

# C7355A Room IAQ Monitor

## QUICK START GUIDE

### ABOUT

IAQ Monitor is an advanced, configurable, RS-485 connected device for commercial buildings. It monitors CO<sub>2</sub>, 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:

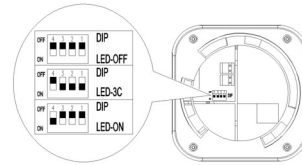


Fig. 2.

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/m<sup>3</sup>
- Yellow 35–75 µg/m<sup>3</sup>
- Red >75 µg/m<sup>3</sup>

### 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.

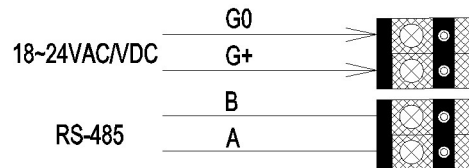


Fig. 3.



# SPECIFICATIONS

**Part Number:** C7355A1050

**Detection Parameters:** PM2.5/PM10, CO<sub>2</sub>, 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 <sup>3</sup>	
2/1052	PM10 hourly average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m <sup>3</sup>	
8/1058	CO <sub>2</sub> 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 <sup>3</sup>	
12/1000	PM2.5 one minute average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m <sup>3</sup>	
14/1002	PM10 one minute average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m <sup>3</sup>	
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 <sub>2</sub> 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 <sup>3</sup>	
24/1100	PM2.5 24-hour moving average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m <sup>3</sup>	
26/1102	PM10 24-hour moving average measurement	4	R	2	Float-Big Endian	1	0–1000.0 µg/m <sup>3</sup>	
32/1108	CO <sub>2</sub> 24-hour moving average measurement	4	R	2	Float-Big Endian	0	0–5,000 ppm	

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
34/1110	TVOC 8-hour moving average measurement	4	R	2	Float-Big Endian	3	0–4000 mg/m <sup>3</sup>	
1300	Primary pollutant 24-hour average measuring value (One of PM2.5/PM10/CO <sub>2</sub> /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 <sub>2</sub> /TVOC) (Calculated based on 24-hour or 1-hour moving average measurement)	4	R	1	INT16		1-PM25, 2-PM10, 3-CO <sub>2</sub> ; 4-TVOC	
1303	Index level of the primary pollutant (One of PM2.5/PM10/CO <sub>2</sub> /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 <sub>2</sub> /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 <sub>2</sub> 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 <sub>2</sub> 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 <sub>2</sub> 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 <sup>3</sup>	
51/1176	PM10 hourly average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m <sup>3</sup>	
54/1179	CO <sub>2</sub> 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 <sup>3</sup>	

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Starting Register Decimal	Data Description	Function	Read/Write	Quantity of Registers (2Bytes/16bit)	Format	Decimals	Data Range, Data Description	Default
56/1150	PM2.5 one minute average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0~1000.0 µg/m <sup>3</sup>	
57/1151	PM10 one minute average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0~1000.0 µg/m <sup>3</sup>	
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 <sub>2</sub> 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 <sup>3</sup>	
62/1200	PM2.5 24-hour moving average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m <sup>3</sup>	
63/1201	PM10 24-hour moving average measurement x10	4	R	1	UINT16	1	0-10000 corresponding to 0-1000.0 µg/m <sup>3</sup>	
66/1204	CO <sub>2</sub> 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 <sup>3</sup>	

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