

## SV23

# Air Quality Sensor



## Overview

The SV23 air quality sensor is a cloud-managed device for monitoring indoor air quality and ambient environment conditions. Like the SV21, it measures temperature and relative humidity, while also introducing measurements for indoor pollutants like particulate matter and volatile organic compounds.

This sensor is well suited for environments like bathrooms and locker rooms, where organizations can detect vaping or concerning noise disturbances. It is also well suited for monitoring air quality in offices and other indoor spaces, enabling organizations to track CO2 levels, AQI, the RESET Viral Index, and more. The SV23 also collects extensive data that can be used to meet requirements for leading green building certifications like RESET, LEED or WELL.

Organizations additionally benefit from alerts for offline devices, 24/7 support, and automatic firmware updates, helping to ensure their sensors are operational and improving over time.

## Key Features

### Multifaceted coverage

- 8 ambient environment readings help organizations protect people and assets
- 9 air quality readings help organizations optimize the respiratory health of building occupants

### Easy, durable install

- Durable, vandal-resistant design and an optional accessory support secure wall or ceiling mounting
- PoE-only connection coupled with intuitive software brings devices online in minutes

### Superior performance

- Bandwidth-friendly design, operating at <5 kbps per device, enables enterprise scale
- 365 days onboard storage of air quality sensor data supports compliance and operational needs



## SV23 Tech Specs

**SV23**

### Power and Network

|                          |                  |                      |                                                  |
|--------------------------|------------------|----------------------|--------------------------------------------------|
| <b>Power Consumption</b> | 4W               | <b>Connectivity</b>  | RJ-45 cable connector for Network/PoE connection |
| <b>Power Input</b>       | IEEE 802.3af PoE | <b>LED Indicator</b> | System power and status indicator                |

### General

|                              |                                                  |                           |                                               |
|------------------------------|--------------------------------------------------|---------------------------|-----------------------------------------------|
| <b>Operating Temperature</b> | -5.0°C to +45.0°C<br>(23.0°F to 113.0°F) Indoors | <b>Offline Mode</b>       | Continues sampling and storing data on device |
| <b>Operating Humidity</b>    | 0.0 to 95.0%                                     | <b>Sampling Frequency</b> | 5 seconds                                     |
| <b>Storage</b>               | Device: up to 365 Days<br>Cloud: up to 365 Days  | <b>Warranty</b>           | 10 years                                      |

### Compliance and Availability

|                     |                                         |                                |                                                                                                                                         |
|---------------------|-----------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Availability</b> | USA, CA, IN, UK, UK,<br>EU, AUS, NZ, MX | <b>Compliance &amp; Safety</b> | FCC Part 15B Class B, ICES-003 Class B,<br>NDAA, UKCA, CE, RCM, VCCI, KCC, BIS,<br>NOM, UL/cUL/IEC 62368-1, ECA, CAK, NCC,<br>RURA, UCC |
|---------------------|-----------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|

### Software Capabilities

|                            |                                                                                            |                      |                                                        |
|----------------------------|--------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------|
| <b>Alerts</b>              | Device status, specific alerts for each sensor reading based on duration and reading level | <b>Sensor Events</b> | Configurable events for every on-device sensor reading |
| <b>Alert Notifications</b> | Configurable SMS and email notifications                                                   | <b>Sensor Zones</b>  | Configurable alerts based on a group of sensors        |



SV23  
Tech Specs



SV23

Mechanical

|            |                                                                             |        |                  |
|------------|-----------------------------------------------------------------------------|--------|------------------|
| Dimensions | Length: 170mm / 6.96in<br>Width: 169.5mm / 6.67in<br>Height: 48.0mm / 1.8in | Weight | 554.0g / 19.54oz |
|------------|-----------------------------------------------------------------------------|--------|------------------|

Dimensions



Installation

|                           |                                                                                                                         |                  |                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------|
| Included Accessories      | Mounting plate, installation kit, T10 security torx screwdriver, mounting screws, washers, drywall anchors and wing nut | Mounting Options | Horizontal & vertical for wall and ceiling mounts |
| Popular Install Locations | Open office area (on ceiling)<br>bathroom/locker room (on ceiling)                                                      |                  |                                                   |



## SV23 Tech Specs

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### Onboard Sensors

|                          |                                                                                                                                                                                                                                                |                           |                                                                                                                                                                                              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Temperature</b>       | Sensor: CMOS<br>Operating Range: -5.0 to 45.0°C<br>(23.0 to 113.0°F)<br>Typical Accuracy: $\pm 0.5^{\circ}\text{C}$ ( $\pm 0.9^{\circ}\text{F}$ ),<br>Max $\pm 1.0^{\circ}\text{C}$ / ( $\pm 1.8^{\circ}\text{F}$ )                            | <b>Mold Risk Index</b>    | Sensor: Formula derived from other sensors<br>Range: 0-3 Index                                                                                                                               |
| <b>Relative Humidity</b> | Sensor: CMOS<br>Operating Range: 0.0 - 95.0%<br>non-condensing<br>Typical Accuracy: $\pm 3.0\%$ @ 25.0°C                                                                                                                                       | <b>CO<sub>2</sub></b>     | Sensor: Photoacoustic<br>Range: 0.0 - 40,000.0 ppm<br>Typical Accuracy: 400.0 ppm - 1000.0 ppm<br>$\pm 75.0\text{ppm}$ 1001.0 ppm - 2000.0 ppm<br>$\pm (40.0\text{ ppm} + 5.0\%$ of reading) |
| <b>PM2.5</b>             | Sensor: Laser scattering optical<br>Sensor Range: 0 - 1000 $\mu\text{g}/\text{m}^3$<br>Typical Accuracy:<br>0 - 100 $\mu\text{g}/\text{m}^3$ : $\pm 25\text{ }\mu\text{g}/\text{m}^3 + 5\%$ m.v                                                | <b>Noise Level</b>        | Sensor: MEMS microphone<br>Range: 20 - 120 dB SPL (A-Weighted)<br>Typical Accuracy: $\pm 5\text{ dB}$                                                                                        |
| <b>PM4.0</b>             | Sensor: Laser scattering optical<br>Sensor Range: 0 - 1000 $\mu\text{g}/\text{m}^3$<br>Typical Accuracy:<br>0 - 100 $\mu\text{g}/\text{m}^3$ : $\pm 25\text{ }\mu\text{g}/\text{m}^3$<br>100 - 1000 $\mu\text{g}/\text{m}^3$ : $\pm 25\%$ m.v. | <b>Air Quality Index</b>  | Sensor: U.S. Air Quality Index<br>derived from multiple sensors,<br>Range: 0 - 500.0                                                                                                         |
| <b>PM10.0</b>            | Sensor: Laser scattering optical<br>Sensor Range: 0 - 1000 $\mu\text{g}/\text{m}^3$<br>Typical Accuracy:<br>0 - 100 $\mu\text{g}/\text{m}^3$ : $\pm 25\text{ }\mu\text{g}/\text{m}^3$<br>100 - 1000 $\mu\text{g}/\text{m}^3$ : $\pm 25\%$ m.v. | <b>Vape Index</b>         | Sensor: Proprietary formula<br>derived from multiple sensors<br>Range: 0 - 100.0                                                                                                             |
| <b>TVOC Index</b>        | Sensor: MOX<br>Range: 0.0 - 500.0                                                                                                                                                                                                              | <b>Heat Index</b>         | Sensor: Formula derived from other sensors<br>Range: 23 °F to 160 °F                                                                                                                         |
| <b>Motion</b>            | Sensor: Passive infrared sensor,<br>FoV: 120.0°                                                                                                                                                                                                | <b>Dew Point Index</b>    | Sensor: Formula derived from other sensors<br>Range: 23 °F to 122 °F                                                                                                                         |
| <b>Humidex</b>           | Sensor: Formula derived from other sensors<br>Range: 0-50                                                                                                                                                                                      | <b>RESET® Viral Index</b> | Sensor: Formula derived from other sensors<br>Range: 0% - 100%                                                                                                                               |



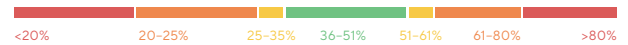
## Reading Overview | Ambient Environment Indicators

### Temperature



SV25 temperature measurements are accurate from 23°F – 122°F (-5 – 45°C). As with other data streams, users can customize temperature alerts if a space is kept at a temperature outside of the recommended green zone.

### Relative Humidity



Relative humidity is the amount of moisture in the air compared to what the air can hold at that temperature.

### Heat Index



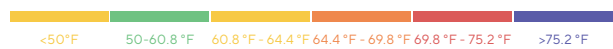
The heat index represents what the temperature feels like to the human body when relative humidity is combined with the temperature. It is derived from our existing temperature and humidity readings and uses the National Weather Service's heat index chart to calculate the reading value.

### Humidex



Similar to the heat index and commonly used in Canada, Humidex indicates how hot it feels to the average person. It is calculated using a formula developed by Canadian meteorologists.

### Dew Point Index



Dew point is the temperature at which air cools enough for water vapor to condense into dew or frost. Industries from transportation to agriculture often use this index to predict and mitigate risks from conditions like frost or fog.

### Mold Risk Index



The Mold Risk Index assesses the likelihood of mold growth in confined, unventilated spaces based on temperature and humidity levels. Higher temperatures combined with elevated humidity create ideal conditions for mold spores to thrive, making these factors key indicators of potential mold growth.



## Reading Overview | Ambient Environment Indicators

### Noise Level



A measure of total noise level at the sensor. OSHA regulations state that noise levels cannot exceed 90 dBA over an 8 hour period, or 95 dBA over a 4 hour period.

### Motion

A measure of changes in infrared light absorption caused by the motion of warm bodies, as measured by a passive infrared sensor. Powered by the same technology as motion sensors for intrusion detection, a motion event indicates human/animal motion or other large changes in infrared activity.

### Tamper Detection

Indicates if your device has been moved or tampered with.



## Reading Overview | Air Quality Indicators

### Carbon Dioxide (CO<sub>2</sub>)



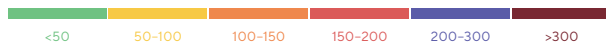
CO<sub>2</sub> measurements capture the absolute level of CO<sub>2</sub> in an environment. At levels of 800ppm or less, CO<sub>2</sub> is harmless. Between 800 and 2000ppm, CO<sub>2</sub> levels can be harmful to health, at levels above 2000ppm, CO<sub>2</sub> can be extremely harmful to human health.

### Vape Index



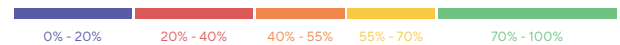
Verkada's Vape Index is a score derived from multiple sensors that is strongly correlated with vaping and/or smoking activity. Vape Index measurements outside of the green zone indicate suspected vaping/smoking activity, but could also reflect smoke or fumes from other sources. Smoke from cooking, burning fuel or wildfires may register highly on the Vape Index.

### Air Quality Index



The U.S. AQI measures total air pollution and provides benchmarks for healthy values. When AQI exceeds 100, air quality is unhealthy - at first for certain sensitive groups of people, then for everyone as AQI values get higher.

### RESET® Viral Index



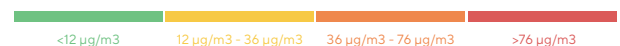
The RESET® Viral Index is designed to assess the likelihood of airborne virus transmission in indoor spaces, using research on virus transmission and applying it to continuous monitoring.

### TVOC



TVOC is a total measure of Volatile Organic Compounds, which are chemicals that evaporate into the air and are emitted by cleaners, paints, varnishes, fragrances and hundreds of other products. Examples include benzene, ethylene glycol and formaldehyde. Measured as a TVOC index, VOCs are measured as a group because of their cumulative effects, with high TVOC values associated with negative health impacts.

### PM 2.5

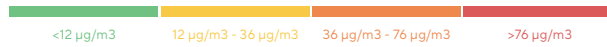


Particulate Matter 2.5 (PM 2.5) refers to tiny inhalable particles or droplets in the air that are less than 2.5 microns in width. PM 2.5 captures particulates from dust, vehicle exhaust, burning fuels, cooking, smoking and vaping. These particles can have a negative health impact.



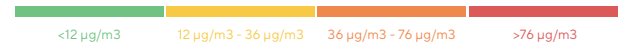
## Reading Overview | Air Quality Indicators

### PM 4.0



Particulate Matter 4.0 (PM 4.0) refers to tiny inhalable particles or droplets in the air that are less than 4.0 microns in width. PM 4.0 captures particulates from dust, vehicle exhaust, burning fuels, cooking, smoking and vaping. These particles can have a negative health impact.

### PM 10.0



Particulate Matter 10.0 (PM 10.0) refers to tiny inhalable particles or droplets in the air that are less than 10.0 microns in width. PM 10.0 captures particulates from dust, vehicle exhaust, burning fuels, cooking, smoking and vaping. These particles can have a negative health impact.





## Ordering Information

### Air Quality Sensors Pricing

| Model Number | Description                      | Cost (MSRP) USD |
|--------------|----------------------------------|-----------------|
| SV23-HW      | SV23 Air Quality Sensor Hardware | \$999           |

### Air Quality Sensors Accessories Pricing

| Model Number   | Description             | Cost (MSRP) USD |
|----------------|-------------------------|-----------------|
| ACC-SV-MOUNT-1 | Reinforced Sensor Mount | \$89            |

### Air Quality Cloud License Pricing (New/Capacity Increase)

| Model Number   | Description                           | Cost (MSRP) USD |
|----------------|---------------------------------------|-----------------|
| LIC-SV-1Y-CAP  | 1-Year SV License, Capacity Increase  | \$249           |
| LIC-SV-3Y-CAP  | 3-Year SV License, Capacity Increase  | \$599           |
| LIC-SV-5Y-CAP  | 5-Year SV License, Capacity Increase  | \$999           |
| LIC-SV-10Y-CAP | 10-Year SV License, Capacity Increase | \$1,999         |

### Air Quality Cloud License Pricing (Renewal)

| Model Number   | Description                 | Cost (MSRP) USD |
|----------------|-----------------------------|-----------------|
| LIC-SV-1Y-RNW  | 1-Year SV License, Renewal  | \$249           |
| LIC-SV-3Y-RNW  | 3-Year SV License, Renewal  | \$599           |
| LIC-SV-5Y-RNW  | 5-Year SV License, Renewal  | \$999           |
| LIC-SV-10Y-RNW | 10-Year SV License, Renewal | \$1,999         |