



Model GEO-AQMS-4000/PM Air Quality Multi-Sensor for Measuring Pollution Gases and Particles



Features

- Measures 4 pollutant gases. Available gases: NO₂, NO, CO, O₃, SO₂, and H₂S
- Intelligent algorithms that compensate for environmental conditions and for the aging of the sensor element
- Compact design; easy to deploy in the field
- Low power consumption (typically 0.5 W)
- Direct connection to **METEODATA** datalogger
- RS-232 and RS-485 interfaces for local connectivity (such as Modbus support)

Air Quality Multi-Sensor GEO-AQMS-4000/PM measures the pollution content of ambient air. The series consists of two products, GEO-AQMS-4000 & GEO-AQMS-4000PM.

Applications

- Urban air quality networks
- Industrial emission monitoring
- Safety monitoring
- Roadside monitoring
- Building automation
- Air quality research

- NO₂, CO, O₃ and NO
- NO₂, CO, O₃ and SO₂
- NO₂, CO, H₂S and SO₂

These can be complemented with PM_{2.5} and PM₁₀ measurements by selecting the GEO-AQMS-4000PM version.

The measurement performance of GEO-AQMS-4000/PM is based on proprietary advanced algorithms that enable parts per billion (ppb) measurements at an affordable price by using electrochemical sensors. The algorithms compensate for the impact of ambient conditions and aging on the sensor elements and remove the need for costly gas sampling and maintenance equipment. The algorithms compensate for the impact of ambient conditions and aging on the sensor elements and remove the need for costly gas sampling and maintenance equipment.

Easy to Deploy in Networks

GEO-AQMS-4000/PM is specifically designed for air quality monitoring networks in urban areas, road networks, or around industrial sites and transportation hubs. Thanks to its small weight and compact size, it is ideally suited for deployment even in large air quality networks.

Depending on local conditions, GEO-AQMS-4000/PM devices have a maintenance and calibration interval of 12 ... 24 months.



New Value in Air Quality Measurements

GEO-AQMS-4000/PM revolutionizes air quality measurements. It offers totally new value for money by measuring up to 6 most important pollutants in one compact package.

The GEO-AQMS-4000/PM comes in 2 versions: GEO-AQMS-4000 for gases only and GEO-AQMS-4000PM for gases and particles. GEO-AQMS-4000 is available in 3 different gas configurations:



Technical Data

Gas Measurement Performance

Gas	Range	Detection Limit	Accuracy in Field Conditions ¹⁾
NO ₂	2000 ppb	5 ppb	±25 ppb
NO	2000 ppb	5 ppb	±25 ppb
O ₃	2000 ppb	5 ppb	±60 ppb
CO	10 000 ppb	10 ppb	±200 ppb
SO ₂	2000 ppb	5 ppb	±50 ppb
H ₂ S	2000 ppb	5 ppb	±50 ppb

1) 90 % confidence interval in comparing with reference instrument, includes T and %RH dependence in typical field conditions and sensor drift during calibration interval. Electrochemical cell replacement interval 12–24 months, depending on local conditions.

Particle Measurement Performance

Particle counter channels	PM _{2.5} and PM ₁₀
Particle diameter range	0.6 ... 10 µm (spherical equivalent)
Sampling time	60 s
Sampling interval	10 min
Sample flow rate	0.9 SLM
Measurement range	PM _{2.5} : 0 ... 2000 µg/m ³ PM ₁₀ : 0 ... 5000 µg/m ³
Measurement resolution	0.1 µg/m ³

Humidity, Temperature and Pressure Measurement Performance

Humidity accuracy	0 ... 90 %RH: ±5 %RH 90 ... 100 %RH: ±8 %RH
Humidity resolution	0.1 %RH
Temperature accuracy for sensor element at +20 °C (+68 °F)	±0.3 °C (0.17 °F)
Temperature resolution	0.1 °C
Pressure accuracy	±10 hPa
Pressure resolution	1 hPa

Ambient condition measurements indicative primarily for compensation purposes

Operating Environment

Operating temperature	-30 ... +40 °C (-22 ... +104 °F) Limited performance: -40 ... +50 °C (-40 ... +122 °F)
Operating humidity	15 ... 95 %RH, non-condensing
Operating pressure	800 ... 1200 hPa
EMC compliance	EN/IEC 61326-1 EN 55032 Class B
IP rating	IP65

Inputs and Outputs

Operating voltage	8 ... 30 VDC
Power consumption	GEO-AQMS-4000PM: • Typical: 0.7 W • Maximum: 2 W GEO-AQMS-4000: • Typical: 0.5 W • Maximum: 1 W

Data Connection Specifications

Data protocols	Modbus ASCII Modbus RTU ASCII CSV
Serial data interface	RS-485
Maintenance interface	RS-232

Mechanical Specifications

Dimensions (H × Ø)	GEO-AQMS-4000PM: 208 × 132 mm GEO-AQMS-4000: 128 × 132 mm
Weight	GEO-AQMS-4000PM: 1.25 kg GEO-AQMS-4000: 0.7 kg
Material, base module	Anodized aluminum
Material, radiation shield	Polycarbonate (PC)
Color, radiation shield	White (RAL9003)
Power and data connector	Standard 8-pin M12 male



METEODATA

Datalogger with integrated comms
(3G / GPRS, Line, Radio or Satellite)