CES

Xact™ 640
Multi-Metal Continuous Emissions Monitoring System (MM-CEMS)

Key Features

- Simultaneous measurement of up to 20 elements
- Non-destructive analysis allows for sample archiving
- Reports results every 15 minutes in µg/dscm*
- Easy transfer of data to site DAS or MS Excel
- Automatic QA including daily upscale, blank and flow checks
- Automatic alarming and control features
- Remote Controllable

The Xact™ 640 is an automated multi-metal CEMS based on reel-to-reel (RTR) filter tape sampling followed by X-ray fluorescence (XRF) analysis of metals in the deposit. The process begins when an isokinetic sub-sample of stack gas is taken from the stilling chamber and drawn through a chemically-reactive filter tape. Vapor phase metals including Hg are deposited on the reactive filter tape along with the PM. The resulting deposit is then automatically advanced and analyzed by XRF for selected metals while the next sample is being collected. In the Xact 640, sampling and analysis is performed continuously and simultaneously except during the tape advance (~15 sec) and the daily automated quality assurance checks.

Accurate, Precise, Reliable, User Friendly, & EPA Approved and Awarded

The Xact 640 CEMS' demonstrated relative accuracy in reference method comparisons was about 95% with relative precisions of about 98%. Long-term reliability has been demonstrated on a hazardous waste incinerator at which the instrument has been operating continuously for five years. Our client's report that the Xact 640 CEMS requires about one man-day per month for maintenance. The Xact 640 as an EPA Other Test Method is an alternative to current requirements for monitoring plant operating conditions, perform periodic Method 29 tests, feed stream analysis, etc. It is no longer necessary to relying on assumed efficiencies for controls such as activated carbon. The XRF sample analysis technique is non-destructive, allowing for possible sample archiving and re-analysis at a later time. The instrument also incorporates an internal standard with every sample analyzed along with automatic daily upscale, blank and flow checks. This instrument is the first multi-metal CEMS to be approved by EPA for compliance demonstration with US EPA metal emission standards and has received the EPA's Clean Air Excellence Award.

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Applications

Waste incinerators (hazardous, sewage, municipal, medical, Industrial), cement kilns, lime kilns, foundries, coal-fired power plants, industrial furnaces and boilers, primary and secondary metal smelters, etc.

Product Specifications

Measurement Method	Based on EPA Method IO 3.3 – Determination of Metals in Ambient PM using XRF
Key Applicable Elements	Sb, As, Ba, Br, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mn, Ni, Se, Ag, Sn, Ti, Tl, V, Zn and more
Measurement Range	0 to 10 mg/dscm
Detection Limits[1] (IF, EPA IO 3.3)	As low as 0.1 µg/dscm with 15 minute sampling and analysis times, 1.5 lpm flow
Sampling and Analysis Times	Selectable from 15 minutes to 240 minutes (*dependent on particulate matter concentrations)
Calibration Stability Check frequency	With each sample analyzed
Estimated Recalibration Frequency	About once per year when in a stable temperature environment (±3°C): See figure below
Upscale Drift, Zero Drift, & Flow Drift	Checked daily
Sample Flow Rate	1.5 lpm
Linearity	Correlation coefficient greater than 0.98
Size and Weight-2 cabinets	19” (W) x 24” (D) x 19” (H), 19” (W) x 24” (D) x 35” (H), 180 lbs, rack mountable
Operating Environment	Secure environment with temperature controlled to 20±3°C (68°F)
Power Requirements[2]	120 VAC/60 Hz @ 40 amps (220 VAC/60 Hz @ 20 amps with optional power converter)
Inputs/Outputs	24 VDC, 2 amperes; RS232 serial port, Modbus protocol, 38.4k Baud maximum, All metals data plus machine diagnostic data available.
Options	Remote control and data polling, additional elements, optimization for specific elements, enclosures

Notes: 1. Detection limits are determined using 1 sigma interference free data
2. Power must be condition to maintain a factory warrantee or service agreement.