Enertechnix

PyroMetrix Acoustic Pyrometer

Instantaneous gas temperature data from any area of your boiler

The PyroMetrix™ Acoustic Pyrometer is a non-contact measurement device that obtains highly accurate instantaneous gas temperature data from any location within your boiler. The PyroMetrix system helps boiler operators significantly reduce slagging by maintaining optimal furnace exit gas temperatures. It also helps you manage critical temperature profiles to aid in emissions reduction, as well as reduce tube damage or leaks by preventing hot spots and thermal shock. Using PyroMetrix to balance combustion, you can also improve heat transfer rates.

PyroMetrix Acoustic Signal Generators (ASG) can be mounted horizontally or vertically to accommodate space restrictions.

PyroMetrix Acoustic Signal Receivers (ASR) detect sounds in the boiler via a tube through the wall and are housed in pressure-sealed NEMA 4 enclosures.

Significant Advantages over Traditional Technologies

Accuracy: The PyroMetrix system provides instantaneous, spatially averaged temperatures with less than 1% error.

Reliability: The PyroMetrix system is designed for superior reliability in hot, dirty environments. Ports are cleared by periodic air blasts, and components are not sensitive to dust or dirt.

Configuration Flexibility: The PyroMetrix system can be configured to meet your monitoring needs. ASGs or ASRs can be added as desired. Boiler tube bends are not required to mount the receivers.

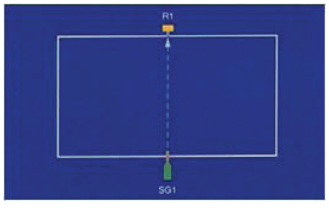
Leak Detection Capability: The PyroMetrix system constantly listens to boiler noises, measuring against preset noise thresholds and time durations, and identifies persistent sounds indicative of tube leaks.

How PyroMetrix Works

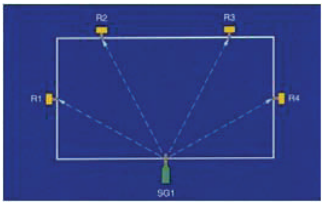
The PyroMetrix system utilizes the principle that the velocity of sound through a medium is related to the temperature of the medium. PyroMetrix generates a sound wave with a very sharp rise time and measures the time it takes to traverse the chamber. When the distance between the sound source and the receiver is known, the average temperature between the two points can be determined. The system can distinguish between equipment sounds, such as sootblowers, which are of limited duration, and persistent sounds, such as tube leaks. Instantaneous temperature data is spatially averaged and provides zonal temperature maps.

Measurement Examples

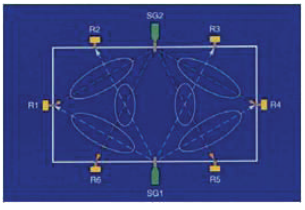
Temperature Mapping



Single-path Measurement

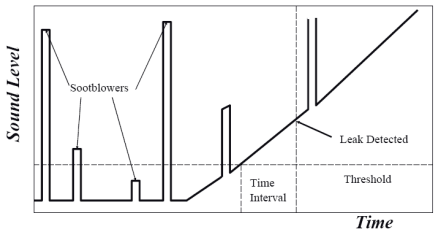


Multi-path Measurement



Zonal Measurement

Leak Detection



Learn more at www.Enertechnix.com, or call (425) 432-1589 for more information.

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These complementary accessories are sold separately or can be incorporated into the PyroMetrix™ Acoustic Pyrometer system:

WaveMetrix

WaveMetrix

WaveMetrix™ is a sound monitoring system that can verify in real time whether acoustic systems, such as SCR cleaners, are operating within their design specifications. By converting actual sound signals into a 4-20mA output, WaveMetrix detects and warns of potential failures. Able to function in noisy, high-temperature and dirty environments such as boilers, SCRs and precipitators, WaveMetrix has become an essential tool in process industries.

Design and performance advantages of WaveMetrix include the following:

- Pre-calibrated with an internal adjustment switch to enable performance verification
- Attenuation potentiometer allows attunement to specific device
- NEMA 4 enclosure seals against dirt and dust
- Signal conditioning eliminates background noise

Mark II Extreme Duty Air Amplifier

Mark II

The Mark II™ Extreme Duty Air Amplifier is designed for continuous duty in hot, dirty environments. In comparison to other commercial air intensifiers, which are typically unable to perform continuously in extreme environments for more than 30 days without failure, the Mark II averages six months of continuous duty between standard maintenance cycles.

The Mark II amplification factor is 6.25:1. The regulator is used to set the output pressure between 250 and 625 psi depending on application requirements. The Mark II system consists of a pneumatic piston assembly driven by magnetic sensors and a heavy-duty air control valve. Low-pressure filtered air (40-100 psi) enters the regulator and is diverted to the low-pressure cylinder by the air control valve.

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About Enertechnix

Enertechnix develops and commercializes innovative technologies for process and environmental monitoring to improve the efficiency, cleanliness and safety of large-scale energy conversion processes.

Learn more at www.Enertechnix.com, or call (425) 432-1589.

Contact Enertechnix for a complimentary PyroMetrix demonstration.

If you're interested in seeing how PyroMetrix can provide highly accurate temperature maps of your boiler, contact us to schedule your free on-site demonstration.

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