



## Canāree Air Quality Monitor

**A1 / I1 / I5 / I6**

**Compact and Complete Air Quality Monitoring  
Product Specification**

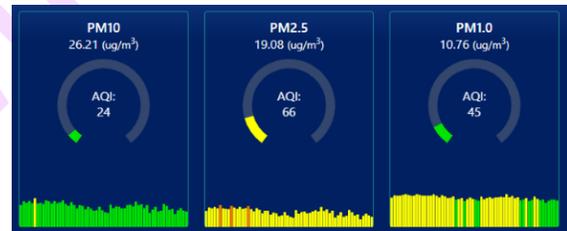
### Product Summary

Canāree is a compact Air Quality Monitor that detects particulate matter (PM), Biogenic Volatile Compounds (BVOC), temperature, relative humidity, pressure, and CO<sub>2</sub>. Canāree comes in two models – model A, and Model I. The model A is a dongle for measuring PM, which can be IoT enabled when connected to a network device (Wireless Access Points) or any Host Device via USB. Canāree I models are stand-alone IoT devices equipped with WIFI and Bluetooth for convenience. Additional gas sensors are embedded depending on specific models. Please refer to the product lineup section for more details.



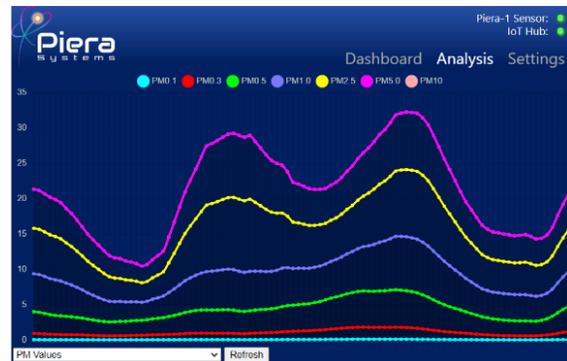
**Figure 1. Canāree (9cm x 7cm x 2cm)  
(3.54" x 2.76" x 0.79")**

All Canāree models are capable of collecting real-time air quality data locally on the device it's connected to and can also send data to a cloud service for remote monitoring and analysis. SenseiAQ™ software displays the data on a dashboard including Air-Quality-Index (AQI) scores, along with standard vape/smoke alerts. An API supports third party integrations such as Air Quality Management Systems, Air Purifiers, etc. SenseiAQ runs on Windows, MAC, iOS or Android locally or on a cloud service.



**Figure 2. SenseiAQ Dashboard**

Canāree utilizes Piera's Intelligent Particle Sensor series 7100, and Bosch BME688. Using a unique algorithm to identify different particulate sizes, Canāree provides real-time, precise airborne particulate matter monitoring such as air-pollution, smoke, vape and noxious gas detection for indoor applications. Embedded gas sensor within Canāree is also capable of measuring the sum of VOCs/contaminants in the surrounding air, proving orthogonal information regarding the ambient air quality in addition to particulate matter.



**Figure 3. SenseiAQ Software**

Piera Systems Inc. reserves the right to make corrections, modifications enhancements, improvements and other changes to its products and services at any time and to discontinue any product or service without notice. Please contact Piera Systems anytime to obtain the latest relevant information. We are ready to help you determine which of our solutions will best meet your needs.



## Features

- Ultra-high sensitivity for detecting airborne particulates (PM0.1 – PM10), BVOC, CO<sub>2</sub>, temperature, humidity and pressure
- Fast data acquisition and sampling
- Easy plug-and-play
- Power saving and cleaning mode
- OTA firmware update capability
- Built-in VSD (Vape/Smoke Detection) module
- High accuracy and reliability
- LED air quality status indicator

## Applications

- Enterprise monitoring of indoor air quality, AQI reporting
- Ideal for Clean Rooms, Hospitals, Office-Spaces, College Campuses, Hotel/Shared living and Industrial Environments
- Smoke/vape detection with real-time alerts and notifications
- Air Quality Mitigation (Air Purifiers, HVAC Systems)

## 1. Canāree Product Lineup

	Features	Canāree A1	Canāree I1	Canāree I5	Canāree I6
Sensors	PM (0.1 – 10)	o	o	o	o
	BVOC			o	o
	Temperature			o	o
	Relative Humidity			o	o
	Pressure			o	o
	CO <sub>2e</sub>			o	
	CO <sub>2</sub>				o
Others	VSD Module	o	o	o	o
	Wired Network	o	o	o	o
	WIFI		o	o	o
	Bluetooth				o
	LED indicator	o	o	o	o

Table 1. Canāree lineup

## 2. Technical Specifications

### 2.1. Hardware

Technical Data	
USB-Serial Driver	Silicon Labs CP2102 UART Bridge
Power Consumption *	5.5V @ 100mA (Continuous Operation)
USB Connector Type	Type A - USB 2.0, (max 10' cable extension)
Physical Dimensions	9cm x 7cm x 2cm (3.54" x 2.76" x 0.79")
Weight *	50g (1.76 oz)
Software Supported	SenseiAQ (Windows / MacOS) Application
Cloud Reporting Support	Microsoft Azure IoT Hub
MTBF (24-hour operation)	8 Years <sup>1</sup>
Power Saving and Cleaning Mode	Supported (through SenseiAQ)
Storage Temperature Range	-40°C to +80°C

Table 2. Canāree hardware specifications

\* Will vary depending on model

Piera Systems Inc. reserves the right to make corrections, modifications enhancements, improvements and other changes to its products and services at any time and to discontinue any product or service without notice. Please contact Piera Systems anytime to obtain the latest relevant information. We are ready to help you determine which of our solutions will best meet your needs.



## 2.2. Embedded Sensors

	Parameter	Conditions	Value	Units	
Particulate Sensor	Particle Count (PC) accuracy <sup>1</sup>	-	±10	%	
	Particle Count (PC) resolution	-	1	#/Liter	
	Particle Count (PC) limit	Referenced @ 2.5um PC bin	1,000,000	#/Liter	
	Mass Concentration (PM) limit <sup>2</sup>	Referenced @ ≤2.5um particle size	6,000	ug/m <sup>3</sup>	
	Binning output range for particle counts (Differential)	PC0.1		≤0.1	um
		PC0.3		0.1 - 0.3	um
		PC0.5		0.3 - 0.5	um
		PC1.0		0.5 - 1.0	um
		PC2.5		1.0 - 2.5	um
		PC5.0		2.5 - 5.0	um
		PC10		5.0 - 10	um
	Binning output range for mass concentration (Cumulative)	PM0.1		≤0.1	um
		PM0.3		≤0.3	um
		PM0.5		≤0.5	um
		PM1.0		≤1.0	um
		PM2.5		≤2.5	um
		PM5.0		≤5.0	um
PM10		≤10	um		
Start-up time	Default: 5 (until stable output)		>2.5	s	
Count sampling time	Default: 0.2		≥0.1	s	
Data output interval	Default: 0.2		≥0.1	s	
Lifetime <sup>3</sup>	24h/day operation		>8	Years	
Air flow rate	Standard atmosphere		0.13	CFM	
Coverage area	3m height		30	m <sup>2</sup>	
Operating range		-10 to +60°C, 0 to 95% RH			
Gas Sensor	Unit-to-unit deviation	IAQ	±15	%	
	Gas scanning interval	-	10.8	s/scan	
	Sensor outputs	BVOC	-	-	ppm
		CO <sub>2e</sub>	-	-	ppm
Temperature, RH, Pressure Sensor	CO <sub>2</sub>	-	-	ppm	
	Response time	±0-63%	8	s	
	Accuracy tolerance	-	±3	%	
	Hysteresis	-	≤1.5	%	
	RMS noise	-	0.12	Pa	
	Sensitivity error	-	±0.25	%	
	Temperature coefficient offset	-	±1.3	Pa/K	
Absolute accuracy	-	±0.5	°C		
Operating range		300 to 1,100 hPa, -40 to 85°C, 0 to 100% RH			

Table 2. Canāree particle sensor specifications

1. Deviation from reference counter (GRIMM 11D model year 2006) based on average readings over 3-minute period. The accuracy is verified after calibration using a Smoke Detector Tester Spray, SDI LLC. Contact Piera Systems for further details.
2. Mass concentration limit is estimated for PC2.5. May vary depending on size and density of particles.
3. Lifetime may vary depending on different operating conditions.

Piera Systems Inc. reserves the right to make corrections, modifications enhancements, improvements and other changes to its products and services at any time and to discontinue any product or service without notice. Please contact Piera Systems anytime to obtain the latest relevant information. We are ready to help you determine which of our solutions will best meet your needs.



### 3. Installation

#### 3.1. Using Host Devices via USB

Single or Multiple Canāree A1 devices can be plugged into any Host Device. Host Devices include Wireless Access points, PC's, Smart TV's, iOS/Android phones. Canāree A1 has been validated and works with HPE-Aruba Wireless Access Points (ArubaOS V8.8 or later). Piera Systems is an HPE-Aruba Solution Partner. Canāree I models can also be connected in the same manner.

#### 3.2. Using WIFI or Bluetooth

Canāree I models (I1, I5, and I6) can operate stand-alone if they are connected to power via USB, and communication can be established via WIFI or Bluetooth.

#### 3.3. Configuration

Via SenseiAQ Software running on host device or remotely. Device automatically registers on Piera Systems MS Azure Cloud service and is ready for use after it is plugged into Host's USB port, or manual configuration from SenseiAQ is required for WIFI and Bluetooth.

### 4. Cloud Support

#### 4.1. Microsoft Azure

Standard

#### 4.2. Other Public and Private Cloud Services

Contact Piera Systems [support@pierasystems.com](mailto:support@pierasystems.com).

### 5. Ordering Information

Please visit [www.pierasystems.com](http://www.pierasystems.com) or email to [info@pierasystems.com](mailto:info@pierasystems.com).

### 6. Important Notices

#### 6.1. Warning, Personal Injury

**Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury. Do not use this product for**

Piera Systems Inc. reserves the right to make corrections, modifications enhancements, improvements and other changes to its products and services at any time and to discontinue any product or service without notice. Please contact Piera Systems anytime to obtain the latest relevant information. We are ready to help you determine which of our solutions will best meet your needs.



**applications other than its intended and authorized use. Before installing, handling, using or servicing this product, please consult the data sheet and application notes. Failure to comply with these instructions could result in death or serious injury.**

If the Buyer shall purchase or use IPS for any unintended or unauthorized application, Buyer shall defend, indemnify and hold harmless Piera and its officers, employees, subsidiaries, affiliates and distributors against all claims, costs, damages and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if Piera shall be allegedly negligent with respect to the design or the manufacture of the product.

## **6.2. ESD Precautions**

The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation, take customary and statutory ESD precautions when handling this product.

## **6.3. Warranty**

Piera warrants solely to the original purchaser of this product for a period of 12 months (one year) from the date of delivery that this product shall be of the quality, material and workmanship defined in Piera's published specifications of the product. Within such period, if proven to be defective, Piera shall repair and/or replace the product, in Piera's discretion, free of charge to the Buyer, provided that:

- notice in writing describing the defects shall be given to Piera within 14 (fourteen) days after their appearance;
- such defects shall be found, to Piera's reasonable satisfaction, to have arisen from Piera's faulty design, material, or workmanship;
- the defective product shall be returned to Piera at the Buyer's expense; and
- the warranty period for any repaired or replaced product shall be limited to the unexpired portion of the original period.

This warranty does not apply to any equipment which has not been installed and used within the specifications recommended by Piera for the intended and proper use of the equipment.

EXCEPT FOR THE WARRANTIES EXPRESSLY SET FORTH HEREIN, PIERA MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT. ANY AND ALL WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY EXCLUDED AND DECLINED.

Piera is only liable for defects of this product arising under the conditions of operation provided for in the data sheet and proper use of the goods. Piera explicitly disclaims all warranties, express or implied, for any period during which the goods are operated or stored not in accordance with the technical specifications.



Piera does not assume any liability arising out of any application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. All operating parameters, including without limitation recommended parameters, must be validated for each customer's applications by customer's technical experts. Recommended parameters can and do vary in different applications.

Piera reserves the right, without further notice, (i) to change the product specifications and/or the information in this document and (ii) to improve reliability, functions and design of this product.

Copyright© 2021, by PIERA SYSTEMS.

SenseiAQ® is a product trademark of PIERA SYSTEMS.

All rights reserved.

---

Piera Systems Inc. reserves the right to make corrections, modifications enhancements, improvements and other changes to its products and services at any time and to discontinue any product or service without notice. Please contact Piera Systems anytime to obtain the latest relevant information. We are ready to help you determine which of our solutions will best meet your needs.