

IEQ Sensor

Daikin AirSense Pro+ N

Installation, maintenance & operation manual



REV	00
Date	April 2021
Ref	D-EIOAS00104-21_00EN

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1 INTRODUCTION

This document constitutes technical information regarding the operation of IAQ SENSOR devices.



IAQ SENSOR devices are used to monitor air quality parameters, environment and electromagnetic pollution. In indoor environments different forms of pollution can occur, which can damage the health of individuals if they persist over time. The continuous monitoring of pollution parameters allows to analyze them and activate the appropriate control actions (alarms), in addition to having a traceability over time.

With the IAQ SENSOR device it is possible to measure the well-being of indoor environments in order to carry out decisive actions to increase the productivity of the occupants and make a healthier environment

2 INSTALLATION

In order to allow a correct sampling of the measurements, it is recommended to place the IAQ SENSOR device at a conventional height of about 160/170 cm, with a distance of about 40cm from other devices (e.g. fan coils, fans, electronic devices, paper, etc.).

As shown in the following paragraphs, the Aricare device can be placed on a flat surface, or installed on the wall using the special kit provided or using a customizable anti-theft display.

Thanks to its minimal and compact design IAQ SENSOR can be placed on a flat surface (e.g. table, desk). Below is an example photo of installation on a desk.



2.1 Installation on a flat surface

Thanks to its minimal and compact design IAQ SENSOR can be placed on a flat surface (e.g. table, desk).

2.2 Wall installation

It is possible to place the IAQ SENSOR device on a vertical wall thanks to the special kit provided in the package or thanks to a special anti-theft display that can be branded from time to time with the customer's logo.

3 OPERATION

3.1 Connectivity

IAQ SENSOR device connects to the collection server through a Wi-Fi connection type 802.11 b/g/n (2.4GHz). The configuration modalities will be agreed with the customer (e.g. eventual dedicated SSID, static or dynamic IP, etc...) Wi-Fi

Standards: IEEE 802.11b/g/n - Band: 2,4GHz

Security modes: None, WEP, WPA version 1 and 2 (AES-CCMP or TKIP encryption/integrity), with automatic selection based on Access Point configuration. Authentication Mode: None, WPA-PSK with automatic selection based on Access Point configuration. Captive-portal: Not supported

Narrowband IoT

SIM M2M embedded – frequency band B1 (2100MHz), B3 (1800MHz), B5 (850MHz), B8 (900MHz), B20 (800MHz), B28 (700 MHz) - CoAP / UDP

3.2 Switching on

Turning on the device for the first time

Press and hold the power on/off button for 4 seconds, you will hear a beep indicating power on.

What should happen:

You will hear an audible signal and on the IAQ SENSOR crown you will see a blue light followed by a green light, then the IAQ SENSOR crown on the top will begin to blink with a blue light every second for 180 seconds. (The IAQ SENSOR is in configuration mode).

Check device on Tap/blink for one second on the crown on the top at the center of the IAQ SENSOR

What should happen:

If the device is turned on you will see a green light for half a second, the light indicates the battery status (green=ok, orange=battery almost empty, red=battery to be replaced)

3.3 Power Off

Device Power Off

Press and hold the on/off button for 6 seconds, you will hear a beep indicating power off.

What should happen:

After one second you will see a green light indicating the battery status (green=ok, orange=battery almost empty, red=battery to be replaced), after another 5 seconds you will hear the shutdown beep, the IAQ SENSOR will emit a blue light for half a second and turn off.

IAQ SENSOR factory reset

If accessed turn off the IAQ SENSOR . Press and hold the on/off button for 6 seconds, you will hear a beep indicating shutdown.

Turn on IAQ SENSOR . Press and hold the on/off button for 4 seconds, you will hear a tone indicating power on. Continue to hold the power button for another 10 seconds.

What should happen:

You will hear an audible signal and on the IAQ SENSOR crown you will see a blue light followed by a green light, then the IAQ SENSOR crown on the top will begin to blink with a blue light every second. (The IAQ SENSOR is in configuration mode). It is ready to be paired via APP (scan with QRCode).

3.4 Configuration and check

IAQ SENSOR configuration

Reset and configure with the app

What needs to happen:

Once the IAQ SENSOR configuration with the APP is finished, the device can perform a firmware update (purple color for about 40 seconds). Once the device turns on it will make a beeping sound and on the IAQ SENSOR 's crown you will see a blue light followed by a green light, then it will emit a blue light. This indicates that it is taking the measurement.

Send measurement on demand

Press and hold on the crown until a double turquoise light is displayed.

What should happen:

After a few seconds, the IAQ SENSOR will emit a blue light. This indicates that it is taking the measurement. (If after a few seconds a red light is emitted, it means that the IAQ SENSOR is not connected to the WiFi network).

(On the IoT portal server you can check if the data has arrived).

Firmware upgrade

As soon as the device is configured you can perform a firmware upgrade. From firmware version 1.0.6 the IAQ SENSOR turns off and performs the upgrade indicating the crown blink with purple color for about 40 seconds. When the firmware upgrade procedure is finished IAQ SENSOR turns on again (a beep sound is heard and on the IAQ SENSOR 's crown you see a blue light followed by a green light the IAQ SENSOR's crown on the top blinks once with a blue light).

3.5 How often IAQ SENSOR sends data

For each IAQ SENSOR the measurement will be done every 5 minutes if powered by the mains, every 15/30 minutes if battery powered (in the Pro+ version the CO2 measurement is disabled when the device is in battery mode, because the CO2 sensor has a high consumption).

The sampling and relative sending of the measurements can be customized according to the customer's needs.

3.6 Use and storage

Operating temperature and humidity: 0°C ÷+40 °C / 0% ÷100 % (non-condensing)

Storage temperature and humidity: -40 ÷+70 °C / 10% ÷93 % (without condensation)

Operating Atm. pressure 300 ÷1100 hPa

3.7 Normative references

Product conforms to the essential requirements of Directive 2014/53/EU and European Directives 2014/35/EU (ex 2006/95/EC) and 2014/30/EU (ex 2004/108/EC)

EMC: EN 61326 -ETSI EN 301 489-1 / 7 -EN 55022 -EN 55024 -EN 61000-3-2 -EN 61000-3-3

SAFETY: EN 61010-1

RADIO: EN 300 328

3.8 Power supply

It can be powered by the supplied USB adapter (via micro-USB connector) or by the non-rechargeable battery integrated in the device.

Battery: 3,6V 19Ah -Size: D (Torch -62.5x33mm) -Chemistry: Li-SOCl2

4 SENSORS

The following tables shows the sensors, their maximum and minimum limits and the thresholds within the AirSense Pro+ N device:

Sensor_name	Unit	Type	Warning	Critical	Value_min	Value_max
TVOC	ppb	INCR	300	600	0	2000
CO ₂ e	ppm	INCR	2500	4000	400	8192
CO ₂	ppm	INCR	1000	1500	0	5000
Pm10	µg/m ³	INCR	80	120	0	400
Pm2.5	µg/m ³	INCR	25	35	0	200
IAQ		INCR	150	251	0	500
Electrosmog_hf	V/m*	INCR	3	6	0	10
Electrosmog_lf	nT	INCR	3000	10000	0	20000
WiFi_level	dBm	INCR	-20	-10	-100	0
WiFi_n	N	INCR	30	35	0	100
Temperature	°C	INCR	26	30	0	60
Air_pressure	mbar	INCR	1100	1100	330	1100
Ambient_light	lux	INCR	120000	120000	0	120000
Sound	dB	INCR	70	90	35	120

The following table shows the four environment indices and their thresholds for th AirSense Pro+ N device:

Environment	Model	Threshold_critical	Threshold_warn
AIR	AirSense PRO+	75	85
ELECTROSMOG	AirSense PRO+	60	85
COMFORT	AirSense PRO+	60	85
GLOBAL	AirSense PRO+	60	85

5 DISPOSAL

The unit is made of metal, plastic and electronic parts. All of these components must be disposed of in accordance with local disposal laws and if in scope with the national laws implementing the Directive 2012/19/EU (RAEE). Lead batteries must be collected and sent to specific waste collection centers.



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