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Kaiterra Square Technical Specifications

(SQ-100)

Product Overview

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

Product Features

Default sensors
Particulate Matter ($PM_{2.5}$, PM_{10}), TVOC, CO_2, Relative Humidity, Temperature

Installation
Designed to seamlessly recess into a standard 86-type in-wall box, ensuring quick and straightforward installation

Customizable
Customize the device with your choice of parameters, colors, and branding. MOQ required.

Sensor Specification

Particulate Matter Sensor

Sensor technology
Laser particle sensor (Light scattering)
Mass concentration size range
$PM_{2.5}$: 0.3 to 2.5 µm
PM_{10}: 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 PM_{10}
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

TVOC Sensor

Sensor technology
Multi-pixel metal oxide sensor (MOx)
Target gas profile
Complex mixture of 22 VOCs[1] as defined by Molhave et al.
Measurement range
0 - 60,000 ppb
Accuracy
±15 % ±8 ppb
Sensor output resolution
1 ppb
Calibration
Calibrated against ethanol
Sampling process
Diffusion

CO_2 Sensor

Sensor technology
Non-dispersive infrared (NDIR)
Measurement range
400 to 2,000 ppm[2]
Up to 10,000 ppm extended range[3]
Accuracy
± 40 ppm ± 3%[4] (Comply with ANSI/ASHRAE Standard 62.1-2022)
Sensor output resolution
1 ppm
Target gas
CO_2

Temperature Sensor

Sensor technology
Digital sensor
Measurement range
-20 °C - 100 °C
Accuracy
±1 °C
Sensor output resolution
0.01 °C

Relative Humidity Sensor

Sensor technology
Digital sensor
Measurement range
0 - 100 %RH
Accuracy
±5 % RH
Sensor output resolution
0.01 % RH

Device Specification

Power
100-240 V AC (SKU: QA086403A)
12-30 V DC (SKU: QD086403A) PoE

Connectivity
Wi-Fi:
2.4 GHz 802.11 b/g/n
Security supported: 64/128 WEP, WPA-PSK, WPA2-PSK, WPA, WPA2 Personal

Integration
RS-485 Modbus/RTU
Cloud MQTT
On premise MQTT
Open API

Installation
Recessed dry wall mount
Recessed electrical box mount

Operating conditions
Operational temperature: 0 - 50 °C
Operational humidity: 5 to 95 %RH, non-condensing

Data Logging & Storage
Frequency of readings (Log interval):
1 minute, 1 hour, 1 day
Data push interval: 1 minute
Onboard memory: 1 hour of data

Size & Weight
Length: 90 mm (3.5 in)
Width: 90 mm (3.5 in)
Height: 50 mm (2.0 in)
164.8 g (0.36 lbs)

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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.

Get in touch with us! | www.kaiterra.com   info@kaiterra.com