

Gateway-type Indoor Air Quality Sensor



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Gateway-type Indoor Air Quality Sensor

1	HMI1001-IAQ		3
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Model	Points	Supported Devices	Supported Protocols	Interface
HMI1001-IAQ	256	32	Modbus/BACnet	1 Ethernet 1 Serial

Detection type	PM2.5	CO ₂	VOC	Temperature	Relative Humidity
Measurement range	0~1000μg/m ³	0~5000ppm	0~3Grade	-20~70°C	5~95%RH

Gateway-type Indoor Air Quality Sensor

Product Model: HMI1001-IAQ

Functional Description: The HMI1001-IAQ Gateway-type Indoor Air Quality Sensor is a gateway-type sensor capable of real-time monitoring of five air quality indicators: indoor temperature, humidity, CO₂ concentration, PM2.5 mass concentration, and VOC concentration levels. It also features an integrated gateway function for configuration, allowing users to edit configuration screens using X2View software. Eliminating the need for users to purchase additional configuration software, they can simply log in to the Web interface via computer, mobile phone, iPad, or any browser to remotely control the start, stop, and operation of the device, providing an excellent user experience. Additionally, it offers functions such as WeChat alerts, MQTT services, and cloud uploading for engineering projects. It can also be converted into a BACnet server, Modbus server, or OPC UA server, with open data interfaces for integration by third-party systems.

Application Fields: The IAQ (Gateway-type Indoor Air Quality Sensor) sensor is applied within large buildings such as smart buildings, commercial office towers, hotels, hospitals, schools, etc. It uploads real-time data on air quality indicators including PM2.5 mass concentration, VOC concentration, CO₂ concentration, temperature, and humidity to the configuration interface for real-time monitoring, thereby meeting people's needs for a comfortable and healthy environment. The HMI1001-IAQ also functions as a gateway, featuring one RS485 port to collect data from other controllers. It can be integrated with DDC (Direct Digital Control) systems to achieve automatic logic for fan start/stop, fresh air supply, automatic dehumidification, temperature control, etc. With open BACnet, Modbus, OPC UA, and MQTT protocols, it facilitates integration with third-party systems or platform software.

Operating Environment: The X2View configuration software supports multiple operating systems, including Win 7, Win8, Win10, Win11, Win Server 2008, Win Server 2016, and more.

The hardware gateway comes with a built-in WEB server, which supports remote access to the configuration screens within the gateway using browsers such as Google Chrome, Microsoft Edge, Apple's Safari, Firefox, Opera, and 360 Speed Mode.

Supported Register Types and Quantities

Note: The number of register points is dynamically supported, with a total limit of up to 256 points.

The BACnet/Modbus register types and maximum number of points supported are shown in the table below.

BACnet Register Types	BACnet Register Points	Modbus Register Types	Modbus Register Points
AI (Read-only)	256 (0~255)	0X(Coil Status) Read and Write	256
AO (Read and Write)	256 (0~255)	1X(Input Status) Read-only	256
AV (Read and Write)	256 (0~255)	4X(Holding Register) Read and Write	256
BI (Read-only)	256 (0~255)	3X(Input Register) Read-only	256
BO (Read and Write)	256 (0~255)	Notes: 4X and 3X register address = transfer register address *2+1 0X and 1X register address = transfer register address +1	
BV (Read and Write)	256 (0~255)		
MI (Read-only)	256 (0~255)		
MO (Read and Write)	256 (0~255)		
MV (Read and Write)	256 (0~255)		

Gateway-type Indoor Air Quality Sensor Product Model: HMI1001-IAQ



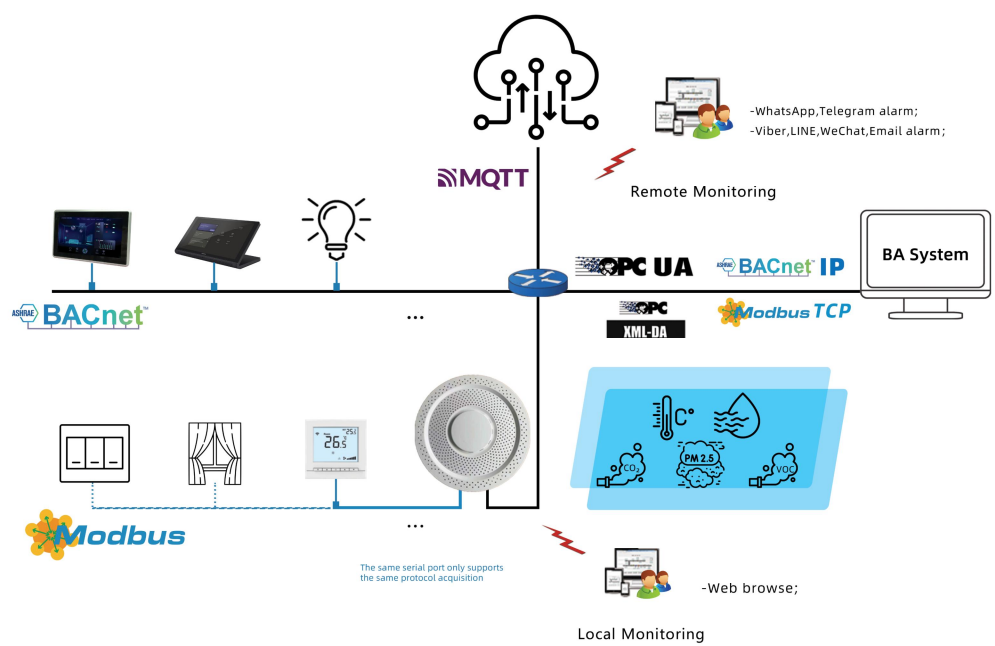
Software Features:

- Green installation free, support Chinese and English;
- Support monitoring of indoor temperature, humidity, CO₂ concentration, PM2.5 mass concentration, VOC concentration levels, etc;
- Support real-time values for five air quality indicators;
- Support graphical, JS, and PLC hybrid programming;
- Support PID control functions;
- Support triggers for mutual conversion between any two protocols;
- The sensor itself is also a gateway, supporting the collection of Modbus and BACnet protocols for easy expansion;
- Support simultaneous conversion to BACnet server, Modbus server, OPC UA server, MQTT upload cloud server, external database storage;
- Support timetables for operations such as scheduling device start/stop times and setting values;
- Support real-time curves, pie charts, and ring charts;
- Support cloud-based configuration for remote monitoring of data;
- Support sending alerts via WeChat, DingTalk, SMS platforms, Email, and other methods;
- Support external storage options such as MySQL, SQLServer, and InfluxDB;
- LAN support, remote viewing and control of touch screen can be easily achieved through mobile phone, iPad and PC;
- New Protocol can be added in 2 weeks.

Hardware Parameters:

OS:	Linux	Serial Port:	1*RS485 (Electromagnetic isolation)
CPU:	1 Core 800MHz	Demensions (R×H):	65*40mm
ARM:	512M	Weight:	200g
Flash:	8G	Material:	ABS plastics
Power:	6W	Installation:	Ceiling type
Power Supply:	AC/DC 12-24V	Temperature:	-20 ~ +70°C (working) -40 ~ +85°C (storage and transportation)
Ethernet Port:	1x 10M/100M NIC	Humidity:	20% ~ 90% no condensation (working) 15% ~ 95% no condensation (storage and transportation)

Application Principle Diagram



Product Dimensions: (Unit: mm)

