

**DEMAND
CONTROLLED
VENTILATION
WITHOUT WIRES**

With increased demand for intelligent climate control systems, more and more HVAC installations deploy VAV/VAQ terminals that allow temperature control in such centralised air conditioning systems.

However, Wiring and connection of VAV/VAQs with thermostats and their integration with the BMS system is a challenge in terms of both time and money. Bulk of this wired system resides in confined spaces (typically over the ceiling) with difficult access, posing hurdles in trouble shooting, modification and eventually in operation and maintenance.

Two award winning products from Conaire present a solution that not only addresses all these issues but offers more in terms of flexibility and ease of use.



**IMPLEMENT
DEMAND CONTROLLED
VENTILATION SYSTEMS
WITHOUT WIRES**

1 VARIABLE AIR QUALITY STATION



Conaire VAQs, an air measuring control damper that utilises rapid average pitot tube for airflow measurement and low leakage volume control damper for volume control. The VAQ series combines the functionality of an accurate airflow measuring station, low leak control damper with actuator, and an advanced application specific wire free controller into one compact assembly.

Awarded
Best Product for
Indoor Air Quality
at Acrex 2011



2 WIRE FREE SOLAR IAQ CONTROLLER



Conaire Wire Free Solar IAQ from Conaire. A compact and portable unit that communicates with the VAV/VAQ controllers without wires. It also harvests its own energy from the ambient interior lighting, thus eliminating the need for any wiring at all.

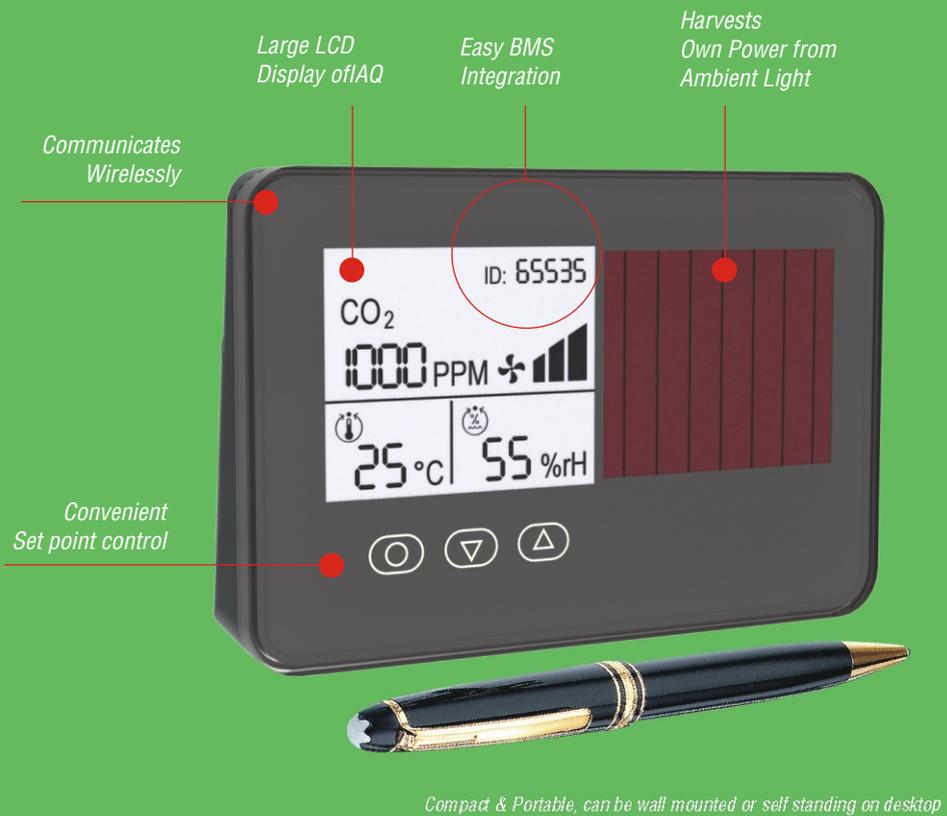
The unit comes complete with highly efficient and reliable CO₂, Temperature and Humidity sensors with set-point adjustments and a large display screen.

An optional smoke detector can also be connected with this controller to provide early warning in case of fire and at the same time strategise and control VAV/VAQ stations, fire smoke dampers and other smoke exhaust systems using Intelligent Damper Control and Monitoring System.

Awarded
First Place in
Green Product Category
at Acrex 2014



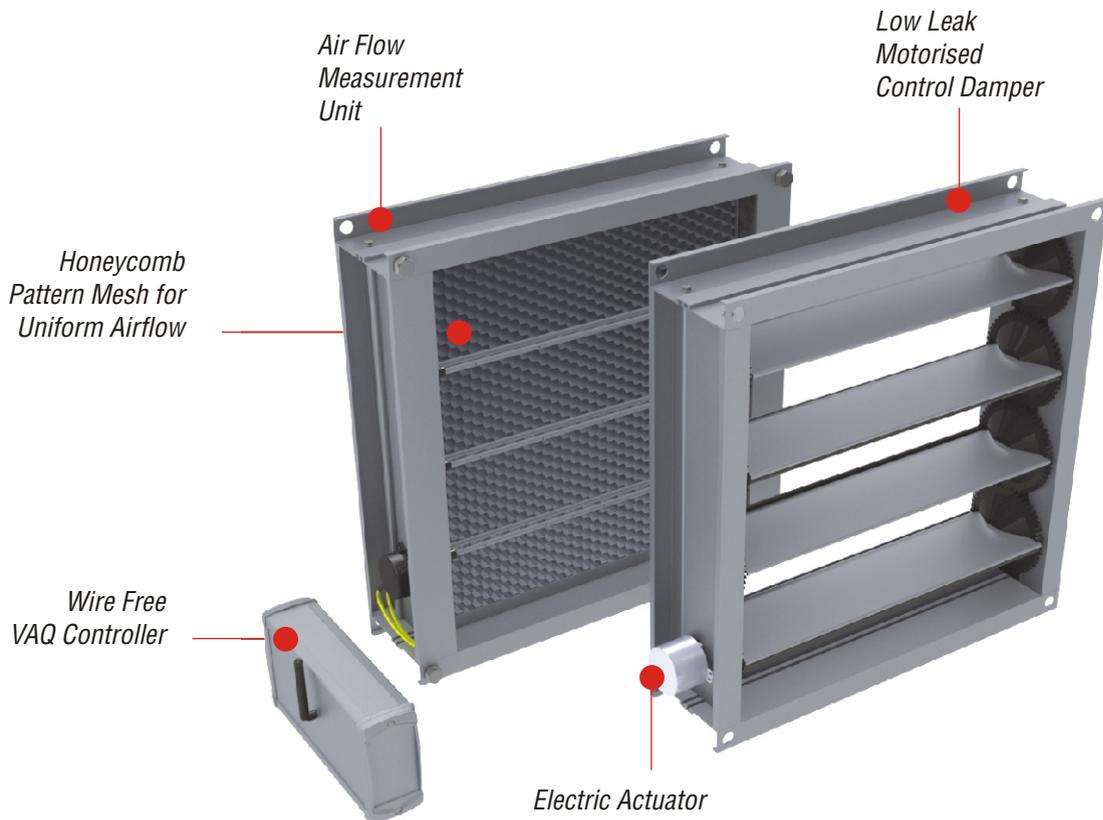
ADVANTAGES OF CONAIRE WIRE FREE SOLAR IAQ CONTROLLER



- ✓ **SIMPLER SYSTEM DESIGN**
- ✓ **NO COMPLICATED WIRING**
- ✓ **FASTER BMS INTEGRATION**
- ✓ **HASSLE FREE COMMISSIONING**
- ✓ **EASIER OPERATION & MAINTENANCE**



ADVANTAGES OF CONAIRE WIRE FREE VAQ STATION

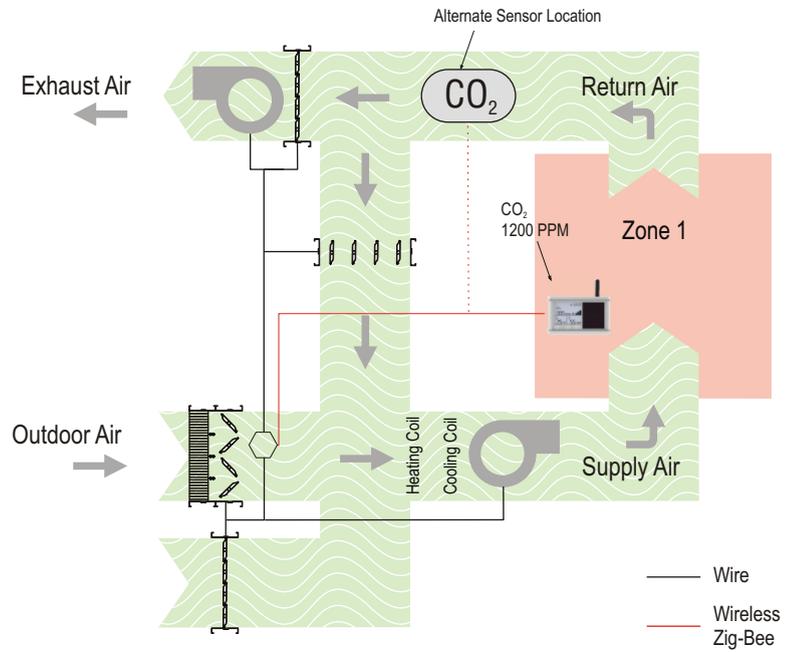


- ✓ **AVAILABLE IN SIZES AS PER DUCT DIMENSIONS**
- ✓ **NEGLIGIBLE PRESSURE DROP**
- ✓ **ACCURATE AIRFLOW THROUGH NON-LINEAR DYNAMIC CALIBRATION**
- ✓ **VARIOUS APPLICATIONS AS SHOWN OVERLEAF**

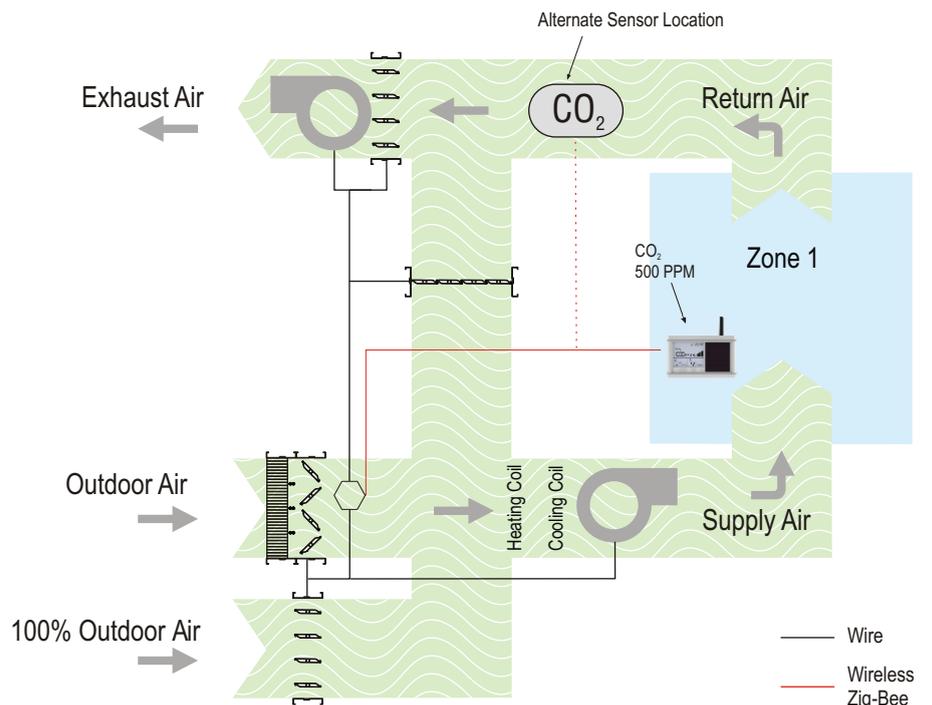


DCV - SINGLE ZONE CO₂ BASED

In an application where the ventilation system delivers fresh outdoor air to a single zone, the CO₂ sensor typically is installed on the wall in the breathing zone, just like the thermostat. It's usually expedient to assume that the outdoor CO₂ concentration is constant, so the indoor concentration is measured and used to modulate the position of the outdoor-air damper and thereby provide the space with the proper amount of ventilation air on a per-person basis.



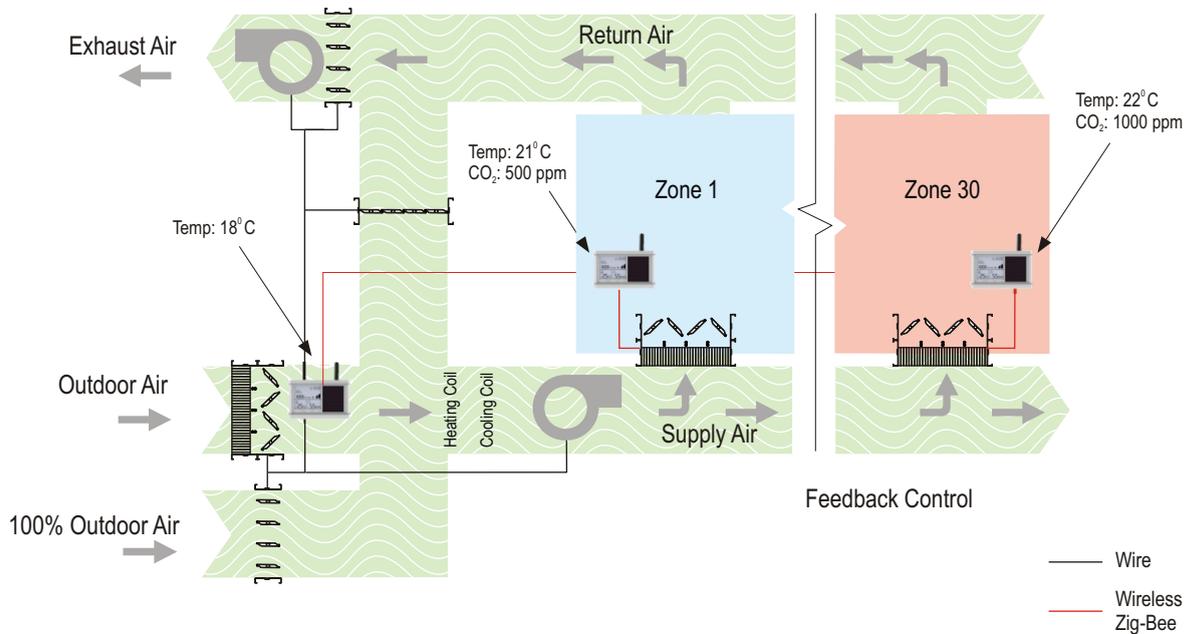
A free cooling control can also be integrated to provide complete outdoor air when outside enthalpy is low as shown below





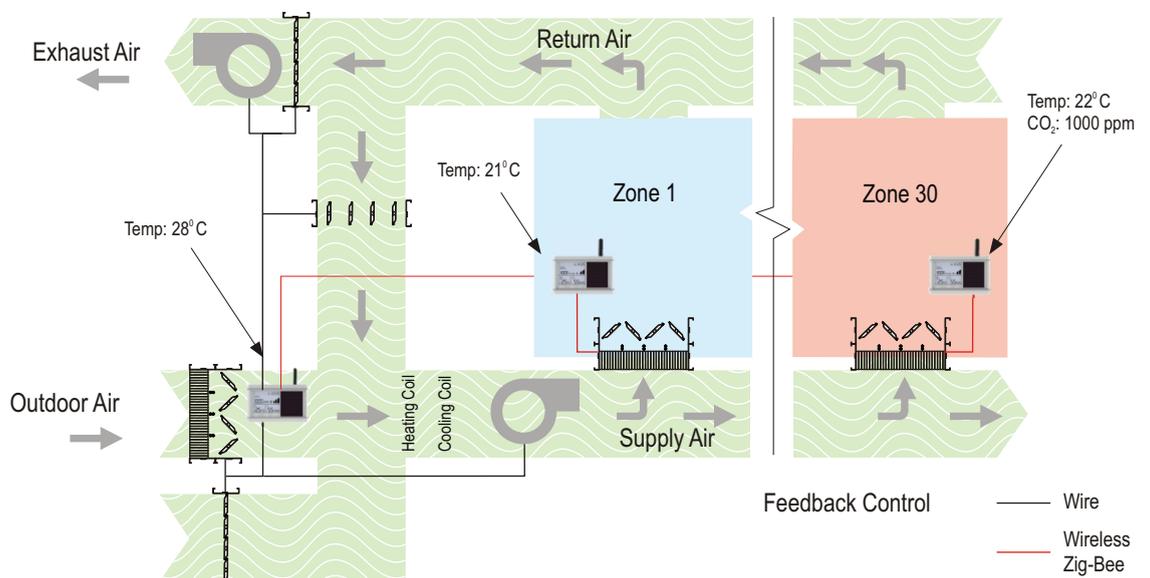
DCV - MULTIPLE ZONE CO₂ BASED

In Multiple Zone configuration, the ventilation system delivers fresh outdoor air combined with return air to a several multiple zones. One approach for implementing CO₂-based DCV in multiple-zone VAV system is to install a CO₂ sensor in every zone which determines how much outdoor air must be brought in at the air handler to satisfy the critical zone (and thus over-ventilate all other zones), and then repositions the outdoor air damper accordingly. A free cooling control can also be integrated with same.



DCV - MULTIPLE ZONE CO₂ BASED WITH VENTILATION RESET

In most multiple-zone systems, the best approach often combines CO₂ based DCV with ventilation reset. Using this strategy, CO₂ sensors are installed only in those zones (conference rooms, for example) that are densely occupied and experience widely varying patterns of occupancy to reset the ventilation requirement for their respective zones. The other zones which either are not densely occupied or do not experience significant variations in occupancy are assumed to require their design ventilation rates whenever they're occupied.



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