

ONYX-MC MULTI-CHANNEL OPTICAL TEMPERATURE PYROMETERS

PRECISION TEMPERATURE MEASUREMENT FOR DEMANDING INDUSTRIAL APPLICATIONS

The Onyx™-MC is a multi-channel, remote-mount, non-contact optical fiber temperature pyrometer which measures infrared energy being emitted from an object and converts this into usable temperature. The Onyx-MC can be configured in a variety of measurement wavelengths based on a target material, required process temperature range, and working distances. It can also be configured from one to four measurement channels using separate optical sensors.



AT A GLANCE

PRODUCT HIGHLIGHTS

- Precise temperature measurement, even in harsh environment conditions enabling closed-loop process control
- In addition to optical calibration, each pyrometer includes a separate thermal calibration to ensure accurate temperature measurement over changing environmental conditions
- Configurable wavelength based on material type with broad temperature range
- Multi-channel measurement capabilities using remote optical sensors and fiber-optic cables
- Both analog and digital communications with optional fieldbus protocols for closed-loop control
- Available proprietary PyroConnect™ software for pyrometer setup and commissioning, data collection, and data analysis

TYPICAL APPLICATIONS

- Quartz and sapphire — growth and annealing
- Steel — forging, finishing, and vessel monitoring
- Thin-film solar — glass, metals
- Non-ferrous metals — casting, forging, and extrusion
- Carbon fiber — production and annealing
- Technical ceramics — heat-treatment, sintering

Standard Wavelengths

700, 800, 950, 1470, 1550 nm

Temperature Range

200 to 2200°C (392 to 3992°F)
based on selected wavelengths

Emissivity

Fixed Emissivity Correction
Range = 0.0001 to 1

Accuracy

±1.5°C (±2.7°F)

Focus Range

100 mm to 3 m
(3.94 to 118.11 in)

GENERAL SPECIFICATIONS

Measurement	
Standard Wavelengths	700, 800, 950, 1470, 1550 nm
Temperature Range	200 to 2200°C (392 to 3992°F), configurable based on selected wavelength
Emissivity	Fixed (0.0001 to 1, programmable)
Response Time	Up to 2 kHz, based on channel configuration
Accuracy	±1.5°C (±2.7°F)
Repeatability	±0.1°C (±0.18°F) (typical)
Resolution	Up to 0.001°C (0.0018°F)
Focus Range	100 mm to 3 m (3.94 to 118.11 in)

Environmental	
Ambient Temperature (Main Unit)	0 to 45°C (32 to 113°F)
Ambient Temperature (Sensor)	0 to 80°C (32 to 176°F)
Relative Humidity	5 to 85% (non-condensing)
Storage Temperature	-25 to 85°C (-13 to 185°F)

Electrical	
Power Supply	+24 VDC nominal, +15 to +30 VDC

Regulatory	
Certification	CE

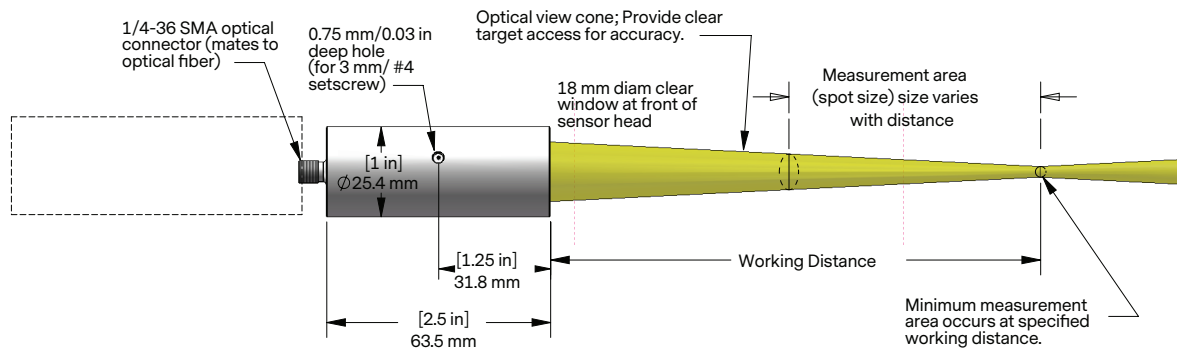
INTERFACE

Communication	
Display	Internal, 4 x 20 LCD with keypad entry
Analog Out	0 to 10 V, 4 to 20 mA
Digital Interfaces	RS-232, Modbus®, Ethernet
Configurations/Channels	1 to 4 channels (temperature); channels individually configurable
Software	Available proprietary PyroConnect™ software for pyrometer setup and commissioning, data collection, and data analysis.

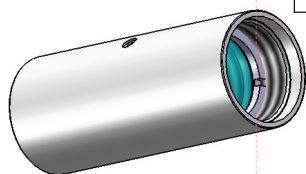
MECHANICAL SPECIFICATIONS

Physical	
Dimensions	219 x 152 x 89 mm (8.6 x 6 x 3.5 in)
Weight	2 kg (4.4 lb)

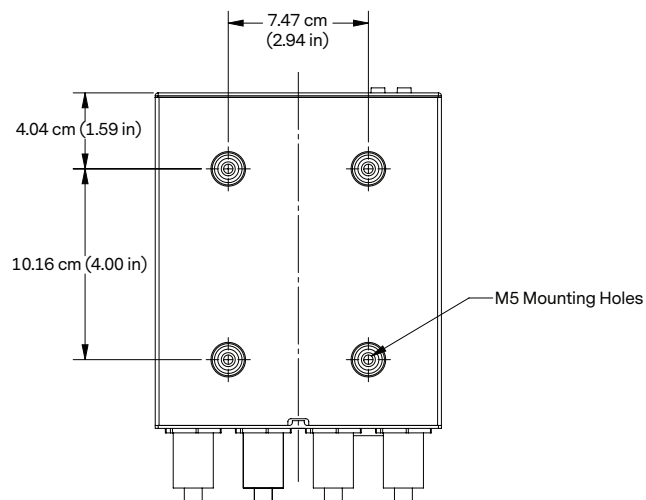
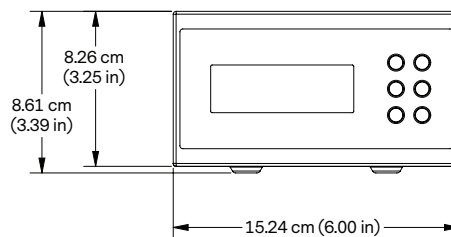
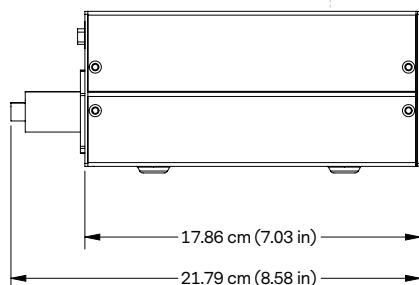
MECHANICAL SPECIFICATIONS (CONTINUED)



Fiber Appearance	Fiber Core Diameter (um)	Minimum Bend Radius (mm)/[in]
	600	100 [3.9]



Fiber jacket SST, diam 5.1 mm [0.2 in]
Standard fiber length 3 meters



Provide adequate space for minimum bend radius during sensor installation.
Ambient temperature of sensor assembly to be < 80°C (176°F).



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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

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