BuiltAir© CHIMP Logger

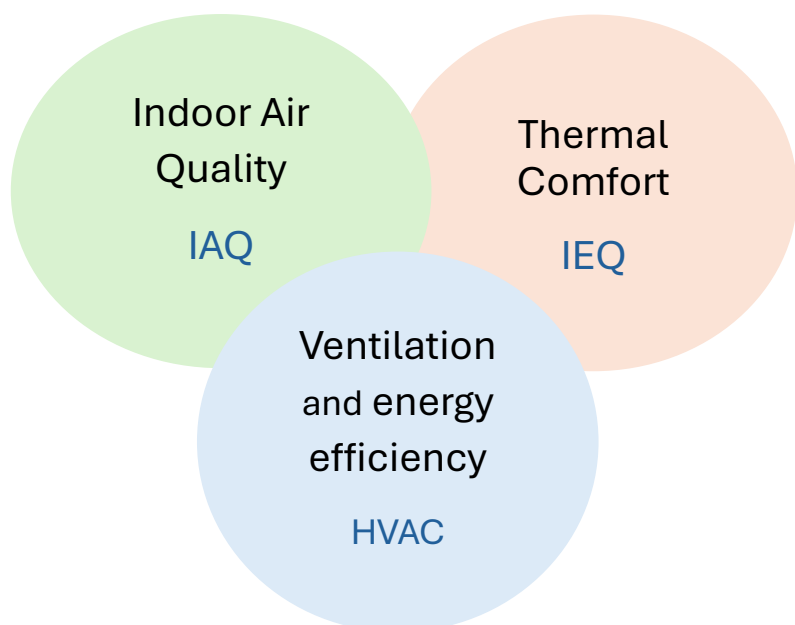## Comfort and Health Indoor Multi-Parameter Logger

NosmoTech has moved indoor air monitoring to the next level with networked Loggers providing superior data quality

Built by NosmoTech

Indoor Air Quality

IAQ

Thermal Comfort

IEQ

Ventilation and energy efficiency

HVAC

BuiltAir© SensorNet Features

BuiltAir© Cloud advanced data algorithms streamline your data processing for building management systems, further analytics and machine learning applications. The platform offers transparent compensation with access to each stage from raw data, providing options for calibration and resampling to suit your specific needs.

The ONLY networked wireless system that can chart the entire building

- Connect multiple Loggers and synchronously stream 15 parameters as a mesh in different zones
- Powered by Thread, a wireless mesh protocol that ensures reliable, low-power communication—even across large or complex building layouts

Choose standalone offline or networked logging

- Where WiFi is not available, massive on-board 500,000 record storage capacity allows offline logging for quick and simple deployment

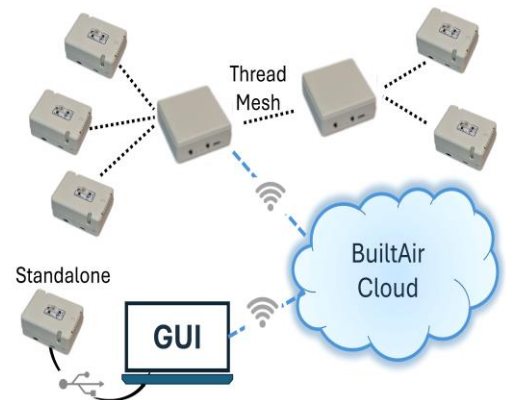## BuiltAir© Cloud configures Loggers to meet your needs

- Select the datalogging interval and averaging period from 5 sec to 60 minutes
- Select either spot or average PLUS minimum and maximum readings for each log record
- The *BuiltAir© Cloud* with a friendly dashboard, statistics and built-in graphics provides both raw and compensated data downloads, includes file control, stores datalogger configurations and vaults your data
- Monitor from your PC in near-real time or periodically download data from the Cloud
- Encryption plus Cloud data isolation for each user gives that needed data security

Data processing for experts

- *BuiltAir© Cloud* filters outliers, controls offset calibration, and provides a calibration history
- Organize your data by assigning projects, then define Log Sessions across multiple Loggers
- Create Datasets to analyze entire Sessions or zoom in on specific time windows
- Automatic multi-parameter graphing highlights trends and transients instantly

Tackle new challenges with the BuiltAir© SensorNet

- Report together ventilation, IAQ and Thermal Comfort
- Map infiltration, interzone airflow and local ACH
- Measure radiant and ambient temperatures, RH and airflow to determine thermal comfort
- Optimise ventilation schedules to balance energy requirements with IEQ and IAQ demands.
- Light, CO_2, noise and pressure sensors together determine occupancy, confirmthe operating times of the ventilation system and detect door and window openings.
- Patented *FastLog©* automatically captures transients, so you can determine zone response to changes as well as steady state measurements,

BuiltAir© CHIMP Logger Features

We designed-in the best low cost sensors, selected for sensitivity, stability and repeatability. We do not use machine learning or AI , we compensate readings based on our knowledge of fundamental sensor performance, learned from 20 years as a manufacturer of Low Cost Sensors, giving excellent data quality with very low uncertainties.
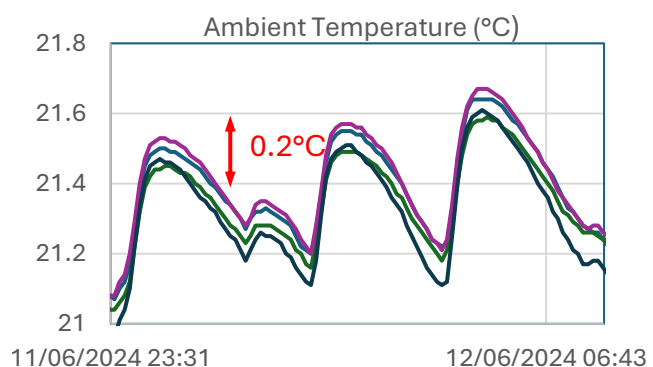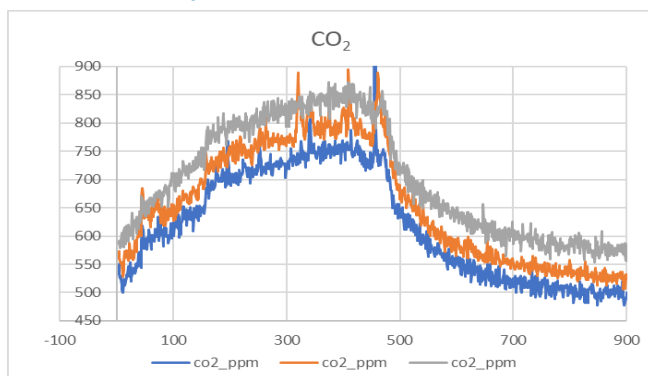
All these Measurements in one device

	Air Quality	Thermal Comfort	Ventilation	
Temperature	✓	✓	✓	Radiant and ambient temperatures
Humidity	✓	✓	✓	%RH, dewpoint and vapor pressure
Baro pressure	✓	✓	✓	High accuracy-replaces DP testing
CO_2	✓		✓	Pressure corrected LED NDIR CO_2
NO_2	✓			Trusted electrochemical NO_2 sensor
PM_1 $PM_{2.5}$ PM_{10}	✓			AQ-SPEC rated best Nephelometric
Noise		✓	✓	dBA and dBC calculated by Logger
Light		✓	✓	Both visible light (lx) and W/m^2
Airspeed		✓	✓	TWO NEW orthogonal airflow sensors
IEQ parameters		✓		WBGT, HI, T_{eq}, PET in near-real time

Best Accuracy- the latest and best spec sensors, providing data with low uncertainty

- **Ultra-low power** electronics and remote PM reduce self-heating temperature errors
- Offset calibration option for improving accuracy and nulling entire network offsets
- Accurate radiant and ambient temperatures and humidity
- Better NO_2 data quality using deterministic sensor compensation and trusted E'chem sensor
- High precision barometric pressure for room infiltration and interzone airflow

Check our specs

CO_2

Ambient Temperature (°C)

0.2°C

11/06/2024 23:31   12/06/2024 06:43

Sensor Performance

Measurement	Range	Resolution	Accuracy + Precision	Uncertainty (95% CI)	Other Specification
CO_2	400 to 5,000 ppm	1 ppm	±40 ppm at 425 ppm	±30 ppm ±3% rdg	±10 ppm/ann Or ABC correct
NO_2	4 to 2,000 ppb	1 ppb	±5 ppb RMSE	±20% rdg at TLV	
PM_1 $PM_{2.5}$ PM_{10}	1 to 1,000 µg/m³	0.1 µg/m³	<3% repeatability		
PNC_1 $PNC_{2.5}$ PNC_{10}	250 to 1,000,000	1 PN/cm³	<5% linearity		
Ambient temperature	-5 to 50°C	0.01°C	±0.10°C (0 to 60°C)	±0.15°C	
Ambient %RH	0 to 95%RH	0.1%RH	±1% (25°C) ±1.5% (0 to 50°C)	±2% RH (<90%RH, 25°C)	<90%RH
Radiant temperature	-5 to 50°C	0.01°C	±0.10°C (0 to 60°C)	±0.15°C	
Barometric pressure	850 to 1100 hPa (mbar)	1 Pa	±8 Pa (23°C)	±10 Pa (15-55°C)	<±10 Pa/ann; <±1.5 Pa/24 hr
Ambient light Total light	0 to 1000 lx 0 to 12 W/m²	0.1 lx 0.01 W/m²		±10% (light type) ±5%	545 nm peak 280-900 nm
Sound pressure dB(A) Class 2 dB(C) Class 2	45 to 110 dB 30 to 105 dB 30 to 110 dB	0.1 dB	1.5 dB at 1KHz	2.5 dB at 1kHz	
Airspeed X and Y	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	Barometric pressure sensor error increases beyond 850 to 1100 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	<250mA with NextPM
Power consumption	2.2mA to 5mA (Logger only)	PM: 90mA, 250mA w/heater
Battery lifetime	50 days typical, 80 days maximum	Depends on user selected setup
Battery lifetime with PM	60 hours (continuous, heater off) 50 days (15 min PM sampling, heater off)	AC powering is recommended if >60%RH (PM heat switches ON)

Cloud, Memory, Warranty

BuiltAir© Cloud		Data compensation, storage, analysis. Annual charge.
Logger memory	500,000 records	Logger memory backs up data continuously and stores readings when working offline
Warranty	12 months	From date of delivery. Meets quality and performance

Border Router, Particle Monitor

BuiltAir© PM (*NextPM*) (Optional)	With stand, cable	Mini-USB connector
Border Router	One required for each network	WiFi/ Thread router, AC power