Data Center Monitoring

DCIM
Green Data Center
Energy Savings
Data Center Energy Statistics

• Cost of over $50,000 annually to power a single rack of servers (Gartner Group)

• Average total power to rack is about 4.05kW
  – 58% @ 5kW and less per rack
  – 28% @ 5kW to 10kW per rack
  – 14% @ 10kW or more per rack.

• Typical 2011 PUE was between 1.83 and 1.92

• Each 1°F rise in temperature can reduce energy cost by 3-4%
Inefficient Operations...

- Excess running of fans (power, noise)
- Additional cooling (power, equipment)
- Significant waste of energy and money
Environmental Monitoring Contributes to Optimization

- Create temperature profiles for every rack
- Generate heat/humidity maps for multiple elevations
- Monitor for hot spots
- Identify air-flow obstructions
- Real-time insight and alarms
Powercast Sensor System

Wireless Environmental Monitoring for Data Centers
Powercast System Benefits

Flexibility of wireless, Performance of hardwired

- Fast installation / Easy relocation
- No wiring, network ports, or power
- Scales from 10s to 1000s of points
- Long battery life (25+ years)
- Connect to any HVAC or IT network
- Unlimited Range (with repeaters)
Wireless Sensor Options

25+ Year Battery Life

- Temperature
- Humidity / Dew point
- Light Level
- Differential Pressure
- Carbon Dioxide
- Dry Contacts

Device size as small as 4”x2”x1”
Example Monitoring Points

High-Density Measurement, Reliable Wireless Link

- Intake/supply temp monitoring point
- Exhaust temp monitoring point
- Differential pressure
Data Center Temperature Sensors

Economical solution with up to 8 points per sensor

Configurations

- Top mounting
  - (1) Internal Temp
  - (2) External Temp

- Door mounting
  - (1) Temp
  - (2) External Temp

- Configurations
  - (1) Temp
  - (1) Humidity
  - (2) Dew Point
  - (1) Internal Temp
  - (2) External Temp
  - (1) Temp
  - (2) External Temp
## Sensor Configurations

<table>
<thead>
<tr>
<th>Type</th>
<th>900MHz System</th>
<th>2.4GHz System</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>WSN-1201-T</td>
<td>WSN-1101-T</td>
<td>Temperature</td>
</tr>
<tr>
<td></td>
<td>WSN-1201-T2XT</td>
<td>WSN-1101-T2XT</td>
<td>Temperature w/ 2 External Inputs (10K)</td>
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<tr>
<td>Humidity &amp; Dew Point</td>
<td>WSN-1201-THD</td>
<td>WSN-1101-THD</td>
<td>Temperature, Humidity, Dew Point</td>
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<tr>
<td>Light</td>
<td>WSN-1201-L</td>
<td>WSN-1101-L</td>
<td>Light level (lux)</td>
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<tr>
<td>Contact Closure</td>
<td>WSN-1201-C</td>
<td>WSN-1101-C</td>
<td>Dry Contacts / Digital Input (2 channels)</td>
</tr>
<tr>
<td>Carbon Dioxide (CO2)</td>
<td>WSN-1202-CO2</td>
<td>WSN-1102-CO2</td>
<td>0 – 5,000ppm CO2</td>
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<tr>
<td>Differential Pressure</td>
<td>WSN-1202-DP1</td>
<td>WSN-1102-DP1</td>
<td>± 2” W.C. / ± 500pa</td>
</tr>
</tbody>
</table>
Wireless Gateway / Repeater

Connects to any BAS or IT system

- BACnet
- Modbus
- LonWorks
- SNMP
- XML
- and others

Supports up to...
- 100 devices
- 800 sensor points
400’ x 400’ Building Coverage

2.4GHz = 9 receivers

900MHz (vs. 2.4GHz)
• Less infrastructure
• Less complexity
• Fewer hops
• Lower total cost

900MHz = 1 receiver
More Information

PowercastSensors.com

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