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Air Quality Monitoring for Every Environment

Overview

Verkada Air Quality Sensors help customers monitor spaces where cameras cannot be deployed and get insight into environmental conditions that cameras cannot detect. From protecting school bathrooms against bullying and vaping to gathering real-time insight into air quality conditions like carbon dioxide levels, Verkada sensors enable customers to manage and protect their environments more comprehensively.

Verkada's sensors are all-in-one-sensor devices that deliver a proactive, real-time and secure way to monitor, understand and act on complex environmental conditions across every type of indoor space. Designed for accuracy, speed and synthesis, the SV series environmental sensors monitor environmental conditions to identify important information and provide organizations with simplified, real-time tools and insights so they can protect populated spaces, monitor critical assets, catch targeted incidents and more.

Key features

Comprehensive coverage

- Up to 15 sensors to capture real-time information and protect against unwanted environmental conditions
- Simplified, single device system provides a unified way to monitor indoor environments
- Understand environmental conditions down to a fraction of a degree

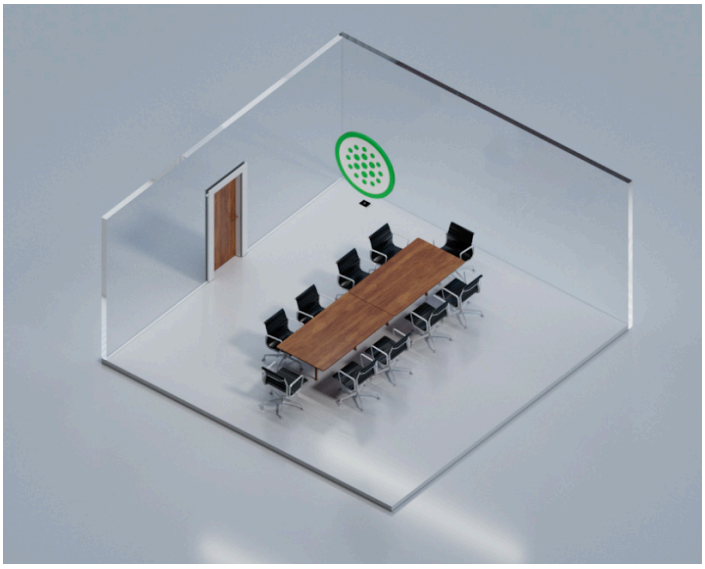
Edge computing for speed and security

- Edge-based, proprietary algorithms provide unprecedented insight on your environmental conditions
- Capture and alert on complicated environmental conditions in less than 1 second
- Store up to 365 days of environmental information on device

Scalable form factor

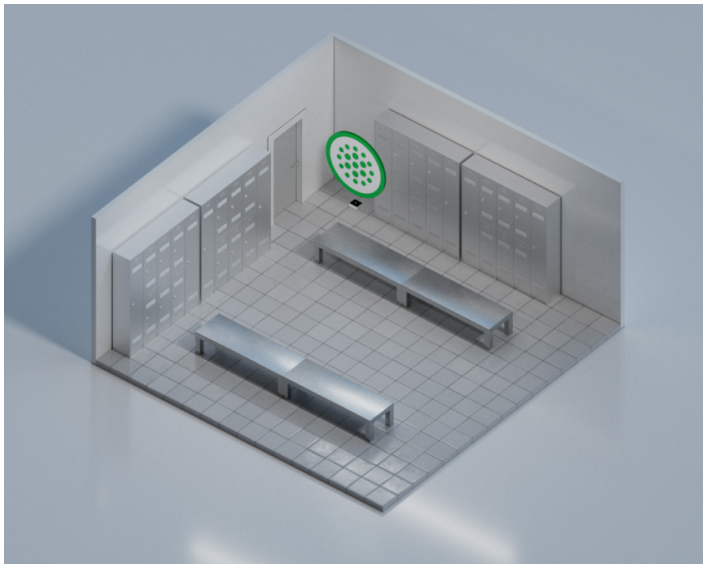
- Durable, vandal-resistant design that mounts on walls or ceilings
- PoE-powered device is simple-to-install and can be online in minutes
- Unified device with air quality, audio and environmental sensors

Key use cases



Air quality monitoring

Meeting rooms, classrooms, server rooms

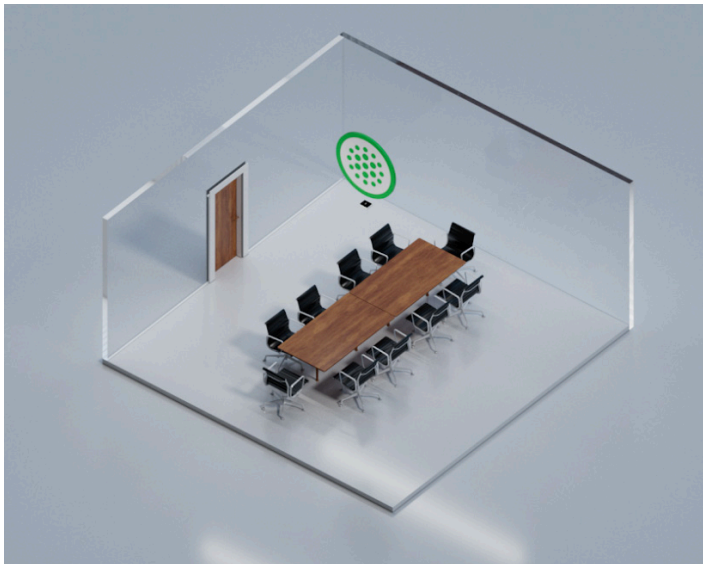


Vape detection

Bathrooms, locker rooms, classrooms, hospitality settings, hotel rooms

Air safety

Laboratories, manufacturing workplaces and compliance, green building certification



Environmental safety

Locker rooms, special education classrooms, noisy work environments

Verkada's hybrid cloud architecture

Cloud-based sensor
Verkada's SV20 Series instantly connects to the cloud via Ethernet

Easy to scale
No servers, databases, or on-prem clients to manage — simply just plug in and monitor

Centralized management
Modern platform enables secure access on any device from anywhere in the world

Simplified Hardware and Powerful, Cloud-based Software

Simple to install

- No complex installation required — just a single PoE-powered device
- Device comes online in minutes and configures automatically
- No added software or integrations needed

Native, easy to use, software

- Centralized management for secure remote access on any device
- SAML-based integration with single-sign on (SSO) solutions
- Continuous analytics, management and AI feature updates

Real-time incident resolution

- Intuitive alerting and investigations - no training required
- Instantly share live sensor data via SMS and email
- Professional monitoring available for better event verification

No hidden costs

- Hardware includes an industry-leading 10-year warranty
- Firmware updates deployed automatically
- All software features are included in standard license

Customizable alerts and monitoring

- Receive real-time notifications anytime conditions deviate from pre-defined thresholds
- Zone-based alerts enhance alert accuracy and specificity
- Alerts available for every sensor reading, allowing for ultimate customizability

Ready for scale

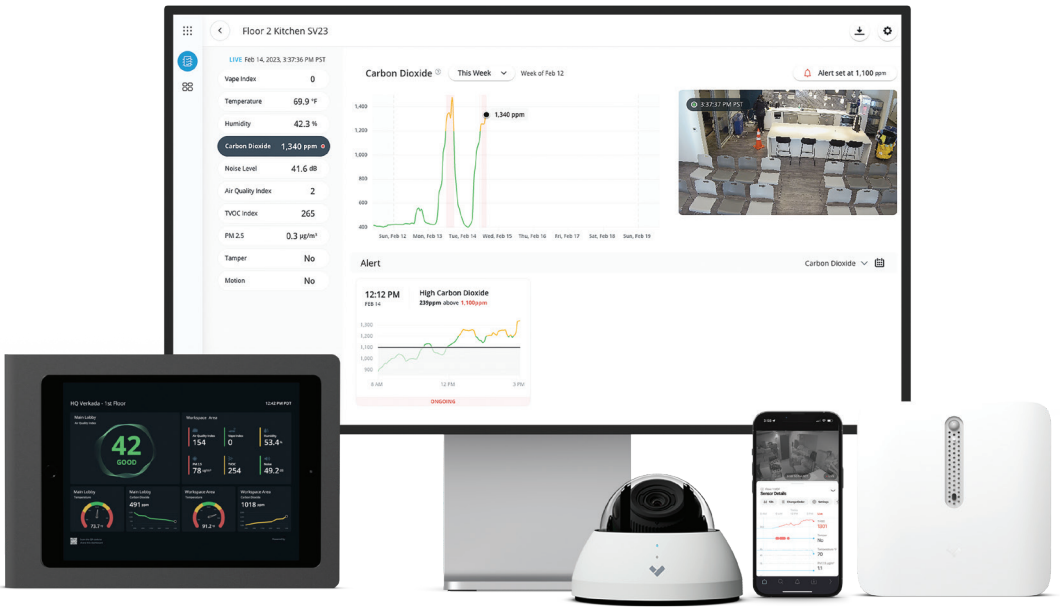
- Bandwidth-friendly, operating at <5 kbps per sensor
- Scale to thousands of cameras per location
- No added equipment needed to support additional sensors

Easily visualize environmental data

- Color-coded sensor readings and data visualizations
- Trends and analysis to compare environmental data across sensors
- Visualize your data with easy-to-configure data dashboards

Verkada Command overview

A Connected, Cloud-first Approach to Air Quality Monitoring



With Verkada's cloud-first system, you can monitor environmental conditions across every indoor environment with a single cloud-based system that is accessible across sites and geographies. From Command, users can set up new sensors, create alerts, monitor air quality, manage environmental safety and more, from a single platform.

Detect and respond to anomalies

- Stay informed with customizable, intelligent alerts
- Set up custom events to for streamlined alerts and investigations
- Pair your sensor with a Verkada camera for integrated insights

Manage environments from anywhere

- Remotely access and manage your sites from any browser or device
- Receive alerts for offline sensors, device tampering, motion and more

Effortlessly archiving and management

- Access sensor data from nearly any device (desktops, smartphones, tablets)
- Command licenses include unlimited cloud archiving and 365-days of cloud backup for your sensor data
- Easily export any data in a shareable format

Scale with simplicity

- Add more devices and sites without complicating the user experience
- Leverage granular roles and permissions to manage users at scale

Monitor air quality from anywhere with Verkada Command Mobile

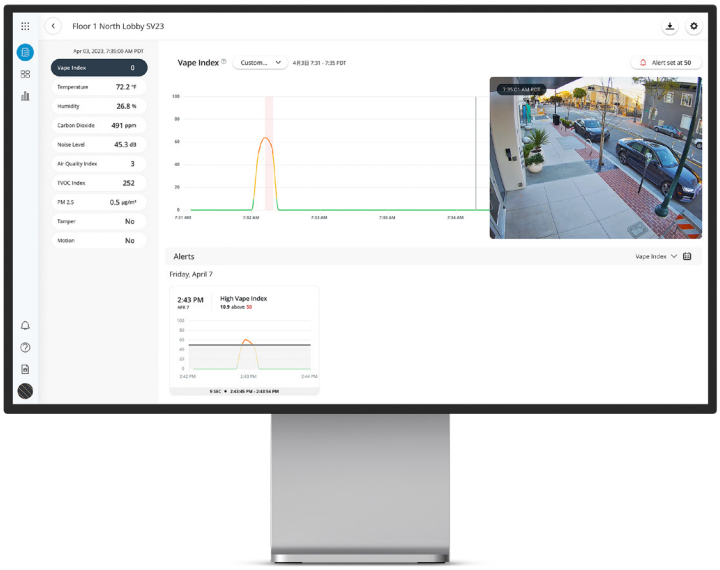
- Top rated Verkada Command Mobile app available for iOS and Android
- Set up devices, manage environments and more – at the tap of a finger
- Configure and view alerts and respond on the go

Create safer, smarter environments

- Integrate air quality monitoring with Video Security, Professional Alarm Monitoring and more to maintain a safe indoor environment
- Integrated insights to promote energy savings and establish trust among employees and visitors

Sensor alerts

A Unified Alerting Platform for More Proactive, Real-Time Environmental Monitoring



Verkada's Alert capabilities are designed to give users the ability to monitor environments for abnormal conditions automatically and in real time. With sensor alerts, users set up event thresholds, alert thresholds, alerting methods, users to be notified and more to get the simple, actionable alerts they need to take action right away.

Alerts available on every sensor reading

- Configure air quality alerts based on CO_2, PM2.5, temperature, humidity and other environmental factors
- Configure custom vape alerts to detect and respond to vape events with Verkada's proprietary vape index
- Protect the health and safety of environments with CO, formaldehyde and audio monitoring

View historical events and alerts

- View live and historical events in Verkada Command in the Sensor Homepage
- Review any paired camera context footage to understand incidents and take action
- Identify trends and take corrective action to maintain environmental quality

Custom event thresholds

- Set and automatically create events when certain thresholds are exceeded
- Intuitive alert creation workflow makes it easy to set and configure alerts
- Alert configurations allow customization of triggers, notifications and more

Configurable alert notification styles

- Send alerts as SMS text messages and/or emails alerts in real time in response to events
- Configure critical alert notifications to go directly to the right users so they can respond in real time
- Receive live links to event notifications - including associated camera views – for all alerts

Customizable alert zones

- Set up alert thresholds on a group of sensors, not just on a per-device basis for more accurate alerting and monitoring
- Receive more detailed information by combining sensors into a single group
- Subscribe to both zone alerts and device level alerts to get additional awareness and environmental context from your sensors

Alerts as an alarm input

- Leverage 24/7 professional monitoring to review and respond to events from sensors
- Respond appropriately with first responders, internal stakeholders or others to quickly address incidents as they occur
- All events can be reviewed, archived and accessed from Command for incident investigation

Sensor data visualization

Do More With Your Sensor Data With Native Dashboards and Apis

In addition to making it easy to gather information about your environment, Verkada sensors make it easy to visualize, export and integrate your data with existing physical and digital workloads to get actionable environmental insights where you need them.

See data with sensor dashboards

- Visualize your data across all environments
- Keep employees, students and visitors informed of current environmental conditions, such as indoor air quality
- Aggregate and visualize readings across locations, data types, or time periods

Real-time alerts with webhooks

- Subscribe to get all alerts triggered by sensor devices in real time
- Specify custom device or Zone alerts in Verkada command
- Integrate Verkada sensor alerts with 3rd party systems

Intuitive, easy to deploy dashboards

- Build custom dashboards in Verkada Command to configure visualizations as needed for your environment
- Display dashboard information dynamically on any 3rd party device including iPads, TV displays, computers and other devices

Fully customizable Dashboard tiles

Combine different data tiles into a single dashboard to stay up to date at a glance, available tiles include

- The Metric Tile to aggregate readings across multiple sensors and display them as an average
- The Gauge Tile also to show the values based on a customized scale
- The Sensor Readings Tile to easily view multiple data points from a single sensor
- The Line Graph Tile to view the last 24 hours' worth of data for a particular sensor reading
- The List Tile to view a table of aggregated metrics across sensor devices

Leverage the sensor API for better data analysis

- Extract sensor data with our sensor API to get a historical view of sensor data
- Extract sensor alerts for any sensor in a single API call
- Data available as far back as one year in user-defined intervals

Integrate sensor data for even more power and capabilities

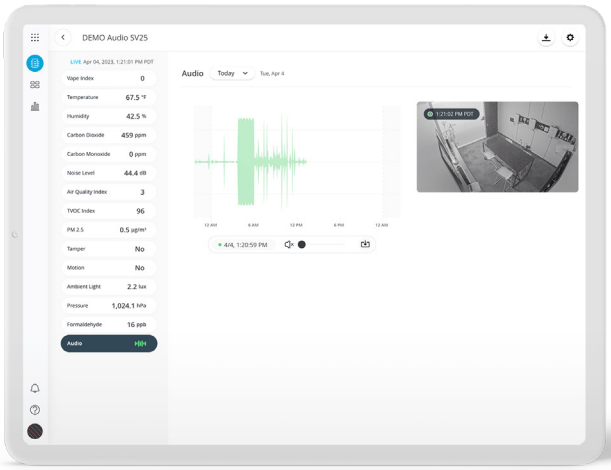
- Correlate sensor data with other metrics within the environment in a single system
- Extract sensor data and run further analysis, create custom graphs and share insights
- Receive a real-time Slack or Microsoft Teams message when vape is detected in a bathroom via API integrations

Audio recording

High-performance, Privacy-enabled Audio Analytics for Environmental Safety Monitoring

Verkada's SV series environmental sensor also includes powerful audio recording and analytics capabilities. Powered by a high-performance, omnidirectional digital microphone and leading privacy respecting features, this capability allows organizations to protect, monitor and manage their environments across a range of use cases including:

- Adding audio context and verification to noise and motion alerts.
- Monitoring audio noise and noise levels for environmental compliance and safety.
- Complying with state regulations that require audio recording in certain school settings.



In addition to capturing the complete context of an environment in real time – from video to audio and environmental – the SV25 also deploys a suite of powerful privacy and security features that provide organization admins with the tools they need to protect and monitor their organizations while respecting individuals' privacy. Together, these audio recording and analytics capabilities enable organizations to fully protect and monitor their environments.

Privacy respecting capabilities

Organizations and their admins want visibility and control over which devices make use of audio recording. As such, the SV25 leverages the following steps and processes to help ensure that audio recording is deployed in a way that respects individuals' privacy:

a. All audio recording capabilities are disabled by default on all SV25 units. No SV25 will record audio out of the box.
b. To enable audio recording, an Organization Admin must enable the feature within Command. Only Organization Admins can enable the feature and in order to enable it, Admins must review and accept a set of Terms and Conditions from within the Privacy and Security page within Command.
c. Once the Terms and Conditions have been accepted, Admins simply need to enable audio on a per device level - this ensures that Audio Recording is enabled only on an as-needed basis.
d. Admins can also choose between "live only audio", meaning no audio is recorded for historical playback, or "live and recorded audio," meaning up to 365-days of audio is recorded on the device and is available in Verkada Command.
e. There is also a 'kill switch' available at the Organization level. This control, available on the Admin page, allows Organization Admins to disable audio recording on all Sensors with the flip of a switch.

Simplified audio recording

- Capture up to 365 days of audio recording on SV25 devices
- Record audio consistently across environments
- Monitor audio and environmental safety in a single pane of glass

Powerful analytics and alerts

- Easily review, save and download audio clips directly from Verkada Command
- Integrate audio clips with environmental and air quality readings for integrated alerts and enhanced environmental safety

Seamless integration for a 360° view

- Pair audio recording natively with the other Sensor readings on the SV25 for comprehensive environmental monitoring
- Pair accurate audio with Verkada Cameras to get the full visual and audio context of an environment, 24/7

Alert Analytics

Verkada's SV series sensors can monitor up to 15 environmental conditions across environments in a single, easy to deploy and manage device. Each sensor also includes powerful edge computing capabilities that synthesize sensor readings and power proprietary, real-time applications that capture complex environmental changes in real-time.

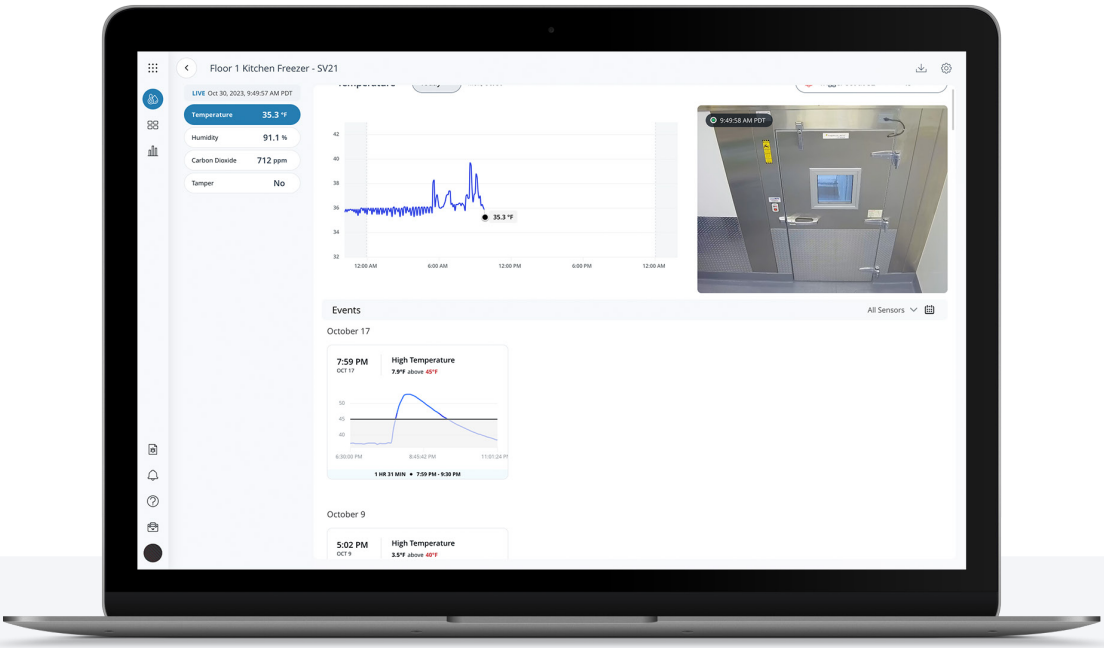
To give organizations better tools to understand how environmental conditions change over time, the Alert Analytics dashboard gives admins the ability to view alert trends across all of their sites, devices and sensor readings to identify areas for operational improvements.

Analytics across environments

- See how facilities are performing and drill into specific sites, zones, or devices for further investigation.
- Specify the sensor readings to evaluate, the time interval of the alert (daily, weekly, monthly) and fine-tune the selected sites or devices.
- Once configured, users will be able to see alert trends in an easy-to-use graph that is available right in Command.
- Alert Analytics will show which site or device contributed the most to the selected column in the bar chart. From here, users can drill into the data to find problematic areas, allowing users to allocate resources to those areas.

Verkada SV21 Sensor overview

A Streamlined Sensor for Air Quality Monitoring and More



The Verkada SV21 includes 4 onboard sensors and is great for managing air quality essentials like temperature, humidity and CO_2 in offices, classrooms, or server closets. This unified sensor allows users to quickly deploy and leverage a sensor for monitoring air quality essentials across environments.

Get the air quality essentials you need

Temperature

<47 | 47–61 | 61–64 | 64–78 | 78–81 | 81–92 | >92

SV21 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.

Carbon Dioxide (CO_2)

<1,200 | 1,200–2,000 | 2,000–5,000 | >5,000

CO_2 measurements capture the absolute level of CO_2 in an environment. At levels of 800ppm or less, CO_2 is harmless. Between 800 and 2000ppm, CO_2 levels can be harmful to health, at levels above 2000ppm, CO_2 can be extremely harmful to human health.

Relative Humidity

<20% | 20–25% | 25–35% | 36–51% | 51–61% | 61–80% | >80%

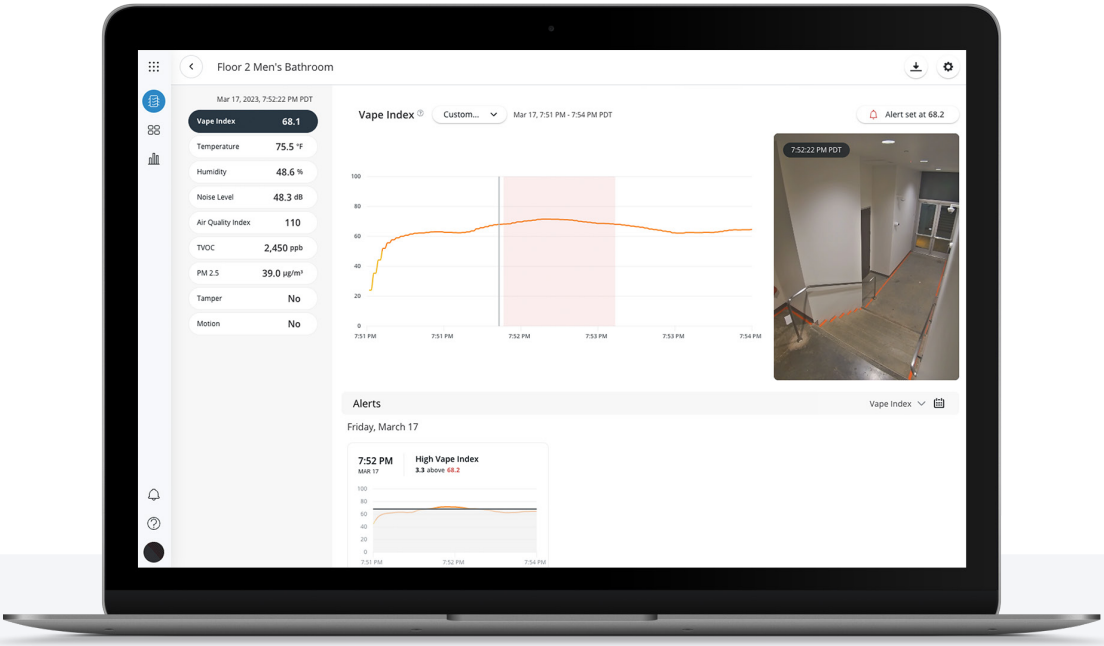
Relative humidity is the amount of moisture in the air compared to what the air can hold at that temperature.

Tamper Detection

Indicates if your device has been moved or tampered with.

Verkada SV23 Sensor overview

A Powerful Sensor for Air Quality Monitoring and Safety Monitoring



The SV23 includes 10 onboard sensors including vape, noise and PM 2.5 and is designed for air quality monitoring, vape detection and protection against common chemical exposure. This robust yet easy-to-scale sensor is perfect for schools, offices and other environments that need to maintain a safe and healthy indoor environment.

Robust environmental monitoring for vape detection and more

Vape Index

0–10 | 10–50 | 50–80 | > 80

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.

TVOC

<200 | 200–300 | 300–400

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.

Verkada SV23 Sensor overview

Robust environmental monitoring for vape detection and more

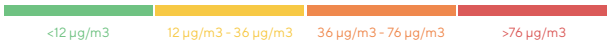
Noise Level

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.

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.

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.

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.

PM 4

Particulate Matter 4 (PM 4) refers to tiny inhalable particles or droplets in the air that are less than 4 microns in width. PM 4 captures fine dust, soot and black carbon and soil erosion particles. These particles can have a negative health impact.

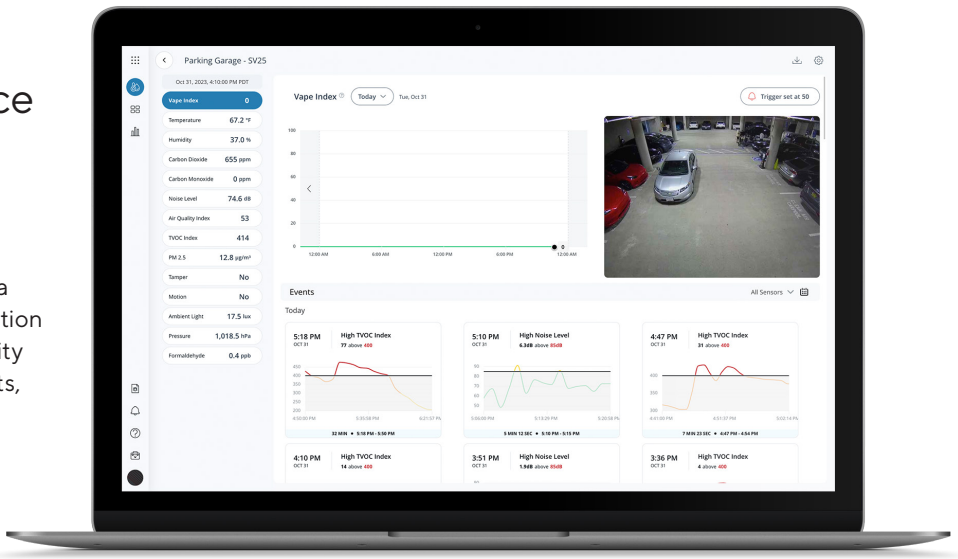
PM 10

Particulate Matter 10 (PM 10) refers to tiny inhalable particles or droplets in the air that are less than 10 microns in width. PM 10 captures larger particulates from construction sites, landfills, wildfires and pollen. These particles can have a negative health impact.

Verkada SV25 Sensor overview

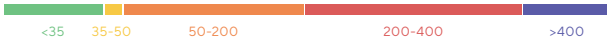
Advanced Environmental Protection in a Single Device

The Verkada SV25 provides 15 unique sensor readings. With sensors to measure indoor environmental conditions like formaldehyde or carbon monoxide in the air, the SV25 provides a comprehensive environmental monitoring solution for indoor environments. This powerful air quality monitor is ideal for manufacturing environments, laboratories and other speciality environments where advanced monitoring is needed.



A comprehensive air quality monitor for air safety

Carbon Monoxide (CO)



Carbon Monoxide (CO) is an odorless, colorless gas that can be deadly. Measured in parts per million (ppm), CO is found in the fumes produced anytime fuel is burned on trucks, engines, stoves, grills or furnaces. Left undetected, CO can build up indoors and poison people or animals who breathe it.

Formaldehyde

Formaldehyde is a colorless, flammable gas that is used in many common compounds such as building materials, paints, fertilizers and as a byproduct of combustion from fuel-burning appliances or cigarette smoke. Formaldehyde has a strong odor and can cause irritation of the skin, eyes, nose and throat and can cause some types of cancer.

Ambient Light

With Verkada Sensors, you can understand light patterns, ensure a safe occupant experience and help improve building energy savings. Measured in lux, Ambient Light readings allow you to see light conditions in real time and set alerts based on customized thresholds to protect and optimize your spaces.

Barometric Pressure

Barometric pressure, or atmospheric pressure, is a measure of the weight of air. Measured in hectoPascals (hPa), barometric pressure is impacted by the outdoor climate and indoor conditions like running HVAC systems or temperature.

Audio Recording

An audio recording system powered by an omnidirectional digital microphone that can record up to 365 days of audio on any SV25 device. Audio recording is disabled by default and also comes with standard privacy features that ensure audio recording capabilities are deployed in a way that respects individuals' privacy.

SV20 Series
Tech Specs

Power and network

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

General

Operating Temperature	-5°C to +45°C / 23°F to 113°F Indoors	**Offline Mode**	Continues sampling and storing data on device
Operating Humidity	0 to 95%	**Sampling Frequency**	5 seconds
Storage	Device: up to 365 Days Cloud: up to 365 Days	**Warranty**	10 years

Compliance and availability

Availability	USA, Canada, India, UK, EU, AUS, NZ, Mexico	**Compliance & Safety**	FCC Part 15B Class B, ICES-003 Class B, NDAA

Software capabilities

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

SV21 Sensor
Tech Specs

SV21

Mechanical

Dimensions	Length: 170mm / 6.96 in Width: 169.5mm / 6.67in Height: 48mm / 1.8in	**Weight**	500g / 17.64oz

Dimensions

Onboard sensors

Temperature	Sensor: CMOS Operating Range: -5 to 45°C / 23 to 113°F Typical Accuracy: ± 0.5°C / ± 0.9°F, Max ± 1°C / ± 1.8°F	**CO_2**	Sensor: Photoacoustic, Range: 0 - 40,000 ppm Typical Accuracy: 400 ppm - 1000 ppm ± 75 ppm 1001 ppm - 2000 ppm ± (40 ppm + 5% of reading)
Humidity	Sensor: CMOS Operating Range: 0 - 95% non-condensing Typical Accuracy: ± 3% @ 25°C		

Installation

Included Accessories	1x mounting plate, 1x installation kit, 1x T10 security torx screwdriver, 3x 7x mounting screws, 3x washers, 4x drywall anchors & 3x wing nut	**Mounting Options**	Horizontal & vertical for wall and ceiling mounts
Popular Install Locations	Server room closet (on ceiling or rack) Open office area (on ceiling) Closed rooms (on ceiling or on wall)		

SV23 Sensor
Tech Specs

SV23

Mechanical

Dimensions	Length: 170mm / 6.96in Width: 169.5mm / 6.67in Height: 48mm / 1.8in	**Weight**	554g / 19.54oz

Dimensions

Onboard sensors

Includes all the sensors on the SV21 in addition to:

PM 2.5	Sensor: Laser scattering optical Sensor Range: 0 - 1000 µg/m3 Typical Accuracy: 0 - 100 µg/m3: ± 25 µg/m3 + 5 % m.v	**Air Quality Index**	Sensor: U.S. Air Quality Index derived from multiple sensors, Range: 0 - 500
PM 4	Sensor: Laser scattering optical Sensor Range: 0 - 1000 µg/m3 Typical Accuracy: 0 - 100 µg/m3: ± 25 µg/m3 100 - 1000 µg/m3: ± 25% m.v.	**PM 10**	Sensor: Laser scattering optical Sensor Range: 0 - 1000 µg/m3 Typical Accuracy: 0 - 100 µg/m3: ± 25 µg/m3 100 - 1000 µg/m3: ± 25% m.v.
TVOC Index	Sensor: MOX Range: 0 - 500	**Vape Index**	Sensor: Proprietary formula derived from multiple sensors Range: 0 - 100
Motion	Sensor: Passive infrared sensor, FoV: 120°	**Noise**	Sensor: MEMS microphone, range: 20 - 120 dB SPL (A-Weighted) Typical Accuracy: ± 5 dB

Installation

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

SV25 Sensor
Tech Specs

SV25

Mechanical

Dimensions	Length: 170mm / 6.96in Width: 169.5mm / 6.67in Height: 48mm / 1.8in	**Weight**	568g / 20.04oz

Dimensions

Onboard sensors

Includes all the sensors on the SV23 in addition to:

CO	Sensor: Electrochemical Range: 0 - 1000ppm	**Barometric Pressure**	Sensor: Piezoresistive Range: 300hPa - 1250 hPa Typical Accuracy: ±50 Pa
Formaldehyde	Sensor: Electrochemical Range: 0 - 5000ppb Accuracy: ±20ppb or ±20% m.v., whichever is larger	**Audio Recording**	Sensor: Omnidirectional microphone
Light	Sensor: CMOS Range: 0 - 7000lux Typical Accuracy: ±(6+5% reading) lux	**Audio Retention**	From 90 days to 365 days

Installation

Included Accessories	Mounting plate, installation kit, T10 security torx screwdriver, mounting screws, washers, drywall anchors & wing nut	**Mounting Options**	Horizontal & vertical for wall and ceiling mounts
Popular Install Locations	Manufacturing floors (on ceiling or on wall) Hard goods storage facilities (on ceiling or on wall)		

Ordering Information

Sensor pricing

Model Number	Description	Cost (MSRP) USD
SV21-HW	SV21 Air Quality Sensor Hardware	$699
SV23-HW	SV23 Air Quality Sensor Hardware	$999
SV25-HW	SV25 Air Quality Sensor Hardware	$1,299
SV25-128-HW	SV25 Air Quality Sensor Hardware	$1,449
LIC-SV-1Y	1-Year Sensor License	$249
LIC-SV-3Y	3-Year Sensor License	$599
LIC-SV-5Y	5-Year Sensor License	$999
LIC-SV-10Y	10-Year Sensor License	$1,999