

C7355A Room IAQ Monitor

QUICK START GUIDE

ABOUT

IAQ Monitor is an advanced, configurable, RS-485 connected device for commercial buildings. It monitors CO₂, PM2.5/PM10, TVOC, temperature and humidity. This device provides a Modbus RTU (RS-485) interface, easily integrating with the building automation system.

INITIAL SETUP

The device will power on after voltage is connected.

NOTE: Upon first use (or re-use after a long time shelving) device should be powered continuously for more than 48 hours to ensure stable output of all measured values.

LIGHT RING INDICATOR

There is a circle ring indicator lighting the center of the housing. This light is used to show the measured air quality.



Fig. 1. Three-color indicator lights.

This light indicates the one minute average value of PM2.5, and changes color depending on concentration.

The indicator light behavior can be configured according to DIP switches:

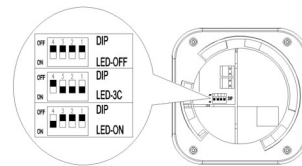


Fig. 2.

Table 1. DIP Switch Settings.

Indicator Setting	DIP4	DIP3	DIP2	DIP1	
Light OFF	OFF	OFF	OFF	OFF	
Three-color	OFF	ON	ON	ON	Default
Green Normally ON	ON	OFF	OFF	OFF	

When the three-color option is selected, indicator color corresponds to the following measured ranges:

- Green <35 µg/m³
- Yellow 35–75 µg/m³
- Red >75 µg/m³

Communication Settings

Wired communication (Modbus RTU) is available for the device. The wiring terminals are shown below. For detailed wiring and installation, please refer to the User Guide.

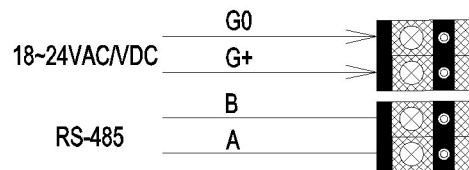


Fig. 3.



SPECIFICATIONS

Part Number: C7355A1050

Detection Parameters: PM2.5/PM10, CO₂, TVOC, temperature and relative humidity (RH).

Operating Environment:

Temperature: 32 to 122 °F (0 to 50 °C)
Humidity: 0–90% RH

Storage Conditions:

Temperature: 14 to 122 °F (-10 to 50 °C);
Humidity: 0–90% RH (Non-condensing)

Overall Dimensions: 5.12 in. × 5.12 in. × 1.77 in.
130 mm × 130 mm × 45 mm

Net weight: 0.66 lb (300 g)

Certification Standard: CE/FCC

Modbus Register Table

Mode: RTU (MSB First)

Baud Rate:

- 1-4800
- 2-9600
- 3-14400
- 4-19200
- 5-38400
- 6-56000
- 7-57600
- 8-115200
- default:** 2-9600bps

Start Bits: 1

Data Bits: 8

Stop Bits: 1 / 2
default: 1

Parity: None / Odd / Even
default: None

Register Map

Support Function code:

- 3 - Read Holding Registers
- 4 - Read Input Registers
- 6 - Write Single Register
- 16 - Write Multiple registers

Table 2. Modbus Register Table.

Starting Register Decimal	Data Description	Function	Read/Write	Quantity of Registers (2Bytes/16bit)	Format	Decimals	Data Range, Data Description	Default
0/1050	PM2.5 hourly average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m ³	
2/1052	PM10 hourly average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m ³	
8/1058	CO ₂ hourly average measurement	4	R	2	Float-Big Endian	0	0–5,000 ppm	
10/1060	TVOC hourly average measurement	4	R	2	Float-Big Endian	3	0–4000 mg/m ³	
12/1000	PM2.5 one minute average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m ³	
14/1002	PM10 one minute average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m ³	
16/1004	Temperature real-time measurement	4	R	2	Float-Big Endian	2	-20.00 °C–60.00 °C	
18/1006	Humidity real-time measurement	4	R	2	Float-Big Endian	2	0–100.00% RH	
20/1008	CO ₂ real-time measurement	4	R	2	Float-Big Endian	0	0–5,000 ppm	
22/1010	TVOC real-time measurement	4	R	2	Float-Big Endian	3	0–4000 mg/m ³	
24/1100	PM2.5 24-hour moving average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m ³	
26/1102	PM10 24-hour moving average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m ³	
32/1108	CO ₂ 24-hour moving average measurement	4	R	2	Float-Big Endian	0	0–5,000 ppm	

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Starting Register Decimal	Data Description	Function	Read/Write	Quantity of Registers (2Bytes/16bit)	Format	Decimals	Data Range, Data Description	Default
34/1110	TVOC 8-hour moving average measurement	4	R	2	Float-Big Endian	3	0-4000 mg/m ³	
1300	Primary pollutant 24-hour average measuring value (One of PM2.5/PM10/CO ₂ /TVOC) (Calculated based on 24-hour or 1-hour moving average measurement)	4	R	2	Float-Big Endian		1300	
1302	Primary pollutant type (One of PM2.5/PM10/CO ₂ /TVOC) (Calculated based on 24-hour or 1-hour moving average measurement)	4	R	1	INT16		1-PM25, 2-PM10, 3-CO ₂ ; 4-TVOC	
1303	Index level of the primary pollutant (One of PM2.5/PM10/CO ₂ /TVOC) (Calculated based on 24-hour or 1-hour moving average measurement)	4	R	1	INT16		Level 1-Excellent Level 3-Light pollution Level 4-Medium pollution Level 5-Heavy pollution Level 6-Severe pollution	
1304	AQI value of the primary pollutant (One of PM2.5/PM10/CO ₂ /TVOC) (Calculated based on 24-hour or 1-hour moving average measurement)	4	R	1	INT16		0-500	
1320	PM2.5 AQI value (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		0-500	
1321	PM10 AQI value (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		0-500	
1322	CO ₂ AQI value (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		0-500	
1323	TVOC AQI value (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		0-500	
1350	PM2.5 Pollution index level (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		1-6	

Table 2. Modbus Register Table.

Starting Register Decimal	Data Description	Function	Read/Write	Quantity of Registers (2Bytes/16bit)	Format	Decimals	Data Range, Data Description	Default
1351	PM10 Pollution index level (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		1-6	
1352	CO ₂ Pollution index level (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		1-6	
1353	TVOC Pollution index level (Calculated based on 24-hour moving average measurement)	4	R	1	INT16		1-6	
78	3 color LED status	4	R	1	INT16		0-OFF, 1-Green, 2-Yellow, 3-Red	
0	Modbus Address	3/6	R/W	1	UINT16		1-247	1
1	Modbus rate (bps)	3/6	R/W	1	UINT16		1-4800, 2-9600, 3-14400, 4-19200, 5-38400, 6-56000, 7-57600, 8-115200	2
2	Modbus Parity check bit	3/6	R/W	1	UINT16		1-NONE, 1STOP_BIT, 2-NONE, 2STOP_BIT, 3-Odd, 1STOP_BIT, 4-Even, 1STOP_BIT	1
4	Temperature correction value	3/16	R/W	2	Float-Big Endian	2	-3.0-3.0 °C/ -6.0-6.0 °F	-2.0
6	Humidity correction value	3/16	R/W	2	Float-Big Endian	2	-5.0-5.0%RH	0
14	CO ₂ compensation value	3/16	R/W	2	Float-Big Endian	0	-300.0-300.0 ppm	0

In order to reserve the decimal part, the measuring value with decimal will be magnified 10/100/1000 times, marked as x10/x100/x1000.

Starting Register Decimal	Data Description	Function	Read/Write	Quantity of Registers (2Bytes/16bit)	Format	Decimals	Data Range, Data Description	Default
50/1175	PM2.5 hourly average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m ³	
51/1176	PM10 hourly average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m ³	
54/1179	CO ₂ hourly average measurement x1	4	R	1	UINT16	0	0-5000 corresponding to 0-5,000 ppm	
55/1180	TVOC hourly average measurement x1000	4	R	1	UINT16	3	0-3575 corresponding to -4.000 mg/m ³	
56/1150	PM2.5 one minute average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m ³	

Starting Register Decimal	Data Description	Function	Read/ Write	Quantity of Registers (2Bytes/16bit)	Format	Decimals	Data Range, Data Description	Default
57/1151	PM10 one minute average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m ³	
58/1152	Temperature real-time measurement x100	4	R	1	INT16	2	-2000-6000 corresponding to -20.00 °C-60.00 °C	
59/1153	Humidity real-time measurement x100	4	R	1	UINT16	2	0-10000 corresponding to 0-100.00% RH	
60/1154	CO ₂ real-time measurement x1	4	R	1	UINT16	0	0-5000 corresponding to 0-5,000 ppm	
61/1155	TVOC real-time measurement x1000	4	R	1	UINT16	3	0-3575 corresponding to -4.000 mg/m ³	
62/1200	PM2.5 24-hour moving average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m ³	
63/1201	PM10 24-hour moving average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m ³	
66/1204	CO ₂ 24-hour moving average measurement x1	4	R	1	UINT16	0	0-5000 corresponding to 0-5,000 ppm	
67/1205	TVOC 24-hour moving average measurement x1000	4	R	1	UINT16	3	0-3575 corresponding to 0-4.000 mg/m ³	

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