

New



Biosirus

Wi-Fi

Wi-Fi Enabled HVAC-R Sensor Systems

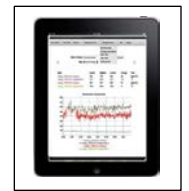
Temperature, Dew Point, Relative Humidity, CO₂ and CO Sensors

Significant Reduction in Wiring



• **Application:**

- Indoor variable occupancy areas:
 - Retail, Gyms, Auditoriums, Class-rooms, Hospitals/Clinics, Airports, Bus/Rail Terminals
 - Mall or Office Buildings, Indoor Parking garages
- Hot or Cold Climates, Older buildings, High Electricity and/or Gas tariff jurisdictions



• **Features:**

- Programmable real-time feedback for optimum control
- New or Retrofit applications
- Real-time monitoring, control, alarm notifications, data logging

• **How Does It Work:**

- Battery Powered or Low Voltage (5-24V) AC or DC line supply
- 12dBm 2.4 GHz 802.11 b/g WiFi Radio
- Transmitter is configured using a plug in PC-USB interface in 4 simple steps
- Encryption: Supports WEP128, WPA-PSK (TKIP), and WPA2-PSK (AES)
- Communication Packets: Small data packets (~75 bytes), Supports DHCP or Static IP, Channel agility
- Data Packet Spec Link: TR9299UDPSpec
- Certification: FCC, CE, and IC Class B compliant

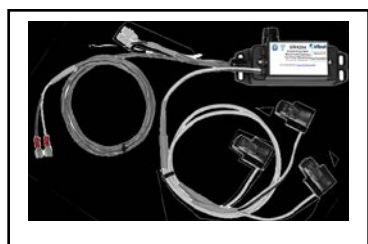


• **Technical Data:**

- **Temperature:** -40 to 185°F (-40 to 125°C); Temperature Accuracy: ± 0.36°F (0.2°C) @ 77°F;
- **Relative Humidity:** ± 2%; **Dew Point Accuracy:** ± 0.8°F Td (± 0.5°C Td)
- **CO₂ / CO:** Measures up to 10,000 ppm
- Sample Rate: 15 seconds, (Adjustable); Ultra-low power, self-calibrating
- Easy and accurate in-field calibration, and verification; Secure sub-base for wall mounting
- Supports multiple Wi-Fi networks (allowing separation of control & enterprise networks)

○ **Connectivity:**

- Wi-Fi to Cloud (for Monitoring and Alarm services)
- Wi-Fi to Internet (for internet connected devices)
- Wi-Fi to Wire (for BACnet, Modbus, SNMP); Babbel Buster Gateway - up to 200 Wi-Fi sensors
- Wi-Fi to local Air-Handling Units
 - Local gateway takes 4 sensors; provides 0-10V on highest sensor value
 - Fault monitoring/notification via additional Wi-Fi sensors or via a Belimo ZIP economiser

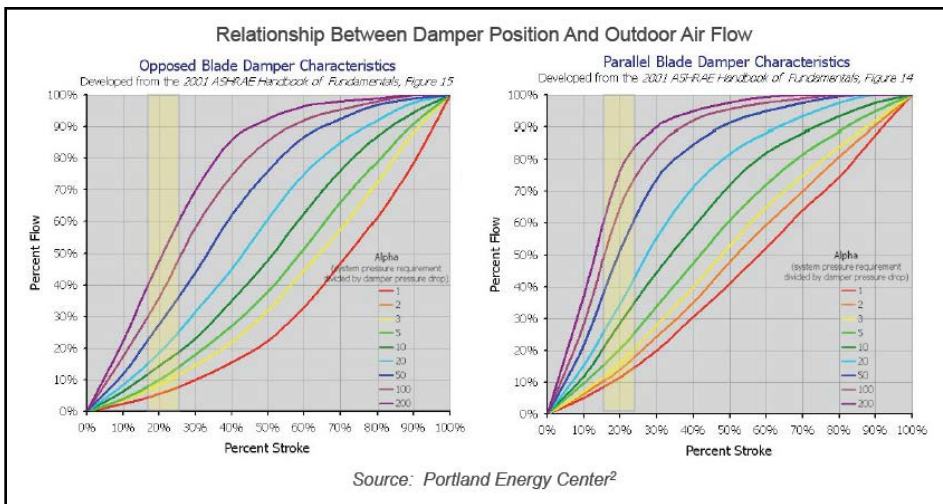


Tech Talk: Outdoor air is a significant component of building heating/cooling costs and comfort

A study by the EPA (in 2005) suggests that many buildings are bringing in more air than necessary resulting in significant energy costs and lower occupancy comforts. Most owners are unaware whether the ventilation is optimum. There is no assurance that what was originally installed will remain the same going forward. The EPA study further notes that (1) 83% of the buildings are likely over-ventilated and (2) building densities assumed in the design stage did not reflect actual occupation densities over the years.

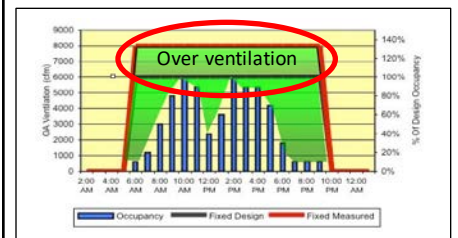
Outdoor make-up air is critical to buildings not only to provide fresh air to occupants (defined by codes) but also to provide adequate positive pressurization to control particulate/dust infiltration and also maintain occupancy comfort. The EPA study found airflow rates quite different from design values (need for periodic monitoring/maintenance).

A third important fact is that given the 20% (outside air) and 80% (recirculated air) rule, many operators think that if dampers are set to 20% throw (or stroke) position then this will yield 20% fresh-air. *This is not correct.* Typically, in both "opposed blade dampers" as well as "parallel blade dampers" designs, its characteristics are such that a 20% percent throw/stroke setting yields a 5-45% intake flow for the former and 10-75% for the latter, based on system pressure requirements and the damper pressure drop. If variable speed drives are interlocked to such manual systems/pressure control, then the building may see the entire range of outdoor air percentages in a typical daily operating cycle.

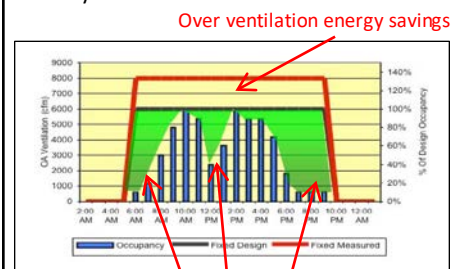


Typical Applications

Fixed Systems:



DCV Systems:



Variable Occupancy energy savings



Call us for any details
or a trial project

Biosirus Brochure WiFi Sensors-1: June 2015

And Savings Too:

DCV systems offer significant energy savings (and better comfort) as intake air is constantly adjusted to suit occupancy through real-time measurements/control. *This ensures savings in variable occupancy as well as over-ventilation. A two-for-one benefit.*

Best Value Applications:

| Parameters | Platinum Savings | Gold Savings | Silver Savings | Bronze Savings |
|-------------------------------|------------------|--------------|----------------|----------------|
| High Tariff Rate | ***** | **** | *** | ** |
| Diesel dependency | ***** | **** | *** | ** |
| Off-Grid / Remote locations | ***** | **** | *** | ** |
| Electricity Tariff (US\$/kWh) | >0.15 | 0.12 | 0.10 | 0.08 |
| Large AHU or A/C loads | ++++ | +++ | ++ | + |
| Variable occupancy | >50% | 35-50% | 20-35% | 10-20% |
| Typical Pay back (simple ROI) | 1 Year | 2 Years | 3 Years | 4 Years |

Biosirus Inc.

21 Amber Street, Unit 3, Markham, Ontario, Canada L3R 4Z3; Tel./Fax: 416-410-4782

email: info@biosirus.com www.biosirus.com