

ONYX-S SINGLE-CHANNEL OPTICAL TEMPERATURE PYROMETERS

PRECISION TEMPERATURE MEASUREMENT
FOR DEMANDING INDUSTRIAL APPLICATIONS



The Onyx™-S is a single-channel, single-wavelength, non-contact infrared optical temperature pyrometer which measures infrared energy being emitted from an object and converts this into temperature. The Onyx-S can be configured in a variety of measurement wavelengths based on target material, required process temperature range, and working distances. Optional accessories include a water-cooling jacket, air-purge shower to protect against lens contamination, and specialized mounting accessories.

PRODUCT HIGHLIGHTS

- Provides precise temperature measurement, even under harsh operating conditions
- In addition to optical calibration, each pyrometer includes a separate thermal calibration to ensure accurate temperature measurement over changing environmental conditions
- Integration to a PLC/PAC for closed-loop control of critical thermal processes
- Improve product quality by precisely control temperatures that affect critical material properties
- Increase product throughput by increasing heat ramping efficiency and dwell times
- Decrease energy costs by more efficiently using your energy (fuel or electricity) through 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

AT A GLANCE

Standard Wavelengths

700, 800, 950, 1470, 1550 nm

Temperature Range

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

Emissivity

Fixed Emissivity Correction
Range = 0.05 to 1

Accuracy

±4°C (±7.2°F) or ±0.4%
of measured value, whichever
is greater

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	0.05 to 1	
Response Time	1 msec to 10 sec	
Accuracy	±4°C (±7.2°F) or ±0.4% of measured value, whichever is greater	
Resolution	0.1°C (0.18°F)	
Repeatability	< ±0.2°C (±0.36°F) or ±0.1% of reading (typical)	
Focus Range	100 mm to 3 m (3.94 to 118.11 in)	
Sighting	Laser or optical, any orientation	
Working Distance and Spot Size		
Configuration	Working Distance Range	Spot Size ¹
Short	0.1 to 0.6 m (3.9 to 23.6 in)	8 to 14 mm (0.31 to 0.55 in)
Medium	0.5 to 1.3 m (19.7 to 51.2 in)	14 to 35 mm (0.55 to 1.38 in)
Long	1 to 3 m (39.4 to 9 ft 10 in)	17 to 37 mm (0.66 to 1.46 in)
Specialized Small Spot Size	0.1 to 1 m (3.9 to 39.4 in)	6 to 10 mm (0.24 to 0.39 in)

Environmental	
Ambient Temperature	0 to 70°C (32 to 158°F)
Relative Humidity	5 to 85% (non-condensing)
Storage Temperature	-25 to 85°C (-13 to 185°F)
Protection Class	IP65

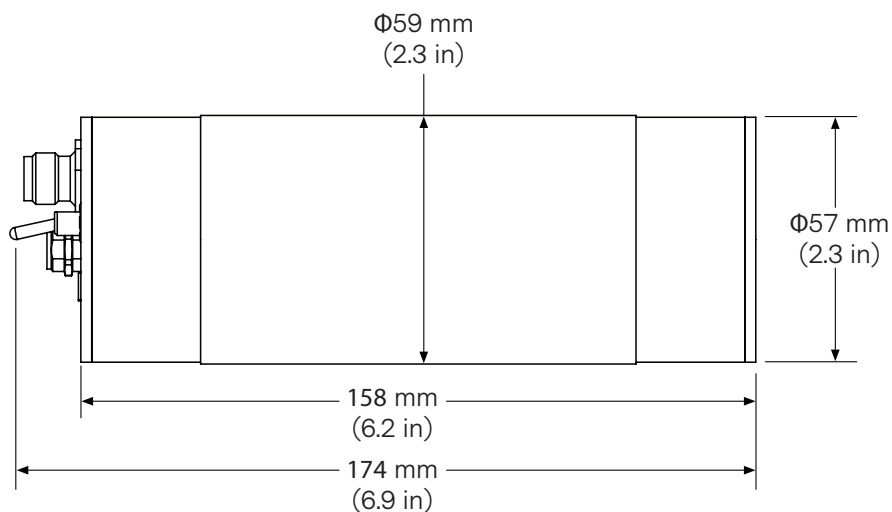
Electrical	
Power Supply	+24 VDC nominal, +15 to +30 VDC

Regulatory	
Certification	CE

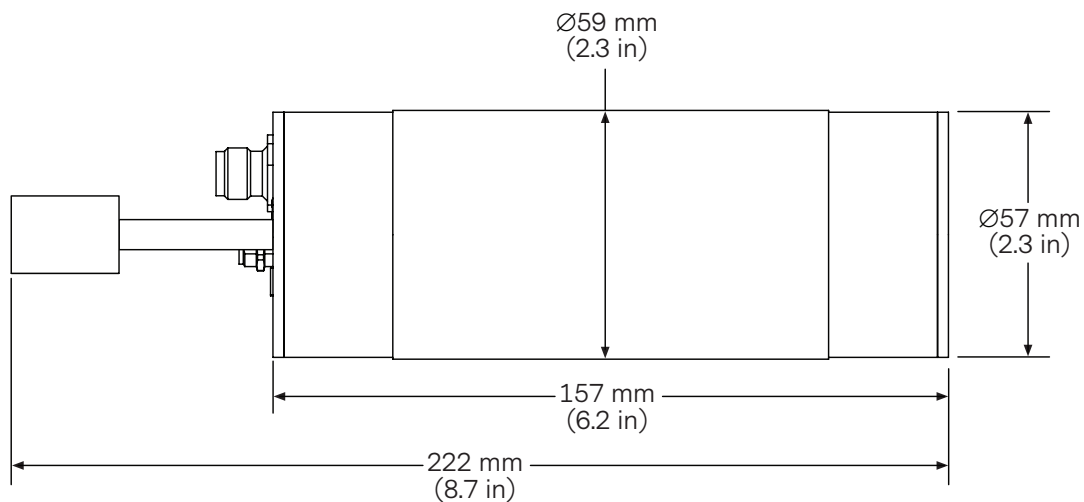
1. Approximate and based on measurement wavelength. Please see product user manual for detailed information.

MECHANICAL SPECIFICATIONS

Physical	
Dimensions	59 mm (2.32 in) diameter x 158 mm (6.2 in) length
Exterior Housing	Stainless steel
Operation Position	Any orientation



Unit with integrated laser sighting

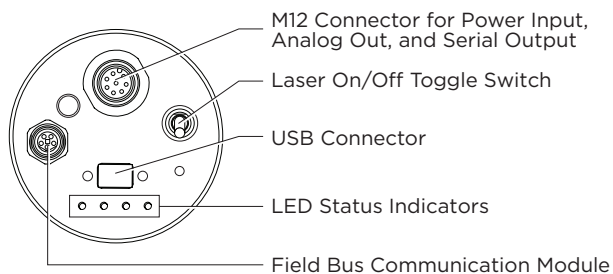


Unit with optical sighting

INTERFACE

USB Connection

The Onyx-S pyrometer features a USB connector for easy communication, setup, troubleshooting, and local data collection.



Communication	
Analog Out	0 to 10 V, 0 to 20 mA, or 4 to 20 mA
Digital Interfaces	Standard: RS-232/RS-485, USB Available: Modbus® TCP, PROFIBUS®, Ethernet/IP®, DeviceNet™, PROFINET®, Modbus® RTU
Detector Type	Single wavelength
Software	Available proprietary PyroConnect™ software for pyrometer setup and commissioning, data collection, and data analysis.

ORDERING INFORMATION

Optional Accessories	Water-cooling jacket	Enables continuous operation in temperatures up to 250°C (482°F)
	Air-purge collar	Enables consistent, accurate operation in contaminating environments by delivering a constant flow of air or purge gas across pyrometer lens
	Mounting accessory	90° and tilt-mount options available



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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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