

Well-Being Sensors

Building-IoT Sensor Solution

Specification Sheet



Introduction

As part of the EcoStruxure Building-IoT Sensor Solution, the Well-Being Sensors are flexible, wireless, USB-C or battery-based, easy-to-install multisensors that are used in a variety of spaces inside buildings.

The sensors collect data on air conditions and levels of common pollutants.

Features

The Well-Being Sensors monitor indoor air quality by measuring levels of carbon dioxide and volatile organic compounds, as well as temperature, and humidity.

The simple design of the sensors makes it easy to install in a variety of spaces such as offices, meeting rooms, collaboration spaces, and open areas.

Multi-sensing capabilities

The Well-Being Sensors are flexible multisensors outfitted for the detection of Volatile Organic Compounds (VOC), CO₂, Relative Humidity, Air Pressure, Temperature, Noise, Light, and Particulate Matter (PM, only available on the Advanced Well-Being Sensor). They offer the latest sensing technology for high accuracy and availability.

Integration

The Well-Being Sensors use private and secure wireless technology to communicate with the IoT Sensor

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Solution and its Multi-Protocol Gateway. No wiring or internal networking are required. When battery-operated, the Well-Being Sensor offers a lifespan of up to 3 years, while the Advanced Well-Being Sensor offers up to 2 years.

As an alternate power source, it also includes a USB-C port and cable.

Interface options and aesthetics

The Well-Being Sensors offer a commissioning button and a multi-color LED, and are available in white.

Tamper detection

This sensor is equipped with tamper detection. The tamper condition is triggered when the entire sensor and its mounting

base are removed from the location where they are installed or when the top cover is removed for preventive maintenance.

Over-the-air updates

This sensor supports over-the-air updates. This enables the deployment of additional firmware-related features and it facilitates security updates.

Cybersecurity

Each sensor has embedded security in the hardware and network.

Specifications

Well-Being Sensors			
Sensor measurements range and accuracy			
Sensor measurements	Measurement range	Measurement accuracy	Resolution
Temperature ^a	0 to 50 °C (32 to 122 °F)	+/- 0.5 at 25 °C (77 °F) 1 degree 0 to 45 °C (32 to 113 °F)	0.01 °C (0.018 °F)
Relative Humidity ^a	5 to 95 % RH	+/- 3 % (20 to 80 % RH) at 25 °C (77°F) Typical Including hysteresis of +/- 1.5 % Non-linearity error 1.7 % Long-term stability at 25 °C (77 °F) 0.5 % RH/ Year	0.008 % RH
Air Pressure	300 to 1100 hPa	+/- 0.6 hPa Typical	0.18 Pa
Noise	35 to 77 dBA	+/- 3 dBA	
Light	0 to 10,000 lux		
Particulate Matter ^{bc} (PM)	0 to 1,000 ug/m3	PM 1 and PM 2.5 +/- 5 ug/m3 (+ 5 % measured value) (0 – 100 ug/m3), +/- 10% (100 – 1000 ug/m3) PM 4 and PM 10 +/- 25 ug/m3 (0 – 100 ug/m3), +/- 25% (100 – 1000 ug/m3) (sensor to sensor deviation)	
Carbon Dioxide (CO ₂)	0 to 5,000 ppm	+/- 30 ppm + 3 %	1 ppm
Volatile Organic Compounds ^b (VOC)	0 to 100 % AQI	+/- 15 % Sensor-to-Sensor deviation	

a) Accuracy requires vertical mounting, no draft, and time for auto calibration.
 b) These values are automatically calibrated and is normally finished within 7 days after each power on.
 c) PM is only available on the Advanced Well-Being Sensor.

Sensor type Temperature, humidity, pressure (solid state), CO₂ (Photoacoustic Spectroscopy), VOC (metal oxide), PM (Particulate Matter, laser scattering, only available on the Advanced Well-Being Sensor)

Material	
Enclosure	PC-ABS (Polycarbonate/Acrylonitrile Butadiene Styrene)
Ingress protection rating	IP 20

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Color	White
Surface finish	Glossy
Mechanical	
Dimensions	121.48 L x 121.48 W x 22.95 H mm (4.8 L x 4.8 W x 0.9 H in)
Weight, including battery	250 g (0.55 lb)
LED indicator	Red, green and yellow
Button	1
Electrical	
Powered by	6x 1.5V AA L91 Lithium batteries, USB-C
Estimated battery lifespan	Well-Being up to 3 years, Advanced Well-Being Sensor up to 2 years
Wireless connectivity	
Communication protocol	2.4 GHz, Sensor Network supporting Mesh Technology
Wireless communication range, indoor	15 sq. m (50 sq. ft), open space
Output power	Up to 8 dBm
Environment	
Environmental conditions	Indoor use only, avoid dusty environments
Ambient temperature, operating	0 to 45 °C (32 to 113 °F)
Ambient temperature, storage	-20 to 60 °C (-4 to 140 °F)
Humidity	5 to 95 % (non condensing)
Installation	
Mounting	Wall-mounted
Installation equipment, included	Mounting tape, screws, USB-C cable (if applicable), 6 x 1.5V AA L91 batteries, installation instructions
Agency compliances	

Region:	US	CAN	EU	AS/NZ
Standards, regulations, and certifications:	FCC part 15 class B	ICES-003 Issue 7 ISED RSS-247 Issue 2 RF exposure RSS-102 (ISED)	RoHS 2011/65/EU and 2015/863/EU REACH 1907/2006/EC UKCA Conducted and Radiated: EN 300 328 v2.2.2 EN IEC 62368-1:2020 + A11:2020 EN 301 489-1 v2.2.3 and draft EN 301489-17 v3.2.4 Mobile or Fixed RF Exposure conditions: EN 62311:2008	AS/NZS 2772.2:2016+A1:2018 AS/NZS 4268:2017 + Amd1 2021 AS/NZS 55032:2015 + A11:2020

Green Premium

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Part numbers

Product

EcoStruxure Building-IoT Sensor Solution, Well-Being^a

EcoStruxure Building-IoT Sensor Solution, Advanced Well-Being^a

a) Mounting tape/screws, 6 x 1.5V AA L91 batteries, and installation instructions.

Part number

EBIOTPCWE1

EBIOTPCWE2

Well-Being Sensors

Disclaimer

Specifications are subject to change without notice.

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