



# AMBIAIR

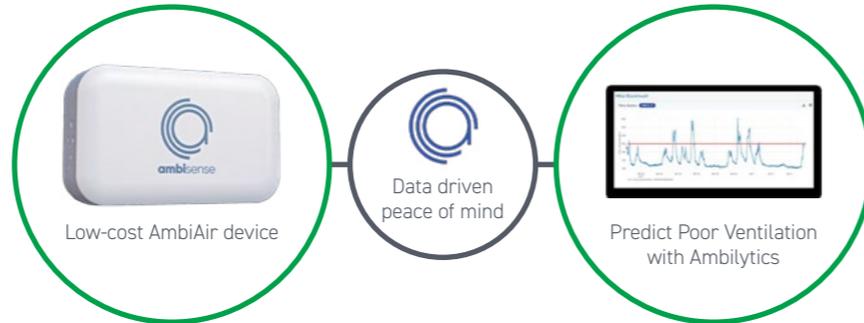
HELPING YOU IMPROVE INDOOR  
AIR QUALITY FOR HEALTHIER  
AND SAFER BUILDINGS



# THE AMBIAIR SOLUTION

While many air quality sensor and software vendors provide live and historical reporting of air quality data, Ambisense stands out for its innovative software platform that focuses on predicting air quality degradation

Verdantix '10 Exciting Indoor Air Quality Technologies To Watch In 2021'  
2nd March 2021



## How it works

AmbiAir combines discrete, IoT connected and easy to install hardware with intelligent software; Ambilytics.

The hardware measures CO<sub>2</sub>, temperature, pressure, and humidity in real-time transmitting this data securely, and wirelessly to our smart platform Ambilytics.

The software analyses and predicts potential problem hotspots, alerting the user with plenty of time to take a proactive risk management approach, which can be as simple as opening a window or decreasing the number of occupants.

# BENEFITS TO USING THE PREDICTIVE AMBIAIR INDOOR AIR QUALITY SOLUTION



The **predictive alerts** in AmbiAir notifies users to potential problem hotspots which allows for proactive maintenance.



As AmbiAir was designed as a **low-cost solution**, users can install a great number of air quality sensors throughout a structure and can therefore monitor their real estate on a room by room basis.



AmbiAir promotes a data-driven approach, so decisions can be made on data generated in a specific location over a period of time, thereby saving money on ventilation decisions. This allows you to make **energy-saving changes**.



AmbiAir monitors the indoor air quality elements to a healthy building, promoting **staff wellbeing** which helps to decrease absenteeism and can aid in attracting and keeping high-quality staff.

# AMBIAIR FEATURES



Easy and quick installation



Low-cost SaaS model to allow for widespread deployment



Wireless transmission of data minimises costly installation works



Battery-powered to allow hardware to be installed and repositioned as required



Room by room monitoring with live data updates from every device in every location



Real-time measurements of critical target variables; CO<sub>2</sub>, temperature, humidity, pressure, and particulate matter (PM)



No maintenance or calibration required



Fully customisable data displays and reports



Real-time and predictive alerts allow quick reaction to immediate and potential breaches of air quality thresholds



Forecasting module enables both proactive air quality maintenance and operational changes that help ensure a healthy and safe building

# AMBIAIR SPECIFICATIONS

SIGNAL TYPE	SENSOR TYPE	POWER INPUT	CO <sub>2</sub>	TEMPERATURE
LoRaWAN (WiFi / 3G data backhaul)	NDIR (non-dispersive infrared)	1×D Cell battery	RANGE: 400 - 10,000 ppm ACCURACY: ±30 ppm or ±3% of reading	RANGE: 0°C to + 70°C ACCURACY: (+/- 0.3°C)

PARTICULATE MATTER (PM)	RELATIVE HUMIDITY	HUMIDITY	OPERATING TEMPERATURE	DIMENSIONS
PM0.5 - PM10	0% to 95% (non-condensing)	RANGE: 0% to 100% RH ACCURACY: 10% to 90% RH (+/- 3%)  Below 10% & above 90% RH(+/- 5%)	5°C to +60°C	150 x 93 x 45mm

## COVID-19 AND OTHER AIRBORNE VIRUSES

Covid-19 has driven greater interest in healthy buildings, with people rightfully seeing it as a means to decrease Covid risk - with good ventilation as the primary has been shown to be the most effective means of reducing Covid risk indoors. The CDC stated that there is only a 1/10000 chance of catching Covid via contaminated surfaces (fomites).

Therefore, when indoors, deep cleaning is a very ineffective means of decreasing the Covid transmission risk.

The Ashrae epidemic task force even stated that Covid is 'unequivocally' airborne, and the guidance also recommends purge cycles between occupancies.

Looking at these facts, we can see that monitoring indoor air quality through solutions such as AmbiAir is critical to ensuring staff remain healthy and safe, during and after the Covid pandemic.

# CASE STUDY

## After this company had a Covid outbreak, they took a data-driven preventative approach

### CLIENT

Distribution & Logistics Company

### CHALLENGE

Simon\*, the owner of a distribution and logistics business based in the heart of Dublin city centre was in a difficult situation. His staff couldn't work from home, so he had introduced stringent work practises, in line with Government guidelines, to protect his staff from the risk of Covid-19 infection. These measures included social distancing, mask-wearing and a rigorous cleaning regime.

Despite these measures, before the Christmas break, one member of staff who worked in the office was diagnosed with Covid-19.

Alarmed, Simon requested that all employees be tested, and all of the staff members who worked in the office tested positive.

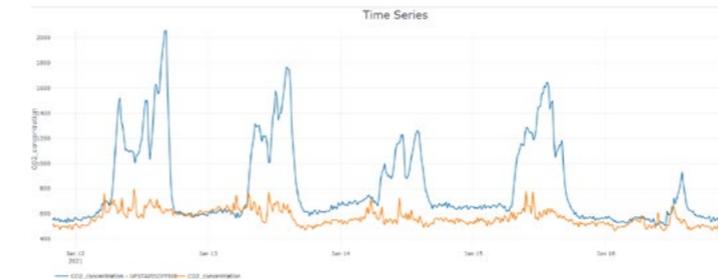
However, the staff members who worked in the warehouse area, which consisted of 75% of the workforce, all tested negative.

Understandably Simon was keen to investigate the issue and to look at what measures could be put in place to reduce the risk of a recurrence. Given that the staff members in an office tested positive despite social distancing and maskwearing, he decided to look for another Covid-19 spread factor. Knowing that the primary infection route for Covid-19 is through airborne droplets he focused his attention on the ventilation within the office area.

Instead, Simon decided to see if simple operational changes would reduce the Covid-risk in the office. A critical factor for him was being able to see whether the changes he was planning to introduce were actually working to keep his staff healthy and safe.

### APPROACH

So, he installed four AmbiAir units across his business; two were installed in the warehouse and the other two units in the office area. The data showed that, as he expected, the warehouse area had excellent natural ventilation being open to the air during the workday. The data in the office area, on the other hand, showed consistently high levels of CO<sub>2</sub>, often exceeding 2000ppm and mostly averaging around 1500ppm. This was where he needed to take quick action.

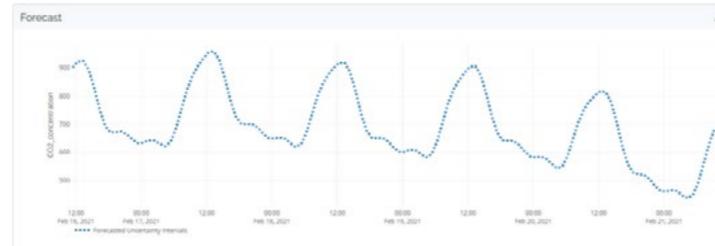


# CASE STUDY (continued)

With the office ventilation so poor, he rapidly found himself depending on the predictive alerts within Ambilytics to manage the Covid-risk. He had set these up to alert him 5 minutes before CO<sub>2</sub> levels were forecasted to rise above 800ppm and again above 1000ppm. This let him take preventative action which included simple things like opening a window or staff leaving the office for a short period.

The software even showed him, that if he continued with the methods he was currently using that the algorithm predicted the CO<sub>2</sub> levels would continue to fall.

This approach provided a layer of reassurance to his employees, already wary and who did not have the option to work from home.



## RESULTS

Simon had taken many measures to protect his staff and it was not possible to conclusively prove that the outbreak before Christmas was tied to poor ventilation. However, given that the data generated in the office showed high CO<sub>2</sub> levels and therefore poor ventilation (a key factor contributing to the spread of Covid-19) and the fact that 100% of the staff in the office contracted the disease while none of their colleagues in the warehouse where there was excellent ventilation did, Simon thought it likely ventilation was a high-risk factor and therefore something he needed to continue to monitor, predict and take mitigation actions.

Simon is considering possible structural changes, but what building works actually need to be done and their long-term efficiency is something he will determine using the data already generated, now and into the future.





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