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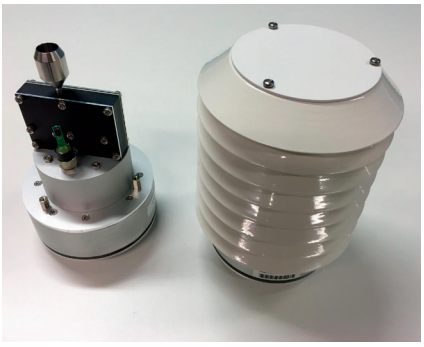
Vaisala Air Quality Transmitter AQT400 Series for Measuring Pollution Gases and Particles

Applications

- Urban air quality networks
- Industrial emission monitoring
- Safety monitoring
- Roadside and tunnel monitoring
- Mobile measurement
- Building automation
- Air quality research

Features

- Measures four most common urban air pollutants NO_2, SO_2, CO and O_3
- Intelligent algorithms that compensate for aging and environmental conditions
- Compact design, easy to deploy in the field
- Low power consumption (typically 0.5W)
- Wireless Internet connection with Multi-Observation Gateway
- RS232 and RS485 interfaces for local connectivity (eg. Modbus support)
- Easy integration and open API



New Value in Air Quality Measurements

Vaisala Air Quality Transmitter AQT400 Series revolutionizes air quality measurements. It offers totally new value for money by providing a near reference measurement performance. AQT410 measures the most common gaseous pollutants nitrogen dioxide (NO_2), sulphur dioxide (SO_2), carbon monoxide (CO) and ozone (O_3) with default configuration. AQT420 measures all this plus Particulate Matter ($PM_{2.5}$ and PM_{10}) in the ambient air. The AQT400 Series measurement performance is based on proprietary advanced algorithms that enable ppb measurements at an affordable price using electrochemical sensors. The algorithms compensate the impact of ambient conditions and aging on the sensor elements and remove the need for costly gas sampling and conditioning equipment.

Easy to Deploy in Networks

AQT400 Series has been 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. The measurement data is sent wirelessly to a web-based database with GSM Gateway or is available locally via a serial interface. Depending on local conditions the AQT400 Series device has a maintenance and calibration interval of 12-24 months.

Technical Data

General

Data protocols	Modbus, ASCII
Serial data interface	RS-485
Console interface	RS-232
Power and data connector	Standard 8-pin M12 male
Operating voltage	8 – 30 VDC
Power consumption	Typ. 0.5 W, max. 2 W
Protection class	IP65
Enclosure materials	Anodized aluminium, stainless steel
Dimensions	AQT410 125(w) x 125(h) x 128(d) mm
	AQT420 128(w) x 185(h) x 128(d) mm
Weight	AQT410 690 g
	AQT420 1250 g

Conformity

EMC	IEC/EN 61326-1,
	IEC/EN61000-4-2/3/4/5/6, CISPR 22

Ordering Information

Base Unit	AQT410 / AQT420
Accessories	Calibration certificate
included	and user manual
Options	SO_2 sensor
	NO_2 sensor
	CO sensor
	O_3 sensor
	Mounting kit
	Installation cable (3.5 m)
	Installation cable (5 m)
	Installation cable (10 m)
	PC connection cable

Operation Specifications

Temperature range	-40 – 85 °C
Temperature resolution	0.1 °C
Temperature accuracy (for sensor element)	
at +20 °C (+68 °F)	±0.3 °C (0.17 °F)
Humidity range	0-100 %RH (non-condensing)
Humidity resolution	0.1 %RH
Humidity accuracy (for sensor element)	±3 %RH at 0 ... 90 %RH
	±5 %RH at 90 ... 100 %RH

Air Quality Measurement Specifications

Temperature range	-30 – 50 °C
Humidity range	15-95 %RH (non-condensing)
Factory calibration	12-24 months dependent of local conditions

Gas Measurement Specifications

GAS	RANGE	MIN. DETECTION	RESOLUTION	PRECISION	LINEARITY	UNIT
SO_2	0 – 2	0.005	±0.001	<±1 % FS	<±1 % FS	ppm
NO_2	0 – 2	0.005	±0.001	<±1 % FS	<±1 % FS	ppm
CO	0 – 10	0.01	±0.01	<±2 % FS	<±2 % FS	ppm
O_3	0 – 2	0.005	±0.01	<±3 % FS	<±2 % FS	ppm

Particle Measurement Specifications

Particle counter channels	PM2.5 and PM10
Particle range	0.3 – 20 µm (spherical equivalent)
Response time	<60 s
Sampling interval	1 – 1440 minutes
Sample flow rate	0.5 SLM (integrated vacuum pump)
Units	µg/m³
Measurement range for $PM_{2.5}$	0 – 2000 µg/m³
Measurement range for PM_{10}	0 – 5000 µg/m³
Measurement resolution	0.1 µg/m³

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