SEKIDENKO OR400T PRECISION, SINGLE-CHANNEL OPTICAL FIBER THERMOMETER (OFT)

COST-EFFECTIVE, PRECISION TEMPERATURE MEASUREMENT IN A COMPACT FORM FACTOR

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 model offers a single-channel temperature measurement capability and supports RS-232 and analog data interfaces at up to 20 readings per second. Because of its compact design, the OR400T OFT can be easily integrated to meet the unique requirements of many process applications.

PRODUCT HIGHLIGHTS

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

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 OFT is ideally suited for several high-volume semiconductor applications, including:

- Epi
- PECVD
- LPCVD
- PVD
- MOCVD

Like all of AE's OFTs, the OR400T model 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 OFT 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

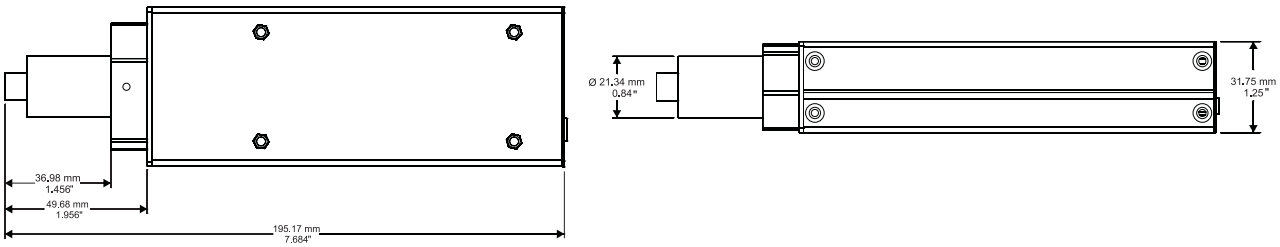
The OR400T model offers single-channel temperature measurement capability in a compact form factor.

The OR400T OFT 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 OFT can be easily integrated to meet the unique requirements of your process application.

SPECIFICATIONS

Features	OR400T
Description	Cost-effective, precision temperature measurement
Channel Configuration	Single-channel temperature measurement capability with selectable/fixed 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 115 KB
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 to 40°C (50 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 lb (0.33 kg)
Mounting	M3 X 0.5 threaded holes in optical block (consult manual for more information)
Power Supply Line Current	<0.7 A @ 100 VAC

DIMENSIONAL DRAWINGS



ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE

For international contact information, visit advanced-energy.com.

sales.support@aei.com
+1.970.221.0108

ENG-OR400T-231-04 5.18