

PM-500-2C

TWO COLOR PYROMETER

***NON-CONTACT, FOR ABSOLUTE ACCURATE
TEMPERATURE MEASUREMENT***



FEATURES:

- **MILL-DUTY, WATER-COOLED, POSITIVE-PRESSURE, AIR-PURGED HOUSING**
- **ACCURACY: $\pm 0.5\%$ Tmeas +2°C)**
- **REPEATABILITY: 0.3% FULL SCALE**
- **RESPONSE TIME: 10 mSec.**
- **MULTIPLE TEMPERATURE RANGES**
- **24 VDC or 100 – 240 VAC, 50 Hz / 60 Hz**

APPLICATIONS:

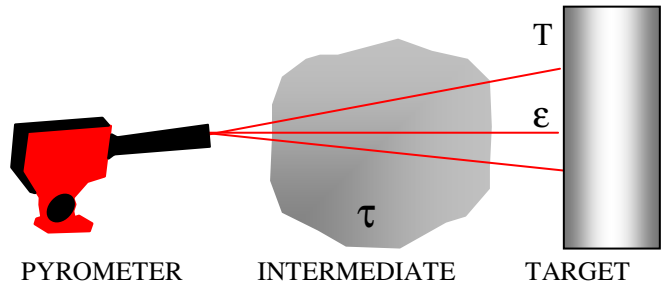
- **Detect Hot Coke on Conveyor Belt**
- **Temperature Measurement at Tap Hole**
- **Reheat Furnaces, Hot and Cold Rolling Mills**
- **Temperature Measurement on Shiny/Reflective Material**

DESCRIPTION:

PYROMETER PRINCIPLE:

This class of temperature measurement is based on the measurement of the infrared emission of the measured object. Two basic parameters influence the determination of the temperature from the infrared radiation: “ ε ” is the emissivity which depends on the material itself, the shape and roughness of its surface, and then wavelength “ λ ” at which the radiation is measured.

$$\frac{1}{T_b} = \frac{1}{T} - \frac{\lambda}{C_2} \ln(\epsilon(\lambda, T) \times \tau(\lambda))$$



T_b: measured temperature

T: true temperature

λ: measured wavelength of the radiation

C₂: thermodynamic constant

ε: emissivity

τ: transmission spectral of the environment between object and measuring apparatus

The PM-500-2C uses two-color measurement to provide superior accuracy in high temperature applications. The PM-500-2C pyrometer is ideal in situations where the target may be obstructed due to atmospheric smoke or other particulates, where the target is moving, or where the target is smaller than the field of view.

Bi-directional, RS-485 serial communications between the sensor and a personal computer in the control room enables remote setup, monitoring, calibration, and maintenance which is especially valuable for installation in hard to reach locations. Optional laser sighting and high-resolution optics provide a solution for either small targets or long sight-tubes.

The PM-500-2C is also available with fiber optic cable and optical head lens assembly (PM-500-2C-FO).

SPECIFICATIONS:

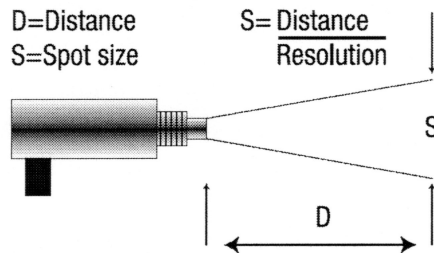
SIGNALS	
OUTPUTS	4-20 mA, 500 ohms Full duplex RS485 (non-multidrop) Relay
ELECTRICAL	
POWER SUPPLY	100 to 240 VAC (50-60 Hz) or 24 VDC
SHIELDED CABLE	4 Meter, high-temperature

MECHANICAL	
HOUSING	Cast aluminium housing rating: IP66 (NEMA 4)
WATER / AIR COOLING	Water / Air-cooling jacket
PROTECTIVE HOOD	Hood with positive pressure air purge: 4-16 liters/min at 2 bars (0.14 -0.56 ft3/min at 29 PSI)
MOUNTING	Fully Adjustable foot mount swivel stand
OPERATING TEMPERATURE	10°C to 65°C (50°F to 150° F). Above 65°C (150° F) auxiliary cooling is required: 1-2 bars at 1-2 liters/min. (14.5 - 29 PSI at 0.035 - 0.07 ft3/min)
TOTAL WEIGHT	12.25 kg / 27 lbs.

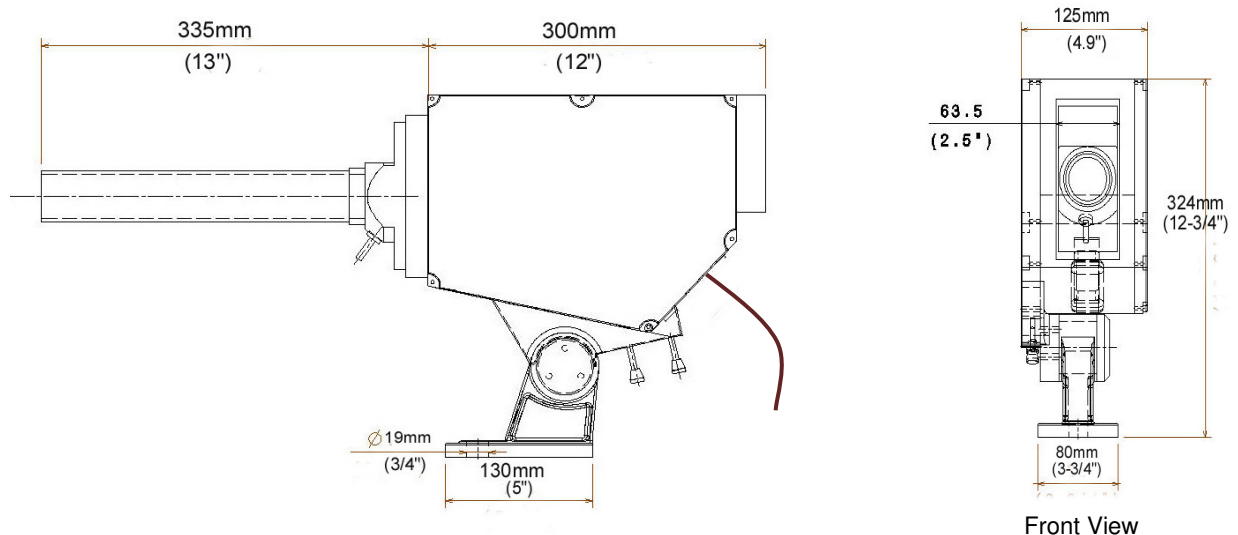
MEASUREMENT:

Temperature Range	Optics	Minimum Spot Size Diameter	Spectral Response	Response Time
600° to 1400°C 1100° to 2550°F	44:1	14mm @600mm 0.5" @ 24"	1µm Ratio	10 mSec
700° to 1800°C 1290° to 3270°F	82:1	7.3mm @ 600mm 0.29" @ 24"		
1000° to 3000°C 1830° to 5430°F	130:1	4.6mm @ 600mm 0.19" @ 24"		

OPTICS:



DIMENSIONS:



ORDERING INFORMATION:

Model	Temperature Range	Input Voltage
PM-500-2C	- A 600° to 1400°C - B 700° to 1800°C - C 1000° to 3000°C	• 100-240 VAC • 24V DC

OPTIONS:

PM-500-2C-FO

The PM-500-2C-FO Fiber Optic Pyrometer consists of a rugged fiber optic cable with optical head assembly connected to the sensor housing. The Optical Head consists of a small stainless steel cylindrical housing capable of withstanding ambient temperatures up to 200°C. The fiber optic cable is protected by stainless steel metal armor.

<u>PM-500-2C-FO Temperature Ranges</u>		<u>Optics</u>	<u>Response Time</u>
500° to 1100°C	932° to 2012°F	20:1	10 mSec
700° to 1500°C	1292° to 2732°F	40:1	
1000° to 2500°C	1832° to 4532°F	65:1	

Fiber Cable Lengths:

1 Meter	/	3 ft.
3 Meters	/	10 ft.
6 Meters	/	19 ft.
10 Meters	/	32 ft.