DIFFUSION FURNACE

HEATING ELEMENT RESISTANCE SMART SENSOR

TRUE PREDICITVE MAINTENANCE

Replace heating elements based on monitored health rather than days in service

PRECISION RESISTANCE MEASUREMENT

Measures the actual current and voltage waveforms (not RMS)

MODELING AND DATA ANALYTICS WITH HEALTH METRICS

Custom algorithms provide fault detection and classification of different failure conditions

ALARM NOTIFICATION

Easily integrate alarms directly to the equipment control system and automatically send e-mail or SMS messages

EQUIPMENT HEALTH MONITORING AT YOUR FINGERTIPS

Access anywhere with a web browser on your smartphone, tablet, or personal computer

INSTANT DATA STORAGE AND VISUALIZATION

Collect, store, and visualize up to a year of resistance data directly on the smart sensor

EXTERNAL DATA ANALYSIS

Export data from the user interface into Microsoft Excel

SOFTWARE API

Easily integrate smart sensor data with any factory system for external collection and analysis

Embrace the power of Industry 5.0 to connect your equipment, manufacturing process and personnel closer than ever before. InControl Engineering's smart sensor technology employs high speed measurements in conjunction with edge processing to enhance your predictive maintenance capabilities beyond what is achievable with the existing data collection and analysis on your equipment.

BENEFITS

- Reduces wafer scrap and rework
- Eliminates unscheduled maintenance downtime
- Lowers equipment cost of ownership
- Prevents equipment damage
- Monitors when furnace is idle
- Tool-to-tool matching and benchmarking
- Fast same day integration

Real-time resistance measurements show heating wire degradation over the life of the heating element. Dynamic resistance spiking is a reliable indicator of a near-term failure. Silicon controlled rectifier degradation as well as faulty wiring and contacts can also be detected through these same resistance measurements.

SPECIFICATIONS

- Monitor up to 5 heating element zones
- 10kHz measurement sampling frequency
- Split core AC current transformers: 50A-200A
- Adjustable AC voltage measurement range: 0-360V
- TC input: K, S, R, E, J, T, B, N, & WRe5-WRe26
- Dry contact alarm relay
- Resistance measurements analog outputs
- 1.2GHz Broadcom BCM2837 CPU 1GB RAM
- 32GB MicroSD (Standard)
- 120GB SATA with no removable MicroSD (Optional)
- 100 Base-T Ethernet LAN
- 2.4Ghz 802.11n Wireless LAN
- Power: 100-240VAC 50/60Hz 0.5-0.2A
- Smart sensor: 10" L x 7" W x 4.5" H
  25.4cm L x 17.8cm W x 11.4cm H
- Current transformer: 2" L x 2.1" W x 0.6" H
  5.1cm L x 5.3cm W x 1.6cm H
  up to 0.75" (1.9cm) Ø power cables
- NGINIX web server
- NTP time synchronization
- SMTP e-mail interface
- User upgradable software
- One-year standard hardware warranty

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