

Accurate. Reliable. Cost Effective.

Emissions Monitoring for Compliance & Process Improvement



TUNABLE DIODE LASER SYSTEM

Product Description

For Monitoring:

NH₃, H₂S, HCl, H₂SO₄, CO, H₂O, HCN, O₂, CO₂, CH₄, HDO, HF, NO, D₂O

The TDL Laser Monitor is a continuous monitor designed to measure flue gases for both compliance and process monitoring. The Controller uses a Near Infrared (NIR) Tunable Diode Laser Absorption Spectrometer System utilizing a single mode "DFB" laser mounted in a thermoelectric cooler for unsurpassed accuracy and performance.



Flow Control

Features & Benefits

High sensitivity ppb to percent level measurements

One analyzer can be used for up to 8 measurement points

Compact and simple to install

Ambient conditions from -400 to 600°C

Laser located in controller allowing for simple signal control and diagnostic access

Moisture can be added as a second channel

Off Stack/Process extractive option

Hazardous Area Div I & II Options

Performance designed Process Monitor

- Gas sampling/conditioning not required
- Corrosive/toxic applications
- Calibration not required

Exceeds EPA CEMS Regulation requirements

- MACT & MATS - Draft PS-18 Compliant
- Boiler MACT O₂ and CO Compliance
- Approved Zero & Span Calibration checks

Extremely Fast (<1 second) response time

Operates in high dust/moisture applications

Unaffected by stack/duct alignment changes



Optics Enclosure



Launcher Detector



Reflector Optics

Analyzer Specifications

Laser	Near Infrared Tunable Diode Laser <i>Telecommunication grade lasers for longevity, reliability and availability</i>
Response Time	<1 second
Detection Limits	NH3 < 0.3 ppm/m / HCl < 0.16 ppm/m <i>Consult Factory for other gases</i>
Environmental Conditions	-10 to +40°C 5 – 95% RH 800 – 1200 mbar
Calibration	Factory Test sent with every unit. Internal reference cell, external portable audit module, or in-line flow through cell
Inputs Temperature & Pressure Compensation Analog Inputs	
Outputs and Networking	Qty 8, 4-20mA Analog Outputs, Dry Contacts, Ethernet, Status relays
Dynamic Range	5 orders of magnitude
Data Logging and Displaying Software	DataView, DataReview, (optional LasIRView diagnostic software)
Data Storage	Internal storage & External storage via Ethernet or RS232 to external computer
Power Supply	<i>Input: 100 – 240 VAC @50-60Hz, +12 VDC Output: 12V, 60w, Operating Voltage: 12 VDC</i>
Analyzer Dimensions:*	<i>6" (H) x 14" (W) x 10" (D) (15 x 35 x 25 cm) 11 lb. (5kg) *Available in desktop and 19" rackmount enclosures.</i>
Power Supply	<i>Input: 100 – 240 VAC @50-60Hz, +12 VDC Output: 12V, 60w, Operating Voltage: 12 VDC</i>
Stack/Duct Optics:	
Base	<i>6" (H) x 9" (W) x 14.5" (D) 11.5 lb (5.2 kg) NEMA 4x Fiberglass Enclosure</i>
Mounting	<i>4"OD ANSI flanges, additional sizes optional.</i>
Air Purge Requirements	<i>Depending on conditions 50 psi @ 25 L/min (Blower purge systems available)</i>
Environmental Conditions	<i>Gas: -100 to +1800 °C, 5-95% RH, 25-2000 mbar Optics: -40 to 55°C, 5-95% RH, 25-2000 mbar Detector up to 90°C</i>

Typical Applications

Power :

- HCl: EPA MATS Compliance Monitoring per PS18
- NH3 & H2O: Gas Fired Slip Monitoring for Process Control & EPA compliance
- NH3: Coal Fired slip monitoring for prevention of air preheater pluggage & corrosion
- O2 & CO: Combustion Control

Cement:

- HCl: EPA PC MACT Compliance Monitoring per PS18
- CO, CO2, O2: Process Monitoring

Refining:

- CO, CO2, O2, H2S, NH3: FCC, SRU, Furnaces & Heaters

Petrochemical:

- HF, H2S, CO, O2, NH3, Trace H2O: SRU, Reform & Cracker

Chemical:

- CO, CO2, O2, HF, H2O, NH3, HCN: Process gases

Nitric Acid Production:

- NH3

Aluminum Smelters:

- HF in Stack

Gold Smelters:

- CO, CO2, O2, H2O

Nickel Smelters:

- H2S, CO, CO2

Copper Smelters:

- NO

Gold Smelters:

- HCN

Pulp & Paper:

- H2S

Nuclear Processing:

- HF, D2O, HDO

Incinerators:

- HF, HCl, NH3, O2, CO, CO2

Nylon, Carbon fibers, Plastics:

- HCN, O2

Waste Water Treatment:

- H2S

Ceramic/Brick:

- HF, HCl

Landfill:

- H2S, CH4, NH3

Tobacco Processing:

- CO, CO2 as early fire detection

Automobile Exhaust:

- CO, CO2

Fertilizer:

- HF

Thermal Oxidizer:

- O2



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