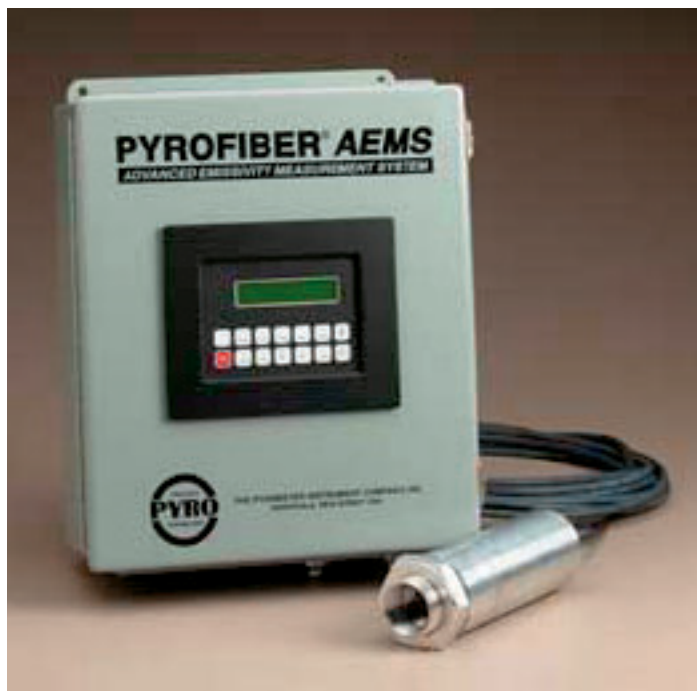


Pyrofiber® II

HIGH ACCURACY IR THERMOMETER

STATE-OF-THE-ART ELECTRONIC FIBER OPTIC IR THERMOMETER



INFRARED TEMPERATURE ACCURACY TO $\pm 3^{\circ}\text{C}$
Traceable to NIST Standards

APPLICATIONS

- Furnace Temperature Measurements
- Production Steel & SS Annealing Furnaces
- Production Copper Furnaces
- Induction Heating
- Ceramic & Graphite Production
- Petro Chemical Applications
- Harsh Industrial Environments
- Industrial Temperature Accuracy Applications

FEATURES

- Measures Temperature
- Adjustable Emissivity (1 to 100%)
- Accuracy: $\pm 5^{\circ}\text{F}$ ($\pm 3^{\circ}\text{C}$)
- Selectable Data Acquisition Rates: 1ms to 2000ms
- Temperature Ranges Available:
 - PF 905: 1100°F - 5824°F (600°C - 3200°C)
 - PF 950: 1100°F - 5824°F (600°C - 3200°C)
 - PF 1550: 480°F - 1470°F (250°C - 790°C)
- PF Dual: Several Temperature Ranges Available
- Internal Data Notebook & PC Interface
- Analog & Digital Outputs, Opto Isolation Available
- Industrial Process Control Solutions

DESCRIPTION

The Pyrofiber® II uses the latest state-of-the-art electronic technology to measure precisely the true target temperature. While all infrared instruments measure a target radiance temperature, the Pyrofiber® II has the ability to provide the highest degree of accuracy in the true target temperature.

The complete Pyrofiber® II system consists of three main components: an Electronic Unit, an Optical Sensor Head, and Fiber Optic Cable. The Electronic Unit houses the electronic microprocessor control unit, LCD digital display, membrane keypad, power supply and analog or digital output connections. The Optical sensor head is used to collect the target radiance. The sensor head assembly is connected to the Pyrofiber® II electronic unit using built-in armored fiber optic cable connectors. Since there are no electronics in the sensor, it is immune to electrical noise, radiation fields, harsh environments and vibration.

The Pyrofiber® II offers ease of operation with two modes of operation, AUTO Mode for On-line process control and Off-line mode for various temperature material testing and system controls.

OPERATION

The Pyrofiber® II's main sensor head reads the radiance emitted from a hot target. Using the supplied emissivity value, the Pyrofiber® II's microprocessor control processes all the data collected and displays the results on the LCD display. The Pyrofiber® II calculates temperature accuracies to $\pm 3^{\circ}\text{C}$.

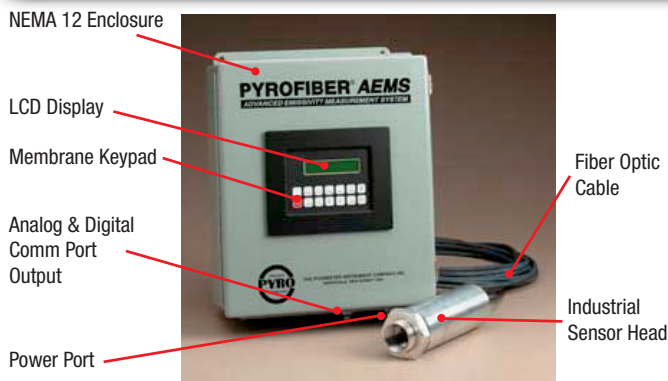


The Pyrometer Instrument Company, Inc. • 92 North Main Street, Bldg 18D • Windsor, NJ 08561 • USA
Telephone: (609) 443-5522 • Fax: (609) 443-5590 • e-mail: sales@pyrometer.com
Visit Our Website: www.pyrometer.com

903

Pyrofiber® II

Pyrofiber® II Specifications



TECHNOLOGY

The Pyrofiber® II uses the same state-of-the-art electronics as the Pyrofiber® to precisely measure temperature accuracy within $\pm 3^\circ\text{C}$ over the entire temperature range.

The temperature is measured by collecting the radiance in a narrow band (50nm). The measured radiance (Q_m) is corrected with emissivity (e) to a black body radiance (Q_b): $Q_b = Q_m/e$. Using this black body radiance, the Pyrofiber® II then calculates according to Planck's radiance law for the true temperature (T) of the target.

$T = CO/1n(C1/Q_b + 1)$ with $CO = h*c$ over $1*k$
 And $C1$ a calibration constant depending on the efficiency of the optics and electronics.

$H = \text{Planck's constant} = 6.625 * 10^{-34} \text{ Js}$

$C = \text{Velocity of light} = 2.998 * 10^8 \text{ m/s}$

$K = \text{Blotzmann's constant} = 1.380 * 10^{-23} \text{ Js/K}$

$1 = \text{Pyrofiber wavelength} = 905 * 10^{-9} \text{ m}$ (*waveband)

Once the radiance is corrected to black body radiance, all temperature calculations use the same above temperature formula.

PYROFIBER® II COMES COMPLETE WITH

- Standard Temperature Range
- Nema-12 Electronic Box
- Keypad, Digital Display
- Electronics
- Operating Software
- Analog Output: 0-20mA, 4-20mA, 0-5vdc, 1-5vdc
- Digital Output: RS232
- Target Distance: To Suit Application
- Target Spot Size: To Suit Application
- Instruction Manual
- Consult Factory for Additional Options

PYRO'S AUTHORIZED REPRESENTATIVE

Selectable Readout:	°F, °C
Models PF 905 and PF 950 Standard Temperature Ranges:	1112°F - 2730°F (600°C - 1500°C) 1292°F - 3632°F (700°C - 2000°C) 1562°F - 5432°F (850°C - 3000°C) 1607°F - 5824°F (875°C - 3200°C)
Model PF 1550 Standard Temperature Range:	482°F - 1470°F (250°C-800°C)
PF Dual Temperature Ranges:	Several Temperature Ranges Available Between 482°F - 5824°F (250°C-3200°C)
Accuracy:	$\pm 5^\circ\text{F}$ (3°C)
Resolution:	1°F (1°C)
Repeatability:	$\pm 1^\circ\text{F}$ ($\pm 1^\circ\text{C}$)
Effective Wavelength PF 905: PF 950: PF 1550:	0.905 μm 0.950 μm 1.550 μm
Bandwidth:	0.055 μm
Emissivity range:	0.01-1.0 (increments 0.01)
LCD Display 40 Digit Readout:	Uncorrected Temperature (Tu) Emissivity Value (E%) Corrected Temperature (Te)
Operating Modes: On-Line: Off-Line:	AUTO Mode: Te - Nom. 4 readings/sec Single Mode: Single readings (output/notebook) Interval Mode: Time Sequenced readings High Speed Mode: 30 readings/second Notebook Storage: 720 readings (off-line only) High Speed Xmit: 70 readings/second Temperature reading modes: Tunc, Te Acquisition Time: 1ms to 2000ms Selectable
Standard Target Distance:	Sensor head can be arranged for fixed focus to accommodate any distance from 1.0' (0.3m) to 10.0' (3.0m) standard. Special heads and probes can be designed to accommodate most target distances.
Standard Target Sizes Available:	Target sizes are subject to target distance limitations.
Special Target Sizes:	Special sensor heads and probes can be designed to accommodate most target sizes to as low as 0.01" (0.25mm)
Sample Rate:	1, 2, 4, 8, 21, 23, 37 Readings/sec Selectable
Maximum Equipment Operating Temperatures:	Electronic Enclosure: 32°F (0°C) - 100°F (40°C) Sensor Head: 32°F (0°C) - 480°F (250°C) Fiber Optic Cables: 32°F (0°C) - 250°F (125°C)
Extended Operating Temperature Available Upon Request	
Instrument Enclosure:	Nema-12 Electronic Box Enclosure Optional Nema 4X, 19" Rack Mount
Auxiliary Output:	Analog Output: 0-20mA 4-20mA, optional Opto Isolation. Digital Output RS232C, optional Opto Isolated RS485.
Power Supply:	115vac/60Hz or 230vac/50Hz

Consult factory for custom sensor head configurations.