STEAM Equipments

An ISO-9001:2015 Certified Company

FLUE GAS ANALYZERS (CEMS)

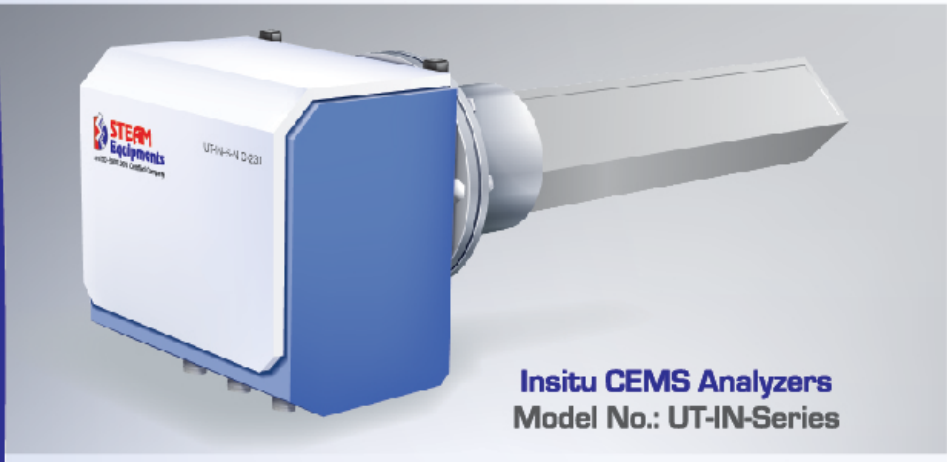
UV-DOAS & TDLAS

Advance Technology

- TUV Certification
- USEPA Compliant
- Remote Calibration Facility
- Low Maintenance
- No Moving Parts
- No Coolers
- Normalization as per Pollution Control Board requirements
- All Measurements in One Analyzer

MAKE IN INDIA

Rich Experience in Solutions in environmental Monitoring system



Insitu CEMS Analyzers
Model No.: UT-IN-Series

Extractive CEMS Analyzers
Model No.: UT-EX-Series

Environmental Technology

Continuous Emission Monitoring System	UV DOAS	SO_2
	UV DOAS	NO_x
	TDLAS	NH_3, HCL, HF, H_2S, CH_4, H_2O
	TDLAS	CO, O_2 or CO_2 as per CPCB
	Laser (BW/FW)	Dust
	In-situ Pitot type	Flow, Pressure & Temp.

Analysis | Monitoring | Performance

COMPANY PROFILE

STEAM Equipments

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Steam Equipments Pvt. Ltd. is involved in manufacturing, designing, distribution and development of high quality and precise analytical instrumentation, Sample Handling System and Shelter Houses. Operating from headquarters in Pune, India, the company has established its sales and service operation in 40 countries. The company is dedicated to produce high quality instrumentation package backed by its world class 24 X 7 customer service.

Steam Equipments manufactures all products in development of its Steam and Water Analysis System, CEMS, AAQMS, Process gas analyzer systems and other associated accessories.

PRODUCTS

- Steam and Water Analysis System (SWAS)
- Process Gas and Liquid Analyses
- Sampling Systems and Walk-in Shelters
- Continuous Emission Monitoring Systems (CEMS)
- Pressure Reducing & Desuper heating Stations (PRDS)
- Ambient Air Quality Monitoring Systems (AAQMS)
- Steam Accessories: Steam Trap, Steam Valves, Strainer, Temp/ Pressure/ Control System.

BUREAU VERITAS Certification

STEAM EQUIPMENTS PVT. LTD.

STEAM Equipments

PLOT NO 44 TINY CO-OPERATIVE INDUSTRIAL ESTATE, PISOLI ROAD, KONDHWA BUDRUK, PUNE – 411 048, MAHARASHTRA, INDIA.

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System standard detailed below.

Standard

ISO 9001:2015

Scope of certification

DESIGN, DEVELOPMENT, MANUFACTURE, SUPPLY & AFTER SALES SERVICE OF GAS & LIQUID ANALYTICAL SYETEME INCLUDING STEAM & WATER ANALYSIS SYSTEM & SAMPLE COOLERS USED IN REFINERIES, POWER PLANTS & PROCESS INDUSTRIES

Original cycle start date: **05 April 2007**
Expiry date of previous cycle: **14 September 2018**
Recertification Audit date: **16 August 2018**
Recertification cycle start date: **05 September 2018**
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **04 September 2021**
Certificate No: **IND18.5410.UQ** Version: 1 Revision date: **05 September 2018**

Signed on behalf of BVCH SAS - UK Branch
Ramesh ADIGAVE
Director, CERTIFICATION
South Asia Region

UKAS

OUR VISION

Steam Equipments will strive to be a World Class supplier of Gas and liquid Analytical Systems. We will achieve this through :

- Innovation in the products we manufacture and distribute.
- Investment in our people.
- Achieving customer satisfaction.
- Maintaining world-class product quality.
- Shipping products that meet our exceed customer's expectations for performance and deliver.

QUALITY POLICY

SEPL is dedicated for commitment in improving the quality of products and satisfaction of customers through:

- Products that consistently meet or exceed expectations on performance, reliability, and durability.
- Service to customers that is prompt and courteous.
- Deliveries on time.
- Involvement and accountability of entire management team.

Our employees pledge to meet this through a quality process based upon a solid foundation of ethical principles, conscientious attention, detail and proven product engineering and state of art manufacturing practices.

INDUSTRIES SERVED

- Power Generation
- Petrochemical
- Refineries
- Nuclear
- Waste Water Treatment
- Chemical Industries
- Food & Beverage
- Steel
- Pulp & Paper
- Cement

Products Offered by Steam Equipments in Environmental Industries.

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In-situ CEMS

Extractive type CEMS

Cross Duct laser gas analyzer

Opacity (PM) monitor

Flow temp. & pressure intigrated monitor

Portable CEMS gas analyzer

AAQMS

EQMS

Zirconia Oxygen Analyzer

Cloud base CPCB & SPCB pollution control software

INDIA • UAE • SINGAPORE • SOUTH AFRICA • USA

FLUE GAS ANALYZER (INSITU)

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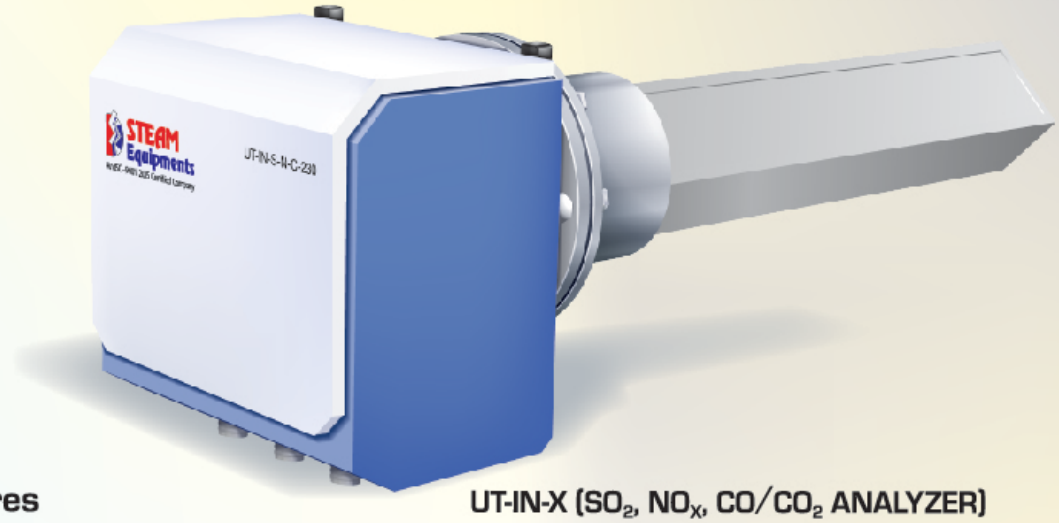

Features

- **Principle of in-situ/UV DOAS & TDLAS technology**
- **No need sampling/ direct monitoring**
- **Quick response time**
- **Low maintenance costs**
- **No interference of dust and humidity**
- **Remote calibration Possible SO_2, NOx, CO, CO_2**
- **Easy to carry**
- **No coolers Required**
- **No pump Required**
- **Multi component In-Situ Analyzer**

Can be customized for high temp.

UT-IN-X (SO_2, NO_X, CO/CO_2 ANALYZER)

List	Specification
Principle	UV-DOAS & TDLAS
Response Time	< 120 sec (T90)
Stack gas temp	< 300°C*
Accuracy	≤ ± 1% FS
Repeatability	≤ ± 0.5% (UV-DOAS based SO_2, NO_X Analyzer) ≤ ± 1% (TDLAS based CO/CO_2 Analyzer)
Zero/Span drift	≤ ± 1% FS/1 Month (UV-DOAS based SO_2, NO_X Analyzer), ≤ ± 1% FS /half year (TDLAS based CO/CO2 Analyzer)
Maintenance interval	3 months, depends on field condition
Calibration interval	6 Month
Enclosure Class	IP55, IP65, safe area
Ambient temperature	-20°C to +60°C
Analog output	Each channel 4-20 mA
Digital Input	1-way RS232, 3-way RS485
Digital output	RS232, RS485
Relay output	6, output can be configurable, DC 30V, 2A
Power supply	230/110 VAC, 500 Watt
Weight	25 kg

Measurement ranges

Parameters	Minimum Range	Maximum Range
SO_2	0 - 500ppm	0 - 5000ppm
NO	0 - 500ppm	0 - 5000ppm
NO_2	0 - 500ppm	0 - 5000ppm
NO_X	0 - 500ppm	0 - 5000ppm
CO	0 - 500ppm	0 - 5000ppm
CO_2	0 - 5%	0 - 20% Vol.

LASER GAS ANALYZER (INSITU & CROSS DUCT)

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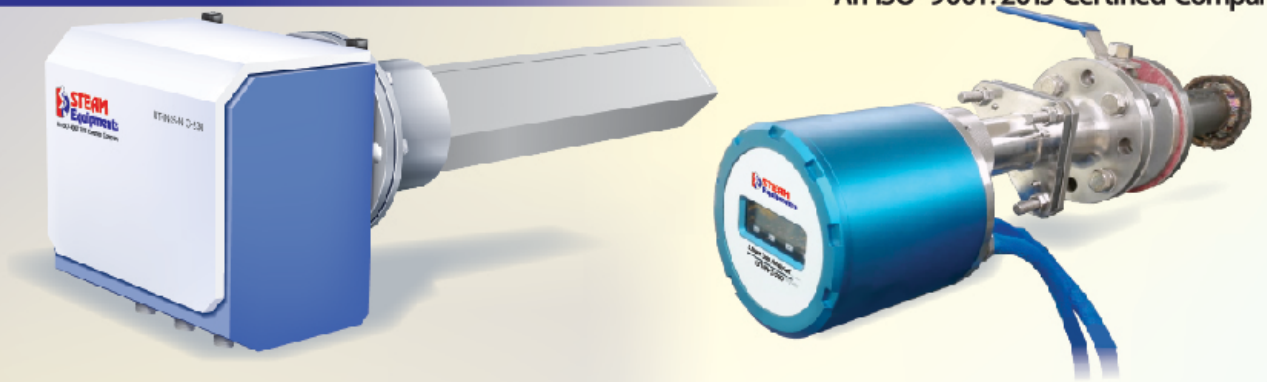

In-Situ & Cross duct Laser gas analyzer UT-IN-series $CO/CO_2/NH_3/HCL/HF/H_2S/HCN/CH_4/C_2H_2/C_2H_4/H_2O/O_2$ (One of these parameters)

Features

- **Principle of in-situ/ TDLAS technology**
- **No need sampling / Direct monitoring**
- **Quick response time**
- **Low maintenance costs**
- **No interface of dust and humidity**
- **Practicable of remote calibration**
- **Easy to carry**

*Can be customized for higher temp. upto 1500°C for particular application

** Cross duct & Insitu version is available for hazardous area application

Specifications

Response time	< 120 sec (T90)
Gas temp	< 300°C*
Accuracy	≤ ± 1% FS
Repeatability	≤ ± 0.5%
Span Drift/Zero Drift	≤ ± 1% FS/half year
Cal interval	< 2 times/year
Maintenance interval	< 2 times/year, Clean optical window
Enclosure Class	Safe Area/IP65/IP66**
Ambient temperature	- 20° to +60°
Analogue output	4-20 mA for each measurement
Relay output	6, output can be configurable, DC 30V, 2A
Digital input	1-way RS232, 3 - RS485
Digital out put	RS232, RS485
Power supply	230VAC/110VAC
Weight	25 kg (In-Situ) 10kg (Cross duct)

Measurement ranges

Parameters	Minimum Range	Maximum Range
CO	0 - 50ppm	0 - 100% Vol.
O_2	0 - 1%	0 - 40%
H_2S	0 - 100ppm	0 - 1000ppm
HF	0 - 10ppm	0 - 100ppm
CH_4	0 - 40 ppm	0 - 100% Vol.
C_2H_2	0 - 10 ppm	0 - 100% Vol.
C_4H_4	0 - 60 ppm	0 - 100% Vol.
CO_2	0 - 1%	0 - 100%
H_2O	0 - 200 ppm	0 - 40% Vol.
NH_3	0 - 10 ppm	0 - 500 ppm
HCL	0 - 50ppm	0 - 500 ppm
HCN	0 - 30 ppm	0 - 1 % Vol.

EXTRACTIVE TYPE CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)

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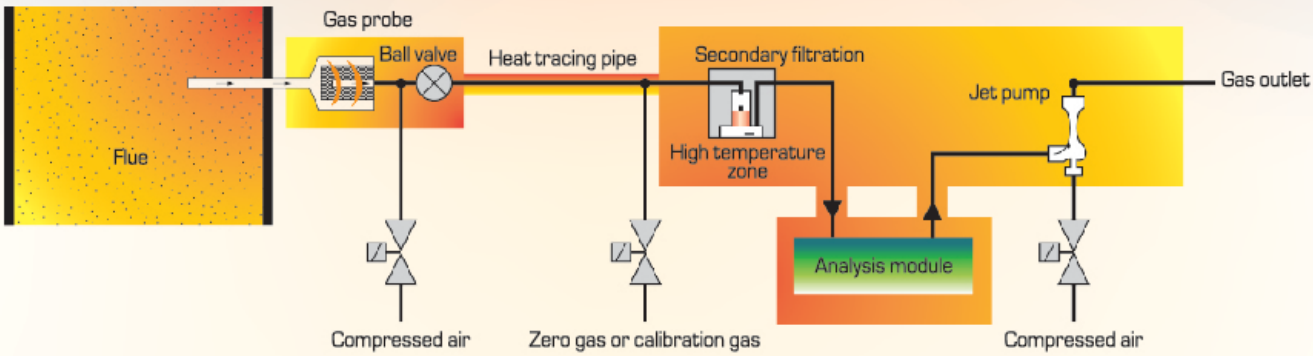
Flow Principal

Under the work of high temperature sampling pump, the gas passes through sampling probe (filter cartridge included) ball valve heating tracer, secondary filtration and then enters into UV analysis module and finally be drained. By adopting 150°C high temperature heat tracing for whole process, it can effectively prevent SO_2, HCL and other detected gases from being dissolved and loss for condensated water. By controlling Back blow valve impulse, the system can regularly back- blow filter cartridge of sampling probe and close the ball valve the prevents high level dust from blocking the filter cartridge. The analyzer support Auto / Manual calibration (Zero and Span calibration) ; the measuring flow path need to be closed when the calibration is working.

Pressure transmitter can be used to compensate measuring value and also check if probe is block.

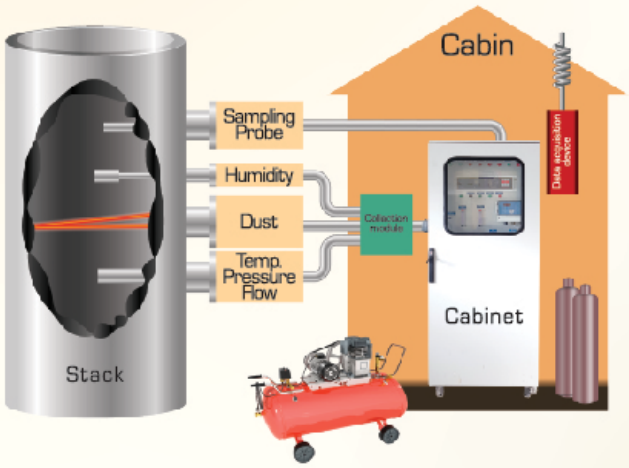
Secondary filtration is adopted to protect UV analysis module to ensure it will not be polluted by flue gas and dust when probe is leakage or temperature control is invalid.

Gas Path



Structural composition

Continuous Emission Monitoring system (CEMS) consists of particulate matter monitoring subsystem, gaseous pollutants monitoring subsystem, flue gas parameters monitoring subsystem, system control and data acquisition and processing subsystem. It can monitor gases such as SO_2, NO_X, O_2, Dust, temperature, pressure, flow rate, humidity etc. It can also be extended for a specific occasion to monitor HCL, HF, CO, CO_2, NH_3, H_2S, CL_2, VOC and other parameters. The measured gas passes through sampling probe for De-dusting, heating tube for sampling, then goes into the gas analysis module (Violet



differential optical absorption - spectroscopy (DOAS) For analysis measurements. It effectively solves the technical problems of dust and moisture interference on measurement, particularly in the case of low concentration measurements with an unparalleled advantage.

PRODUCT INFORMATION

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UT-EX-X (NO_X, SO_2, O_2, CO, CO_2, HCL, H_2O, HF, NH_3, H_2S ANALYZER)

Features

UV-DOAS, TDLAS Principle

Composition with gas sampler and gas conditioner

Quick response time

Especially for stack

Assembled in 19" rack mount

High measurement Accuracy

High reliability

Wide application scope

List	Specification
Principle	UV-DOAS & TDLAS
Response Time	< 40 sec (T90)
Stack gas temp	600°C (Higher temp. Request to be customized)
Accuracy	≤ ± 1% FS
Repeatability	≤ ± 0.5% (UV-DOAS based SO_2, NOX Analyzer) ≤ ± 1% (TDLAS based CO/CO_2 Analyzer)
Zero/Span drift	≤ ± 1% FS/1 Month (UV-DOAS based SO_2, NO_X Analyzer), ≤ ± 1% FS /half year (TDLAS based CO/CO_2 Analyzer)
Maintenance interval	2-3 months, depends on field condition
Calibration interval	6 Month
Sample gas flow	1.5 ± 0.5 L/min.
Sample gas pressure	The current environment pressure ± 0.1 bar
Heat tracing temp.	50°C to 200°C
Ambient temp.	-10°C to +50°C
Analog output	Each channel 4-20 mA, maximum load capacity < 800 Ω
Digital output	14, configurable
Relay output	14 output, configurable, DC, 30V, 2A
Power supply	230/110 VAC, 150 W
Relay input	6, configurable
Communication function	RS232/RS485

Measurement ranges

Parameters	Minimum Range	Maximum Range
SOx	0 - 50ppm	0 - 5000ppm
CO	0 - 50ppm	0 - 100% Vol.
O_2	0 - 1%	0 - 40%
H_2S	0 - 100ppm	0 - 1000ppm
HF	0 - 10ppm	0 - 100ppm
CH_4	0 - 40 ppm	0 - 100% Vol.
C_2H_2	0 - 10 ppm	0 - 100% Vol.

Parameters	Minimum Range	Maximum Range
NOx	0 - 50ppm	0 - 5000ppm
C_4H_4	0 - 60 ppm	0 - 100% Vol.
CO_2	0 - 1%	0 - 100%
H_2O	0 - 200 ppm	0 - 40% Vol.
NH_3	0 - 10 ppm	0 - 500 ppm
HCL	0 - 50ppm	0 - 500 ppm
HCN	0 - 30 ppm	0 - 1 % Vol.

SWAS - CEMS - AAQMS • SHELTERS • ANALYZERS • EQMS • WQMS • CHILLERS
STEAM TRAPS • BALL FLOAT TRAP : PISTON VALVES - STRAINERS : PRDSH

CHILLER

SHELTER

DE GAS

SWAS

FLOWMETER

CONTROL VALVE

SAMPLING SYSTEM

STRAINERS

THERMODYNAMIC TRAP

BALL FLOAT TRAP

PISTON VALVE

WORLDWIDE CUSTOMER BASE

Indonesia	Japan	Malaysia	Philippines	South Korea
Singapore	Thailand	Bangladesh	Nepal	Sri Lanka
Kazakhstan	Russia	Bahrain	Egypt	Iran
Jordan	Kuwait	Oman	Qatar	Saudi Arabia
Turkey	UAE	England	Finland	France
Greece	Hungary	Italy	Spain	Brazil
Chile	Colombia	Ecuador	Algeria	Rwanda
Sudan	Uganda	South Africa	Nigeria	Australia
	Canada	Mexico	USA	

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