

PM 2.5

PM 10



NO₂

SO₂

BREATHER
Know What You Breathe In

**MOBILE
AIR
QUALITY
MONITORING
SYSTEM**

C₆H₆

H₂S

CO

CH₄



MONITOR

ANYTIME

ANYWHERE



Go mobile and check the station's data on-the-go (internet connection required)



Check real-time data of the mobile station at the office thru web (internet connection required)

3G/4G or Satellite Comm. for internet connectivity



Data Acquisition System
(datalogger integrated in the mobile AQMS that store and gather data from the installed sensor and analyzer)



Mobile Air Quality Monitoring System
Field Deployment



We integrate and test the modules and environmental sensors at our office and deliver the fully integrated system to you for commissioning and end-user training.

Choose the parameters you wish to measure.

Modular design makes any parameter combination possible.

Can be upgraded to add more parameters in the future.

Monitor ANYTIME - ANYWHERE.



Meteorological Sensors

*Wind Speed
Wind Direction
Relative Humidity
Ambient Temperature
Solar Radiation
Rainfall*

Analyzers

*PM 2.5
PM 10
H₂S
SO₂
CO
NO
NO₂
CH₄
NO_x
O₃
TNMHC
Benzene
Black Carbon*



Don't just measure...

KNOW WHERE the DATA

is coming FROM

CORRELATE THE DATA WITH METEOROLOGICAL SENSOR PARAMETERS

"in what direction was the wind blowing from, when there was a high gas concentration measured?"

"what are the emission sources found in that direction?"



**Solve the
RIGHT
problem**

**Know the
TRUE
source**

POLLUTANTS WHERE does IT come FROM ?

Particulate Matter

Prolonged exposure will lead to serious respiratory problem



HOW ?

can we
MEASURE

Sulfur Dioxide

Precursor to Acid Rain



Hydrogen Sulfide

Exposure to high levels will result to death



Carbon Monoxide

Reduce oxygen-carrying capacity of blood



Nitrogen Dioxide

Increases the risk of acquiring lung infection



Nitrogen Oxide

Respiratory Problem such as airway inflammation



Ozone

Main component of SMOG



Synspec b.v.



TELEDYNE API
Everywhere you look™

TECHNICAL SPECIFICATIONS

Dimension (HxWxD):	140 x 25.7 x 46.8 inches
Power Requirements:	4.9A, 220 V/AC, 1127W

SYSTEM COMPONENTS:

1. EnviDAS (Data Acquisition System)

- Runs in 32/64bit Windows Operating System.
- Microsoft SQL Server Express (Local Database)
- Standard 32 Channel license (can be upgrade to have more)
- 10 years data storage; 240GB SSD (expandable)
- Dashboard Display (real-time data viewing)
- Data Import/Export
- Telemetry (LTE, UMTS, Satellite)
- Automated Email reporting via Envista ARM Server.
- Open system architecture
- Open stock hardware

HOW
can we
MEASURE

2. Particulate Analyzer

The Model T640 PM mass monitor for ambient particulate monitoring. Delivering continuous, real-time PM mass measurements using innovative broadband spectroscopy, the T640 comes with high resolution, fast response, low power, and effortless operation.

- Measurement Principle: Broadband spectroscopy using 90° white-light scattering with Polychromatic LED
- Particle size resolution: 256 sizes over 0.18 - 20µm range, combined to 64 channels for mass calculation
- PM Mass Measurements: PM10, PM2.5, and PM10-2.5 simultaneously
- PM Mass Resolution Measurement Range: 0.1 - 10,000 µg/m³
- Mass Measurement & Display Resolution: 0.1 µg/m³ Precision ±0.5 µg/m³ (1-hr average)
- Lower Detectable Limit: <0.1 ug/m³ (1-hr average)
- Data Rate: 10s to 48hr (user selectable)
- Mass Concentration Accuracy: Exceeds US EPA PM10 FEM and Class III FEM PM2.5 performance requirements for additive and multiplicative bias compared to FRM samplers
- Flow Rate: 5.0-lpm sample flow (Standard model); 11.67-lpm optional bypass flow (with option 640x)
- Flow Accuracy: Within ±1%; (Typically within ±0.5%)
- Operating Temperature: 0 - 50°C, non-condensing
- Ambient Temperature: -40 - 60°C
- Ambient Relative Humidity: 0 - 100%
- Sample Humidity Control: 24VDC, 90W (max) heater controlled to 35% RH Weatherproof enclosure required with 0 - 50°C, non-condensing environmental control
- Requires only 10-min warm-up time.
- Electrical: 100 - 230VAC 50/60Hz, Power consumption < 120W @ 120VAC External pump 100 - 120VAC 60Hz or 220-240VAC 50/60Hz, Power (for optional bypass flow - option 640x) consumption <360W @ 120VAC
- Unit dimensions (HxWxD): 7" x 17" x 14" (17.8 x 43.2 x 35.6 cm)
- Unit weight: 19 lbs (8.6 kg)
- Sample heater tube height: 43" (109 cm)
- Sample heater tube weight: 6 lbs (2.7 kg)
- Certifications: US EPA PM2.5 Federal Equivalent Method EQPM-0516-236, US EPA PM2.5 Federal Equivalent Method EQPM-0516-238*, US EPA PM10 Federal Equivalent Method EQPM-0516-239*, US EPA PM10-2.5 Federal Equivalent Method EQPM-0516-240* (*with T640x option).



TECHNICAL SPECIFICATIONS

SYSTEM COMPONENTS:

3. NO/NO₂/NO_x Analyzer (Photolytic)

T200 Chemiluminescence analyzer combined with a patented high efficiency Blue Light Converter (BLC). The BLC, also known as photolytic converter, provides a very specific conversion of NO₂ with conversion efficiency similar to molybdenum.

- Ranges Min: 0 - 50 ppb full scale for NO and NO₂; Max: 0 - 4,000 ppb full scale for NO₂; 0-20,000 ppb full scale for NO (selectable, dual-range supported)
- Measurement Units ppb, ppm, µg/m³, mg/m³ (selectable)
- Lower Detectable Limit 0.4 ppb
- Linearity 1% of full scale
- Precision 0.5% of reading above 50 ppb



4. Ozone Analyzer

Model 430 Compact O₃ Analyzer. The Model 430 uses the proven UV Absorption principle, producing accurate and stable O₃ measurements. The robust design and low power consumption make it ideal for monitoring applications that require long autonomy periods such as rural and remote monitoring, saturation studies, and atmospheric research. The small footprint and quiet operation make it extremely useful for indoor air quality, surveying, and industrial hygiene applications.

- Ranges: 0 - 100 ppb (min), 0 - 20,000 ppb (max) (user-selectable)
- Measurement Units: ppb, ppm (user-selectable)
- Lower Detectable Limit: < 2 ppb
- Zero Drift: < 1 ppb/24 hours
- Span Drift: < 1% full-scale/24 hours
- Linearity: 1% full-scale
- Precision: < 0.5 ppb or 0.5% of reading above 100 ppb
- Typical Power Consumption: 12VDC, 9W
- Dimensions: H x W x D 4.2" x 7.1" x 10.2" (107 x 180 x 259 mm)
- Weight: 5.2 lbs (2.4 kg)
- Operating Temperature Range: 5 - 40°C (with US EPA approval)
- Humidity Range: 0 - 95% RH non-condensing
- Certifications: US EPA Federal Equivalent Method EQOA-1015-229



5. Black Carbon Analyzer

- **MEASUREMENT PRINCIPLE:** Continuous collection of aerosols on filter with simultaneous measurement of attenuation of transmitted light at wavelengths of 370, 470, 520, 590, 660, 880 and 950 nm. Black Carbon concentration measurement is defined by the absorption measurement at 880 nm. Multiple wavelength analysis for source apportionment (identification of biomass smoke), studies of aerosol light absorption, radiative transfer, atmospheric optics. High data rate capability for source and emissions testing.

- **DUALSPOT TECHNOLOGY:** Simultaneous analysis of light absorption by aerosol deposits collected on 2 spots in parallel at different loading rates*. Mathematical combination of data yields Black Carbon result independent of "spot loading effects" and provides additional information about aerosol composition.

*United States Patent 8,411,272, United States Patent 9,018,583, other patents pending

- **SOURCE APPORTIONMENT:** Discrimination of Black Carbon from fossil fuel versus biomass combustion possible with built-in analysis by a two-component model.

TECHNICAL SPECIFICATIONS

SYSTEM COMPONENTS:

5. Black Carbon Analyzer

- SENSITIVITY: Proportional to time-base and sample flow rate settings: approximately $0.03 \mu\text{g}/\text{m}^3$ @ 1 min, 5 LPM.
- DETECTION: Detection Limit (1 hour): $<0.005 \mu\text{g}/\text{m}^3$ Range: <0.01 to $>100 \mu\text{g}/\text{m}^3$ Black Carbon Resolution: $0.001 \mu\text{g}/\text{m}^3$ or $1 \text{ ng}/\text{m}^3$ (user-definable display units)
- PHYSICAL SPECIFICATIONS ● Dimensions (HxWxD): $28 \times 43 \times 33 \text{ cm}$ ● Weight: 21 kg ● Electrical Power supply: 100-230VAC, 50/60Hz (auto-switching) ● Power consumption: 25 W average ● Internal Vacuum Pump: dual diaphragm, brushless motor ● Modular hardware, constructed in a fully-enclosed 19" rack mount 6U chassis, hermetically sealed.

6. Meteorological Sensors

Wind Speed (Ultrasonic Type)

- Range: 0-75 m/s
- Accuracy: $\pm 0.20 \text{ m/s}$ or 2% ($0 \pm 35 \text{ m/s}$), 3% $> 35 \text{ m/s}$

Wind Direction (Ultrasonic Type)

- Range: 0-359.9°
- Accuracy: $\pm 2\%$ $> 1 \text{ m/s}$

Barometric Pressure

- Range: 600 to 1100 mbar
- Accuracy: $\pm 0.35 \text{ mbar}$ @ 25°C , $\pm 0.75 \text{ mbar}$ @ 0 to 55°C , $\pm 1.5 \text{ mbar}$ @ -40°C

Ambient Temperature

- Range: -30° to 60°C
- Accuracy: $\pm 0.1^\circ\text{C}$

Relative Humidity

- Range: -30° to 60°C
- Accuracy: $\pm 0.1^\circ\text{C}$

Optional Sensors:

Rainfall

- Resolution: 0.2mm
- Accuracy: $\pm 0.5\%$ at 0.5 in/hr, $\pm 1\%$ at 1-3 in/hr

Sound Meter

- Range: 41dBA - 101 dBA

7. Cooling System

Air-conditioning Unit: $\frac{1}{4}$ Horse Power (at the base/bottom of the system)





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