

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:

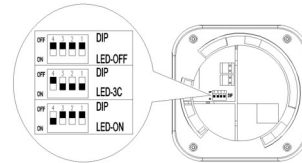


Fig. 2.

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.

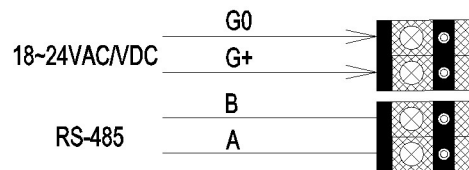


Fig. 3.



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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|---------------------------|--|----------|------------|--------------------------------------|------------------|----------|---|---------|
| 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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