

Indoor Air Quality sensor Temperature / Humidity / CO<sub>2</sub> / 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**

<b>Electrical data</b>	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
<b>Data bus communication</b>	Communication	Modbus TCP BACnet IP Local and cloud MQTT Open API Cloud
<b>Functional data</b>	Coverage area	Area: 325 m <sup>2</sup> [3500 ft <sup>2</sup> ] Space types and layouts should be considered in accordance with project requirements.
	Display	7" Touchscreen full colour Available display languages German, English, Chinese
<b>Measuring data</b>	Measured values	CO <sub>2</sub> TVOC PM2.5, PM10 Relative humidity Temperature
<b>Specification Particulate Matter</b>	Measurement range	Mass concentration range: 0...1000 µg/m <sup>3</sup> PM2.5 mass concentration size range: 0.3...2.5 µg/m <sup>3</sup>
	Accuracy	±10% m.v. (30...1000 µg/m <sup>3</sup> ) ±3 µg/m <sup>3</sup> (0 to 30 µg/m <sup>3</sup> )
	Typical response time	≤10 s
	Sensor output resolution	1 µg/m <sup>3</sup>
	Sensor technology	Laser particle sensor (light scattering)
<b>Specification TVOC</b>	Measurement range	0...60000 ppb
	Accuracy	±15% ±8 ppb
	Typical startup time	0.4 ms
	Sensor technology	Multi-pixel metal oxide sensor (MOx)
<b>Specification CO<sub>2</sub></b>	Measurement range	400...2000 ppm Up to 10000 ppm extended range

**Technical data**

<b>Specification CO<sub>2</sub></b>	Accuracy	±3% m.v. ±50 ppm
	Typical response time	120 s by 90%
	Sensor output resolution	1 ppm
	Sensor technology	Non-dispersive infrared (NDIR)
<b>Specification Temperature</b>	Measurement range	-20...100°C
	Accuracy	±1°C
	Long term drift	<0.03°C [0.054°F]/yr (under normal RH/T operating range)
	Typical response time	>2 s
	Sensor output resolution	0.01°C
<b>Specification Humidity</b>	Measurement range	0...99% RH
	Accuracy	±5% RH
	Long term drift	<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
<b>Safety data</b>	EU Conformity	CE Marking
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	0...50°C [32...122°F]

**Product Features**

<b>Mode of operation</b>	<p>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.</p> <p>Humidity: Humidity response times strongly depend on the surrounding surface and the airflow in the final application environment.</p> <p>CO<sub>2</sub>: 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.</p>
<b>Target gas profile TVOC</b>	<p>Complex mixture of 22 VOCs as defined by Molhave et al.</p> <p>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-butanone, 4-Methyl-2-pentanone, n-Butylacetate, Ethoxyethylacetate, 1, 2-Dichloroethane</p> <p>Sampling process Diffusion</p>
<b>Data storage and logging</b>	<p>Frequency of readings (log interval): 1 minute, 1 hour, 1 day</p> <p>Data push interval: 1 minute (customisable upon request)</p> <p>Onboard memory: 8 GB (&gt;50,000,000 data points)</p>
<b>Recommended lifetime of sensor unit</b>	<p>CO<sub>2</sub>: 15 years</p> <p>Temperature: 10 years</p> <p>Humidity: 10 years</p> <p>Particulate matter: 1.3 years (&gt;200 µg/m<sup>3</sup>), 2 years (&lt;100 µg/m<sup>3</sup>)</p>
<b>Warranty and durability</b>	<p>Standard warranty: 2 years (excluding replaceable sensor module)</p> <p>Expected lifespan: 5 to 7 years</p>

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

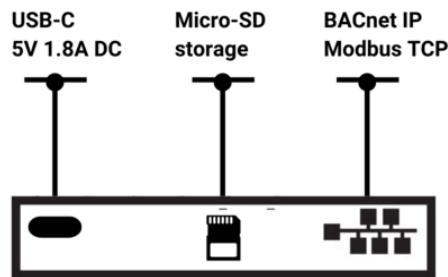
Indicators and Operation

**Complies with  
 IMDA Standards  
 DA107974**

Accessories

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

Wiring diagram



Modbus TCP /BACnet IP

## Dimensions



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