



Sensor Based Air Quality Measurement



What Does It Measure?

SO₂

NO₂

O₃

Temp

CO

PM₁₀

PM_{2.5}

RH

Description

The SCI - 608 – Criteria Pollutant Sensor is a low-cost air quality monitoring solution designed for accurate, high time resolution measurement of criteria pollutants. It utilizes state of the art sensor technology enhanced with a machine learning calibration system and a convenient cloud-based data acquisition and visualization system. The monitor has been extensively field tested, is easy to install and can provide the user with real time data within minutes of setting up.

Applications

- Real Time Alternative for Samplers
- Smart Cities
- Pollution Source Identification and Locating
- Traffic Pollution Monitoring
- Industrial Fence Line Monitoring
- Emergency Monitoring
- Air Quality Model Validation
- Community Based Monitoring
- Pollution Migration Mapping

Specifications

Measurement Performance

Pollutant	Detection Principle	Units	Range	Detection Limit	Resolution
SO ₂	Electrochemical Sensor	ppb	0 ~ 500	5	0.01
NO ₂		ppb	0 ~ 500	5	0.01
CO		ppm	0 ~ 50	0.05	0.01
O ₃		ppb	0 ~ 500	5	0.01
PM ₁₀	Light Scattering	µg/m ³	0 ~ 1000	5	1
PM _{2.5}		µg/m ³	0 ~ 1000	5	1

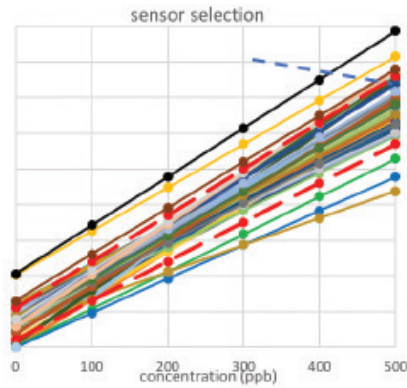


Power Supply	DC 12V, Solar
Power Consumption	Less than 3 watts
Operating Temperature Range	-20 to 55 °C
Atmospheric Pressure	645 to 795 mmHg
Relative Humidity	15 to 90%
Communication	GPRS (2G/3G/4G), RS232
Size	220 x 220 x 300 mm
Weight	2.6 kg (5.75 lbs)
Software	Cloud: For instrument and data management. Runs on secure servers accessed via web browser
Mounting	Pole Mounting Bracket Included

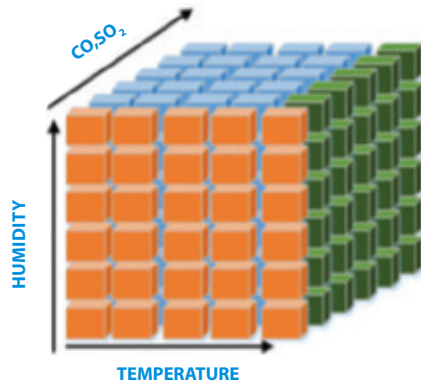
Sensor Quality Control

SCI sensor instruments have a rigorous three stage quality assurance and calibration process. In the first stage each individual sensor is challenged with standard gases to screen out low performing sensors. The second stage involves generating calibration files unique to each sensor unit using a custom machine learning algorithm and the sensor's response to complex pollutant mixtures, varying temperature and varying humidity in a controlled test chamber. Once in the field, sensors can be periodically recalibrated with neural networking algorithms to improve sensor response to complex ambient conditions. This cloud-based calibration can be done automatically during field deployment using existing reference method monitors or with mobile instruments.

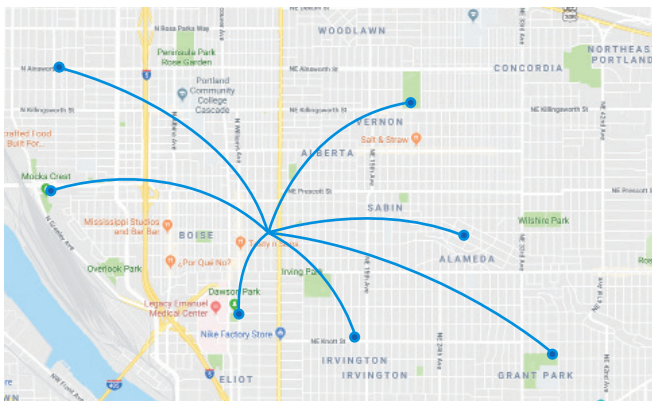
Stage 1: Sensor Selection



Stage 2. Sensor Instrument Factory Calibration

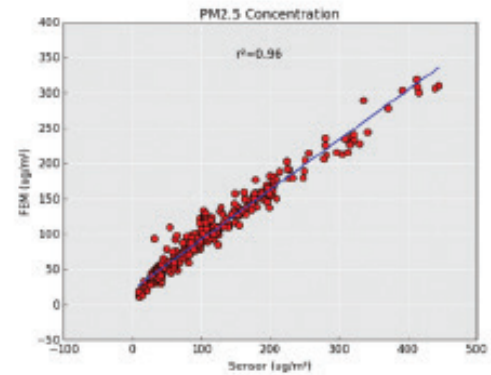
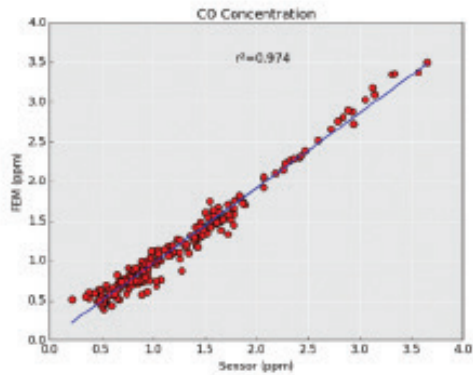


Stage 3. Field Calibration



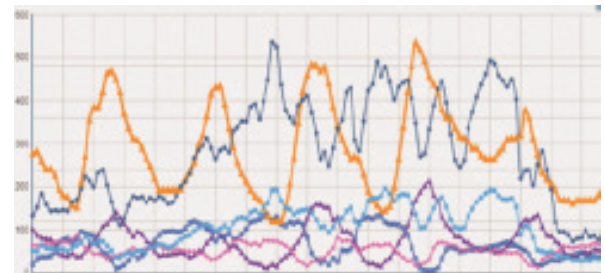
Accuracy

SCI sensors have demonstrated excellent correlation with reference method sensors with correlation coefficients as follows: CO = 0.97, NO₂ = 0.93, O₃ = 0.975, SO₂ = 0.89, PM_{2.5} = 0.96, PM₁₀ = 0.8



Data Visualization Platform

SCI sensor data is uploaded to the cloud and data can be visualized using a number of useful graphics that turn sensor data into useful information. Data can be accessed via the internet or with an app on your mobile device.



Ordering Information

To place an order or for more information about SCI sensor contact us at info@sci-cooper.com.