

Aretas Sensor Networks
**CASINO AIR QUALITY
MONITORING SOLUTIONS**

Aretas Sensor Networks, Inc.
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CASINO AIR QUALITY MONITORING SOLUTIONS

Customizable Monitoring

HOW IT WORKS

1



MONITOR

Our monitors gather and transmit data to the communication bridge

2



GATHER DATA

Data from all units is sent securely to your private online data center account

3



ANALYZE & REPORT

Your data is archived, analyzed and reported in many useful ways

4



24/7 ACCESS

Decision making is easy from any computer or smart device

SENSOR OPTIONS

CO	Carbon Monoxide
CO2	Carbon Dioxide
O3	Ozone
dB	Noise
DP	Differential Pressure
NO2	Nitrogen Dioxide
PM	Particulates
TRHF	Freezer / Fridge
VOC	Volatile Organic Compounds

More options available

Overview

Using Aretas' Casino Air Quality Monitoring System, casinos now have the ability to monitor, review data and address complicated air quality issues. Casinos can utilize our Smoke Index to identify cigarette smoke levels in real time.

Designed specifically for casinos decision makers, live data will establish baseline information and ensure optimal results within your indoor environment. It can also verify your existing or new air purification systems are functioning optimally. Intelligent information allows management to be proactive by utilizing the smoke index, real-time alerts, Ozone monitoring, HVAC and filtration monitoring.

Aretas can supply an intelligent wireless sensor network system that addresses the following:

- **Smoke Index:** Our proprietary smoke index tracks a variety of airborne contaminants and particulates to approximate the presence and concentration of cigarette smoke.
- **Verifications and Efficiencies:** The Aretas casino monitoring system gives you actionable data 24/7 worldwide and peace of mind.
 - Verify that your HVAC or other casino ventilation & filtration systems are doing their job of casino smoke removal efficiently and effectively.
 - Customizable Alerts, 24/7.
- **Customizable:** Each Casino has unique needs, concerns or goals. The Aretas team will help determine optimal monitoring solutions with sensors that may include CO, CO2, NO2, Ozone, Particulates even VOC.
- **Cost savings:** Knowing what your current casino indoor air quality conditions are, allows you to fine-tune your ventilation, air conditioning and other systems to optimize your guest comfort and cut down on wasted energy.



The U.S. Surgeon General reports that there is no safe level of exposure to secondhand smoke. A study* was conducted to measure levels of fine particulate matter in non-smoking casino restaurants and gaming areas. Due to the diffusion of secondhand smoke from smoking areas, it was concluded that all public casino spaces were above smoke levels that the Environmental Protection Agency recommends as healthy. A separate EPA study** reports that secondhand smoke 'is responsible for approximately 3,000 lung cancer deaths each year in nonsmoking adults...'

* York NL, Lee K. 2010 Mar-Apr 27. A baseline evaluation of casino air quality after enactment of Nevada's Clean Indoor Air Act. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/20433670> .

** January 1993. Respiratory health effects of passive smoking. Retrieved from <http://www.epa.gov/smokefree/pubs/etsfs.html> .

CASINO AIR QUALITY MONITORING SOLUTIONS

Customizable Monitoring

Data Communications

Your Aretas network of casino monitors can communicate wirelessly with one or more of our communication bridges. The wireless system transmit via 802.15.4 frequency to ensure there will be no interference with networks and equipment using a standard 802.11 systems. Our communication bridge can gather data for up to 50 monitors within range.

Next, the communication bridge will transmit your data securely to the online analytics and alerts system. For some casinos Ethernet connectivity is not an option, in those cases Aretas can connect to the wifi network or setup a separate broadband network. Contact Aretas today to discuss customizable solutions to meet your unique needs.

Monitoring Includes

- 24/7 real-time data reporting; easily accessible from any Internet connected computer.
- Customize your own alert levels (email and text).
- Your on-line analytics display makes it easy to see real time variations in the indoor air environment so corrective actions can be taken.
- Automatically archives your data for custom reporting.

Casino Sensors

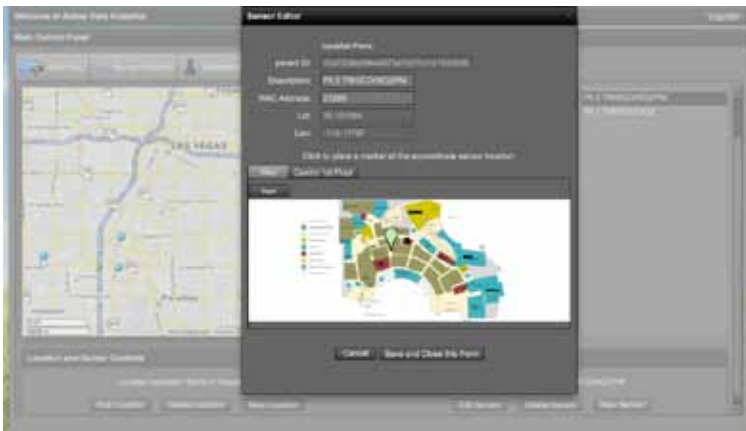
Our proprietary casino monitoring system uses a mix of these sensors; temperature, relative humidity, carbon monoxide, carbon dioxide, nitrogen dioxide, ozone (O3) and particulates (PM 2.5). O3 sensing is included to verify other systems using ozone to eliminate tobacco odors while ensuring guests are not exposed. We also offer volatile organic compound (VOC) monitoring and other sensors to address specific needs in key locations.

Online Analytics - Building View & Heat Map

Your online analytics offers many useful maps, charting, alerts and other tools to manage one or more casinos from anywhere in world 24/7. You can review the various tools available with your online system here <http://www.aretasworks.com/features/overview>

For Casinos that have intricate architecture that create challenges for HVAC systems, we have created a building view and heat map enabling you to review how different parts of the building are performing with respect to smoke. Bringing all casinos together in one system will allow casino facilities managers and decision makers to oversee many locations from any Internet capable computer, cutting down on travel and ensuring teams work together to meet specific casino goals.

Building View



Heat Map View



CASINO AIR QUALITY MONITORING SOLUTIONS

Customizable Monitoring

Indoor Air Quality & Remote Sensor Monitoring System

Casino Monitor

T/RH/CO/CO2/NO2/O3



- Wireless
- 900 MHz
- 802.15.4

Customizable

T/RH/VOC



Controllable

4-20 Input (optional)



3rd Party Sensors/Monitors



- Ethernet
- Broadband Connection (optional)

Communication Bridge

Data Collection & Transition Point



Smart Phone



Cloud

Aretas Servers



PC/Tablet