Yokogawa’s CO Monitoring Solution

The TruePeak TDLS measures gas concentrations inside the process, using a tunable diode laser. As the laser travels through the process, the amount of light absorbed by the process gas is measured to determine the gas concentration. The TDLS200 is designed for the most demanding applications.

TDLS measures CO in the firebox.
- No lag time in detecting CO breakthrough.
- No false low reading due to CO quenching.
- Active compensation for ambient background radiation changes.
- Capable of measuring across large ducts.

TDLS measures CO in situ.
- No sample system to maintain or get plugged.
- No sample system induced lag time.

TDLS is a path measurement.
- Provides coverage across the firebox (not point).
- Ensures isolated areas of breakthrough are detected.
- Typical analyzers (2-8) for large ducts.

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Represented by:

VigilantPlant is Yokogawa’s automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

Practical Carbon Monoxide (CO) Measurement
Coal Fired Plant Solutions

www.yokogawa.com/us
CO Monitoring for Coal Fired Plants

**Introduction**
There are currently 1470 generators at 617 facilities in the United States alone that use coal as the major source of energy to generate electricity. Of these facilities, 141 are considered industrial, institutional or commercial sites that consume most of the electricity produced on-site. The remaining 476 sites are identified as ‘power plants’ owned by electric utilities and independent power producers that generate and sell electricity as their primary business. The power producers that generate and sell electricity produced on-site are considered industrial, institutional or commercial sites that consume most of the electricity produced on-site.

Obtaining these goals ensures that:
- Power plants generate the highest profits
- Comply with environmental regulations
- Assure workplace and community safety

Obstacles that must be overcome:
- Mechanical wear of combustion equipment
- Fouling of the burner system
- Varying boiler loads
- Moisture content changes in the fuel
- Humidity changes in the air
- High temperature in the optimal measuring location
- Stratification of gas concentrations
- Presence of SO2 in the flue gas
- Speed of response in non-insitu installations

Current measuring technologies that are employed to measure CO (or combustibles in general) are Catalytic Bead sensors, Thick/Thin Film thermistors, and IR spectroscopy. These measuring technologies are prone to the following problems:
- The catalytic sensors require sample extraction (not insitu) installations. These sample extraction systems are prone to plugging and fouling with fly ash in coal fired applications. They require frequent preventative maintenance and the filters they require cause slow response times.
- The catalytic sensors are discreet or point measurements. They do not provide a path or average measurement across the firebox. They are subject to stratification errors, may not detect isolated areas of CO breakthrough, and require multiple points of installation to provide adequate coverage.

**Solution**
Tunable Diode Laser Spectroscopy (TDLs) manufactured by Yokogawa Corporation of America has been proven in the field to be a solution for this difficult measurement. The TruePeak Analyzer utilizes powerful lasers that are highly sensitive and selective for CO. The TruePeak Analyzer measures CO directly in the firebox. This means no lag time in detecting CO breakthrough and no false low reading due to CO quenching after the fire box. The TruePeak Analyzer measures CO insitu. There is no extractive sample system induced maintenance or lag time. The TruePeak Analyzer is a path (across the fire box) measurement. This provides an average reading that ensures isolated areas of CO breakthrough are detected. Minimal installations are required.