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PROJECT SNAPSHOT

AVIAN INFLUENZA PREPAREDNESS · CONTROLLED ATMOSPHERE

Oxygen and temperature monitoring inside sealed poultry sheds

How an emergency animal disease preparedness team got live readings out of a sealed, insulated shed, and tested it at an industry field day.

CUSTOMER	SECTOR
An emergency animal disease preparedness team	Emergency animal disease preparedness
APPLICATION	**SOLUTION**
Remote oxygen, temperature and barometric pressure monitoring inside sealed poultry sheds during controlled atmosphere operations, plus ambient temperature outside	A wireless monitoring network with sensors inside the shed, an ambient sensor outside, and a receiving station sending data to the cloud

SUMMARY

An Australian emergency animal disease preparedness team needed to see oxygen, temperature and barometric pressure inside a sealed, insulated poultry shed in near real time, from outside. OneTemp put together a wireless solution that carries readings from six points along the shed, plus outside ambient temperature, to a receiving station outside the doors. The system was then put to the test at an industry field day.

THE CHALLENGE

Seeing inside a sealed shed

During controlled atmosphere operations, the response team needs to know conditions inside the shed without going in, and crews need to confirm it's safe before anyone enters. That means keeping oxygen within the required low range while internal temperature and barometric pressure are monitored continuously, with nitrogen flow adjusted based on readings from six or more points across the shed.

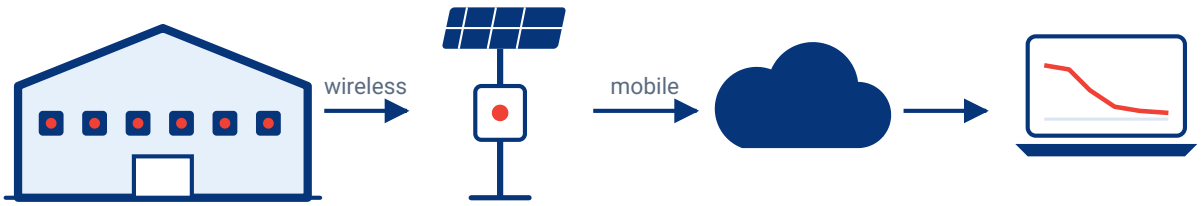
The sheds themselves made that hard. Modern poultry sheds can be up to 150 metres long and 20 metres wide, built from insulated panels around 10 cm thick with metal skins, and the doors stay closed during the operation. Getting a signal out through that is not straightforward.

THE SCENARIO

What the system had to do

- Close to real time: logging every 5 minutes, with faster intervals available
- Readings watched from outside, doors closed
- A signal out through metal-skinned panels
- Six measuring points along the shed
- Quick to deploy: sensor plates that hook or zip-tie into place
- Easy to clean: wiped down afterwards

HOW THE SYSTEM WORKS



Sealed shed
6 measuring points

Receiving station
Outside the doors

LI-COR Cloud
Logged every 5 minutes

Live dashboard
Watched on a laptop outside

Oxygen, temperature and barometric pressure from inside the shed, plus ambient temperature outside, all report to one station and one dashboard.

THE SOLUTION

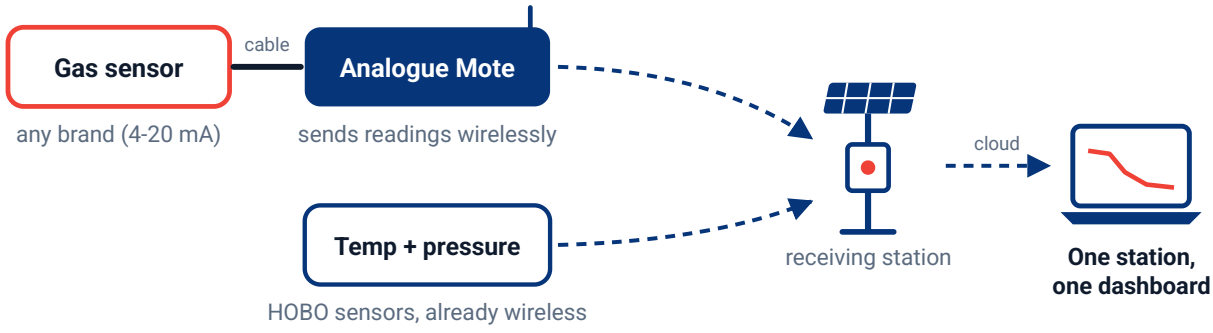
One wireless network, inside and out

- **6 oxygen sensors** with 4 to 20 mA output and replaceable sensor elements
- **6 wireless temperature sensors**
- **3 HOBOnet® Analogue Motes** that bring the oxygen sensors into the same wireless network
- **1 barometric pressure smart sensor** (plug and play, with extension cable)
- **1 ambient temperature smart sensor** outside the shed
- **A receiving station outside the shed,** sending data to LI-COR Cloud
- **AC power adapter** to charge the receiving station and Analogue Mote batteries

The key was the HOBOnet Analogue Mote. It lets a non-HOBO gas sensor with a standard 4 to 20 mA output connect straight into the HOBO wireless system, so oxygen, temperature and pressure all report to one station and one dashboard. We could choose the right gas sensor for the job, rather than being limited to one range.

Each measuring point pairs an oxygen and a temperature sensor on an aluminium plate, with holes top and bottom to hook or zip-tie into position in the shed. We worked closely with the customer to find the right spot for the RX Manager (analogue mote), so the sensors inside the shed connect reliably and the data reaches LI-COR Cloud for real-time monitoring.

WHY THE ANALOGUE MOTE MATTERS



The oxygen sensors connect to the network through the Analogue Motes, alongside the HOBO temperature and pressure sensors.

THE RESULT

Tested at an industry field day

The customer organised an industry field day to test the system's readiness. Liquid nitrogen was injected into the sealed shed while oxygen, internal temperature and barometric pressure were monitored. Readings were logged every five minutes and sent to the cloud every ten, and the team watched the data live on a laptop outside the shed, using a dashboard set up by OneTemp. The trial also checked how the system responded when oxygen reached the safety threshold.

The trial ran for around 30 minutes. In a real operation, monitoring may run for one to two hours, depending on the application.

THE FIELD DAY IN NUMBERS

6
measuring points along the shed

5 min
logging interval

10 min
uploads to the cloud

~30 min
trial, with real operations running 1 to 2 hours

COMMON QUESTIONS

How do you monitor oxygen levels inside a sealed poultry shed?

Wireless sensors placed along the shed connect to an RX Manager, and a receiving station outside sends the readings to LI-COR Cloud. The team watches conditions in real time on a laptop without opening the doors, and crews can confirm it's safe before going in.

Can wireless sensors transmit through insulated shed panels?

Metal-skinned insulated panels can weaken the signal, so where the receiver sits matters. Based on your shed's construction, we can recommend the best placement for the RX Manager so the sensors inside connect reliably.

What oxygen range should monitoring equipment cover for controlled atmosphere work?

It depends on your method and guidelines. Target levels are set by AUSVETPLAN and the response team; the equipment's job is to confirm them accurately.

How quickly can oxygen monitoring equipment be supplied for a response?

Typically 6 to 8 weeks, or around 3 weeks when sensors are in stock. Organisations preparing ahead can plan supply before an incident.

Planning oxygen monitoring for your response?

Talk to our team about your sheds, your method and what your agency requires.
ISO 9001 certified · Australian distributor with national coverage and local support.

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