

BETTAIR STATIC NODE MK2 SERIES FOR MAPPING POLLUTION IN REAL TIME

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 (NO₂), nitrogen monoxide (NO), ozone (O₃) and carbon monoxide (CO). In addition, the nodes also measure particulate matter (PM₁, PM_{2.5} and PM₁₀) 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 | 0.1 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 ₂ S | 0 – 50 ppm | 2 ppb | 0.1 ppb | ±10 ppb |
| NH ₃ | 0 – 100 ppm | 1 ppm | 0.3 ppm | ±1 ppm |
| 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/m ³) | 0 – 1,000 | 1 | 1 | ± 2 µg/m ³ |
| PM2.5 (µg/m ³) | 0 – 1,000 | 1 | 1 | ± 2 µg/m ³ |
| PM10 (µg/m ³) | 0 – 1,000 | 1 | 1 | ± 2 µg/m ³ |
| Sampling interval | Adjustable | | | |

ENVIRONMENTAL MEASUREMENTS PERFORMANCE

| Environmental | Range | Resolution | Accuracy |
|------------------|------------------------|------------|------------------|
| Temperature (°C) | -40 ... 85 | 0.01 | ±0.4 |
| Humidity (%RH) | 0 ... 85 85 ... 100 | 0.1 | ± 0.5% ± 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 (°C) | -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...+65°C

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 Lifetime | |
| 4 cell: Li-ion 7.2V@7Ah | ~5 days* |

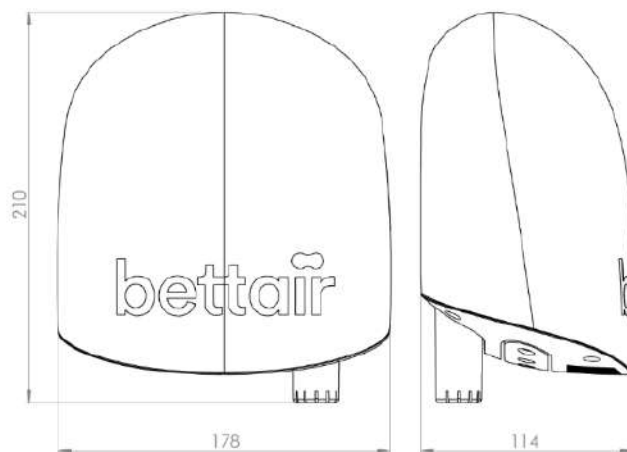
*Depends on measurement configuration parameters.

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 |



OPTIONAL ACCESSORIES

| | |
|---|--|
| Monocrystalline solar panel | Size (mm) 430 x 345 x 25 Weight 1.76 Kg Power Rate 20W |
| Anemometer Davis Vantage PRO2 Wind Direction | Display Resolution 1° Accuracy ±3° |
| Wind Speed | Resolution 0.1 m/s Range 0.5 to 89 m/s Accuracy ± 1 m/s or ±5% |

CERTIFICATIONS

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

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