Senseair Aercast

PARAMAIR
www.paramair.de

Battery powered and IoT connected Indoor Air Quality Monitor

Aercast is an advanced and versatile 3-in-1 transmitter designed for installation in the air-conditioned zone. It measures CO_2 concentration, temperature and humidity in the ambient air accurately without need for additional compensation – true read. The data transmits to a BMS system or stand-alone controller using industry standard output signals and communication protocols.

Aercast combines all the necessary elements for effective climate control in commercial office buildings, hospitals, hotels, schools and other facilities. Using CO_2-monitoring for demand control ventilation (DCV) allows healthy, comfortable and cost-effective environment for the occupants. It is flexible in design with temperature control and combination of humidity control optional. Though suitable for use in many different energy-efficient ventilation strategies, Senseair welcomes any discussions for specific needs.

Complies with ASHRAE standard 189.1
(±50ppm @ 1000ppm of measured CO_2 value)

Standard specification

Measured gas	Carbon dioxide (CO_2)
Operating principle	Non-dispersive infrared (NDIR)
Measurement range	
CO_2	400–5000ppm
Temperature	-40–85°C
Relative Humidity	0–100%RH
VOC (option)	0–500IAQ
Accuracy (CO_2)	±30 ppm ±3% of reading
Dimensions [mm]	147 x 55 x 24 mm
Life expectancy	15 years (battery 2 years)
Operation temperature range	0–50°C
Power supply	2x AA Lithium batteries (included)
Communication	BLE LoRa (optional) ZigBee (optional) NB-IoT (optional)
Document: PSHAercast	
	Rev: Preliminary

Key benefits

- Maintenance free
- 4 sensors in one housing
- Battery-powered
- IoT connected using the market's leading radio interfaces
- Indoor air quality indication on display as well as intuitive LEDs
- Remote indoor air quality monitoring through the cloud-based web portal or app

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PARAMAIR GmbH
Grevenweg 89
20537 Hamburg
www.paramair.de
t +49 40 - 253 05 298
f +49 40 - 253 05 299
e info@paramair.de

Senseair Aercast™ Technical Specification

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General Performance:

Storage Temperature Range	-20–70°C
Life Expectancy [1]	15 years (battery 2 years)
Maintenance Interval [2]	Maintenance-free
Display	LCD memory display with CO_2 (ppm), Temperature (°C) and Humidity (%RH)
Warm-up Time	≤1min
Operating Temperature Range	0–50°C
Operating Humidity Range	0–85%RH, non condensing humidity environment
Operating Environment	Residential and commercial indoor environment

Electrical / Mechanical:

Power source	2x 3,6V AA lithium batteries
Power Consumption	1mW average at 60s measurement interval
Peak Power Consumption	80mW without network communication

CO_2 Measurement:

Sensing Method	Non-dispersive infrared (NDIR) waveguide technology
Sampling Method	Diffusion
Response Time (T1/e)	<3min
Measurement Range	400–5000ppmvol.
Accuracy [3]	±30ppm ± 3% of reading (@15–35°C and 0–80%RH) [4, 5]
Pressure Dependence	Pressure compensated
Measurement Interval	User configurable, default 60s

Temperature Measurement:

Measurement Range	-40–85°C
Accuracy	±0.5°C (@ 25°C), ±1.0°C (@ 0–50°C)
Repeatability	±0.25°C (@ 17–28°C)
Response Time	<6min (Air velocity of 0.15m/s)

Relative Humidity Measurement:

Measurement Range	0–100%RH
Accuracy	±3%RH (@ 20–80%RH)
Hysteresis	±1,5%RH (@ 20–80%RH)
Annual Drift	<±0.5%RH

VOC Measurement:

Measured gases	Ethane, Isoprene, Ethanol, Acetone, Carbon Monoxide
Measurement Range	0–500 IAQ
Accuracy	3 IAQ (@ 20–80%RH)
Sensor to sensor deviation	15 IAQ (@ 20–80%RH)

Communication interface

BLE	Bluetooth 4.2 low energy, Tx power +8dBm, Rx Sensitivity -90 dBm, range up to 200 m
LoRa (optional)	User configurable
ZigBee (optional)	User configurable
NB-IoT (optional)	User configurable

Note 1: SO_2 enriched environments are excluded.

Note 2: No maintenance required in normal indoor air as ABC (Automatic Baseline Calibration) is used.

Note 3: In normal IAQ applications, accuracy is defined after minimum three (3) ABC-periods of continuous operation with ABC.

Note 4: Accuracy is specified over operating temperature range. Specification is refer enced to certified calibration mixtures. Uncertainty of calibration gas mixtures (±1% currently) is to be added to the specified accuracy for absolute measurements.

Note 5: Repeatability is included. Uncertainty of calibration gases (±1%) is added to the specified accuracy.

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