



Wireless Sensors Use Case: HVAC Monitoring

The Problem:



Monnit was contacted by the owner of a large property management company that owned an office building complex. They came across Monnit's wireless sensor solution while looking for a way to lower costs associated with managing and maintaining heating and cooling for their properties.

Recently, they had an issue with one of their buildings where an air conditioning unit had failed during one of the hottest weeks of the summer. The HVAC failure resulted in major costs for repair and complaints from tenants located in the office building. Their facility maintenance manager identified Monnit's system as an ideal solution for monitoring their buildings for preventive maintenance, allowing them to fix issues before they occur.

The Solution:



Monnit provides a reliable remote monitoring solution that includes wireless temperature sensors as well as a variety of other useful sensors. The company deployed wireless temperature sensors throughout the building to monitor both room temperatures as well as duct output temperatures. They placed temperature sensors and accelerometers on air circulation fans to detect temperatures and vibration levels (if a fan is starting to go, the motor will get hot and vibrate more than normal).

The sensor data is sent wirelessly to a MonnitLink™ gateway in the maintenance office (located in one of their central buildings). Due to the steel and concrete construction of the buildings, they placed a couple of wireless range extenders to relay data from the building to the central gateway. The gateway sends the information to iMonnit™, the online sensor monitoring system. The temperature sensors and accelerometers were set to take readings every hour and notifications were setup to alert the staff if readings signify any potential issues, allowing them to respond immediately.

Wireless Sensors Used

| Wireless sensor used: | How it was used: |
|-----------------------|--|
| Temperature sensors | To monitor temperature output of building HVAC systems, monitor office temperatures and detect failing fan / boiler pump motors. |
| Accelerometers | To monitor for excessive vibration on fan motors and boiler pumps. |
| Water sensors | Detect leaks in building water closets. |

The Result (Cost Savings)



Before implementing Monnit wireless sensors, the company had to deal with complaints from tenants, repair the air conditioning unit on the one building and service the AC units for their remaining buildings. The initial Monnit remote monitoring solution deployed for this company cost ~\$1,200 giving them a central gateway, two range extenders and sixteen wireless sensors to place throughout one of their buildings.

Since installing the system, the sensors detected an instance where two circulation fan motors were overheating due to worn bearings and cold air was not being distributed properly. Detecting these types of issues before failure allowed the maintenance staff to repair the equipment quickly, avoiding replacement costs and extensive downtime. Their experience with Monnit sensors was very positive, so when the weather turned colder they decided to expand the system across their remaining buildings and include sensors to monitor boiler output temperatures and pump motors as well as water detection sensors to detect leaks in building water closets. After several months of using the system, they have also been able to optimize the way they cool and heat their buildings reducing energy costs.

Using Monnit's comprehensive monitoring solution this customer is now able to:

- Prevent down time and costly damage due to malfunctioning air handlers, fans, boilers and related heating and cooling equipment.
- Ensure their tenants have adequate heating and cooling in their offices.
- Optimize heating and cooling energy costs.
- Detect plumbing leaks in building water closets.

“Exactly what we needed and they didn’t break the bank. Very reliable and the Monnit team is so great to work with! We’ll definitely be a returning customer!”

It doesn't matter where in the world you are or what time it might be, deploying a Monnit wireless sensor and monitoring solution connects you from anywhere, 24/7 so you'll know immediately when a problem starts.

