BETTAIR® STATIC NODE FEATURES

- Custom electronic and mechanical design
- Dust tight and water resistant
- Low-power consumption electronics
- Wireless and wired communication
- Up to 5 days back up battery
- Open API
- Platform analytics

BETTAIR® AIR QUALITY MONITOR MK2 SERIES MEASURES THE LEVEL OF POLLUTION ON AMBIENT AIR

ADDING VALUE TO AIR QUALITY MEASUREMENTS

The *bettair®* static nodes are a novel device that permits, for the first time, the mapping of air pollution with high accuracy and in high resolution at a previously unimaginable scale. The *bettair®* network provides invaluable insights about how to mitigate air pollution.

The *bettair®* static nodes can measure up to 12 air quality indicators as well as ambient noise level and other environmental parameters.

With default configuration, the *bettair®* static node can measure the most common gaseous pollutants: nitrogen dioxide (NO_2), nitrogen monoxide (NO), ozone (O_3) and carbon monoxide (CO). In addition, the nodes also measures particulate matter (PM_1, $PM_{2.5}$ and PM_{10}) in the ambient air.

The accuracy of the measurements provided by the *bettair®* static node is based on advanced proprietary algorithms that enable parts per billion (ppb) measurements with similar accuracy than traditional air quality monitoring stations but at a fraction of the price. The algorithms compensate for the impact of the different ambient conditions as well as sensor degradation due to aging. This removes the need for costly gas sampling and maintenance equipment.

SENSORS CARTRIDGE

The lifetime of the sensors that compose the *bettair®* static node is of two years. Within this period, the quality of the data is guaranteed.

After the two years period, the sensors must be replaced. This is easily done by replacing the *bettair®* sensor cartridge. The cartridges do not require calibration.

THE PLATFORM

The *bettair®* platform shows data of each device and heat maps of the zone covered and it can be connected with other platforms in an easy manner. Our RESTful API allows to connect our platform with any proprietary or open-source platforms.
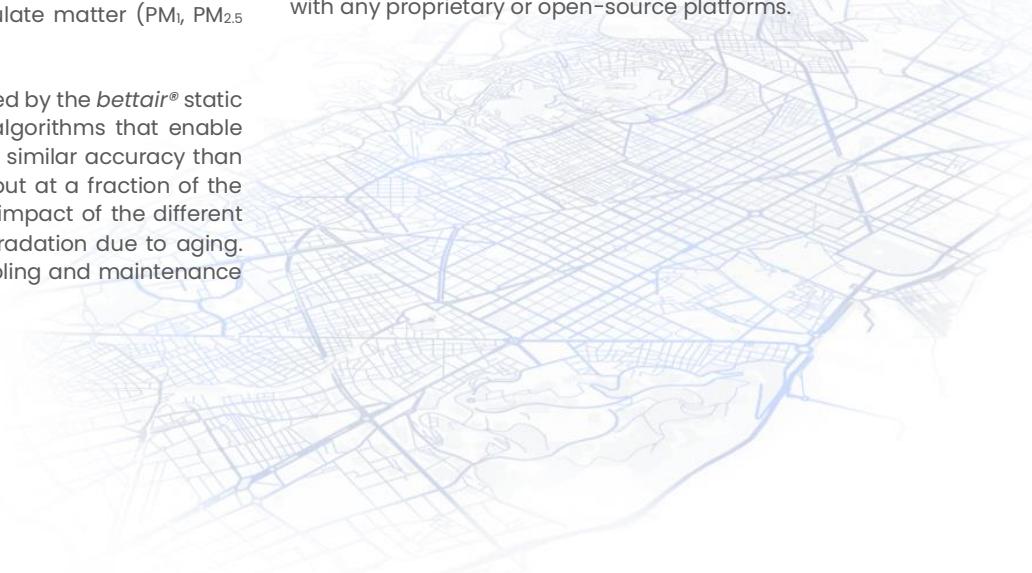
GAS MEASUREMENTS PERFORMANCE

Gases	Range*	LDL	Resol.	Accur.
NO_2	0 –20 ppm	2 ppb	0.1 ppb	±3 ppb
O_3	0 – 20 ppm	1 ppb	0.1 ppb	±5 ppb
NO	0 – 20 ppm	2 ppb	0.1 ppb	±4 ppb
CO	0 – 500 ppm	30 ppb	1 ppb	±30 ppb
SO_2	0 – 50 ppm	10 ppb	0.1 ppb	±15 ppb
CO_2	400 – 10,000 ppm	400 ppm	1 ppm	±30 ppm
H_2S	0 – 50 ppm	2 ppb	0.1 ppb	±10 ppb
NH_3	0 – 60 ppm	6 ppb	0.3 ppb	±10 ppb
CH_4	0 – 50,000 ppm	250 ppm	10 ppm	±250 ppb
HCl	0 – 20 ppm	5 ppb	0.1 ppb	±15 ppb
VOC	0 – 100 ppm	20 ppb	1 ppb	±10 ppb
VOC**	0 – 500 IAQ	n/a	1	3

*Units of ppb and ppm can be represented in µg/m³ or mg/m³ respectively.
**Unit is IAQ (Index for Air Quality)

PARTICLE MEASUREMENTS PERFORMANCE

PM	Range	LDL	Resol.	Accur.
PM1 (µg/m³)	0 – 1,000	1	1	± 2 µg/m³
PM2.5 (µg/m³)	0 – 1,000	1	1	± 2 µg/m³
PM10 (µg/m³)	0 – 1,000	1	1	± 2 µg/m³
Sampling interval				Adjustable

ENVIRONMENTAL MEASUREMENTS PERFORMANCE

Environmental	Range	Resolution	Accuracy
Temperature (ºC)	–40 … 85	0.01	±0.4
Humidity (%RH)	0 … 85	0.1	± 0.5%
	85 … 100		± 1.5%
Pressure (hPa)	300 … 1500	0.18 Pa	±0.6
Noise (db)	35 … 120	0.1	±1

OPERATING CONDITIONS

Environmental	Full Accuracy	Reduced Accuracy
Temperature (ºC)	–10...+40*	–40... +85**
Humidity (%RH)	15...85***	0...100
Pressure (hPa)	600-1100	300-1500

* Ambient Temperature
** Temperature inside the Node
*** At a temperature range of 0..+65ºC

POWER CONSUMPTION

Input Voltage range (V)	
AC	85...264VAC / 50-60Hz
DC	9..36 VDC / 18...75 VDC
PoE (V)	37...57 (802.3at Type 1)
Solar Panel	30W @ 18V Solar Panel

Power consumption	
Min	0.6W
Avg	0.8W
Max (when charging)	12W

Battery Duration 4 cell: Li-ion 7.2V@7Ah	~5 days*

*Depends on measurement configuration parameters.

SYSTEM SPECIFICATIONS

Communications	
Wireless	3GPP Rel.11 LTE Cat1 (4G)
EMEA	B1/B3/B7/B8/B20/B28
NA	B2/B4/B5/B12/B13/B25/B26
LPWAN	LoRaWAN 868/915 MHz
Wired	IEE802.3 Ethernet 10/100 Mbps
GPS	GPS/GLONASS/BeiDou - Galileo/QZSS

PHYSICAL

Mechanical	
Weight (g)	1500
Material	Polycarbonate
Colour	UV protection coat Enclosure - RAL 9010 Cartridge - RAL 9006
Mounting	Pole or Wall
IP rating	
Cartridge	IP54
Main Body	IP65

210   178   114
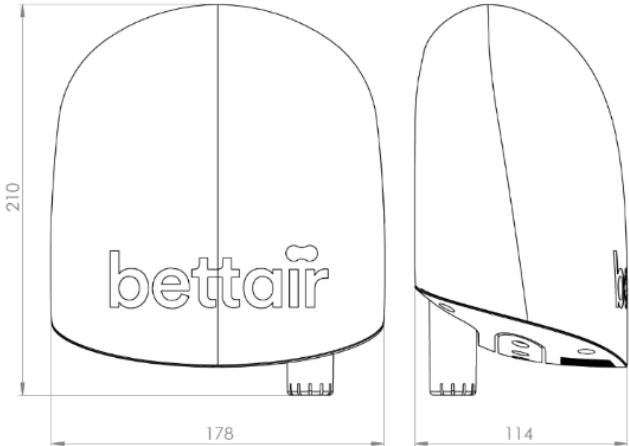
OPTIONAL ACCESSORIES

Monocrystalline solar panel	Size (mm) 604 x 340 x 25 Power Rate 30W – 12V
Anemometer Davis Vantage PRO2 Wind Direction	Display Resolution 1º Accuracy ±3º
Wind Speed	Resolution 0.1 m/s Range 0.20 to 89 m/s Accuracy ± 1 m/s or ±5%

CERTIFICATIONS

Regulations	
EMC compliance Emissions Immunity	Directive 2014/30/EU EN55032 Class B EN55024 Class B
LVD compliance Electrical Safety	Directive 2014/35/EU EN62368-1
RED compliance	Directive 2014/53/EU
FCC compliance	FCC Part 15 Subpart B
Acoustic compliance	IEC 61672-1:2013

bettair®
Mapping Air Quality
bettaircities.com

CE FC

mCERTS Certificate MCERTS CSA MC240441/00

CERTIFICACIÓN DE CONFORMIDAD CON EL ENS Esquema Nacional de Seguridad Categoría MEDIA RD 311/2022