encased
2610-G-3	Replaceable 7.6 cm (3") glass tip, ceramic encased
2610-G-6	Replaceable 15.2 cm (6") glass tip, ceramic encased
2610-Q-3	Replaceable 7.6 cm (3") quartz tip, ceramic encased
2610-Q-6	Replaceable 15.2 cm (6") quartz tip, ceramic encased
TX8-100	8 conductor shielded cable, 30 m (100')
PSR-24S	Regulated 24 Vdc @ 400 mA power supply, screw terminals
PSR-24L	Regulated 24 Vdc @ 400 mA power supply, stripped leads
WRS232-USB	Wireless RS232 to USB transceiver
WRS232	Wireless RS232 transmitter
WUSB	Wireless USB receiver

\*\* "-500" for 0.5" OD, "-1000" for 1.0" OD vacuum bushing.

Ordering Examples: OS4001-V1, fiber optic infrared transmitter, 0 to 5 Vdc output L1-2-6-3-V-3 lens probe for vacuum, 0.086" @ 5" spot size with 1.8 m (6') fiber optic cable total, temperature range 300 to 1200°C, lens probe to vacuum bushing = 3', and OS4000-VB-500, 0.5" OD x 1.7" vacuum bushing (1 and 0.75" OD vacuum bushings are available).