



# The Power of Data

**How Healthy Homes Come True with MQTT  
Integration Between Kaiterra Sensedge and  
Delos' DARWIN Platform**

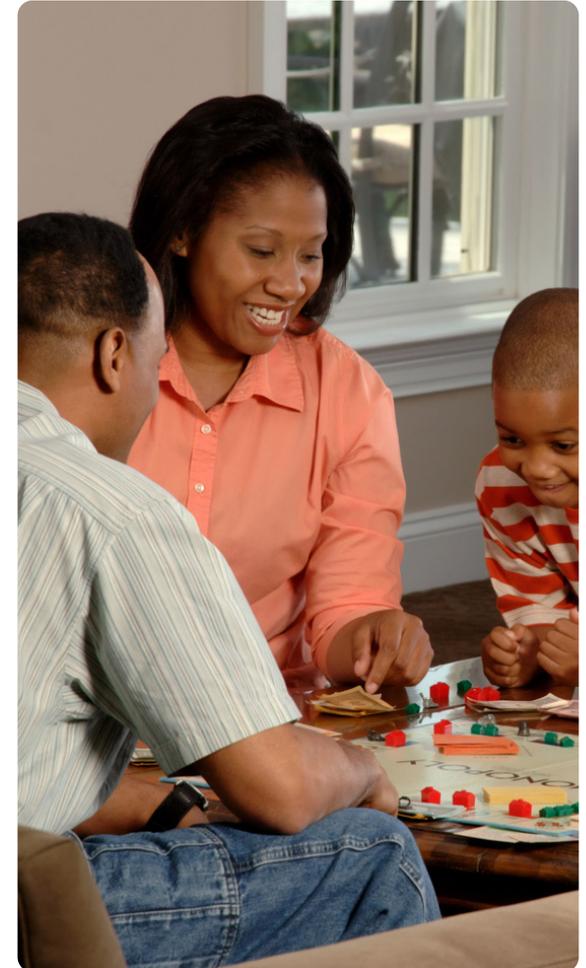
“New home buyers have never had access to real-time indoor air quality data in the Australian housing industry until now.”



Paul Scialla  
Founder & CEO, Delos

## Overview

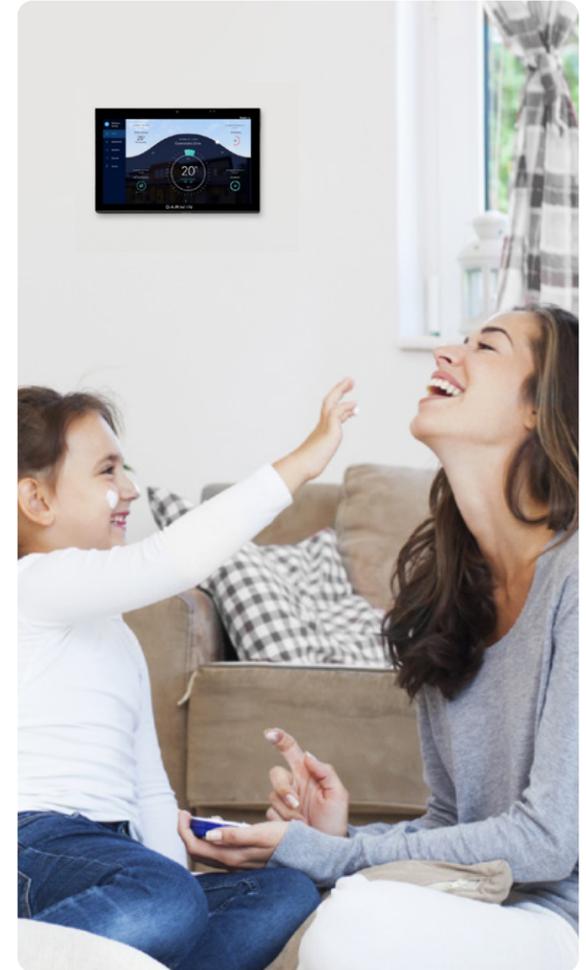
As air quality technology becomes more accessible, people are looking for new ways to integrate this knowledge into bettering their daily lives. What if new **Internet of Things (IoT)** solutions could be incorporated into homes to help automate heating, ventilation, and air conditioning (HVAC) systems and better protect the overall well-being of occupants? This was just one of the questions that **Delos**, global wellness real estate pioneer, set out to answer when they first drafted a plan to bring wellness homes to Australia.



# The Challenge

Delos wanted to develop a wellness platform that would tackle **intermittent pollution problems** and transform Australian homes into environments designed to support residents' health and well-being. After many years of research, it was clear that this new system would need an air quality solution to provide four things:

- 📶 **Reliable IAQ Sensors:**  
A reliable way to monitor and manage commonly occurring air pollutants with high-quality sensors.
- 🕒 **Real-time Data:**  
The ability to process IAQ data quickly so that pollution spikes could be addressed in real-time.
- ☁️ **Cloud and Local Connectivity:**  
The ability to connect to both cloud and local DARWIN hub at the same time, with no delays.
- ⚡️ **Smart HVAC Control:**  
The power to automatically sync data with corresponding HVAC and air filtration systems, constantly working to help enhance IAQ.



# The Solution

Kaiterra's **RESET™ accredited commercial indoor air quality monitor**, the **Sensedge**, was the perfect complement to Delos' latest innovation, DARWIN Home Wellness Intelligence platform.

The Sensedge's modular sensors not only made it extremely easy to install and replace for annual upkeep, but they also enabled the DARWIN platform to accurately monitor and measure key IAQ parameters including PM<sub>2.5</sub>, TVOC, CO<sub>2</sub>, Temperature, and Humidity.

However, data collection is **meaningless without analysis**—especially when it comes to monitoring air quality. In order to make sense of the data collected by the Sensedge devices and enable smart HVAC control options, the readings first needs to be interpreted and analyzed by the intelligent DARWIN hub.

## How exactly?

While the Sensedge has several connection possibilities to the DARWIN IoT ecosystem, Delos was looking for an option to connect to both cloud and the local DARWIN hub at the same time, with no delays. **Secondary message queuing telemetry transport (MQTT)** was the chosen protocol for data transmission between the devices and Delos' intelligent platform, for its advantages in stable and flexible connection.



## Stability:

Using Secondary MQTT for the local network connections guarantees that the connection between Delos' platform and Kaiterra monitors remains stable even when there is a loss of internet connection. Any **data loss or interruptions** in the automation is prevented even if the devices cannot communicate to outside internet or to the Kaiterra servers.

## Flexibility:

Secondary MQTT works over both **Ethernet** and **Wi-Fi**, so Delos was able to choose their own setup for connecting to the Kaiterra servers and outside internet, without having to establish different configurations for each.

The Sensedge's powerful Secondary MQTT integration allows the DARWIN hub to make real-time, **intelligent decisions** about how to improve the indoor environment immediately. When the DARWIN platform detects pollution spikes indoors, it is engineered to modulate the ventilation rate and help remediate any issues in specific areas of the home, as it knows what's happening around your home and is able to intuitively filter the air inside. Incorporating the Sensedge into the DARWIN platform provided a set of streamlined solutions needed to monitor air, measure pollutants, and automatically adjust the ventilation in the home as needed.



# The Impact

Delos launched its collaboration with a leading volume home building company in 2018 and expects 1,000 homes to be built with the DARWIN network in 2019. As a result, Victorian families will be among the first in the world to have homes with this cutting-edge **IAQ technology wellness platform** that uses real-time air quality data to control a building's HVAC ventilation rate to reduce the concentration of contaminants in the home.





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Interested in learning more?  
Contact [info@kaiterra.com](mailto:info@kaiterra.com) for more information.