Eagle Eye Application Note - AN080

Real-Time Detection of Indoor Air Quality

2025-01-14 Revision 1.0

Target Audience

This Application Note is intended for all users of the Eagle Eye Cloud VMS who want to manage, view, and monitor sensors and air quality data within the VMS using Eagle Eye Sensors. No specialized background knowledge is required, however, familiarity with VMS will enhance the experience.

Introduction

Eagle Eye Sensors combine software and hardware to manage, monitor, and visualize sensor data within the Eagle Eye Cloud VMS. Users can set thresholds for temperature, air quality, and other parameters, receive real time alerts for anomalies, and correlate sensor readings with camera footage. The scalable system allows future integration of new types of sensors as they become available ensuring long term adaptability.

Background

Organizations often face challenges in monitoring environmental conditions in areas where privacy concerns or physical constraints restrict or limit the use of cameras. Eagle Eye Sensors address these challenges by continuously monitoring key health and comfort parameters such as temperature, humidity, TVOC, CO, CO2, and the presence of harmful particulate matter. These measurements generate aggregate health and comfort scores while enabling detection of smoking or vaping. Users can view realtime and historical data, create alerts and monitor all parameters through the VMS interface.

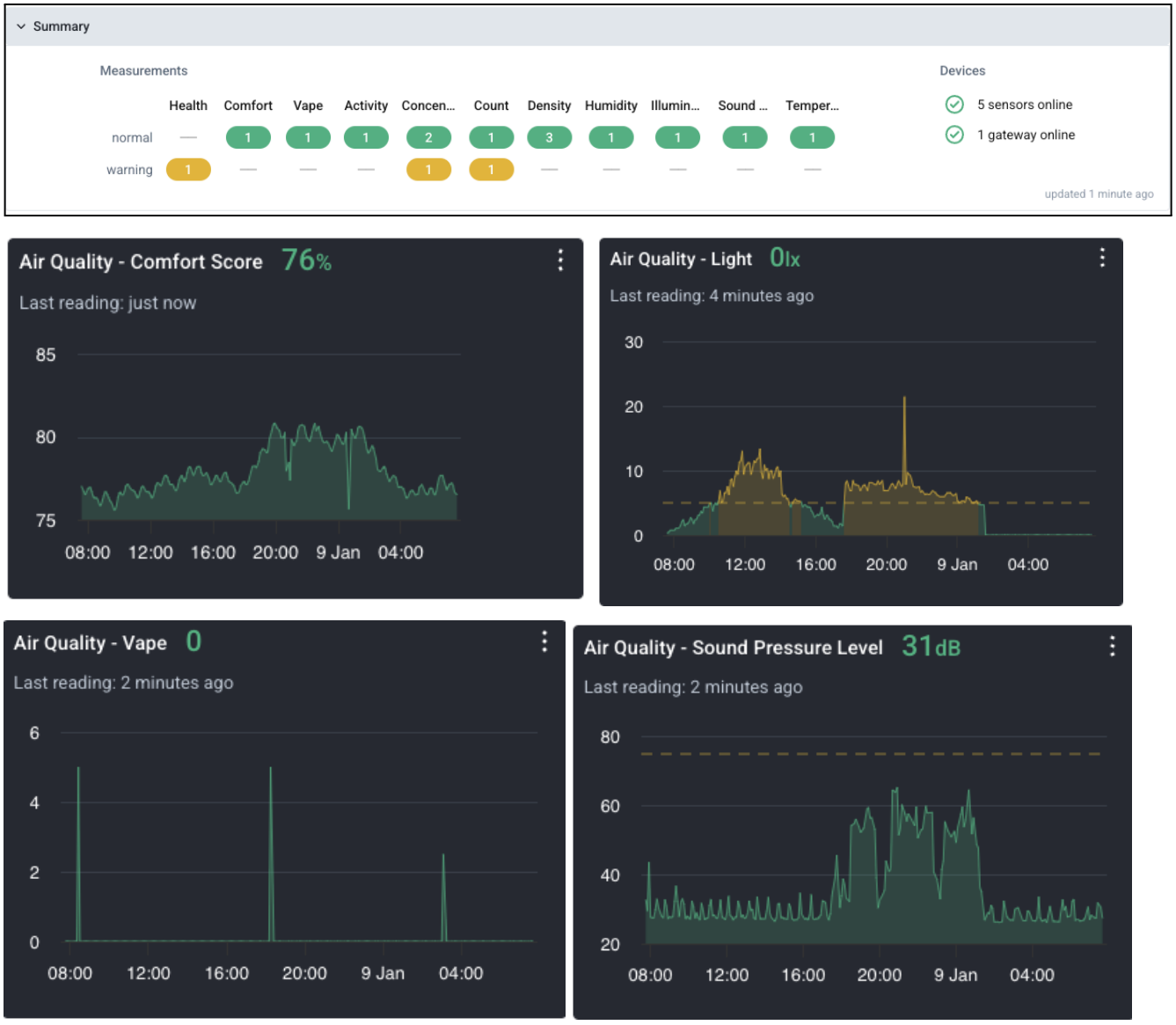
How it Works

The sensor uses ultra low-energy Bluetooth (BLE5) to transmit data to the cloud via a highly secure gateway. The gateway can connect up to 150 wireless sensors, allowing facility managers to monitor

all aspects of the facility with the Eagle Eye Cloud VMS. The system is scalable from a single-sensor, one-site application to multi-site enterprises with thousands of sensors.

For optimal performance, sensors should be installed either vertically on a wall or mounted on the ceiling, depending on the specific application and environment. Proper placement ensures accurate monitoring of environmental parameters and effective data transmission.

The Eagle Eye Cloud VMS Sensors Console allows real-time asset monitoring and sophisticated analysis from anywhere via computer, tablet, or smartphone. Data analytics provide operational insights and deep visibility. Notifications can be set based on customizable thresholds and complex rules based on individual sensors or sensor groups.



Indoor Air Quality Sensor

Applications of Indoor Air Quality Sensor

- Agriculture and Greenhouses: Monitor and control optimal temperature and humidity levels for crop growth and storage conditions. Prevent spoilage by monitoring storage conditions for perishable produce.
- Server Rooms/Data Centers: Ensure proper cooling by tracking temperature and humidity, preventing overheating or moisture-related damage to equipment.
- Healthcare and Pharmaceuticals: Manage safety of temperature-sensitive goods such as vaccines and perishable goods by monitoring storage conditions. Maintain air quality in surgical rooms and cleanrooms to meet regulatory standards.
- Industrial Facility Monitoring: Detect leaks or spills in industrial settings to prevent damage to equipment or halt dangerous chemical reactions.
- Warehouse Monitoring: Protect goods and inventory from water damage by detecting leaks across large storage areas.
- Industrial Equipment Monitoring: Installed on doors of equipment enclosures to monitor access for safety and maintenance purposes.
- Cold Storage Monitoring: Ensure cold storage or freezer doors are properly closed to prevent spoilage of temperature-sensitive items.
- Access Monitoring for Restricted Areas: Monitor and log entry/exit from sensitive areas such as laboratories or data centers.
- Public Safety: Detect vaping or smoking in restricted areas like offices, schools, or hospitals where maintaining air quality is critical.
- Building Management Systems: Installed in office spaces or residential buildings to track overall indoor air quality, ensuring compliance with health and safety standards.
- Public Transportation & Airports: Detect unauthorized vaping or smoking in restricted areas like buses, trains, or terminals.
- Educational Institutions: Detect vaping in private sensitive areas like bathrooms and monitor air quality to ensure a healthy environment for students and staff.
- Hospitality and Hotels: Detect vaping or smoking in non-smoking rooms or areas, ensuring that air quality is maintained and no damage occurs to room fixtures.