AQS
Air Quality Systems

FDM–TVOC

Organic Volatiles Gas Device Datasheet

Easy Gas Sensor Device Solutions

Overview

FDM Gas Device is a high-performance product with built-in MCU, OLED display and remote control operation. Its characters such as good stability, high sensitivity, fast response, long service life, communication and self-diagnosis functions, convenient installation, and maintenance, etc., fully demonstrate the advanced performance of typical intelligent on-site monitoring instruments, and greatly satisfies the industrial on-site safety monitoring requirements for high reliability of equipment.

This product complies with the general technical requirements for work-place environmental gas detection and alarm instruments specified in the Chinese national standard GB12358-2006.

Hot-swappable, plug-and-play smart digital sensor

Convenient maintenance, replacement and offline calibration

Features

- Multiple signal output: with standard current 4~20mA, low limit alarm relay output and standard RS485 interface.
- OLED display, remote control operation, high-decibel sound and light alarm (optional), full range adjustable alarm point.
- Digital compensation of temperature in the whole range to ensure the accuracy of measurement.
- Compatible with various remote control equipment: PLC, DCS, control alarm, secondary instrument, etc.
- Automatically identify the sensor and detect the working condition of the air chamber in real time.
- Intrinsically safe circuit and explosion-proof housing design, safe, convenient and fast on-site maintenance.

Use Without Preheating

The intelligent hardware design of the sensor makes it remain working condition without power supply, so that gas monitoring can be performed immediately after power-on anytime and anywhere. It also ensures that the equipment can obtain real-time on-site measurement information after power-on in time after unexpected power failure.

Self-identification Function

FDM device has AI smart sensor identity information identification, detection gas type, measurement concentration range, sensor independent identification code, etc., which is conducive to the establishment of unique identification characteristics between sensors and instruments in the after-sales maintenance process, and avoids wrong matching of sensors.

Easy Maintenance

The sensor part adopts a plug-and-play smart sensor, which can be hot-swapped with electricity, supports secondary offline calibration in after-sales service, and one-click restore factory calibration design. Plug and play, realizes off-line calibration, does not need to bring dangerous gas into the detection environment for ventilation calibration of the instrument, avoids safety risks and pollution to the field environment, and makes maintenance safer, more convenient and simpler.

Accurate Factory Pre-calibration

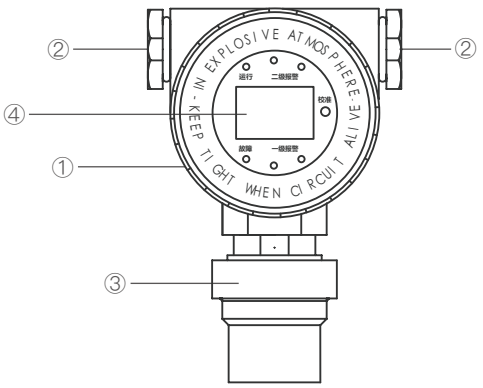
Each gas device has been professionally calibrated by the factory, and the calibration information is stored in the internal chip of the product, and the user can use it directly without recalibration. The factory calibration adopts diffusion gas calibration and simulated environmental climate calibration method, which is closer to the real application environment of the user's site, which improves the accuracy of the diffusion measurement data.

Sensor Performance Detection and Failure Judgment Fault Alarm

Intelligent gas sensor performance and life self-inspection, whether there is a measured gas or not, the life and performance indicators are regularly self-inspected, and a warning signal is output to prompt sensor maintenance or sensor replacement.

This function provides more reliable operating data for intelligent instruments, making gas detection instruments have excellent safety, reliability, and remote maintenance. The user can obtain sensor information, such as normal operation of the sensor, weak sensor performance, sensor failure or falling off through commands, providing early warning of sensor abnormalities and greatly improving safety assurance.

Mechanical Diagram



- ① Explosion-proof enclosure
- ② Cable entry port
- ③ Sensor and gas chamber
- ④ Device display window

Technology Specifications

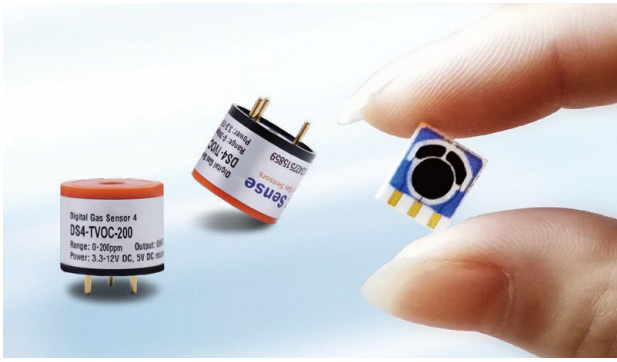
Principle	Solid Polymer Electrochemical Sensing Technology.
Detection	On-line monitoring, diffusion
Output Signal Interface	Simultaneously output 4-20 mA and RS485 signal (Optional standard protocol or private protocol)
	Three-wire 4-20 mA output connection cable: 3-core shielded cable
	Four-wire RS485 output connection cable: 4-core shielded cable
Housing Material	Cast aluminum
Flameproof Grade	Exd Ⅱ CT6Gb
Protection Grade	IP66
Accuracy	± 5% F.S
Operating Temperature	-40℃ to +60℃
Operating Humidity	10% to 95% RH. Non-condensing
Sensor Life Expectancy	> 3 years
Supply Voltage	24V DC
Supply Current	< 100mA @ 24V DC
Relay output	Passive switch output or active output (contact capacity 24V DC@1A when active output)
Weight	1.14 kg

Product	Gas	Partnumber	Range	Resolution	Response Time	Remarks
FDM Gas Device	TVOC	05-FDM-TVOC-200-S20-02	0-200ppm	0.1ppm	< 3s (T90 < 30s)	Standard Protocol/4-20mA
		05-FDM-TVOC-200-P20-02	0-200ppm	0.1ppm	< 3s (T90 < 30s)	Private Protocol/4-20mA

Principle

High humidity resistance, long lifetime, poison resistance, high reliability, suitable for use in harsh working environments

Solid Polymer Electrochemical Sensing Technology. The principle is to place two reaction electrodes, a working electrode and a counter electrode, as well as a reference electrode in a specific electrolyte. Then, a sufficient voltage is applied between the reaction electrodes to cause redox reactions of the measured gas passing through a thin film of heavy metal catalyst. The current generated during the gas electrolysis is then measured by the circuit system in the instrument, and the gas concentration is calculated by the microprocessor.



Applications

- Industrial Gas Safety Monitoring
- Industrial Process Gas Analysis Monitoring
- Industrial Emission Monitoring
- Atmospheric Environment Boundary Monitoring

Disclaimer

The AQ Sense performance data stated above is based on data obtained under test conditions using the AQ Sense gas distribution system and AQ Sense test software. In the interest of continuous product improvement, AQ Sense reserves the right to change design features and specifications without notice. We are not responsible for any loss, injury or damage caused by this. AQ Sense assumes no responsibility for any indirect loss, injury or damage resulting from the use of this document, the information contained therein or any omissions or errors herein. This document does not constitute an offer to sell. The data it contains are for informational purposes only and cannot be considered a guarantee. Any use of the given data must be evaluated and determined by the user to comply with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

Warning

AQ Sense devices are designed for use in a variety of environmental conditions. However, due to the principles and characteristics of sensors and to ensure normal use, users must strictly follow this article during storage, assembly and operation of the device. Although our products are highly reliable, we recommend checking the device's response to the target gas prior to utilization to ensure on-site use. At the end of the products service life, please do not discard any electronics in the domestic waste, instead follow the local governments electronic waste recycling regulations for disposal.

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