



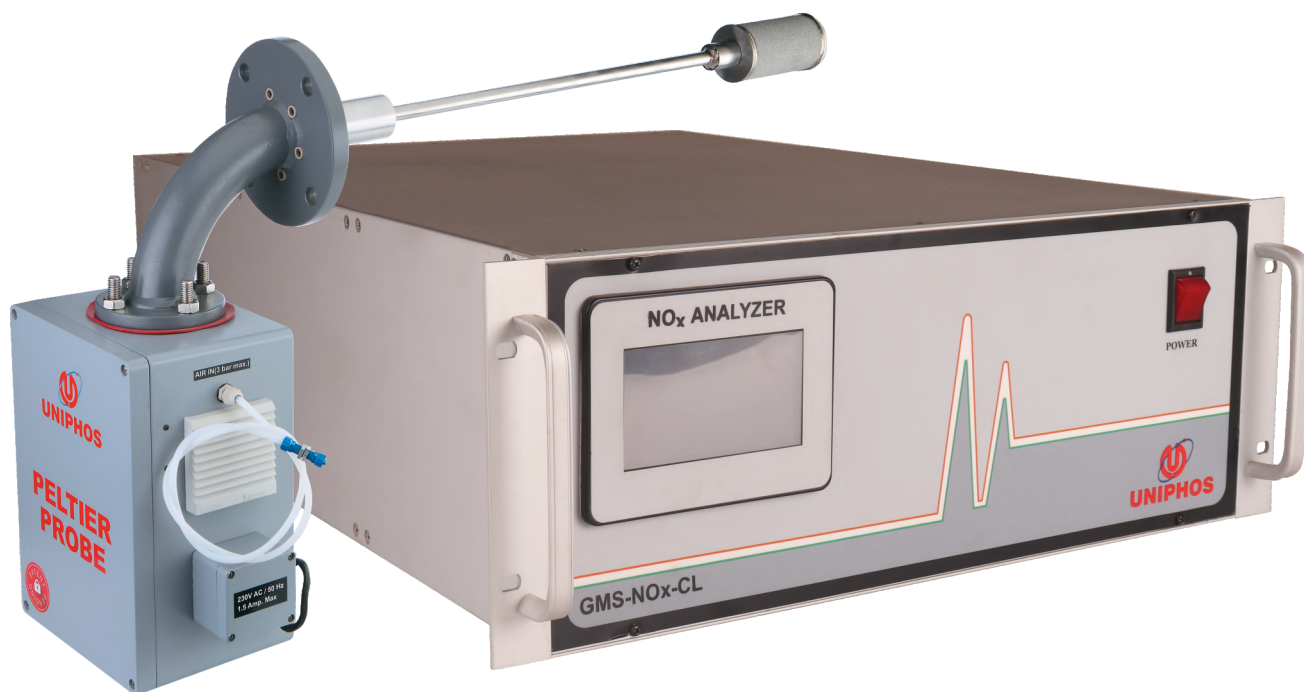
ONLINE EMISSION MONITORING SOLUTIONS



- Continuous Emissions Monitoring
- Combustion efficiency
- Vehicle emission
- Mobile Van / laboratory



Uniphos Continuous Emission Monitoring Systems (CEMS)



The Uniphos CEMS is an online analyzer for measuring concentration of various toxic gases in industrial process/ boiler stack. Being capable of Auto /Remote calibration with digital communication, it provides a complete solution for stack monitoring.

Uniphos CEMS are available based on different technologies depending upon the suitability and users requirement:

- Highly sensitive & gas specific Chemiluminescence /Fluorescence based NO_x and SO_2 Gas Analyzers
- Non-Dispersive Infrared (NDIR) based Analyzers
- TDLAS based Analyzers
- Zirconia based Oxygen Analyzer

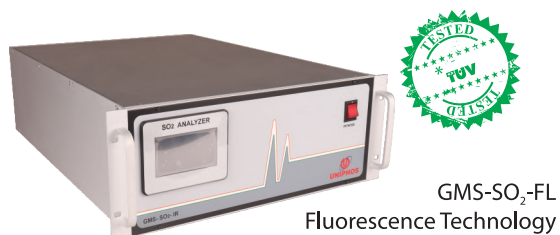


Fluorescence based SO₂ Analyzer

When air containing SO₂ molecules is excited with UV radiation in the region of 190-230 nm, fluorescence occurs from the optically excited SO₂ molecules in the wavelength region 240nm to 420 nm. This fluorescence intensity can be directly related to the concentration of SO₂ molecules in air. As the fluorescence intensity is determined by two parameters like excitation wavelengths and the emission wavelengths, it forms a highly specific analytical technique. It is also a very very sensitive technique which can also determine the SO₂ concentration in ambient air at parts per billion level.

FEATURES:

- Highly specific & sensitive technique for SO₂ measurement.
- Comes with moisture and hydrocarbon removal system
- Auto / Remote calibration with calibration gas cylinder
- Minimum maintenance & Inbuilt diagnostics for easy debugging
- On board memory for storage of test results along with time and date



GMS-SO₂-FL
Fluorescence Technology

Chemiluminescence Based NO_x Analyzer

When a Nitric Oxide (NO) molecule present in air reacts with Ozone molecule, one of the end products of this exothermic reaction i.e. NO₂ is found in the excited state which relaxes to the ground state by emission of a light photon in the region between 600nm to 3000nm. This process is called Chemiluminescence where the luminescence excitation takes place in a chemical reaction. If the chemiluminescence intensity is made to depend on NO Concentration by using a very high concentration of Ozone, intensity of the resulting chemiluminescence emission can be used for the determination of NO concentration in air. The other gases like NH₃, NO₂ can also be analyzed by converting them into NO using suitable converters.

FEATURES:

- Measurement based on Chemiluminescence technique
- Internal Ozone generation
- Fast and reliable analysis
- On board memory for storage of test result along with time and date
- Minimum maintenance & Inbuilt diagnostics for easy debugging
- Auto / Remote calibration with calibration gas cylinder



GMS-NO_x-CL
Chemiluminescence
technology

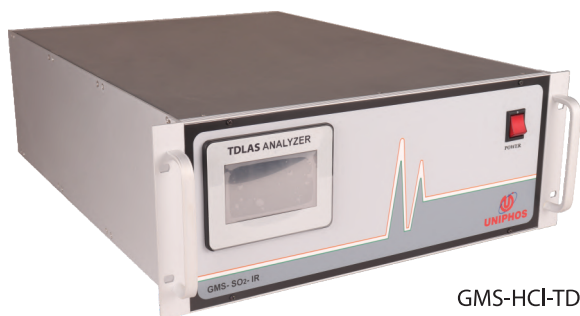
SPECIFICATIONS

- Measurement Method: UV Fluorescence/Chemiluminescence
- Measuring Range: 0-100/0-1000 / 0-2000 ppm
- Resolution: 1 ppm
- Display: Touch Screen HMI
- Current Output: 4-20 mA
- Communication Port: RS-232 / RS-485
- Data logging: Supports Internal data logging
- Operation Temperature: 5°C - 40°C
- Power: 230 VAC, 50 Hz

APPLICATION AREAS

- Continuous Emissions Monitoring
- Combustion efficiency
- Vehicle emission
- Mobile Van / laboratory

TDLAS Gas Analyzers



GMS-HCl-TDLAS

NDIR Gas Analyzers



NDIR Gas Analyzer

For trace level detection of atmospheric pollutants like HF, HCl, NH₃, etc. high resolution spectroscopic technique such as tunable laser absorption combined with the high frequency wavelength modulation / demodulation using derivative spectroscopic techniques are used. TDLAS (Tunable Diode Laser Absorption Spectroscopy), in combination with WMS (Wavelength modulation spectroscopy) is highly sensitive and specific to target gas and is an excellent technique for concentration measurement of gaseous species in scientific as well as industrial applications.

All diatomic and polyatomic molecules have one or more vibrational modes which can absorb radiation in the infrared region. Taking advantage of this absorption by molecules, instruments are built for the detection of gas molecules. NDIR (Non Dispersive Infrared) based Uniphos stack gas analyzers are endowed with specificity and have adequate sensitivity for the detection of a number of stack gases in industrial stacks. The analyzer comes with inbuilt sample dryers and dust filters. With a purge system, the instrument can be programmed to periodically clean the sampling probe using compressed air at specified intervals. An inbuilt pump helps in bringing the sample from stack to analyzer. The analyzer also provides remote calibration facility when connected to standard gas cylinder through a calibrator. This PLC based analyzer incorporates all the desired features which make it fail safe and user friendly.

GASES	RANGE
O ₂	0-1% / 0-25%
CO	0-1000 PPM / 0-100%
CO ₂	0-1000 PPM / 0-100%
H ₂ O	0-100 PPM / 0-100%
H ₂ S	0-100 PPM / 0-100%
HCL	0-100 PPM / 0-50%
HF	0-20 PPM / 0-50%
NH ₃	0-10 PPM / 0-100%
CH ₄	0-200 PPM / 0-100%
C ₂ H ₂	0-50 PPM / 0-100%
C ₂ H ₄	0-100 PPM / 0-100%

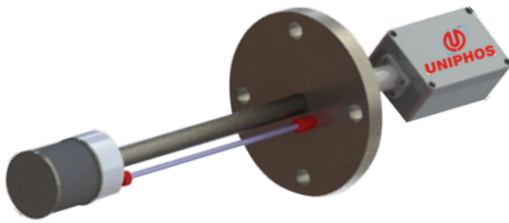
GASES	RANGE
SO ₂	0-2000 PPM
NO _x	0-2000 PPM
CO	0-2000 PPM
CO ₂	0-25%, 0-50%
CH ₄	0-5%, 0-100%

Uniphos Oxygen Analyzer

The Uniphos Oxygen Analyzer uses Zirconia oxygen sensor which measures Oxygen concentration in industrial stacks operated at high temperature & humidity. The sensor employs well proven Zirconium Dioxide based element which gives highly accurate linear output. The Oxygen probe also features Auto/ Remote calibration & can be calibrated with fresh air.

Specifications

Sensor Technology	Zirconia based Sensor
Range	0.1 to 25% / 100%
Permissible Gas Temperature	-100 to 400°C
Permissible Gas flow rate	0 to 10 m/s
Analog Output	4-20mA / 0-10V
Supply voltage	24VDC ± 10%
Current consumption	500mA max @ 24VDC



Peltier Probe

STACK MOUNTABLE

Compact & Cost Effective

- PID Controlled Heated Probe and Peltier cooler
- Peltier cooler

HEATED SAMPLING LINE NOT REQUIRED

- Less maintenance
- Minimum Power Requirement

UNIQUE HEAT EXCHANGER DESIGN

- Min. Gas-Water Interaction
- Negligible Loss of Sample Conc



Integrated Temperature, Flow and Pressure Monitor

Specifications

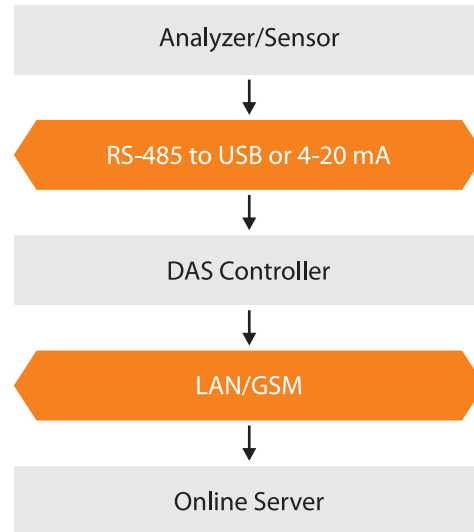
Temperature	Sensor: RTD with SS316 Protective Thermowell Range: max 500 °C Accuracy: Class 'A'
Flow	Sensor: S type Pitot tube (SS316) with Differential pressure sensor (available with back purge arrangement) Range: 0-10/20 m/s Accuracy: +/- 1% FS
Pressure	Sensor: Absolute Pressure sensor (comes with fin type cooling tower for high temperature stacks) Range: 0- 30/50 psia Accuracy: +/- 1% FS
Power supply	24V (2 wire)
Output	4-20mA (2 wire) X 3
Display	Loop powered 7 segment display at the controller
Weight	~8 Kgs



Data Acquisition System and Remote access

Uniphos CEMS uses Data Acquisition System (DAS) which not only acquires data and stores it but also provides connectivity to cloud server either through GSM / LAN. The DAS module provides remote access to the analyser and assists in performing various activities viz. Zeroing, Calibration, Validation of the analyser remotely. The data acquired by this system can be analyzed and the reports can be used for compliance reporting, process improvements and environment performance management.

Data from the analyzer are sent to DAS system using Modbus RTU protocol on RS-485. The screenshots of the chart and the dash board are shown below. The software and hardware complies to the statutory requirements set by Central Pollution Control Board.



Uniphos Envirotronic Pvt. Ltd.



20 Technology
Patents Filed



A Highly Qualified Team of Trained
R & D Scientists and Engineers



India's Largest Manufacturer & Exporters of Gas Detection Equipments



Products are Exported to more than
45 Countries



An **ISO 9001 & ISO 14001**
Certified Company



Safety & Environmental Monitoring Solutions



UNIPHOS

*Due to continuous development,
we reserve the right to change specifications without prior notice.*

BR/CEMS/V1.0/04062019



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IND17.5519/U/E

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