

Indoor Air Quality sensor Temperature / Humidity / CO₂ / PM2.5 / PM10 / TVOC

EXT-KA-SE100 provides real-time accurate measurements of IAQ to allow for increased credit from building certification (e.g. LEED, WELL, RESET). IAQ sensor comes with multiple power, connectivity, and installation options. EXT-KA-SE100 is equipped with 7" full colour touchscreen display for real-time monitoring.



Technical data

Electrical data		
	Nominal voltage	USB-C (5V 1.8A DC)
	Connection Ethernet	IEEE 802.3 (Data rate: Up to 100 Mbps)
	Connection wireless	2.4 GHz 802.11 b/g/n; security standards supported: 64/128 WEP, WPA-PSK, WPA2-PSK, WPA, WPA2 Personal
	Battery operation	Capacity and voltage: 5200 mAh @ 4.2 V
Data bus communication		
	Communication	Modbus TCP BACnet/IP Local and cloud MQTT Open API Cloud
Functional data		
	Application	Air
	Coverage area	Area: 325 m ² [3500 ft ²] Space types and layouts should be considered in accordance with project requirements.
	Display	7" Touchscreen full colour Available display languages German, English, Chinese
Measuring data		
	Measured values	CO ₂ TVOC PM2.5, PM10 Relative humidity Temperature
Specification PM2.5 PM10		
	Sensing element technology	Laser particle sensor (light scattering)
	Measuring range	Mass concentration range: 0...1000 µg/m ³
	Accuracy	±3 µg/m ³ (0...30 µg/m ³) PM2.5: ±10% of measured value (30...1000 µg/m ³) PM10: ±15% of measured value (30...1000 µg/m ³)
	Typical response time	≤10 s
	Sensor output resolution	1 µg/m ³
Specification CO ₂		
	Sensing element technology	Non-dispersive infrared (NDIR) ABC logic
	Measuring range	400...2000 ppm Up to 10000 ppm extended range
	Accuracy	±3% of measured value ±40 ppm
	Accuracy note	Comply with ANSI/ASHRAE Standard 62.1-2022 at 25°C.

Technical data

Specification CO₂	Typical response time	<120 s (T90)
	Sensor output resolution	1 ppm
Specification TVOC	Sensing element technology	Multi-pixel metal oxide sensor (MOx)
	Measuring range	0...60000 ppb
	Accuracy	±15% ±8 ppb
	Typical startup time	0.4 ms
	Sensor output resolution	1 ppb
Specification temperature active	Measuring range	-20...100°C
	Accuracy	±1°C
	Long term stability	<0.03°C [0.054°F]/yr (under normal RH/T operating range)
	Typical response time	>2 s
	Sensor output resolution	0.01°C
Specification Humidity	Measuring range	0...100% RH
	Accuracy	±5% RH
	Long term stability	<0.25% RH/yr
	Typical response time	>8 s (depends on the surrounding surface and the airflow in the final application environment)
	Sensor output resolution	0.01% RH
Safety data	Degree of protection IEC/EN	IP20
	EU Conformity	CE Marking
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	0...50°C [32...122°F]
Materials	Housing	PC UL94V-1

Product Features

Operating mode	Temperature: Typical value for operation in normal RH/T operating range. Higher drift values may occur due to contaminant environments with vaporised solvents, out-gassing tapes, adhesives, packaging materials, etc. Temperature response times strongly depend on the type of heat exchange, the surrounding surface and the airflow in the final application environment. Humidity: Humidity response times strongly depend on the surrounding surface and the airflow in the final application environment. CO ₂ : Extended exposure to concentrations below 400 ppm may result in incorrect operation of ABC algorithm and should be avoided. Sensor provides readings in the extended range up to 10,000 ppm, but the accuracy may be lower than that specified in the table.
Target gas profile TVOC	Complex mixture of 22 VOCs as defined by Molhave et al. n-Hexane, n-Nonane, n-Decane, n-Undecane, 1-Octane, 1-Decene, Cyclohexane, m-Xylene, Ethylbenzene, 1,2,4-Trimethylbenzene, n-Propylbenzene, a-Pinene, n-Pentanal, n-Hexanal, Iso-propanol, n-Butanol, 2-Butanone, 3-Methyl-3-butanol, 4-Methyl-2-pentanone, n-Butylacetate, Ethoxyethylacetate, 1, 2-Dichloroethane Sampling process Diffusion

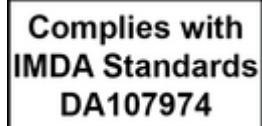
Product Features

Data storage and logging	Frequency of readings (log interval): 1 minute, 1 hour, 1 day Data push interval: 1 minute (customisable upon request) Onboard memory: 8 GB (>50,000,000 data points)
Recommended lifetime of sensor unit	CO ₂ : 15 years Temperature: 10 years Humidity: 10 years Particulate matter: 1.3 years (>200 µg/m ³), 2 years (<100 µg/m ³)
Warranty and durability	Standard warranty: 2 years (excluding replaceable sensor module) Expected lifespan: 5 to 7 years

Remarks

General remarks concerning sensors	Calibration via hot-swappable sensor modules for sensor modules Particulate matter: Calibrated against standardised aerosol mix TVOC: Calibrated against ethanol
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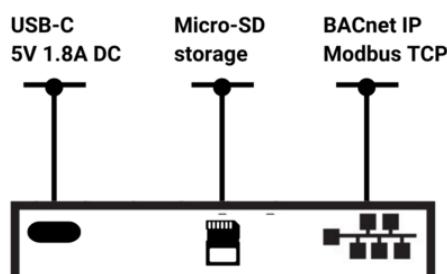
Indicators and Operation



Accessories

Electrical accessories	Description	Type
	Sensor module, PM2.5 PM10	EXT-KA-KM100
	Sensor module, temperature, relative humidity, TVOC	EXT-KA-KM103

Wiring diagram



Dimensions



Type	L [mm]	W [mm]	H [mm]	kg
EXT-KA-SE100	184	146	48	0.8