

FMS

BOILER FOULING MONITORING SYSTEM

SYSTEM BENEFITS

- Measures Steam Tube Fouling (Soot/Slag Buildup) Levels
- Outputs Tube Buildup Levels and Section Weights for Boiler Cleaning Systems
- Helps Reduce Steam Consumption

FMS STANDARD

PACKAGE (56-Hanger Rods)

- Stainless Steel Enclosure
- Compact RIO Controller
- 48 IO Channels
- 48 Calibrated Load Sensors
- FMS Software Package
- Installation Documentation

COMMUNICATION

- OPC-DA
- OPC-UA
- PI UFL
- MODBUS
- ETHERNET/ IP (ControlLogix Compatible)

For More Information Contact:

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For over 15 years ITM has provided the power generation and pulp & paper industries with innovative solutions that increase boiler operation efficiency. ITM's Fouling Monitoring System (FMS) has been installed on boilers around the world to measure fouling levels. FMS systems continually monitor levels of ash/soot/slag buildup on platens/tubes of instrumented recovery and power boilers. A typical FMS consists of an industrial controller with IO modules, housed in a stainless-steel enclosure, for collecting, processing, and publishing data from a series of ruggedized strain gauge/load sensors installed on boiler platen/tube support structures. This tool outputs soot/slag buildup levels relative to each instrumented support structure location which is used as actionable feedback for improving boiler efficiency, preventing boiler plugging, and planning future outages.

Detecting Boiler Soot Buildup

The boiler Fouling Monitoring System can monitor the level of buildup within the boiler in real time. As soot and slag builds up on steam generation tubes inside a boiler, load sensors installed on tube section support structures output signals that change relative to the buildup weight. These 4 to 20 mA signals are transmitted to an industrial controller where they are calibrated and processed into structural loads. ITM supplies and manufactures these load sensor signal conditioning electronics because they require distributed onboard calibration circuitry.

Boiler Fouling Monitoring System - FMS Simulation



Figure 1: Views of Boiler Support Structure

Figure 1 shows a graphical view of the fouling relative to the steam tube support structure (hanger rods). Since multiple hanger rods usually support a steam tube section, load data is processed and combined by the industrial controller to derive a section weight output.

Soot Buildup Level Outputs

FMS systems can output boiler fouling data directly to PLCs via Ethernet/IP communication. FMS systems can also output data for historians and factory DCS systems via OPC, PI UFL, or MODBUS communication.



Figure 2: FMS Load Sensor Installation

FMS Planning & Installation

ITM engineers will work with you to plan the FMS installation by working with plant resources and contractors, provide detailed installation documentation, and then perform the final onsite system and sensor installation and final system commissioning.

Improving Boiler Efficiency

FMS systems can be deployed in conjunction with our other boiler monitoring systems, [SFD System](#) & [CDS System](#), to optimize boiler cleaning and preventative maintenance processes.

TYPICAL SYSTEM ROI = 40%



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