



Model: Canary

IAQ Monitor

Part No. 602619410



HOW IT WORKS

WIRELESS CONNECTIVITY

The monitor collects IAQ data continuously, stores it in 1-minute intervals and sends that data to servers via its built-in cellular modem.

30 MINUTE TESTING

After 30 minutes of air sampling, a detailed report of the space is emailed to the user. The multi-day report is generated from the portal after a min. of 48 hours of testing.

INDUSTRY LEADING SENSORS

AirAdvice monitors are sent in for calibration yearly. PM, TVOC, and CO₂ sensors are monitored for performance, and the user is alerted if a sensor is out of specification.

PREPARATION

For best results, the space should be closed at least one hour prior to testing. Monitor is placed in a common area of the space.

SENSOR ARRAY

- Temperature
- CO
- CO₂
- Pressure
- Humidity
- TVOC
- Particulates

SENSOR DETAILS

PARTICULATE MATTER (PM)

Type: Nephelometer-based PM sensor uses laser scattering

Theory of Operation: The nephelometer based PM sensor uses laser scattering, i.e. it produces scattering by using a laser to radiate suspending particles in the air, then collect scattering light at a certain degree, and obtain the curve of scattering light change with time. As a result, equivalent particle diameter and the number of particles with different diameter per unit volume can be calculated by its microprocessor based on MIE theory.

Monitors with serial numbers above #35050 report both PM₁₀ & PM_{2.5} in $\mu\text{g}/\text{m}^3$ (Monitor serial numbers under #35051 measure PM₁₀ in $\mu\text{g}/\text{m}^3$)

CARBON MONOXIDE (CO)

Type: Electrochemical

Theory of Operation: Exposure of the sensor to carbon monoxide gas produces a small current that is proportional to the concentration of the gas. This signal is recorded and converted to CO in ppm.

CARBON DIOXIDE (CO₂)

Type: Non-dispersive infrared (NDIR)

Theory of Operation: Carbon Dioxide, like most molecules, absorbs infrared light at a unique wavelength. The sensor has an LED and infrared detector designed to work at this unique wavelength. Air with a high level (concentration) of CO₂ absorbs more light at this wavelength than air with a low level of CO₂. This light absorption is measured and converted into a CO₂ concentration. Corrections are made to compensate for pressure differences.

TEMPERATURE (T)

Type: Thermal Resistor (Thermistor, integrated into the RH sensor module)

Theory of Operation: Resistance of the sensor changes in proportion to changes in temperature. This resistance change is converted to temperature in Degrees F.

PRESSURE (ABSOLUTE)

Type: MEMS based precision micro altimeter

Theory of Operation: The piezo-resistive sensor is MEMS based and configured as a Wheatstone bridge. Extremely high accuracy is obtained via internal temperature compensation and results in typical performance of < 0.3 mbar at typical atmospheric conditions in a home or building and can be used to differential pressure measurements, recorded and converted to CO in ppm.

RELATIVE HUMIDITY (RH)

Type: Capacitive

Theory of Operation: Moisture changes the capacitance of the sensor, which is measured, compensated for temperature effects and converted to relative humidity in % RH.

TOTAL VOLATILE ORGANIC COMPOUND (TVOC)

Type: Metal Oxide Semi-Conductor (MOS)

Theory of Operation: Conductivity of the sensor changes in the presence of detectable gases. The sensor was chosen due to its high sensitivity to gases common in office and home environments. The TVOC sensor is calibrated using Isobutylene, a common reference gas. Corrections are made to compensate for temperature, humidity and pressure changes.



Field Controls
2630 Airport Road
Kinston, NC 28504
252 522-3031
Fax: 1 (800) 367-7942



Visit us at: www.fieldcontrols.com

Field Controls LLC reserves the right to modify a product, without prior notice, whether in design, color or specifications, in order to offer at all times a quality product that is highly competitive. Please consult your national and local building codes to find out whether the installation of electrical products requires the services of a certified technician or electrician. Field Controls is a registered Trademark used under license by Field Controls LLC. All rights reserved.

ENGINEERING DATA IAQ MONITOR

SENSOR SPECIFICATIONS

Sensor	Range	Accuracy	Resolution
Particulates (PM10)	0 to 50 µg/m ³	± 10%	.5 µg/m ³
Particulates (PM10, PM2.5)	0 to 500 µg/m ³	± 10%	.5 µg/m ³
TVOC	0 to 4000 µg/m ³	± 20%	6 µg/m ³ @calpt
Carbon Dioxide	0 to 2000 ppm	± 5%, ± 50 ppm	<10 ppm
Temperature	32 to 100 °F	± 2 °F	0.1 °F
Relative Humidity	10 to 95%	± 3%	0.1%
Carbon Monoxide	0 to 100 ppm	± 3 ppm	0.5 ppm
Pressure	750 to 1100 mbar	± < 0.3 mbar	0.1 mbar

To maintain these specifications, annual calibration is required. (Calibration is included in the annual monitor subscription)

DATA COMMUNICATION

The monitor features a built-in universal slot for various types of modems. Current modem configuration is 4G LTE. The modem can be programmed to upload data in multiples of 15-minute data packets. Various configurations are available. Standard configuration includes uploads at 30 minutes after power up for Flash Report, and 3-hour intervals thereafter for extended data collection.

The user can monitor upload activity via the front panel display. Data displayed includes upload progress, signal strength, and time of the next scheduled upload.

REPORT OUTPUT

A report is emailed to the user(s) automatically after 30 minutes of powering up, the monitor then goes into data log mode if left plugged in. Data is viewed from the portal. A minimum 48 hours of data is required to generate a multi-day SmartIAQ Report. CSV files may be exported from the portal.

FC MODEL DETAILS

Model	FC Part Number	Description
Canary	602619410	FC Canary IAQ Monitor
Canary-Subscription	602619430	Canary IAQ Monitor Subscription



Field Controls
 2630 Airport Road
 Kinston, NC 28504
 252 522-3031
 Fax: 1 (800) 367-7942



Visit us at: www.fieldcontrols.com

PROJECT INFORMATION

Quoted by:	Date:
Project:	Remarks:
Quantity:	
Model:	
Site:	
Architect:	
Engineer:	
Contractor:	