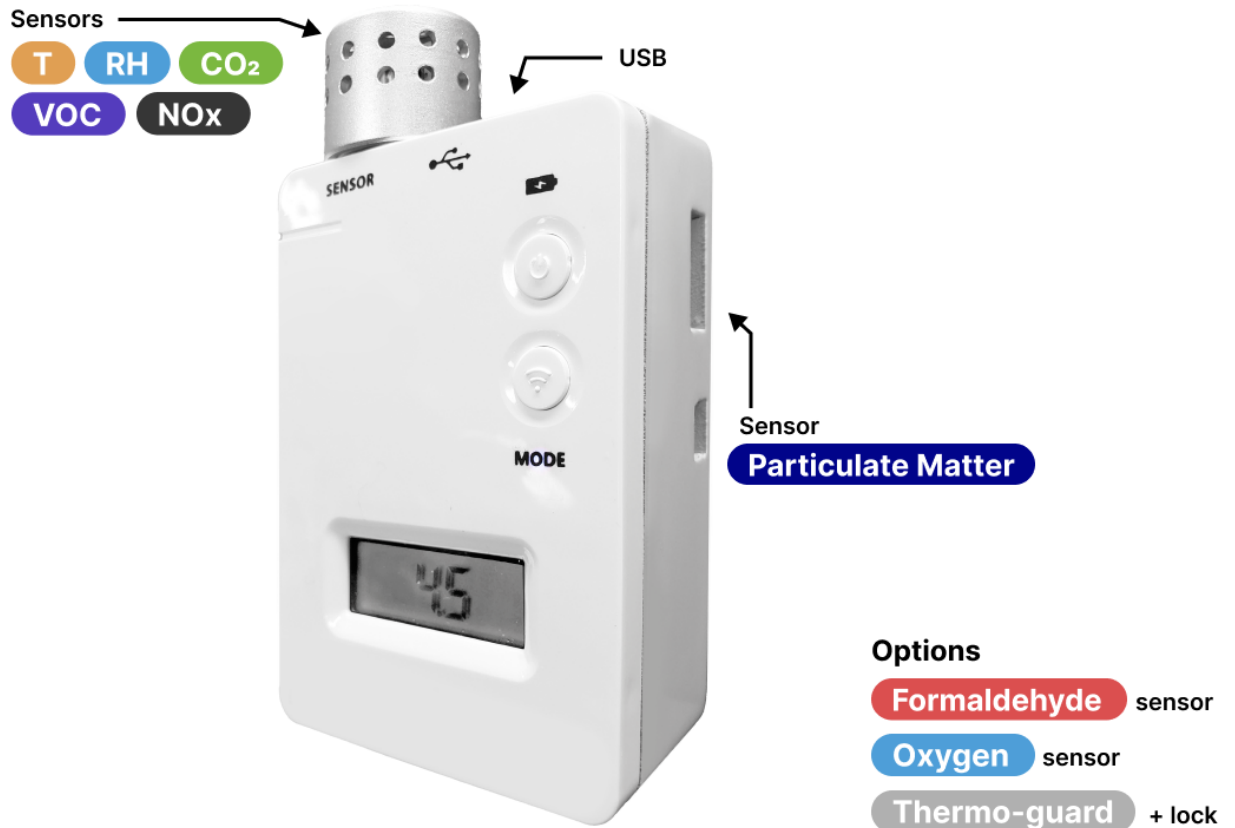


Indoor Air Quality

Sentinel NEXT 1S

Monitor environment - Use low power **Wi-Fi**



Indoor Air Quality

Datasheet

Sentinel NEXT 1S

Monitor environment - Use low power **Wi-Fi**

Product Number: **XIAQ-1000-0001**

Specifications

Dimensions (HxWxD)	89mm x 60mm x 20mm (3.50" x 2.36" x 0.78")
Weight	102g (3.60 Oz)
Connectors	10-pin Sensor Connector; micro USB for Charging
Battery	Integrated 1000mAh Rechargeable Li-Ion Battery
Wi-Fi Protocols	IEEE 802.11b/g/n
Wi-Fi Models Supported	Wi-Fi Direct, Infrastructure, Remote
Wi-Fi Encryption	WEP, WPA/WPA2, WPA2-Enterprise Personal (PEAPv0/MSCHAPV2, EAP-TTLS)
On Board Data Storage	>2 months with a Once/Minute Sampling Rate
Operating Temperature	0°C to 40°C on Charger -20°C to 60°C on Battery only
Non-operating Temperature	-30°C to 70°C
Relative Humidity	10% to 90%
Certifications	FCC, CE
Ports Used	Sensors connect to the MQTT Bridge using TLS transport to communicate with the Cloud IoT Core: <code>mqtt.googleapis.com:443(tcp)</code> for Communication Sentinel units periodically synchronize their internal clock using the NTP protocol. 0.pool.ntp.org 123 (udp) for Time server (Default: pool.ntp.org)
Protocol to Cloud	Sensor communication MQTTS (MQTT over TLS) OTAP and Debugging HTTPS



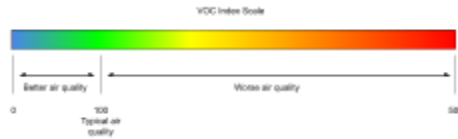


CO2 Sensor

CO2 Specified Range	400-2000 ppm
Accuracy	± (50 ppm + 5% of reading)
Response Time (to reach 63%)	60 sec
Resolution	1 ppm

VOC Sensor

VOC Specified Range 0.3-30 ppm (Ethanol in clear air)



Output Signal	VOC Index, between 1 to 500
Repeatability	± 5 VOC Index points
Limit of Detection	<0.05 ppm ethanol
Resolution	1 VOC Index point

The VOC Index is a robust measure for indoor air quality. It automatically adapts the environment the sensor is exposed to. The VOC Index shows changes of intensity of VOC events relative to the history of the room, referenced to the average of VOCs present over the last 24 hours. The Index doesn't represent absolute concentrations but refers to the typical conditions of the environment. It indicates users when air pollution changes and the room needs to be ventilated or the air purified.

Temperature and Relative Humidity Sensor

Temperature Measurement Range	-10°C to +60°C (14°F to 140°F)
T. Accuracy (typ.), 15-35°C	±0.8°C (±1.4°F)
T. Response Time (to reach 63%)	120 sec
T. Resolution	0.1°C
Relative Humidity Range	0 to +100% RH
RH Accuracy (typ.), 15-35°C	±6% RH
RH Response Time (to reach 63%)	90 sec
RH Resolution	0.1% RH



Particulate Matter Sensor

Dimension	41 x 41 x 12mm
Weight	26g
Measurement Method	Laser Scattering (660nm Wavelength)
Particle Sizes	PM0.5, PM1, PM2.5, PM4, PM10
Number Concentration	0-3000/cm ³
Mass Concentration	0-1000microgram/m ³

Formaldehyde Sensor

HCHO Measurement Range	0-1000 ppb (parts per billion)
Accuracy	± 20 ppb or ± 20% of measured value
Response Time (to reach 63%)	<2 min
Resolution	1 ppb

Oxygen Sensor

Ambient O₂ Measurement Range	0-25% Vol
Measurement Method	Electrochemical
Stability	<2% per month
Response Time (to reach 63%)	<=15sec

Remote Monitoring Solution

+ Software

The software **complies with 21 CFR Part 11.**

It meets GMP standards and is used by Hospitals, Clinics, Pharma and Research Institutions.

Cloud Services

MQTT communication

IoT Ingestion Engine

Data Storage

No limits to number of sensors

Dashboard

Visualize sensor

Group/Location/Asset

Alarming and Alerting

Individual & Aggregate Report

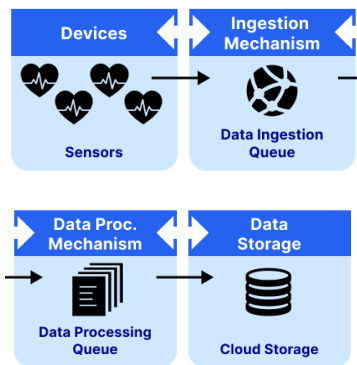
APPS

iOS and Android

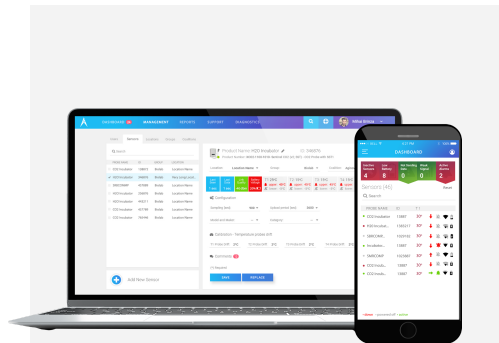
Sensor Configuration Wizard

Quickview Sensor Status

Alarm Notifications



Sensors communicate to the cloud using MQTT via either using WiFi or LTE cell network. No data is lost. All sensor communications can be seen in the cloud for updating firmware, debugging and diagnostics purposes. The system can be scaled to 100,000+ sensors instantly by allocating more resources on the server. The diagram shows the data flow from the sensor to the cloud.



The dashboard sits on top of the Data storage system. It is designed to help the user set sensor parameters, visualize data through graphs and tables, aggregate reports for managers and manage alarms.

Features include:

- User management
- Sensor management
- Alarm management
- Graphs / Data (exporting)
- Sensor Diagnostics
- Admin reports
- Sensor Health
- Sensor Signing
- Manage NIST Certificates
- Alarm Statistics
- Custom Reports and Workflows



Sensor configuration Wizard is an APP to test your network to cloud connectivity, configure sensors in the field and perform advanced diagnostics in case of communication malfunction

Sentinel Next APP provides a quick view of the sensor reading, graph, health and status of the alarms. The alarms can also be acknowledged from the APP. In addition, it can be used to validate sensors in the field.