

HAQ Series

Integrated Air Quality Sensor

Honeywell HAQ series room air quality sensor is an integrated air sensor which can simultaneously detect five air parameters: air Temperature & Relative humidity, carbon dioxide (CO₂) concentration, PM2.5 concentration and formaldehyde (HCHO) concentration. The sensor can Calculate and display the concentration of Total Volatile Organic Compound (TVOC) based on formaldehyde (HCHO) concentration.

With a built-in Modbus protocol, Honeywell HAQ series air quality sensor can connect with the controllers compatible with Modbus protocol to upload the air parameters.

There are two versions available: with display and without display. The version with display can display air quality parameters on the screen; and display the air quality with a face symbol according to the PM2.5 data.

Features

- Compact and sleek design
- Built-in high-precision sensors can accurately, stably and continuously measure various air parameters.
- Built-in Modbus protocol (RS485 communication) can achieve real-time data transmission.
- TFT screen (version with screen) for wide field of view and display the data clearly.
- Displaying the indoor air quality data according to PM2.5, and displaying the air quality level, PM1.0 and PM10 data at the same time.
- 86 junction box in-wall mounting for easy installation.



HAQ61L



HAQ41L



HAQ21L



White, No Screen

Basic Parameters

Communication Protocol	Modbus RTU, RS485
Power Supply	HAQ41xx: 24VDC \pm 20% SELV, Power Consumption \leq 8W HAQ21xx: 24VDC \pm 20% SELV, Power Consumption \leq 8W HAQ61xx: 110~240VAC, 50/60Hz, Power Consumption \leq 8W
IP Rating	IP30
Operation Environment	-10°C to 50 °C, RH \leq 95% (Non-condensing)
Temp. Sensor Type	PN Junction Type Digital Temp. Sensor
Temperature Measurement Range & Accuracy	Range: -10°C to 55°C, Accuracy : \pm 1K
Humidity Sensor Type	Capacitance Humidity Sensor
Humidity Measurement Range & Accuracy	Range: 0 to 99%RH, Accuracy: \pm 5%RH
PM2.5 Sensor Type	Laser Type PM2.5 Sensor
PM2.5 Measurement Range & Accuracy	Range: 0 to 999 ug/m ³ Accuracy: 0 to 100ug/m ³ : \pm 15ug/m ³ ; >100ug/m ³ : \pm 15%
CO ₂ Sensor Type	Photoacoustic NDIR Sensor
CO ₂ Measuring Range & Accuracy	Range: 400~2000 PPM Accuracy: \pm (50PPM+5% Measuring Value)
Formaldehyde Sensor Type	Electrochemical Formaldehyde Sensor
Formaldehyde and TVOC Measuring Range & Accuracy	Range: 0 to 999 PPB Accuracy: 0 to 100 PPB: \pm 20 PPB; 100 to 999 PPB : \pm 20% Measuring value
Display	TFT
Housing Material	PC+ABS
Dimensions	86*86*60mm
Certification	EN IEC 61326-1:2021 According to RoHS(recast): Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, 2011/65/EU Annex II and its amendment Directive (EU) 2015/863
Electromagnetic compatibility (Applications)	EN IEC 61326-1:2021, For use in residential, commercial and light-industrial environments.
Storage Conditions	-25°C to 55°C, RH \leq 95%

Order Information and Technical Specification




SKU	Air Quality Parameters	Display	Power Supply	Panel Color
HAQ61L	Temperature Relative Humidity (RH) Carbon Dioxide (CO ₂) PM2.5 Formaldehyde (HCHO), TVOC	Yes, Normal closed	110-240VAC	Black
HAQ61L-NL		Yes, Normal lighting	110-240VAC	Black
HAQ61B		No	110-240VAC	Black
HAQ61BW		No	110-240VAC	White
HAQ41L	Temperature Relative Humidity (RH) Carbon Dioxide (CO ₂), PM2.5	Yes, Light up on approach	24VDC	Black
HAQ41BW		No	24VDC	White
HAQ21L	Carbon Dioxide (CO ₂) PM2.5	Yes, Light up on approach	24VDC	Black
HAQ21BW		No	24VDC	White

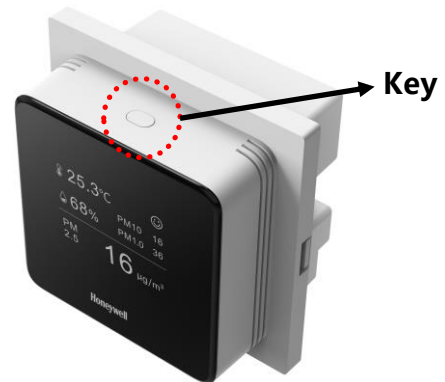
Key Operation Instructions and Wiring

Key Instructions (LCD type)

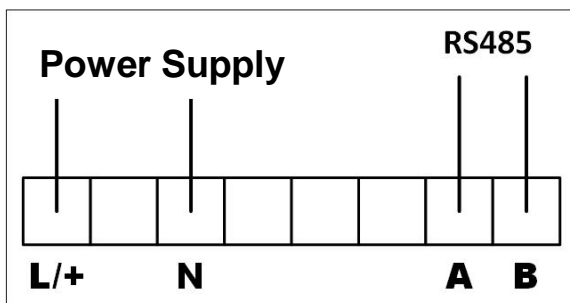
Pressing method	Function
Short pressing (< 1 s)	Switching on or off the screen
Short pressing (> 1 s)	Displaying the current Modbus RTU address code
Long pressing (> 10 s)	Reset the Modbus RTU address as 1 (without LCD type only has this function)

Air Quality Level Reference (LCD type)

Face symbol	PM2.5	Corresponding to national standard air quality level
	0~75	Superior to good
	76~115	Mild contamination
	≥116	Medium contamination to severe contamination



Wiring



SKU	Power Supply
HAQ61xx	110~240VAC, 50/60Hz
HQ41xx HAQ21xx	24VDC ± 20% SELV

Note: When the HAQ41xx and HAQ21xx use DC power supplies, the isolated power supply certified by SELV is required and the power supply is independent.

Modbus RTU Protocol

Register Address Information

Address	Type	Contents description	Unit
0x0001	R/W	Device address	/
0x0002	W	Baud Rate	/
0x000a	R	Temperature (int type); temperature value/10 is the actual temperature value	°C
0x000b	R	Humidity (int type)	%RH
0x000c	R	PM1.0 (uint type)	ug/m ³
0x000d	R	PM2.5 (uint type)	ug/m ³
0x000e	R	PM10 (uint type)	ug/m ³
0x000f	R	CO ₂ concentration value (uint type)	PPM
0x001a	R	Formaldehyde concentration value (unit type)	PPB
0x001b	R	VOC concentration value (uint type)	PPB

Data format description:

The data occupies 1 register and includes 2 bytes in total. Lower 8 bits are transmitted before higher 8 bits

Example: If 015E is the CO₂ concentration value, 01 is the high byte, 5E is the low byte and two bytes form the CO₂ concentration value. When 015E is converted into a decimal number 350, it means that the CO₂ concentration value currently acquired is 350ppm.

Reference Baud Rate

Numerical Value	Baud Rate
00 30	4800
00 60	9600
00 C0	19200
01 80	38400

Note: The modified baud rate takes effect immediately, and the device does not need to be powered on again. After the baud rate is modified, the new baud rate shall be used for communication.

