EURsense

BuiltAir

BuiltAir Logger

The four demands for indoor air monitoring are answered with the *BuiltAir Logger*

- Air quality
- Occupancy and activity
- Thermal comfort
- Ventilation status and local airflow

BuiltAir Logger uses the latest and best spec sensors, providing data with the lowest uncertainty

- Accurate radiant and ambient temperature
- Better NO_2 data quality using deterministic sensor compensation
- High precision barometric pressure for room infiltration and mechanical ventilation maps
- Accurate CO_2 readings
- Optional Tera NextPM for measuring PM_1, $PM_{2.5}$ and PM_{10} plus Particle Number. Rated by AQ-SPEC as the best Nephelometric PM.
- Local airspeed in X and Y dimensions for measuring thermal comfort and airflow
- Visible light (lx) matches human eye response plus total light level (lx).
- Sound pressure, dBA and dBC noise
- Ultra-low power electronics and remote PM to reduce self-heating and temperature errors

BuiltAir Logger (patent pending) gives more

- Measures both radiant and ambient temperatures, humidity, and airflow, so HI and PMV can be calculated. These critical IEQ parameters can be correlated with occupant comfort surveys.
- Ventilation schedules can be optimised, meeting the energy, IEQ and IAQ demands.
- Light, CO_2, noise and pressure sensors determine occupancy, confirm times of operation of the ventilation system and detect door and window openings.
- With CO_2, NO_2 and optional *BuiltAir PM*, both activity patterns and Air Quality Index (AQI) are recorded together.
- The patent feature captures transients by automatic trigger for analysis- determines the ventilation dynamics of the space.

Flexible end-to-end system with the BuiltAir Cloud interface and easy network setup

- Select the datalogging interval and averaging period from 5 sec to 24 hours.
- Select either spot or average with minimum and maximum readings.
- The *BuiltAir Cloud* with a friendly dashboard provides compensated data in both .csv and graphical formats, stores datalogger options and vaults your data,.

Easy to deploy, reliable and secure

- Compact size (95 x70 x40 mm) for easy wall mount or place on any surface.
- Connect the *BuiltAir Router* to any local AC socket for WiFi connection to the entire *BuiltAir Network*, then use the *BuiltAir Cloud* to join it in the network, and start datalogging.
- With up to six weeks of battery powered data logging capability, you do not need to hunt for AC sockets. Use AC powering or portable power bank through the USB C socket for long term monitoring.
- Uses Thread- a tried and tested wireless mesh network built for IoT, transmitting data to the Cloud via Wi-Fi, using the *BuiltAir Router*. You can choose to read from your PC in near-real time or periodically download data batches from the Cloud.
- Where WiFi is not available and for failsafe data, massive on-board data storage capacity allows remote deployment without the Router for later downloading via the USB socket.
- Data reliability and security are ensured with encrypted handshaking and Cloud data isolation to avoid cyber-attacks.

Sensor Performance

Measurement	Range	Resolution	Variance	Uncertainty (95% CI)	Other Specification
CO_2	400 to 5,000 ppm	1 ppm		±30 ppm ±3% rdg	±20 ppm/ann
NO_2	4 to 2,000 ppb	1 ppb			
PM_1 $PM_{2.5}$ PM_{10}	1 to 1,000 µg/m^3	0.1 µg/m^3	<3% repeatability <5% linearity		*Optional*
PNC_1 $PNC_{2.5}$ PNC_{10}	250 to 1,000,000	1 PN/cm^3			
Ambient temperature	-5 to 50°C	0.01°C	±0.10°C (0 to 60°C)	±0.20°C	
Ambient %RH	0 to 95%RH	0.1%RH	±1.0% (25°C) ±1.5% (0 to 50°C)	±2% RH (<90%RH, 25°C)	Specs for <90%RH
Radiant temperature	-5 to 50°C	0.01°C	±0.15°C (0 to 60°C)	±0.3°C	
Barometric pressure	85,000 to 110,000 Pa	1 Pa	±3 Pa (23°C)	±6 Pa (15-55°C)	<±10Pa/ann; <±1.5/24 hr
Ambient light	0 to 1000 lx	0.1 lx		±10% (light type)	545 nm peak
Total light	0 to 1500 lx	0.1 lx		±5%	280-900 nm
Sound pressure	20 to 110 dB	0.1 dB	-3dB at 100 Hz		
dB(A)	20 to 105 dB	0.1 dB(A)			
dB(C)	20 to 110 dB	0.1 dBC			
Airspeed X and Y direction	0.10 to 10 m/s	0.01 m/s		0.1 m/s ±3% rdg	

Environmental, Mechanical

Parameter	Specification	Notes
Case dimensions	70 x 94 x 42 mm	Plus 2 mm rubber feet
Case weight	165g	Optional Tera NextPM: 85g
Temperature	0°C to 50°C	Survives -20 to 65°C but is not within performance specs
Relative Humidity	0 %RH to 90 %RH	Non-condensing
Pressure	700 to 1150 hPa	

Electrical

Parameter	Specification	Notes
Battery	Type 21700 5,000 mAh rechargeable Li-ion	Not user accessible
AC power	5 VDC via USB C socket	<500mA with NextPM
Power consumption	500µA to 5mA (Logger only)	PM: 80mA, 300mA w/heater
Battery lifetime	30 days typical, 42 days maximum	Depends on log interval
Battery lifetime with PM	60 hours (continuous, heater on); 30 days (60 min PM sampling, heater off)	AC powering is recommended if >60%RH

Cloud, Warranty

BuiltAir Cloud	www.purit.ie.com	Customer data processing, storage, download centre
Warranty	12 months	From date of delivery. Meets quality and performance

Border Router/Accessories/ Options

BuiltAir PM (*NextPM*) (Optional)	With stand, cable	UART 6-way connector
BuiltAir Border Router	One required for each network	WiFi/ Thread router