

## PARTNER SOLUTION OVERVIEW

# Aruba & Piera Systems

## Indoor Air Quality Monitoring and Reporting

### THE NEED FOR INDOOR AIR QUALITY MONITORING

Employees, customers and the general public are now aware of the need to monitor, measure and improve indoor air quality. Wildfires, global warming, COVID-19 and the increasing amount of time spent indoors has created a 'tipping point' for companies to take action. The source of most poor air quality is due to particulate matter (PM), a mixture of airborne solid particles and liquid droplets that can be inhaled and cause serious health problems. The World Health Organization (WHO) reports airborne particulate matter (particulate from 0.1-10 micrometer in size) as a Group 1 carcinogen and as the biggest environmental risk to health, with responsibility for about one in every nine deaths annually.

The EPA monitors and reports outdoor air quality but not indoor, and their monitoring stations are quite far apart, expensive and do not update in real-time. The EPA's Air Quality Index (AQI) is a simple, easy to follow metric for classifying air quality and can be applied indoors. However, it doesn't classify sources of poor air quality. To do so requires more detailed information about particle size and count. A new class of air quality monitors based on more accurate, higher resolution, real-time data about particle size and count has been developed by Piera Systems. It can leverage existing wireless access points from Aruba to quickly and cost effectively allow monitoring of indoor air quality.

### A BREAKTHROUGH IN AIR QUALITY MONITORING: CANĀREE

Canāree™ PM is a low cost, Air Quality Monitor that plugs into existing Aruba Access Points (APs) and measures air quality instantly. Canāree PM is an IoT device connected to the Microsoft Azure cloud for secure data storage and access. Piera's SenseiAQ™ software application running on Azure is a real-time dashboard that reports AQI together with additional analytics and alerts about indoor air quality. Canāree PM installs by simply plugging into an existing Aruba AP USB connector without needing to remove the AP to

### WHY ARUBA & PIERA SYSTEMS?

- Highly accurate indoor air quality monitoring and management
- Leverage existing wireless access points to reduce costs, simplify installation and deliver real-time analytics
- SenseiAQ™ application provides real-time dashboard, alerts and insight to take action and improve indoor air quality
- Vape/smoke detection in real-time
- Secure, cloud-based storage and analytics integrates with existing IT and facilities management applications
- Flexible business models allow own/rent/lease for short or long-term business requirements



Figure1: Canāree PM

install. Power and secure IoT communications are provided by the AP. Data is logged and stored on Azure IoT Hub for easy integration with existing Building Management Systems. Canāree is easy to install, configure, maintain and update. A network of Canāree sensors monitored by SenseiAQ can be easily reconfigured as needed.

Canāree contains Piera Systems Intelligent Particle Sensor Module, "Piera-1", an optoelectrical sensor based on laser scattering. Piera-1 utilizes a proprietary "PCIC" (Particle Counting Integrated Circuit), a custom ASIC specifically developed for photon-counting and processing (3 granted US patents). PCIC can identify different sized particles and their concentration by directly counting pulses of different levels



of photon energy, featuring superior accuracy, resolution and true real-time data acquisition compared to other sensors using a less accurate, slower LPO technique that ‘estimates’ overall air quality.

Canāree PM’s accurate, detailed, complete, real-time data on PM is stored on Microsoft’s Azure IOT hub and SenseiAQ can classify its components and take actions to improve it. Canāree can identify uniquely vape and cigarette smoke using proprietary ML/AI algorithms. Alerts identify it’s presence, concentration and persistence (how long it remains in the air). Knowing the source of PM, its location and severity provides insight and mitigation including’ changing HVAC systems, adding air purifiers, removal of the source or limiting access to areas with poor air quality.

**BETTER TOGETHER**

Aruba and Piera Systems have partnered to enable Aruba APs to anchor air quality monitoring for indoor spaces. Piera’s Optical Particle Sensors and Air Quality Monitors represents a breakthrough in the ability to measure particulate matter from 0.1-10 um with the accuracy and resolution of expensive reference instruments at a low cost. The location and separation of existing APs typically provides an ideal placement (ceilings) and distribution for air quality monitoring.

Canāree PM and SenseiAQ software quickly and easily report indoor air quality providing insight into poor ventilation, indoor pollution due to vaping, smoking, cooking or other activities. Mitigation can include adjusting HVAC systems, increasing fresh air flow, adding or moving air purifiers, alerting those with respiratory issues or limiting access to areas with poor air quality.

The joint solution delivers the operational visibility and robustness demanded by COOs and facilities managers, without the expense of installing a traditional wired sensor system. Plug and Play USB installation allows Canāree PM AQM’s to be deployed anywhere an Aruba AP is installed or planned in an ideal ceiling mounted location without additional expensive conduit or installation costs. These savings multiply during facilities changeouts because adds, moves, and changes are just as easy and inexpensive.

The demand for air quality monitoring places unique demands on facilities, IT, and finance with purchasing, along with installation and ongoing management challenges. Both companies are respected leaders in air quality and IT, respectively, and the joint integration allows data to flow reliably and securely across the existing network infrastructure. Flexible business models allow organizations to quickly install, operate and maintain the AQM network. And the insight provided will deliver peace of mind to employees, customers, and everyone visiting your facility.

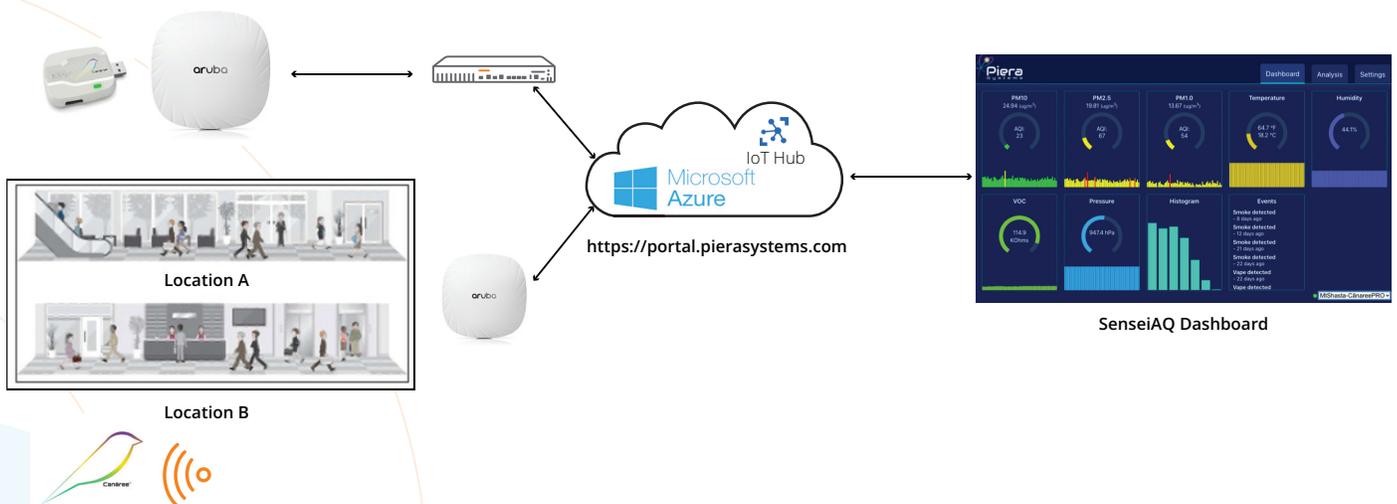


Figure 2: Mix of PM, PRO devices at high density locations



### CERTIFIED INTEROPERABLE

Starting with ArubaOS 8.8, we've taken the guesswork out of air quality monitoring by certifying interoperability between the Canāree Air Quality Monitor and Aruba wireless access points. Set-up is a breeze; joint deployments go in faster and are easier to maintain.

### SUMMARY

Aruba's secure infrastructure is the ideal way to support Piera's Canāree sensors in applications of any size. Contact your local sales representative to see how together Aruba and Piera deliver the most cost-effective, accurate, complete air quality monitoring solution in the industry.

To learn more about Aruba wireless, please visit:  
[www.arubanetworks.com/products/networking/access-points/](http://www.arubanetworks.com/products/networking/access-points/)

### SPECIFICATIONS OF CANĀREE PM

Size	7cm x 5cm x 1.4cm (2.75" x 2" x 0.5")
Weight (g)	35 grams (~1.2 ounces)
Power	5 VDC @ 0.50 ma (0.25 W over USB, continuous)
Coverage	~ 10 m <sup>2</sup> , 100 ft <sup>2</sup>
# supported sensors	unlimited
Communications Protocol	USB to AP, proprietary from AP to MS Azure
Certifications	CE, KETI
Temp	-10 to + 60 C
Humidity	0 – 95 % RH (non-condensing)
Accuracy	+/- 10 % variance from Reference Instruments
Sampling Time (adjustable)	>0.5 seconds
Lifetime (24 h/day operation)	8.0 years (may vary due to conditions)

## DEPEND ON PIERA SYSTEMS



Piera Systems is dedicated to reducing the health impact of air pollution globally by providing accurate, real-time data on Air Quality.

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