SAQ-Series

Outdoor Air Quality Monitoring Device

- Multi-sensing solution

- ✓ Multi-Sensor (PM2.5, tVoC, Temp/RH, CO, NO2 …)
- ✓ Smart Device Management (Real-time data, Power management…)
- ✓ Optional Accessory (Solar solution, Wind speed & direction, Air sampling canister …)

Features

- Capable of monitoring extremely low concentrations of PM2.5 (ppb-levels at most)
- LTE compliant
- Integrated with calibrated and compensated multi-sensing solution, such as CO, NO_2, O_3, SO_2, NH_3, PM2.5, TVOC and Temp/RH.
- AC power-in, 100~240VAC
- Robust shell suits for outdoor usage

SAQ-series is designed to measure air quality at very low concentration of carbon monoxide, nitrogen dioxide, Ozone , Ammonia, Sulfur Dioxide, PM2.5, TVOC, temperature and relative humidity by LTE connectivity. It is integrated wireless technology, sensor knowhow and high-performance MCU solution for various IoT markets usage. With calibrated and compensated multi-sensing solution integration, the data is ready for use. It is perfect for monitoring outdoor air quality anywhere.

RF Specifications

Model name	**SAQ-Series**		
Wireless	**LTE**		
Standard/ Protocol	Up to non-CA CAT1 with 1.4 to 20 MHz RF bandwidth		
Frequency	**FDD-LTE**	**WCDMA**	**GSM**
	B1/B3/B7/B8/B20/B28A	B1/ B8	B3/ B8
Sensitivity	B1: -101.5dBm (10M) B3: -101.5dBm (10M) B7: -99.5dBm (10M) B8: -101dBm (10M) B20: -102.5dBm (10M) B28: -102dBm (10M)	B1: -110dBm B8: -110.5dBm	-109dBm
Data rate	Max 10 Mbps(DL) Max 5 Mbps (UL)	Max 384 Kbps (DL) Max 384 Kbps (UL)	Max 107 Kbps (DL) Max 85.6 Kbps (UL)

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Sensor Specifications

Sensor Operation	Principle	Range	Response time	Accuracy(at 25℃)	Repeatability	Long Term Output Drift	Resolution
PM2.5	OPC	0~1000 μg/m³	< 10 sec	±10 μg/m³ / ±10%	-	-	1 μg/ m³
tVOC	CMOS	0~60000ppb	-	-	-		
Temp. / RH	Band gap sensor/ Capacitive measurement	Temp: -40~+125℃ Humidity: 0~100 %RH	Temp: > 2sec. at τ63% Humidity:<8sec.at τ63%	Temperature: ±1℃ Humidity: ±5%RH	Temp:±0.24℃ Humidity:±0.25%RH	Temp: < 0.03℃/yr Humidity:<0.25%RH/yr	Temp:0.01℃ Humidity:0.01%RH

Optional Gas Sensor

Sensor Operation	Principle	Range	Response time	Accuracy(at 25℃)	Repeatability	Long Term Output Drift	Resolution
Carbon Monoxide (CO)	Electrochemical	0~20 ppm	< 30 sec. at τ90	±0.1 ppm in 7 ppm	< ±5% CO equivalent	±0.1 ppm/yr (zero drift)	0.01 ppm
Nitrogen Dioxide (NO_2)	Electrochemical	0~2 ppm	< 80 sec. at τ90	±10 ppb in 100 ppb	< ±5% NO_2 equivalent	±20 ppb/yr (zero drift)	0.01 ppb
Ozone (O_3)	Electrochemical	0~1.5 ppm	< 80 sec. at τ90	±10 ppb in 100 ppb	< ±5% O_3 equivalent	±20 ppb/yr (zero drift)	0.01 ppb
Ammonia(NH_3)	Electrochemical	0~8 ppm	< 40 sec. at τ90	±0.5 ppm in 5 ppm	< ±5% NH_3 equivalent	< 20% /yr	0.01 ppb
Sulfur Dioxide(SO_2)	Electrochemical	0~1 ppm	< 60 sec. at τ90	±15 ppb in 100 ppb	< ±5% SO_2 equivalent	±20 ppb/yr (zero drift)	0.01 ppb
Hydrogen Sulfide($H2_S$)	Electrochemical	0~7 ppm	< 60 sec. at τ90	±0.05 ppm in 5ppm	< ±5% H_2S equivalent	±0.1ppm/yr (zero drift)	0.01 ppb

EnSense

Operational Specifications

System Operation	
Operating Temperature	-10~+55 ℃
Operating Humidity	15~85%RH, Non-condensing
Storage temperature	-40 ~ 85℃.
Warm-up time	≤ 1 min. (at full specs ≤ 15 minutes)
Power supply	AC power-in, 110V or 220V
Power consumption	3.5 W
Installation	wall-mount and pole-mount
Dimension (cm)	30(L) x 27(W) x 18(H)
Weight (kg)	3kg

Optional information

- **Solar Specifications**

Solar Panel		Battery	
Output Power	30 W	**Number of cells**	16 cell (2S8P)
Max power voltage	17.3V	**Battery Max Voltage**	8.4 V
Max power current	1.78A	**Standard Discharge Capacity**	26.4 AH
Dimensions	345 x380 x35 mm	**Increment Type(External Battery Box)**	
Weight	3kg	**Number of cells**	32 cell (2S16P)
		Battery Max Voltage	8.4 V
		Standard Discharge Capacity	52.8 AH

- **Wind Speed & Direction**

DAVIS	Range	Accuracy
Speed	0 to 200 mph	±2 mph or ±5%
Direction	360°	±3°