



# VOLATILE ORGANIC COMPOUNDS ONLINE MONITORING SYSTEM

## Product Introduction

Zhice Yunlian Volatile Organic Compounds Online Monitoring System delivers high detection accuracy and rapid response, and supports real-time online monitoring of TVOC concentration.

The device is equipped with 4G wireless transmission, breakpoint resume, temperature & humidity compensation and remote calibration functions, and is applicable to scenarios including industrial emission monitoring, plant boundary supervision, university research experiments, environmental science research, laboratory data analysis, teaching demonstration and research projects.

It is fitted with a 7-inch touch LCD screen, complies with the HJ212-2005 protocol, and can be connected to government regulatory platforms and university research data platforms.

Optional modules including constant temperature unit, audible and visual alarm, external LED display and ultrasonic weather station are available to meet both scientific research and engineering application requirements.

## Function Description

Multi-channel synchronous monitoring

Real-time data visualization

Remote data transmission

Safety and stability monitoring



## Equipment Types



● Basic pole-mounted type



● Custom cabinet type

## Structure Description

### 1. Basic Pole-mounted Type

- Compact integrated design, pole mount, small footprint, quick deployment.
- IP67, suitable for outdoor: industrial park boundaries, roadside monitoring.
- Built-in pump sampling, TVOC detection, data processing & transmission module.
- Optional top-mounted: audible/visual alarm, ultrasonic weather station.

### 2. Custom Cabinet Type

- Spacious cabinet, supports expansion: constant-temp devices, multi-channel sampling interfaces. Dustproof, waterproof, corrosion-resistant; constant temperature & humidity control. • Ideal for chemical parks, key pollution sources.
- Integrated multi-channel sensors, data storage, remote access. High-precision, long-term, multi-parameter monitoring.

## Product Parameters

| Category                | Item                      | Specification                                                                                          |
|-------------------------|---------------------------|--------------------------------------------------------------------------------------------------------|
| Display Unit            | Display                   | 7-inch true color LCD screen                                                                           |
|                         | Operation                 | Touch operation                                                                                        |
| Alarm                   | Audible & visual alarm    | Alarm threshold configurable (optional)                                                                |
| Transmission Standard   | Data protocol             | Online automatic monitoring for pollution source data<br>System data transmission standard: HJ212-2005 |
| Communication Interface | Sensor interface          | RS485/Modbus                                                                                           |
|                         | Data communication        | 4G wireless transmission, upload interval configurable                                                 |
| Working Environment     | Temperature               | Subject to selected housing material                                                                   |
|                         | Humidity                  | 5%RH ~ 95%RH                                                                                           |
|                         | Power supply              | AC220V±10%, 50Hz                                                                                       |
| System Parameters       | Power consumption         | ≤15W                                                                                                   |
|                         | Housing protection rating | Optional housing materials, up to IP67                                                                 |
|                         | Explosion-proof rating    | Customizable                                                                                           |
|                         | Sampling method           | Pump suction type                                                                                      |

## TVOC Probe

| Item                  | Electrochemical                 | PID Photoionization |
|-----------------------|---------------------------------|---------------------|
| Measuring range       | 0~20ppm, 40ppm, 200ppm optional | —                   |
| Linearity error       | ≤10%FS                          | ±5.0%FS             |
| Operating temperature | -10 ~ 45°C                      | -14 ~ 45°C          |
| 24h zero drift        | ≤±20%FS                         | ±5%FS               |
| 24h span drift        | ≤±20%FS                         | ±5%FS               |
| Response time         | < 90s                           | 14.7s               |
| Repeatability         | ≤10%                            | ≤3%                 |
| Parallelism           | ≤20%                            | ≤5%                 |

## Measurement Components

| Category                      | Typical Detectable Components                                                          | Description                                                                                                                                    |
|-------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Aromatic Hydrocarbons         | Benzene, toluene, ethylbenzene, xylene (o-/m-/p-), styrene                             | Industrial emission identification, indoor air quality assessment, environmental health risk assessment, photochemical smog formation research |
| Aliphatic Hydrocarbons (NMHC) | Methane, ethane, propane, butane, isoprene, n-hexane                                   | Oil & gas leak monitoring, biogenic emission research, non-methane hydrocarbon calculation, ozone formation potential analysis                 |
| Halogenated Hydrocarbons      | Trichloromethane, carbon tetrachloride, dichloromethane, vinyl chloride, freons        | Solvent usage analysis, ozone-depleting substance (ODS) monitoring, groundwater pollution tracing, atmospheric halogen cycle research          |
| Oxygenated VOCs               | Formaldehyde, acetaldehyde, acetone, ethyl acetate, ethanol, methyl ethyl ketone (MEK) | Secondary organic aerosol precursor research, industrial waste gas treatment evaluation, photochemical oxidation mechanism analysis            |
| Terpenes                      | α-pinene, β-pinene, limonene                                                           | Forest/vegetation biogenic emission monitoring, atmospheric chemistry simulation, regional air quality model input                             |
| Other Components              | Thiols, amines, partial aldehydes & ketones, low-molecular-weight VOCs                 | Odor pollution tracing, unorganized emission monitoring in chemical parks, emerging organic pollutant screening                                |



Specification Types

| Parameter Category             | Basic Pole-mounted Type                                                                  | Custom Cabinet Type                                                                                                                 |
|--------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Device Name                    | Volatile Organic Compounds Online Monitoring System                                      | Ambient Air VOCs Continuous Monitoring System                                                                                       |
| Form Factor                    | Integrated compact pole-mounted design                                                   | Industrial standard cabinet design                                                                                                  |
| Typical Installation Scenarios | Industrial park boundaries<br>Roadside areasOpen outdoor sites                           | Chemical industrial parks<br>Key pollution source enterprises<br>Complex industrial environments                                    |
| Structural Features            | Main unit integrated in protective enclosure, small footprint, fast deployment           | Cabinet enclosure with sufficient internal space, supports expansion of constant temperature units and multi-channel sampling ports |
| Protection Rating              | Up to customizable IP67                                                                  | Up to customizable IP67                                                                                                             |
| Core Components                | Pump suction sampling module, TVOC detection unit, data processing & transmission module | Multi-channel sensor, data storage unit, remote access interface                                                                    |
| Optional Configurations        | Top-integrated audible & visual alarm lamp, ultrasonic weather station                   | Expandable professional constant temperature unit, multi-channel sampling interfaces                                                |
| Reference Dimensions           | Protective enclosure: approx. 400×300×200mm<br>Pole height customizable (typical 2–3m)   | 1600×600×600mm(height customizable)                                                                                                 |
| Installation Method            | Pole clamp mounting                                                                      | Floor-standing / foundation fixed installation                                                                                      |
| Core Monitoring Capability     | TVOC online monitoring                                                                   | High-precision, long-period, multi-parameter continuous monitoring                                                                  |
| Applicable Conditions          | General outdoor environments, rainproof, dustproof, splash-proof                         | Complex industrial environments, adaptable to high temperature, high humidity and corrosive gas conditions                          |





## Introduction to the upper computer software

| Function Category               | Specific Description                                                                                                                                                   |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Core Functions                  | Realize integrated management of data reception, storage, viewing and analysis in the PC standalone environment                                                        |
| Data Reception and Processing   | 1. Support data reception via serial port, as well as data processing and visual display<br>2. Compatible with communication methods such as JSON string and MODBUS485 |
| Parameter Configuration         | 1. Allow independent setting of data storage time<br>2. Support custom collection time in MODBUS485 collection mode                                                    |
| Monitoring Parameter Management | Support users to independently add, delete and modify monitoring parameters, including information such as parameter protocols, names and icons                        |
| Data Processing Expansion       | 1. Equipped with data post-processing function<br>2. Support external running of JAVASCRIPT scripts                                                                    |



## Introduction to Cloud Platform

| Function Category            | Specific Description                                                                                                                                                        |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Architecture & Access Method | Adopts a CS architecture software platform, supporting direct access and observation via mobile phones and PC browsers without additional software installation             |
| Account & Device Management  | Supports multi-account and multi-device login, meeting the collaborative management needs of multiple users and terminals                                                   |
| Data Display Function        | 1. Provides dashboards for real-time data display and historical data display<br>2. Supports data curve analysis<br>3. Supports map display and device information viewing  |
| Data Storage & Stability     | Implements cloud data storage based on cloud servers, featuring stability, reliability, easy scalability and load balancing                                                 |
| Alarm & Threshold Management | Supports SMS alarm function, allowing custom alarm threshold settings to respond to abnormal data in a timely manner                                                        |
| Data Processing & Output     | 1. Supports data export in table format<br>2. Has data post-processing function<br>3. Supports external running of JAVASCRIPT scripts to enhance customization capabilities |
| Data Forwarding Function     | Supports data forwarding via multiple protocols, including HJ-212 protocol, TCP forwarding, HTTP protocol, etc.                                                             |

