

INDOOR CO₂ & AIR QUALITY SENSOR

Versatile LoRa/LoRaWAN® indoor air quality sensor device to monitor different environment conditions



miro Insight is an advanced indoor air quality sensor device featuring various sensors to monitor environmental conditions such as temperature, relative humidity, CO₂, air quality, and pressure. It is battery powered with a lifetime of up to 10 years.

The device is fully LoRaWAN® compatible and can transmit data over 10 km or even more, depending on the environment and network installation. Its design makes it the perfect choice for mounting on walls.

KEY BENEFITS

- LoRaWAN® compliant class A device
- 868 / 915 MHz or 2.4 GHz LoRa
- Integrated LoRa® antenna
- Temperature / humidity sensor
- Optional sensors: CO₂, ambient pressure, VOC, hall sensor
- One or two 3.6V lithium batteries
- More than 10 years of battery lifetime possible
- Various mounting options
- Other regions and wireless stacks like BLE, ZigBee, EnOcean, ZWAVE on request

APPLICATIONS

- Indoor air quality measurement
- Industrial- and Homeautomation

ABOUT

File name	miro Insight datasheet
Document type	Datasheet
Date	2021/09/07
Revision	1.3.143

REVISION HISTORY

Date	Release	Changes
2021/03/02	1.0	Initial Release
2021/03/14	1.1	Added new 2.4 GHz region 2G4
2021/09/07	1.2	Added FCC IDs
2021/09/15	1.3	Added VOC info

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Functional Description

miro Insight is a versatile sensor device to monitor room temperature and indoor air quality. The device is available with different selections of sensors installed. The sensor device is fully over-the-air configurable and can be set to different measurement intervals and numbers of locally accumulated measurement points. **miro Insight** uses low power wide area LoRaWAN® network to send its data over a long distance with battery a life of more than ten years possible.

miro Insight is based on Miromico's FMLR family of wireless modules and can therefore provide with any low-power wireless technology like LoRa, (G)FSK, BLE, ZigBee, EnOcean, ZWAVE and more on request. Technical

Specifications

MECHANICAL SPECIFICATIONS

Weight	90 g incl. one AA battery
Dimensions	86 x 86 x 26 mm
Enclosure	Plastic, ABS UL94-V0, white

OPERATING CONDITIONS

Temperature	-20 – +80 °C
Humidity	0 – 95% RH, non-condensing

DEVICE POWER SUPPLY

Battery type	LiSOCl ₂ , 3.6V, 1 or 2, Size A or AA
Expected battery lifetime	> 10 years

RADIO / WIRELESS

Wireless technology	LoRaWAN® 1.0.3, 868 MHz / 915 MHz, 2.4 GHz
LoRaWAN® Device type	Class A
Supported LoRaWAN® features	OTAA, ADR, Adaptive Channel Setup
Maximum RX Sensitivity	-137 dBm
RF transmission power	14 dBm / 20 dBm (depending on region)
Certifications	CE, FCC, RoHS, LoRa Alliance® (depending on region)

Sensor Specifications

TEMPERATURE

Range	-40 – 90 °C
Resolution	0.01 °C
Accuracy (typ.)	± 0.2 °C, see Figure 2

HUMIDITY

Range	0 – 100 % RH
Resolution	0.5 % RH
Accuracy (typ.)	± 2 % RH, see Figure 1

AMBIENT PRESSURE

Range	300 – 1100 hPa
Resolution	0.01 hPa
Accuracy (typ.)	± 1 hPa

CO₂

Range	400 – 5'000 ppm
Resolution	1 ppm
Accuracy (typ.)	± 30 ppm ± 3 % of reading

VOC (AIR QUALITY)

Range	0 – 500
Resolution	1
Accuracy (typ.)	± 15 % ± 1 sensor to sensor deviation

MAGNETIC SENSOR

Detection threshold	Max. ±4.8 mT
Magnetic response	Omnipolar
Reset activation (typ.)	After 7.5 sec

CERTIFICATIONS

CE	RED 2014/53/EU
FCC	Contains FCC IDs 2AUQE14DJC/2AUQEPC1Y4

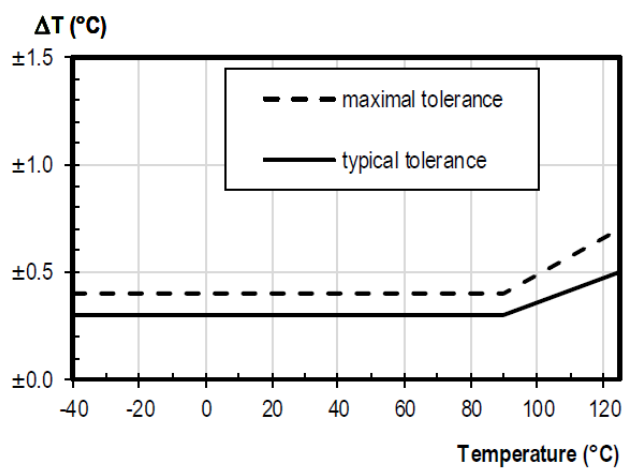


Figure 2

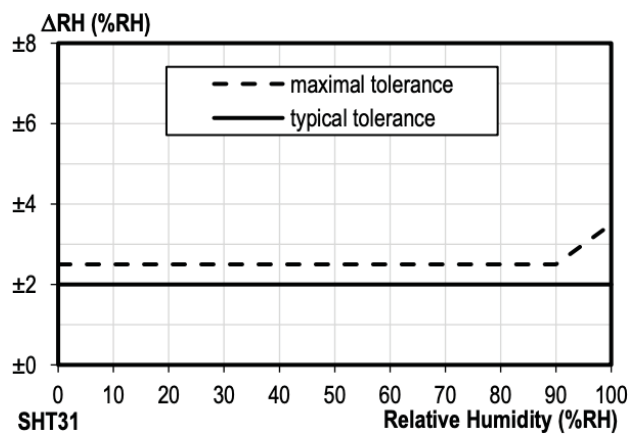


Figure 1

Additional Documentation

ADDITIONAL RESSOURCES

[Product Information Page](#)

[Product Website](#)

[Technical Documentation](#)

[Technical Documentation Website](#)

Device Options

PRODUCT ID	LoRaWAN® REGION						OPTIONS		
	EU868	US915	AS923	AU915	IN865	2G4 ¹	CO ₂	VOC	Pressure
IOT-IAQ-LW/□	■	■	■	■	■	■			
IOT-IAQ-LW/□-CO2	■	■	■	■	■	■	■		
IOT-IAQ-LW/□-CO2-AP-VOC	■	■	■	■	■	■	■	■	■

¹ 2.4 GHz region supported by selected network providers e.g., TTN, TTl.

Keep in touch

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