

Sensedge Duct Technical Specifications (Wired Model)



Specially engineered for HVAC environments, the Sensedge Duct is designed to monitor up to ten air quality and environmental parameters within supply or return air ducts.

Featuring a robust duct-mount installation and a dual-probe air sampling design, it delivers accurate, reliable, real-time measurements of the air being distributed through your HVAC system.



Product Features

Dual-probe precision

Custom dual-probe air sampling design with a pressure-stabilized sensing chamber ensures accurate, representative readings across varying airflow rates in real time.

True environmental sensing

External temperature and humidity sensor positioned directly in the airstream captures real conditions with fast response.

Cloud + BMS integration

Send air quality data both to the cloud for detailed analysis and to the BMS via BACnet/IP for powerful automation and control.

Modular & upgradeable

Replaceable sensor modules allow quick swaps for long-term accuracy and easy maintenance. Optional filter efficiency attachment unlocks extra diagnostics and filter performance metrics.

Sensedge Duct (Wired Model) is Available in 4 SKUs

	DU-200P	DU-201P	DU-200PW	DU-201PW
	Sensedge Duct (Wired)	Sensedge Duct with Filter Efficiency (Wired)	Sensedge Duct for WELL (Wired)	Sensedge Duct for WELL with Filter Efficiency (Wired)
CO ₂	✓	✓	✓	✓
Temperature	✓	✓	✓	✓
Relative Humidity	✓	✓	✓	✓
Particulate Matter (PM ₁ , PM _{2.5} , PM ₁₀)	✓	✓	✓	✓
TVOC	✓	✓	✓	✓
CO			✓	✓
O ₃			✓	✓
NO ₂			✓	✓
Filter efficiency attachment (dual-pressure and airspeed sensor)		✓		✓

Sensor Specification

Particulate Matter Sensor

(Available in all SKUs)

Sensor technology

Laser particle sensor (Light scattering)

Mass concentration size range

PM_{2.5}: 0.3 to 2.5 µm

PM₁₀: 0.3 to 10.0 µm

Mass concentration range

0 to 1,000 µg/m³

Mass concentration accuracy for PM_{2.5}

0 to 30 µg/m³: ±3 µg/m³

30 to 1000 µg/m³: ±10 % m.v.

Mass concentration accuracy for PM₁₀

0 to 30 µg/m³: ±3 µg/m³

30 to 1000 µg/m³: ±15 % m.v.

Sensor output resolution

1 µg/m³

Calibration

Calibrated against standardized aerosol mix

WELL specification requirements

Adjustable particle density (K-factor) to accommodate project/region-specific particulate profile.

Complies with [WELL Performance Verification Guidebook](#) to be used in WELL certification.

CO₂ Sensor

(Available in all SKUs)

Sensor technology

Non-dispersive infrared (NDIR)

Measurement range

400 to 5,000 ppm²

Up to 10,000 ppm extended range³

Accuracy

± 40 ppm ± 3%⁴ (Comply with ANSI/ASHRAE Standard 62.1-2022)

Sensor output resolution

1 ppm

Target gas

CO₂

Temperature Sensor

(Available in all SKUs)

Sensor technology

Digital sensor

Measurement range

-20 to 125 °C

Accuracy

±0.2 °C Comply with WELL⁵

Sensor output resolution

0.01 °C

TVOC Sensor

(Available in all SKUs)

Sensor technology

Multi-pixel metal oxide sensor (MOx)

Target gas profile

Complex mixture of 22 VOCs¹ as defined by Molhave et al.

Measurement range

0 - 1382 ppb

0 - 5482 ug/m³

Accuracy

±15 % ±4 ppb

±15 % ±18 ug/m³

Sensor output resolution

1ug/m³

Calibration

Calibrated against ethanol

Sampling process

Passive

WELL specification requirements

Calibration gas: ethanol

Target gas profile (ppb=µg/m³ conversion factor under STP): 22 VOC mixed per Molhav et al. (1 ppb = 4.57 µg/m³)

Complies with [WELL Performance Verification Guidebook](#) to be used in WELL certification.

Relative Humidity Sensor

(Available in all SKUs)

Sensor technology

Digital sensor

Measurement range

0 - 100 %RH

Accuracy

±2 % RH

Sensor output resolution

0.01 % RH

Airflow & Filter Efficiency Add-on

(Available in DU-201P/201PW)

Sensor technology

Differential Pressure (Thermal Mass Flow)

Dual Pressure Sensor

Range: ±500Pa

Accuracy: 3%

Resolution: 0.1Pa

Airflow / Airspeed Sensor

Range: 1.5 - 20m/s

Accuracy: ±10%

Resolution: 0.1m/s

O₃ Sensor

(Available in DU-200PW/201PW)

Sensor technology

Electrochemical

Measurement range

0 to 2,000 ppb

Accuracy

0 to 100 ppb: ±10 ppb

>100 ppb: ±10 %

Sensor output resolution

1 ppb

Interference gas

CL2

Target gas

O₃

Interference gas

CL2 ⁶

NO₂ Sensor

(Available in DU-200PW/201PW)

Sensor technology

Electrochemical

Measurement range

0 to 2,000 ppb

Accuracy

0 to 100 ppb: ±10 ppb

>100 ppb: ±10 %

Sensor output resolution

1 ppb

Interference gas

CL2

Target gas

NO₂

Interference gas

CL2 ⁷

CO Sensor

(Available in DU-200PW/201PW)

Sensor technology

Electrochemical

Measurement range

0 to 100 ppm

Accuracy

0 to 20 ppm: ±1 ppm

>20 ppm: ±5%

Sensor output resolution

0.1ppm

Target gas

CO

Device Specification

Power

USB-C: 100 - 240 V AC: (5V 1.8A DC)

Direct Wiring: 12 - 30 V DC

PoE (Available for model SE000200P):

IEEE 802.3af (PoE), Class3

IEEE 802.3at (PoE+), Class3

PD maximum power ≤ 10 W

PSEs: Midspan & endspan supported Cable: Cat5
(Cat5e, Cat6, and Cat6a)

Power Consumption:

Average: 1.7W

Peak: 4~5W

Data Logging & Storage

Frequency of readings (Log interval):

1 minute, 1 hour, 1 day

Data push interval:

1 minute ⁸

Onboard memory:

1 hour of data

Connectivity

Wi-Fi:

2.4 GHz 802.11 b/g/n

Security supported: 64/128 WEP, WPA-PSK, WPA2-PSK, WPA, WPA2 Personal

Ethernet:

IEEE 802.3

Data rate: Up to 100 Mbps

Integration

BACnet/IP

RS-485 Modbus/RTU

Cloud MQTT

On premise MQTT

Open API

Security

Kaiterra's platform architecture meets the most stringent security standards and is regularly subjected to 3rd party penetration tests. Read more about our security [here](#).

Installation

Methods

In-duct mount

Modules & Calibration

Compatible modules:

KM-200: Particulate Matter (PM_{2.5}&PM₁₀)

KM-203: TVOC

KM-207: TVOC, Ozone

KM-208: NO₂, CO, O₃

Calibration:

Swappable sensor modules

Operating conditions

Operating temperature: 0 - 50 °C

Operating humidity: 5 to 95 %RH, non-condensing

Size & Weight

Without filter efficiency

L375 mm (14.76 in) x H300 mm (11.8 in) x

W300 mm (11.8 in)

1600 g (3.50 lbs)

With filter efficiency

L375 mm (14.76 in) x H300 mm (11.8 in) x

W300 mm (11.8 in)

2500 g (5.5 lbs)

1. 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
2. Extended exposure to concentrations below 400 ppm may result in incorrect operation of ABC algorithm and should be avoided.
3. Sensor provides readings in the extended range but the accuracy may be lower than that specified in the table.
4. The accuracy specification covers environments ranging from 0-50°C and 0-80% RH, and complies with indoor air quality standards ANSI/ASHRAE Standard 62.1-2022 at 25°C.
5. As a RESET Certified Grade B air quality monitor, this device automatically meets technical requirements for this parameter.
6. Engineered to isolate NOx cross-interference for accurate O₃ measurement.
7. Engineered to isolate O₃ cross-interference for accurate NO₂ measurement.
8. Customizable upon request