Air Quality Systems

AQSnet50 Gas Detector
Single/Dual Gas
Datasheet

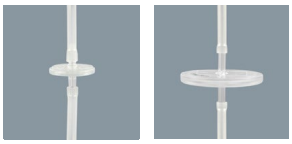
Easy Gas Sensor Device Solutions
Easy to Use

Basic Introduction

- Pump-suction gas sampling method
- Capable of detecting toxic/harmful/flammable gases
- Optional single/dual sensor module configuration for comprehensive and accurate detection
- Plug-and-play sensor modules for easy and quick replacement and maintenance
- Multiple communication interfaces available: wireless, RS-485, and Ethernet (PoE)
- Large TFT display screen for clear and intuitive operation
- Utilizes polymer electrochemical/infrared/hot-wire semiconductor/PID photoionization/catalytic combustion detection technologies
- Compact 2-in-1 design, dimensions only 143 × 64 × 155 mm
- Ultra-low power consumption, as low as 2.8W

◆ Equipped with a filter

Isolates unnecessary dust and water vapor, extending service life.



Small filter　　Large filter

Replace Sensor Module

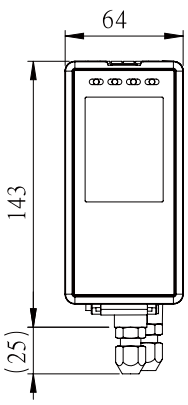
① Open the front cover and turn off the power.

② Unscrew and remove the front cover and the sensor module bracket.

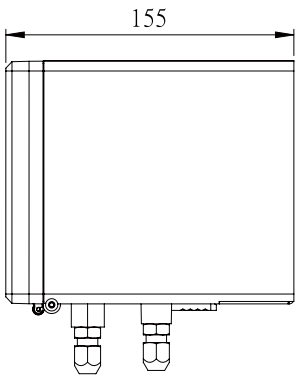
③ Remove the old sensor module and install the new one.

④ Restart the device after replacement to automatically read the update.

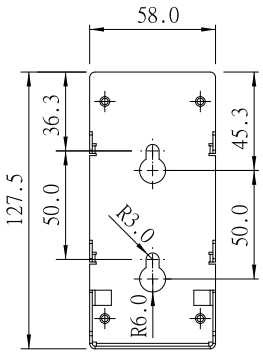
Product Dimensions (Unit: mm)

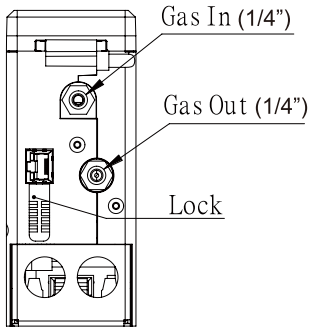


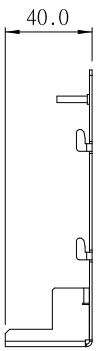
Front View



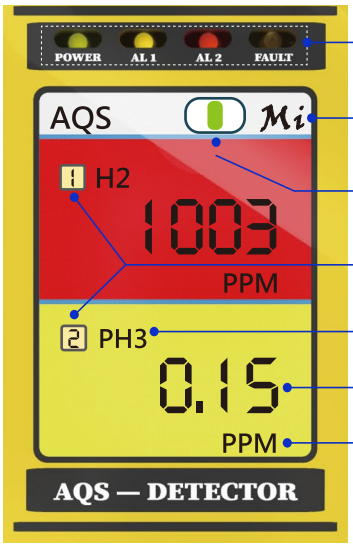
Side View







Display Interface Description



Indicator Lights: Green - Normal operation, Yellow - Level 1 alarm
Orange - Fault alarm, Red - Level 2 alarm

Warning Icons: M Indicates maintenance mode
i Indicates an error or alarm condition

Flow Display: Icon in the center and green - normal flow
Icon on the right and red - abnormal flow

Sensor Index: Sensor number and installation position 1 2

Detected Gas: Chemical formula of the detected gas

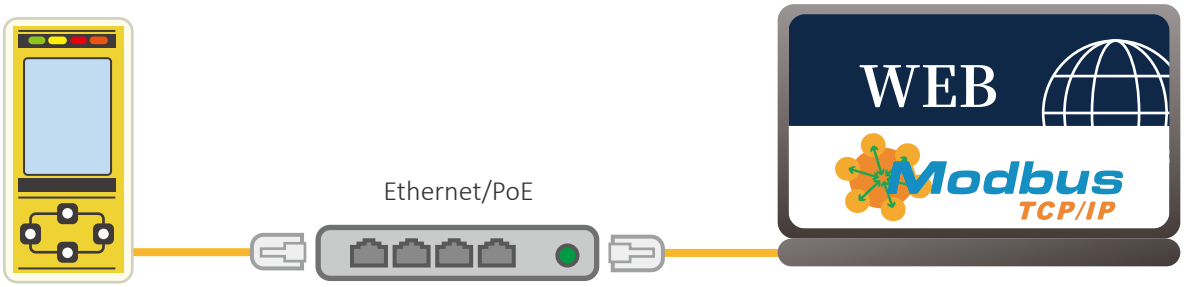
Concentration Value: Displays the concentration of the detected gas

Concentration Unit: Displays the unit of the detected gas concentration

Ethernet/PoE Transmission Method

Ethernet Transmission Method:

Using the PoE (Power over Ethernet) protocol, data signals and power are transmitted simultaneously through an Ethernet cable. This is suitable for remote power supply operations and reduces the complexity of cable installation. In addition, the operational status of the detection unit can be checked via a web browser.



AQSnet50 Detector

PC

Administrator Mode:

In addition to basic information, it allows setting alarm values, performing alarm and fault tests, 4-20 mA testing, maintenance mode settings, and basic network configurations.

User Mode:

Displays gas detection values, detector status, and basic alarm-related settings.

Technical Parameters

Measured Gas Types	See "Gas Selection Table"
Sampling Type	Pump-suction type, with a total flow rate of approximately 0.5 L/min
Display Specifications	2.8" TFT LCM (320×240)
Display Accuracy	Supports up to two decimal places
Control Method	Membrane Keypad
Gas Alarm Types	Level 1 alarm and Level 2 alarm; alarm values for each stage can be set by the user.
Gas Alarm Accuracy	Combustible gas: Alarm set value ± 25% under the same conditions.
	Toxic gas: Alarm set value ± 30% under the same conditions.
	Oxygen: Alarm set value ± 1% vol. under the same conditions.
Gas Alarm Indicators	Level 1 Alarm: Corresponding sensor area on the screen turns yellow; yellow alarm indicator LED (AL1) stays lit.
	Level 2 Alarm: Corresponding sensor area on the screen turns red; red alarm indicator LED (AL2) stays lit.
Gas Alarm Actions	Automatic Reset or Latching
Gas Alarm Contacts	Level 1 and Level 2 alarms correspond to independent relay switches. Relay switches can be configured as normally open (N.O., default) or normally closed (N.C., optional).
Fault Alarm Types	System error / Sensor error / Flow error / Communication error
Fault Alarm Indicators	The corresponding sensor area on the screen displays orange, and the orange fault indicator LED (FAULT) stays lit.
Fault Alarm Actions	Automatic reset or latching
Fault Alarm Contacts	Independent relay switches correspond to single sensor fault alarms and comprehensive fault alarms. Relay switches can be configured as normally open (N.O., default) or normally closed (N.C., optional).
Signal Output Types	**Analog Signal:** 4-20 mA analog signal
	Digital Signal: RS485 (optional), Ethernet (10BASE-T/100BASE-TX) (optional)
	Wireless Communication: Bluetooth (optional), WiFi (optional), SmartMesh (optional)
Power Input	DC 12-30 V or PoE+ (802.3at) (optional)
Power Consumption	**Electrochemical + Electrochemical:** DC 24V: 2.8 W (Max 4.4 W) PoE: 3.8 W (Max 4.5 W)
	Electrochemical + Catalytic Combustion: DC 24V: 3.8 W (Max 5.1 W) PoE: 4.5 W (Max 5.2 W)
	Electrochemical + Hot-wire Semiconductor: DC 24V: 4.5 W (Max 6.2 W) PoE: 6.0 W (Max 6.7 W)
	Electrochemical + Infrared / Photoionization: DC 24V: 2.9 W (Max 4.5 W) PoE: 3.9 W (Max 4.6 W)
Ambient Temperature /Humidity	°C: -10 °C to +40 °C / RH: 10-99 % (non-condensing), may vary depending on the sensor.
Certification	Complies with RoHS certification and CE marking
Mounting Method	Wall-mounted
Dimensions	143 × 64 × 155 mm (excluding bottom protrusions)
Weight	800g

Main Unit Ordering Information

05-AQSnet50- | A | B | C | - | D | - | E | -01

Analog Signal Output	Digital Signal Output	Wireless Signal Output	Power Input	Sensor Module Type
A	R	W	D0	S
0	E	S	0P	D
	0	0	DP	IR

Analog Signal Output:
A: 4-20 mA
0: none

Digital Signal Output:
R: RS485
E: Ethernet
0: none

Wireless Signal Output:
W: Wifi
S: SmartMesh
0: none

Power Input:
D0: DC 24V
0P: PoE+
DP: DC 24V and PoE+ coexist

Sensor Module Type:
S: Single Sensor Module
D: Dual Sensor Module
IR: Infrared Sensor Module

Example 1:
AQSnet50-A00-D0-S
AQSnet50: AQSnet50 gas detector
A00: Output signal is 4-20 mA analog signal
D0: Power input is DC 24V
S: Single sensor module

Example 2:
AQSnet50-0R0-DP-D
AQSnet50: AQSnet50 gas detector
0R0: Output signal is RS485 digital signal
DP: Power input supports both DC 24V and PoE+ together
D: Dual sensor module

Sensor Module Ordering Information

Detection Principle: Electrochemical (D)

Item	Product Model	Formula	Range	Resolution
1	ES-D-NH3-100-M	NH_3	100 ppm	0.1 ppm
2	ES-D-HCL-8-M	HCl	8 ppm	0.01 ppm
3	ES-D-BBR3-8-M	BBr_3	8 ppm	0.01 ppm
4	ES-D-HCL-8-M	BCl_3	8 ppm	0.01 ppm
5	ES-D-HBR-8-M	HBr	8 ppm	0.01 ppm
6	ES-D-HCL-8-M	$POCl_3$	8 ppm	0.01 ppm
7	ES-D-HCL-8-M	$SiCl_4$	8 ppm	0.01 ppm
8	ES-D-DCS-8-M	DCS	8 ppm	0.01 ppm
9	ES-D-HCL-8-M	$SiHCl_3$	8 ppm	0.01 ppm
10	ES-D-HCL-8-M	$TiCl_4$	8 ppm	0.01 ppm
11	ES-D-BF3-8-M	BF_3	8 ppm	0.01 ppm
12	ES-D-HF-12-M	GeF_4	12 ppm	0.01 ppm
13	ES-D-HF-12-M	HF	12 ppm	0.01 ppm
14	ES-D-HF-12-M	MoF_6	12 ppm	0.01 ppm
15	ES-D-HF-12-M	SiF_4	12 ppm	0.01 ppm
16	ES-D-HF-12-M	WF_6	12 ppm	0.01 ppm
17	ES-D-CL2-2-M	Cl_2	2 ppm	0.01 ppm
18	ES-D-CLO2-400-B	ClO_2	400 ppb	0.1 ppb
19	ES-D-CLF3-400-B	ClF_3	400 ppb	0.1 ppb
20	ES-D-BR2-1-M	Br_2	2 ppm	0.01 ppm

Detection Principle: Electrochemical (D)

Item	Product Model	Formula	Range	Resolution
21	ES-D-F2-4-M	F_2	5 ppm	0.01 ppm
22	ES-D-O3-400-B	O_3	400 ppb	0.1 ppb
23	ES-D-PH3-1-M	PH_3	1 ppm	0.01 ppm
24	ES-D-ASH3-200-B	AsH_3	200 ppb	0.1 ppb
25	ES-D-B2H6-400-B	B_2H_6	400 ppb	0.1 ppb
26	ES-D-GEH4-800-B	GeH_4	800 ppb	0.1 ppb
27	ES-D-SI2H6-20-M	Si_2H_6	20 ppm	0.01 ppm
28	ES-D-CH3SIH3-20-M	CH_3SiH_3	20 ppm	0.01 ppm
29	ES-D-SIH4-20-M	SiH_4	20 ppm	0.01 ppm
30	ES-D-O2-25-V	O_2	25% vol.	0.01% vol.
31	ES-D-CO-100-M	CO	100 ppm	0.1 ppm
32	ES-D-TEOS-40-M	TEOS	40 ppm	0.1 ppm
33	ES-D-NO-100-M	NO	100 ppm	0.1 ppm
34	ES-D-NO2-5-M	NO_2	5 ppm	0.01 ppm
35	ES-D-COCL2-1-M	$COCl_2$	1 ppm	0.01 ppm
36	ES-D-H2S-10-M	H_2S	10 ppm	0.1 ppm
37	ES-D-SO2-5-M	SO_2	5 ppm	0.01 ppm
38	ES-D-H2SE-5-M	H_2Se	5 ppm	0.01 ppm
39	ES-D-HCN-50-M	HCN	50 ppm	0.1 ppm

Sensor Module Ordering Information

Detection Principle: Hot-wire Semiconductor (H)

Item	Product Model	Formula	Range	Resolution
1	ES-H-IPA-2000-M	IPA	2000 ppm	1 ppm
2	ES-H-PGME-2000-M	PGME	2000 ppm	1 ppm
3	ES-H-MEK-2000-M	MEK	2000 ppm	1 ppm
4	ES-H-NMP-2000-M	NMP	2000 ppm	1 ppm
5	ES-H-NBA-2000-M	NBA	2000 ppm	1 ppm
6	ES-H-CH4-2000-M	CH_4	2000 ppm	1 ppm
7	ES-H-H2-2000-M	H_2	2000 ppm	1 ppm
8	ES-H-LPG-2000-M	LPG	2000 ppm	1 ppm
9	ES-H-CH3F-2000-M	CH_3F	2000 ppm	1 ppm
10	ES-H-CHF3-2000-M	CHF_3	2000 ppm	1 ppm
11	ES-H-CH2F2-2000-M	CH_2F_2	2000 ppm	1 ppm

Note: For other gas requirements, please feel free to inquire.

Detection Principle: Infrared (R)

Item	Product Model	Formula	Range	Resolution
1	* ES-R-CH2F2-100-M	CH_2F_2	100 ppm	0.1 ppm
2	* ES-R-C2F6-500-M	C_2F_6	500 ppm	0.1 ppm
3	ES-R-CO2-2000-M	CO_2	2000 ppm	1 ppm
4	ES-R-N2O-1000-M	N_2O	1000 ppm	1 ppm
5	* ES-R-NF3-100-M	NF_3	100 ppm	0.1 ppm
6	* ES-R-SF6-1000-M	SF_6	1000 ppm	1 ppm
7	* ES-R-COS-100-M	COS	100 ppm	0.1 ppm
8	* ES-R-C4F6-100-M	C_4F_6	100 ppm	0.1 ppm
9	* ES-R-C5F8-100-M	C_5F_8	100 ppm	0.1 ppm
10	* ES-R-CF4-100-M	CF_4	100 ppm	0.1 ppm
11	* ES-R-CH3F-100-M	CH_3F	120 ppm	0.1 ppm
12	* ES-R-CHF3-500-M	CHF_3	500 ppm	0.1 ppm
13	* ES-R-C4F8-40-M	C_4F_8	40 ppm	0.01 ppm

Note: Models marked with * are only applicable for single sensor modules and are not compatible with dual sensor modules.

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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