nano sensorics

Description

The VOCLESS is advanced technology indoor sensor applied for the full sensing of VOC (Volatile Organic Compounds) level, temperature and humidity. VOCLESS is enclosed in a room sensor box and is designed to be wall mounted. VOCLESS is completely wireless and powered by 3.6V AA lithium batteries. The integrated advanced intelligent (AI) computational algorithm enables reliable capability of the measurement the magnitude of the VOC, temperature and humidity. The data transmitted from the sensor is based on Class A LoRaWAN® wireless network.

Applications

- Indoor environment measuring
- Smart buildings
- Government buildings
- Public buildings
- Banks
- Industrial facilities

Product features

- LoRaWAN communication
- Computational AI algorithm
- Indoor VOC sensor
- Indoor temperature sensor
- Indoor humidity sensor
- Configuration over the air
- Robust enclosure
- Auto self-calibration

Sensing characteristics	
Temperature	-10 to 70 °C
Temperature Accuracy	Max '+/-0.2°C@ 0°C—70°C Max '+/-0.3°C@ -10°C—0°C
Humidity	0 to 100 % RH (non-condensing)
Humidity Accuracy	"+/-1.8%RH @20°C, >90% "+/-3%RH @20°C
VOC Index	ranging from 1 to 500 VOC Index points
VOC repeatability	<±5 of VOC Index points
Mechanical specification	
Weight	85 g without battery
Dimensions	86 x 86 x 25,5 mm
Enclosure	Plastic ABS UL94-V0
Operation Temperature	-10 to 50 °C
Sensor Power Supply	
Battery Type and voltage	2x3.6 V AA Lithium Battery ER14505 AA lithium batteries (3.6V2400mAh/section)
Expected Battery Life	<7 years (Depending on configurations and environment)

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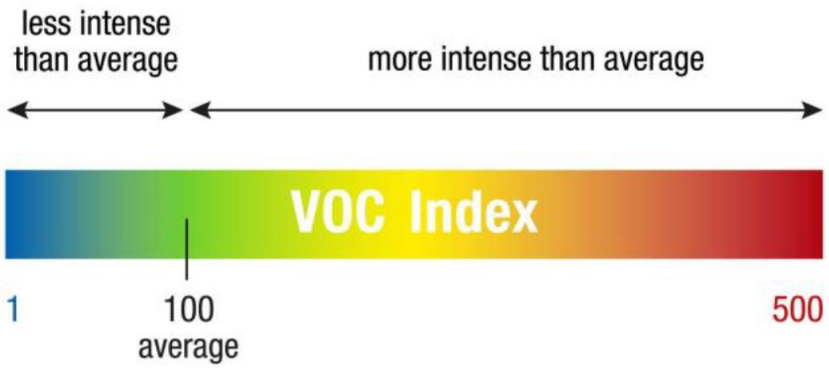
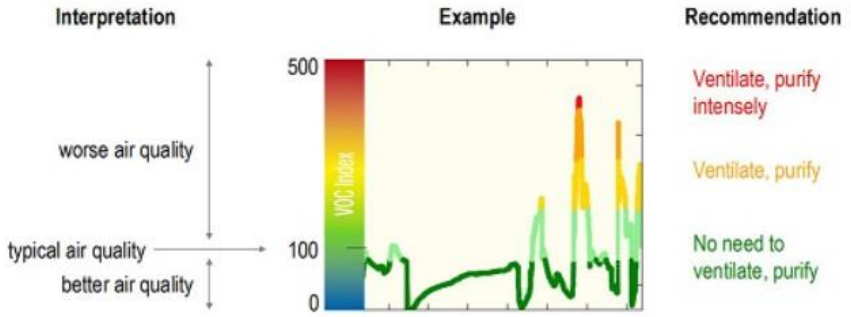
Sensor logging Function		
Sampling Interval	Configurable via downlink, NFC configuration is optional	
Data Upload Interval	Configurable via downlink, NFC configuration is optional	
Radio / Wireless specification		
Wireless Technology	LoRaWAN® 1.0.3	
Wireless Security	LoRaWAN® End-to-End encryption (AES)	
LoRaWAN Device Type	Class A End-device	
Supported LoRaWAN® features	OTAA, ABP, ADR, Adaptive Channel Setup	
Supported LoRaWAN® regions	EU863 – 870 Optional: US902 – 928, EU863 – 870, AU915 – 928, EU433, RU864, IN865	
Link Budget	137 dB (SF7) to 151 dB (SF12)	
TX Power	14dBm±1dBm (Region specific)	
Rx Sensitivity	132 dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -118 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)	
Communication range	10 km (line-of-sight, actual transmission distance depends on the environment)	
Data sizes		
Measurement	Data size	Elaboration
Temperature	2	MSB byte -128 to +128 C, LSB byte, value after decimal point 0 to 100
Humidity	1	One byte integer value (0 to 100%)
Battery	2	MSB byte represent Volts before decimal point , LSB byte represents two digits after decimal point expressed as unsigned 2 byte value, first byte – integer Volts, second byte – Volts (two digits after decimal point)
VOC	2	0 - 65535 BIN (Actual value 0 – 500)

VOC measurement description:

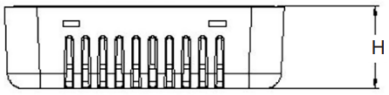
Nanosensorics integrated advanced intelligent (AI) computational algorithm measures and evaluates Volatile Organic Compounds (VOC) levels and automatically adapts its output to any indoor environment and maps all VOC events to a VOC Index scale ranging from 1 to 500 VOC Index points (Figure below). The value 100 refers to the average indoor gas composition over the past 24 h. While values between 100 and 500 indicate a deterioration, values between 1 and 100 inform about improvement of the air quality.



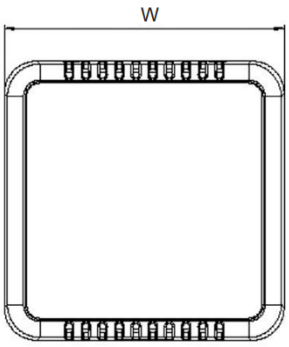
VOC index level spectrum.

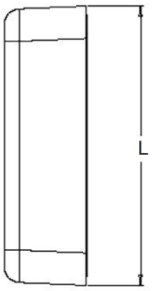


Sensor dimensions:



H: 25,5 mm
W: 86 mm
L: 86 mm





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