

# Sensedge Mini

## Technical Specifications (SE-200)

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### Product Overview

The Sensedge Mini provides real-time, accurate measurements of  $PM_{10}$ ,  $PM_{2.5}$ , TVOC, and  $CO_2$  concentrations, as well as temperature and relative humidity readings. With multiple power, connectivity, and installation options, the Sensedge Mini is made to the satisfaction of building owners, facility managers, tenants, and employees.



## Particulate Matter Sensor Specification

<b>Mass concentration range</b>	0 to 1,000 $\mu\text{g}/\text{m}^3$	
<b>Mass concentration size range</b>	$\text{PM}_{2.5}$	0.3 to 2.5 $\mu\text{g}/\text{m}^3$
	$\text{PM}_{10}$	0.3 to 10.0 $\mu\text{m}$
<b>Mass concentration accuracy for <math>\text{PM}_{2.5}</math></b>	0 to 30 $\mu\text{g}/\text{m}^3$	$\pm 3 \mu\text{g}/\text{m}^3$
	30 to 1000 $\mu\text{g}/\text{m}^3$	$\pm 10 \%$ m.v.
<b>Sensor output resolution</b>	1 $\mu\text{g}/\text{m}^3$	
<b>Sensor technology</b>	Laser particle sensor (Light scattering)	
<b>Typical response time</b>	$\leq 10 \text{ s}$	
<b>Recommended lifetime</b>	High pollution concentration ( $> 200 \mu\text{g}/\text{m}^3$ )	1.3 years
	Low pollution concentration ( $< 100 \mu\text{g}/\text{m}^3$ )	2 years
<b>Calibration</b>	Calibrated against standardized aerosol mix	

## TVOC Sensor Specification

<b>Target gas profile</b>	Complex mixture of 22 VOCs <sup>1</sup> as defined by Molhav et al.
<b>Measurement range</b>	0 - 60000 ppb
<b>Accuracy</b>	$\pm 15 \%$ $\pm 8 \text{ ppb}$
<b>Sampling process</b>	Diffusion
<b>Calibration</b>	Calibrated against ethanol
<b>Sensor output resolution</b>	1 ppb
<b>Sensor technology</b>	Multi-pixel metal oxide sensor (MOx)
<b>Typical start-up time</b>	0.4 ms

<sup>1</sup> n-Hexane, n-Nonane, n-Decane, n-Undecane, 1-Octane, 1-Decene, Cyclohexane, m-Xylene, Ethylbenzene, 1,2,4-Trimethylbenzene, n-Propylbenzene,  $\alpha$ -Pinene, n-Pentanol, n-Hexanal, Iso-propanol, n-Butanol, 2-Butanone, 3-Methyl-3-butanone, 4-Methyl-2-pentanone, n-Butylacetate, Ethoxyethylacetate, 1, 2-Dichloroethane

## CO<sub>2</sub> Sensor Specification

<b>Target gas</b>	CO <sub>2</sub>
<b>Measurement range</b>	400 to 2,000 ppm <sup>1</sup>
	Up to 10,000 ppm extended range <sup>2</sup>
<b>Accuracy<sup>3</sup></b>	±3 % m.v. ±50 ppm
<b>Typical response time</b>	2 minutes by 90 %
<b>Sensor technology</b>	Non-dispersive infrared (NDIR)
<b>Sensor output resolution</b>	1 ppm
<b>Recommended lifetime</b>	15+ years

## Temperature Sensor Specification

<b>Measurement range</b>	-4 - 212 °F
<b>Accuracy</b>	± 1.8 °F
<b>Long term drift<sup>4</sup></b>	<0.054 °F/y
<b>Typical response time<sup>5</sup></b>	>2 s
<b>Sensor technology</b>	Digital sensor
<b>Sensor output resolution</b>	0.18 °F
<b>Recommended lifetime</b>	10 years

1 Extended exposure to concentrations below 400 ppm may result in incorrect operation of ABC algorithm and should be avoided.

2 Sensor provides readings in the extended range but the accuracy may be lower than that specified in the table.

3 Accuracy is specified over operating temperature range. Specification is referenced to certified calibration mixtures. Uncertainty of calibration gas mixtures (±2% currently) is to be added to the specified accuracy for absolute measurements.

4 Typical value for operation in normal RH/T operating range. Higher drift values may occur due to contaminant environments with vaporized solvents, out-gassing tapes, adhesives, packaging materials, etc.

5 Temperature response times strongly depend on the type of heat exchange, the surrounding surface and the airflow in the final application environment.

## Humidity Sensor Specification

Measurement range	0 - 99 % RH
Accuracy	±5 % RH
Long term drift	<0.25 % RH/yr
Typical response time <sup>1</sup>	>8 s
Sensor technology	Digital sensor
Sensor output resolution	1 % RH
Recommended lifetime	10 years

## General Device Specifications

Calibration	Calibration via hot-swappable sensor modules
Operating conditions	Operational temperature: 32 - 122 °F
	Operational humidity: 5 to 95 %RH, non-condensing
Data storage & logging	Frequency of readings (Log interval): 1 minute, 1 hour, 1 day
	Data push interval: 1 minute <sup>2</sup>
	Onboard memory: 1 hour of data
Dimensions	Length: 6.1 in (155 mm)
	Width: 5.1 in (129 mm)
	Height: 1.3 in (34 mm)
Weight	0.82 lbs (370 g)
Warranty & durability	Standard warranty: 1 year <sup>3</sup>
	Expected lifespan: 5 to 7 years

<sup>1</sup> Humidity response times strongly depend on the surrounding surface and the airflow in the final application environment.

<sup>2</sup> Customizable upon request

<sup>3</sup> Optional extended warranty with contract

## Power and Connectivity Options

<b>Installation</b>	Surface mount	
	Drywall mount	
	Electrical box mount	
	Ceiling mount	
<b>Wi-Fi</b>	2.4 GHz 802.11 b/g/n	
	Security supported: 64/128 WEP, WPA-PSK, WPA2-PSK, WPA, WPA2 Personal	
<b>Ethernet</b>	IEEE 802.3	
	Data rate: Up to 100 Mbps	
<b>Integration</b>	Local and cloud MQTT	
<b>Power</b>	100 - 240 V AC	Via USB Type-C

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