FIBER OPTIC AUTOMATIC EMISSIVITY CORRECTING IR THERMOMETER

THE ULTIMATE INDUSTRIAL TEMPERATURE MEASUREMENT SYSTEM

FEATURES

- Automatically Corrects For Emissivity
- Accuracy After Emissivity Correction: ±5°F (±3°C)
- 1ms Data Acquisition Rate
- 3 Temperature Models Available:
  - PF 905: 1100°F - 2730°F (600°C - 1500°C)
  - PF 1550: 480°F - 1470°F (250°C - 700°C)
  - PF Dual: Several Temperature Ranges Available
- Extended Ranges Available to 3000°F
- Internal Data Notebook & PC Interface
- Analog & Digital Outputs
- Industrial Process Control Solution

DESCRIPTION

The Pyrofiber® Industrial Automatic Emissivity Measurement System (AEMS) uses the latest fiber optic and pulsed laser technology to measure precisely the true target temperature. While all infrared instruments measure a target radiance temperature, the Pyrofiber® Industrial determines dynamically the emissivity value of a target resulting in unmatched temperature accuracy to ±3°C. With the Pyrofiber® Industrial, laboratory precision temperature measurements can be made in harsh industrial environments.

The Pyrofiber® Industrial electronic microprocessor control unit is housed in a NEMA 12 enclosure and includes a LCD digital display, membrane keypad, and power supply. Ancillary components include primary optical sensor head, (Optional) secondary irradiance sensor head and fiber optic cables. The Pyrofiber® Industrial can be operated from the instrument’s keypad or remotely from a PC. The Pyrofiber® microprocessor control measures radiance, emissivity, and reflective radiance values at an extremely fast 1ms data acquisition rate.

APPLICATIONS

The Pyrofiber® automatic emissivity correcting IR thermometer is used for many Industrial applications. This includes temperature measurement in refractories, ovens, furnaces and vacuum chambers and reactors. Virtually anywhere accurate IR temperature measurements are required in an industrial environment. Custom sensor heads and probes are also available to suit your application.

- Furnace Temperature Measurement
- Production Steel & SS Annealing Furnaces
- Production Copper Furnaces
- Induction Heating
- Ceramic Production
- Graphite Production
- Forging
- Industrial Temperature Accuracy Applications

OPERATION

The Pyrofiber® Industrial main sensor head reads the radiance emitted from a hot target. The Pyrofiber® then fires its pulse laser at the target. The reflected energy from the laser is then collected by the Pyrofiber®’s main sensor head. Extraneous radiance from other sources (Tx) “wall shine readings” (Optional) can be collected from a secondary sensor head should the application require. The Pyrofiber®’s microprocessor control processes all the data collected (radiance, laser return & wall shine values) and displays the results on the Pyrofiber®’s LCD display. Auto mode displayed data includes corrected temperature (Tt) and emissivity values (E) accurate to ±3°C.

INFRARED TEMPERATURE ACCURACY TO ±3°C
Traceable to NIST Standards
The Pyrofiber® instrument uses a patented laser based infrared technology to determine the True Emissivity Correct Temperature (Te) of a target. The Pyrofiber® accomplishes this by automatically measuring the target diffuse reflectivity at the same location, temperature and wavelength as the radiance measurement to determine the precise target temperature.

The Pyrofiber® incorporates the passive characteristics of conventional infrared pyrometers along with an active reflectometer technique to determine the target emissivity. A low-powered pulsed GaAs laser is fired at the target measuring zone via a dedicated optical path (Laser Channel) and both the laser return signal and infrared signal are detected via a secondary optical path (Radiance Channel); the laser signal being (AC) on top of the (DC) target signal. Having monitored the laser outgoing energy and knowing the Channel); the laser signal being (AC) on top of the (DC) target signal. infrared signal are detected via a secondary optical path (Radiance GaAs laser is fired at the target measuring zone via a dedicated technique to determine the target emissivity. A low-powered pulsed infrared pyrometers along with an active reflectometer The Pyrofiber® incorporates the passive characteristics of conventional infrared pyrometers along with an active reflectometer technique to determine the True Emissivity Correct Temperature. The Pyrofiber® instrument uses a patented laser based infrared TECHNOLOGY

The Pyrofiber® instrument uses a patented laser based infrared technology to determine the True Emissivity Correct Temperature (Te) of a target. The Pyrofiber® accomplishes this by automatically measuring the target diffuse reflectivity at the same location, temperature and wavelength as the radiance measurement to determine the precise target temperature.

The Pyrofiber® incorporates the passive characteristics of conventional infrared pyrometers along with an active reflectometer technique to determine the target emissivity. A low-powered pulsed GaAs laser is fired at the target measuring zone via a dedicated optical path (Laser Channel) and both the laser return signal and infrared signal are detected via a secondary optical path (Radiance Channel); the laser signal being (AC) on top of the (DC) target signal. Having monitored the laser outgoing energy and knowing the geometry involved (including target distance), the Pyrofiber® can determine the reflectivity and thus the emissivity of the target measuring zone. The wave band of the collected target radiance is typically 905nm depending on the specific instrument or application.

More information about the Pyrofiber’s unique technology is available at PYRO’s website: www.pyrometer.com

PYROFIBER® COMES COMPLETE WITH

- Standard Temperature Range
- NEMA 12 Enclosure
- Keypad
- Digital Display
- Electronics
- Operating Software
- Output: One Analog: 0-5VDC or 0-20mA
- Output: Digital: RS232
- Target Distance: To Suit Application
- Target Spot Size: To Suit Application
- Instruction Manual
- Statement of Calibration

PYRO’S AUTHORIZED REPRESENTATIVE

- Auxiliary Output: Single Analog Output: 0-5Vdc or 0-20mA
- Option, Opto Isolate
- Single Digital Output: RS232
- Option, Opto Isolate: RS485
- Power Supply: 115v/60Hz or 230v/50Hz

Pyrometer Instrument Company reserves the right to modify, change or improve specifications without notice.
©2007 Pyrometer All Rights Reserved