

# CAPS Nitrogen Dioxide Analyzer

AIR QUALITY MONITORING SYSTEMS



## SPECIFIC FEATURES:

- Precise, fast response, high sensitivity and stability allowing true measurement of NO<sub>2</sub> concentrations with selectable display in ppb or µg/m<sup>3</sup>
- Visible (450 nm) absorption measurement using patented Cavity Attenuated Phase Shift (CAPS) technology
- Direct measurement of the sample - no chemical conversion required, no Toxic Gas Emissions
- Virtually interference-free, insensitive to high fluctuations of nitric oxide, aerosols, humidity and other trace atmospheric species
- Large, brilliant and long-life color touchscreen graphic display with power saving mode
- Extremely compact, easy to use with minimal maintenance
- Built-in USB port, serial interface (RS 232 / RS 422) and TCP-IP connection
- Real-time calibration graph, animated synoptic, control and maintenance data screens can be displayed while the instrument is operating
- Ultra low power consumption: an environmentally-friendly and cost-saving analyzer
- SmartStatusLight™ power button on the front panel indicating status of operation (ON/OFF, Alarm, Maintenance required...)
- Includes embedded Communication Protocol for XR® Management with automatic recognition & configuration
- Optional: 24V power supply and enhanced temperature range for mobile AQMS laboratories or solar powered air quality monitoring stations



ENVEA Connect™  
Free Apps  
iOS / Android



Adopt the no-screen version and avoid the pollution related to the screen manufacturing and recycling cycle. The analyzer is connected with your device (computer, tablet or smart-phone). Simultaneous multi-screen remote access via Wifi or Lan using the dedicated application ENVEA Connect™ for control, diagnosis, software update...

## MAIN APPLICATIONS:

- > Continuous indoor and outdoor air quality monitoring
- > Stationary and mobile AQMS laboratories
- > Medical gases: fail-safes and quality control
- > Leakage detection in industrial applications
- > Background, rural, urban or sub-urban, industrial, traffic, roadside and canyon street studies

## COMPLIANCE WITH:

2008/50/EC, EN14211:2012, EN15267-1:2009  
EN15267-2:2009, 40 CFR PART 53 & 40 CFR PART 58



QAL 1 CERTIFIED  
N° 0000038507



U.S. EPA APPROVAL  
EQNA-1013-210

# AS32M CAPS Nitrogen Dioxide Analyzer NO<sub>2</sub> monitor

## PRINCIPLE OF OPERATION:

The Cavity Attenuated Phase Shift nitrogen dioxide monitor operates as an optical absorption spectrometer, utilizing a blue light-emitting diode (LED) as a light source, a sample cell incorporating two high reflectivity mirrors centered at 450 nm and a vacuum phototube detector. Its efficiency is based on the fact that nitrogen dioxide (NO<sub>2</sub>) is a broadband absorber of light in the visible region of the spectrum.

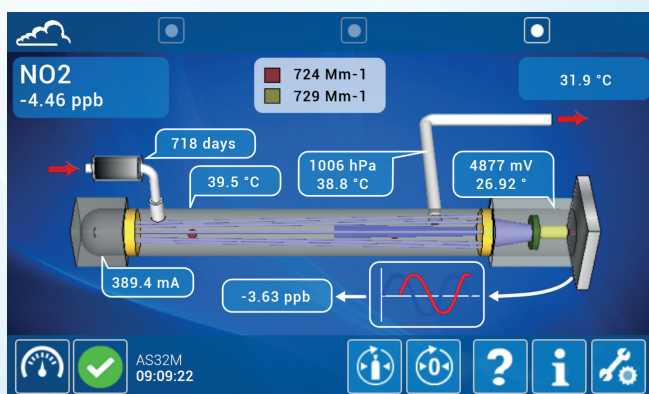
The configuration of the monitor is smartly optimized and is shown below in the schematic. The air sample enters the monitor and passes through a dryer to remove water interference then through a disposable filter cartridge which removes all particles to avoid interference due to fine particles and to prevent contamination of the mirror. The sample then proceeds through PFA tubing into a stainless steel cell at one end and out the other through tubing where it is directed to a diaphragm pump.

The high reflectivity mirrors are located to the ends of the sample cell, forming the optical cavity which provides the concentration measurement. The LED, filter and lenses are placed in the sample cell. The light emanating from the cell is directed into a vacuum phototube where the resultant signal is integrated, digitized and sent to the internal computer where all subsequent data processing takes place. The sample cell contains both pressure and temperature sensors which allow for both accurate correction of the nitrogen dioxide absorption coefficient and baseline subtraction. The pressure reading is also used to check on the proper operation of the particle filter.

## TECHNICAL SPECIFICATIONS

Measurement Range	0-1 ppm
Detection limit (2s)	0.1 ppb
Linearity	1 % of Full Scale
Zero drift	0.2 ppb/24h
Span drift	1.5 ppb or 0.5 % of reading / 24h whichever is greater
Response time	16 sec or automatic (programmable)
Difference between rise time and fall time	<1 s
Sample flow rate	1 L/min
Weight	12.5 Kg
Temperature influence	0.2 ppb/K
Operating temperature	+10°C to +35°C
Power consumption 220 V (or optional 24 V power supply)	225 W/h (36 W/h with optional 24 V PS)
Data storage	1 year
Ethernet network connection (RJ45)	
Built-in web-server with full remote emulation of the analyzer	

### AS32M Operating Principle



### MAIN OPTIONS:

- ESTEL electronic board (1 or 2) with:
  - 4 independent analog inputs
  - 4 independent analog outputs
  - 4 remote control inputs
  - 6 dry contacts outputs
- RS232 or RS422 serial interface
- Built-in permeation bench with NO<sub>2</sub> tube
- Electro-valves block for selection of external zero and span gas
- 24V power supply & enhanced T° range for utilization without air conditioner

