

OR400T Precision, Single-Channel Optical Fiber Thermometer (OFT)

Cost-effective, precision temperature measurement in a compact form factor

Benefits

- Improves temperature measurement accuracy
- Enhances wafer-to-wafer uniformity
- Provides a cost-competitive alternative to thermocouple-based measurements
- Increases productivity, yield, and throughput

Features

- Compact, single-channel design
- In-situ, non-contact temperature measurement
- Supports RS-232 and analog data interfaces at up to 20 temperature readings per second
- Improved low-temperature performance

Advanced Energy®'s OR400T Optical Fiber Thermometer (OFT) extends the flexibility of the OFT product family with a cost-competitive, non-contact solution for several high-volume semiconductor applications, including PECVD, LPCVD, PVD, and metal etch. The OR400T offers a single-channel temperature measurement capability. The OR400T supports RS-232 and analog data interfaces at up to 20 readings per second. Because of its compact design, the OR400T can be easily integrated to meet the unique requirements of many process applications.



Improves Temperature Measurement Accuracy

Advanced Energy's OR400T optical fiber thermometer (OFT) delivers accurate, non-contact temperature measurements in a compact form factor. AE's OR400T is ideally suited for several high-volume semiconductor applications, including:

- *Epi*
- *PECVD*
- *LPCVD*
- *PVD*
- *MOCVD*

Like all of AE's OFTs, the OR400T provides extended-range, low-temperature measurements through improved optical signal gathering.

Enhances Wafer-to-Wafer Uniformity

Traditional thermocouple measurement is unsuitable for many applications where making physical contact with the substrate will cause damage and inaccuracy due to heat transfer effects. The OR400T measures direct wafer temperature in situ—without contacting the wafer—for enhanced wafer-to-wafer uniformity and improved accuracy in temperature readings

Each OFT system consists of a controller, an optical sensor, and an optical fiber. The use of a fiber optic cable allows for remote positioning of the controller away from RF and other sources of EMI. The sensor detects emitted near-infrared (NIR) light from the target, typically a substrate. A fiber optic cable then transmits the NIR light from the sensor to the controller, where the light collected is converted to a temperature reading.

Each sensor is custom-designed to meet the functional and mechanical requirements of your unique application. The results: higher repeatability, and increased yield.

Provides a Cost-Competitive Alternative to Thermocouples

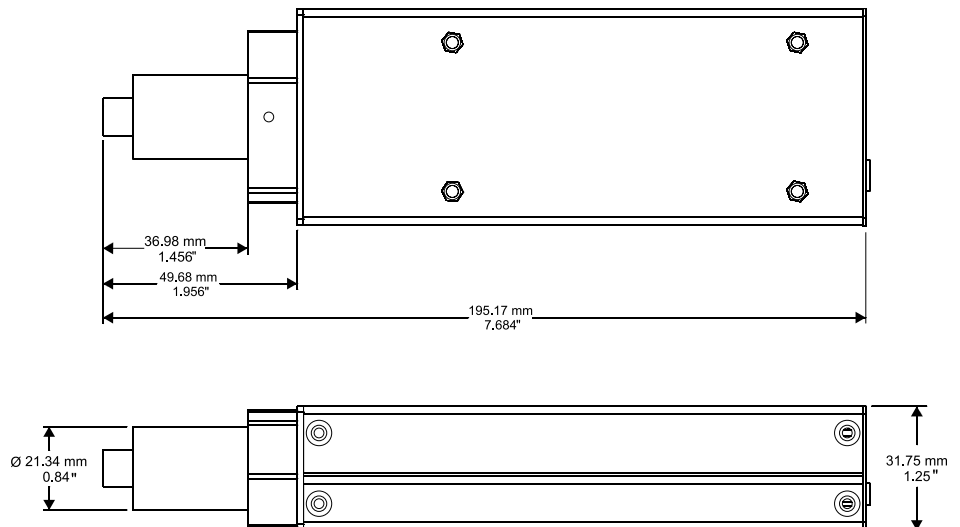
The OR400T offers single-channel temperature measurement capability in a compact form factor.

The OR400T provides a cost-competitive alternative to thermocouple-based measurements with the added benefit of non-contact, in-situ temperature measurement and immunity from RF noise. Because of its compact design, the OR400T can be easily integrated to meet the unique requirements of your process application.

Specifications

Product	Features	
OR400T	Cost-effective, precision temperature measurement	
	Channel Configuration	Single-channel temperature measurement capability with selectable/fix emissivity;
	Temperature Range(s)	50 to 3500°C
	Filter Range	600 to 1600 nm
	Read Rate	Up to 20 Hz temperature read rate
	Accuracy	±1.5°C
	Resolution	0.001°C
	Control/Repeatability	±0.1°C typical
	Display	None; set up via RS 232
	Data I/O	RS-232 @ up to 115KB
	Analog Output	0 to 10 V or 4 to 20 mA outputs
	Power Requirements	AC: 90 to 263 VAC, 47 to 63 Hz
		DC: +24 VDC
	Environmental	Operational: 10°C to 40°C (50°F to 104°F)
	Physical Dimensions	55.7 mm (H) x 31.8 mm (W) x 195.2 mm (D)
		2.2" (H) x 1.3" (W) x 7.7" (D)
Weight	0.73 pounds (0.33Kg)	
Mounting	M3 X 0.5 threaded holes in optical block (consult manual for more information)	
Power Supply Line Current	<0.7A@100VAC	

Dimensional Drawings



For more information on the OR400T and OR4000E, visit: www.advanced-energy.com/en/Sekidenko_OR400T.html

To view AE's comprehensive thermal instrumentation portfolio, visit: www.advanced-energy.com/en/Thermal_Instrumentation.html

To view AE's complete product portfolio, visit: www.advanced-energy.com/en/Products.html

Specifications are subject to change without notice.



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