



**SWAN TECHNICAL SERVICES PVT. LTD.**

**EXPERT SOLUTIONS**



# Continuous Ambient Air Quality Monitoring System (CAAQMS)

## OUR GLOBAL PARTNERS

**HORIBA**



**fresenius**  
Umwelttechnik

## Overview

On-Line Continuous Ambient Air Monitoring System / Station for the measurement of SO<sub>2</sub>, NO<sub>x</sub>, CO, CO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> etc. in the ambient environment.

### Features:

- Analyzers approved by various International Agencies like US EPA, TUV, EN, and in line with norms as defined by Central Pollution Control Board (CPCB) including online calibration from remotely located servers like CPCB and State PCB servers.
- Uploading of data to CPCB, SPCBs, PCC and company corporate servers.
- Cloud server facility.
- Remote calibration facility.

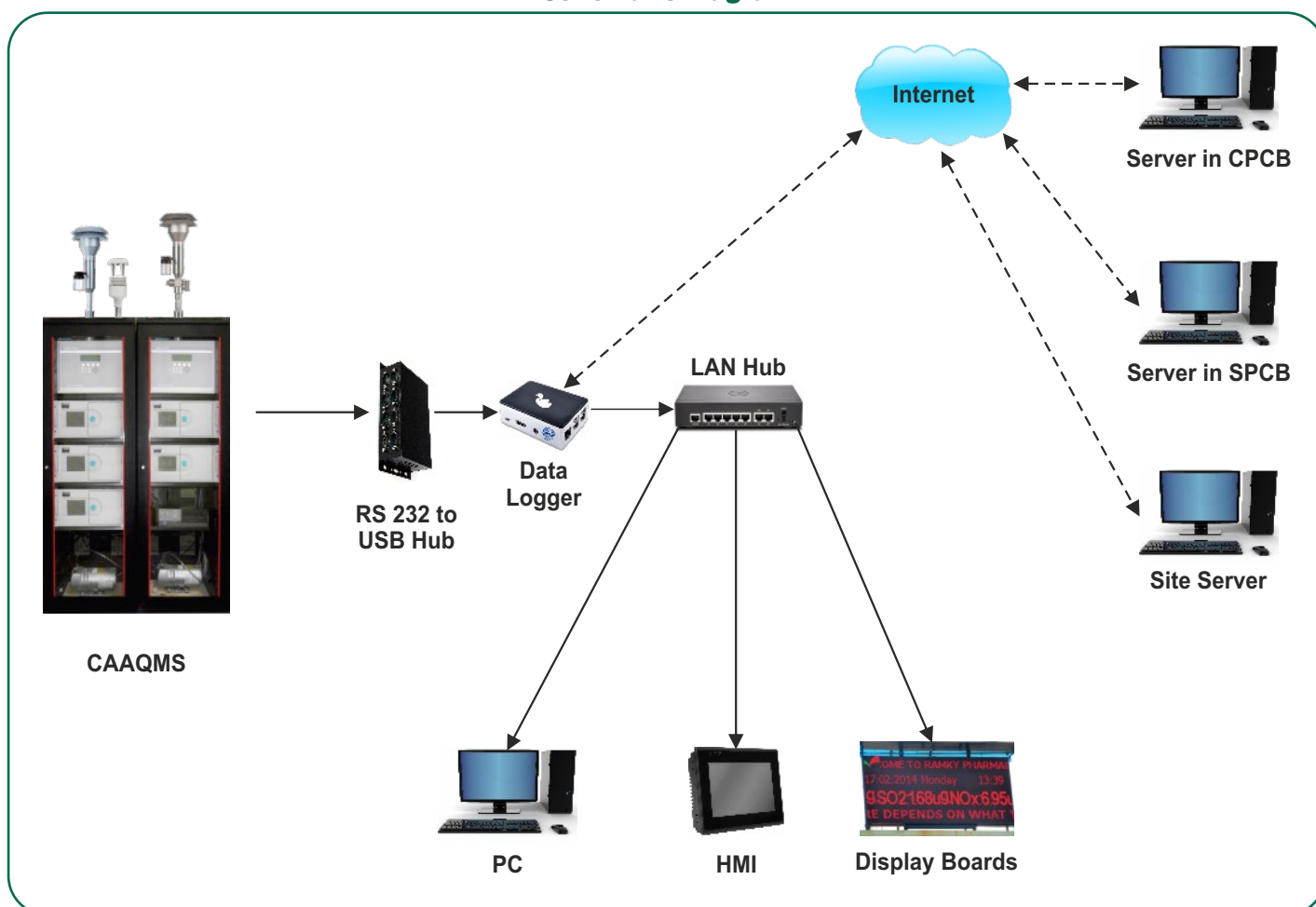
## Turnkey Solutions

- SWAN offers turnkey solutions for CAAQMS that span from design and detailed engineering, system integration, supply to installations, commissioning and uploading of data to PCB and company corporate servers.
- SWAN offers entire range of associated products as part of CAAQMS solution that include prefabricated shelter, UPS, PC, display boards, networking components, Wi-Fi units, gateways, A/D converters etc.
- Requirements are thoroughly studied to identify the items needed and engineering carried out to bring out the most economical and sustaining customized solutions.
- Dedicated trained and experienced service team for after sales support across India.

## Applications

- To meet Central and State PCB regulations
- Applicable to all industries like: cement, steel, pharmaceutical, pulp & paper, tanneries, chemical, power generation, mining, paints, petrochemicals, metallurgical, textile, food processing, distilleries etc

## Schematic Diagram



\* The CAAQMS data can be uploaded to remote servers by broadband (2 MBPS speed) or by GSM/GPRS

## Online Analysers / Instruments

- **PM<sub>10</sub> & PM<sub>2.5</sub> Analysers:** Operates on the principle of Beta Ray Attenuation and measures Particle Mass ranging from 0 to 5 mg/m<sup>3</sup> with Minimum detection limit 1 µg/m<sup>3</sup>. The equipment includes a PM<sub>10</sub> inlet and PM<sub>2.5</sub> WINS Impactor.
- **NO<sub>x</sub> and NH<sub>3</sub> Analyser:** Operates on the principle of Chemiluminescence method, ranging from 0 to 2000µg/m<sup>3</sup> with minimum detection limit 0.5µg/m<sup>3</sup>
- **SO<sub>2</sub> Analyser:** Operates on the principle of UV Fluorescence method, ranging from 0 to 2800 µg/m<sup>3</sup> with minimum detection limit 0.5 µg/m<sup>3</sup>
- **CO Analyser:** Operates on the principle of NDIR method, ranging from 0 to 125mg/m<sup>3</sup> with minimum detection limit 0.03 µg/m<sup>3</sup>
- **O<sub>3</sub> Analyser:** Operates on the principle of UV Photometry method, range : 0 to 2500µg/m<sup>3</sup> with minimum detection limit 0.5 µg/m<sup>3</sup>
- **THC Analyser:** Operates on the principle of Flame Ionization Detector (FID) and Selective Combustion. Measures THC, NMHC & CH<sub>4</sub>. Range 0-5, 0-10, 0-20, 0-50ppm with min. detection limit 0.22ppm.
- **Multigas Calibrator:** Designed to calibrate gas analyzers manually, remotely controlled or automatically, for quality assurance. Multi Calibration upto 20 points.
- **BTEX Analyser:** GC/PID for automatic monitoring of BTEX in air, water and soils. Has minimum detection level as low as 10 ppt for Application Benzene or 1,3-Butadiene in ambient air
- **All In One Weather Monitoring Station:** Ultrasonic Wind Sensor, Barometric Pressure, Temperature, Relative Humidity, Rainfall, Solar Radiation etc.

## Pictures of Online Analysers / Instruments



NO<sub>x</sub> Analyser



SO<sub>x</sub> Analyser



O<sub>3</sub> Analyser



CO Analyser



THC Analyser



PM<sub>10</sub> Analyser



PM<sub>2.5</sub> Analyser



Weather Station



BTEX Analyser



Multi Gas Calibrator



Station & System



### X-Ray Fluorescence Elemental Analyzer

- Based on Energy dispersive X-ray Fluorescence Spectrometry.
- For RoHS, ELV, Halogen-Free Target Applications in Air
- Measurable elements: 13Al - 92U
- Sample types Solid, Liquid, Powder
- With SDD (Silicon Drift Detector) and Signal processor DPP (Digital Pulse Processor)
- Sample imaging by CCD camera



### Continuous Mercury Analyser

- Supersensitive Mercury Analyser for the continuous Measurement of mercury in gas and water.
- Single-beam photometer
- No adjustment required
- Highly Sensitive
- No calibration, no zero
- Fully digitally controlled
- Measuring ranges: Selectable measuring ranges. Gas: 0–1/10/100/1000  $\mu\text{g}/\text{Nm}^3$ . Water: 0–10  $\mu\text{g Hg}/\text{l}$ , 0–30 mg Hg/l
- Sample connection: 1/4 inch-6/4 mm PFA hose
- Alarm signal: adjustable 4x potential-free changeover contact



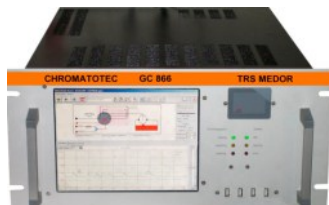
### Continuous H<sub>2</sub>S, Cl<sub>2</sub> Monitor

- Efficient online measurement
- NDIR: Single-Beam Principle, Cuvette Heated to 60 °C
- Uses Electrochemical reaction Procedure
- Automatic zero adjustment
- Cross-sensitivity compensation
- Wall-mounted housing: IP 54, W 315 x H 300 x D 125 mm
- Measuring ranges: H<sub>2</sub>S = 0-2000 ppm, Cl<sub>2</sub> = 0-250ppm
- Sensitivity: H<sub>2</sub>S = 1 ppm, Cl<sub>2</sub> = 1 ppm
- Built-in sample gas pump



### Odorous Sulfur Compounds Monitor (Ambient Air)

- TRSMEDOR is a gas Chromatograph for Sulfur Compounds.
- Measures H<sub>2</sub>S, Mercaptans, Sulfides and Disulfides present in different matrices
- Specific wet cell detector
- Detection Limit: 1 ppb
- SO<sub>2</sub> as option
- ISO 6326/2 / DIN 51855/7
- Mercaptans / Sulfides: option 0.01 / 5 ppb
- PID detector as option for odour application



### Continuous Mercury Monitor

- It is designed for continuous mercury measurements in ambient air, indoor air and in natural gas for permanent unattended installation.
- Ultra-sensitive measurements of background Mercury (Hg) concentrations.
- Compliant with European standard EN 15852 for ambient air monitoring.
- Requires no argon cylinders for operation and no consumables.
- The remote data transfer makes it possible to connect the monitor to data collection systems via RS232, Modbus, and analogue output.
- Low detection limit and wide range of measurement
- Stable calibration
- Automatic zero drift and span drift correction
- Automatic recalculation to standard conditions
- Auto control and preventive maintenance functions



### Continuous Photoacoustic HCl, HF Analyser

- Has Sub-ppm to Sub-ppb detection limits
- Response time from 5 seconds to few minutes
- High dynamic range and stable operation
- No consumables
- Low sample volume (few ml)
- Built-in gas exchange system
- Long re-calibration interval
- User configurable monitoring tasks
- Intuitive user interface
- Built-in display numerical and graphical results.
- Remote operation via tablet, smartphone
- Optional gases : Anesthetics, CFCs & PFCs, Corrosives (at low levels), Hydrocarbons, Inorganics and VOCs.



### Continuous Black Carbon Analyser

- Measures black carbon through optical attenuation and absorption principles in both the infrared and ultraviolet spectral regions. (at 10 different wavelengths simultaneously)
- Offers improved traceability compared to traditional filter-based optical techniques through its unique factory calibration process and through the incorporation of standard EPA-style sampling inlets.
- Simple, reliable, cost effective and produces defensible BC (Black Carbon) data with high time resolution.



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