CDT-A

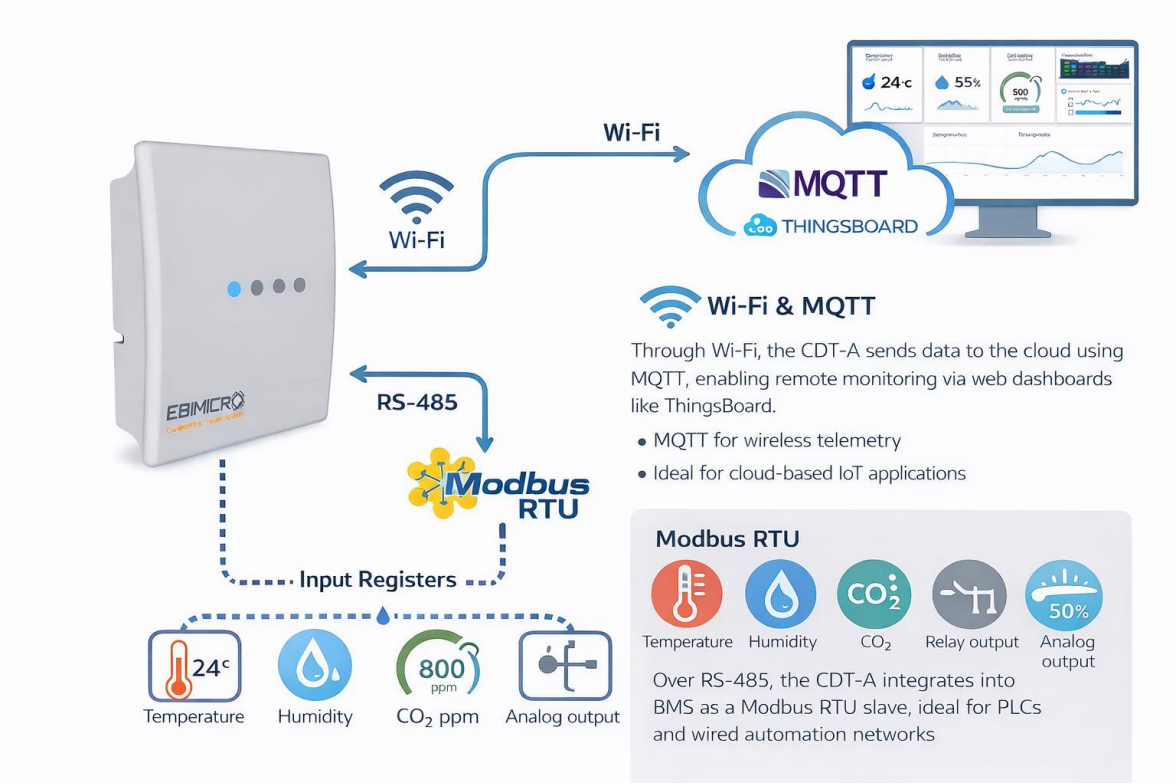
(CO2, Temperature and Humidity controller / transmitter)

Product Overview

The **CDT-A** is a compact indoor air quality controller and transmitter designed for accurate monitoring and control of **CO_2 concentration, temperature, and relative humidity** in residential, commercial, and light-industrial environments.

The device provides reliable long-term performance with minimal maintenance and supports **relay control**, **analog outputs**, **Modbus RTU**, and **Wi-Fi connectivity** for seamless integration with building management systems and cloud-based IoT platforms.

Housed in a durable **ABS plastic enclosure** with **IP32 protection**, the CDT-A is ideal for indoor wall-mount installations.



Key Features

- CO_2, temperature, and humidity measurement
- Relay output for ventilation, alarm, or control applications
- Analog outputs:
- 0–10 V
- 0–20 mA
- RS-485 Modbus RTU communication
- Wi-Fi communication
- AP & STA modes
- Cloud data publishing support
- Web-based configuration interface (Wi-Fi AP mode)
- Wide supply voltage range: **12–37 VDC**
- Low power consumption for continuous operation
- Maintenance-free CO_2 sensing technology
- ABS plastic enclosure, **IP32**

Cloud & IoT Connectivity

- MQTT-based data publishing
- Configurable topics via embedded web interface
- Compatible with common cloud platforms (e.g. ThingsBoard, EMQX, AWS IoT, Azure IoT)
- Publishes:
    - CO_2 concentration
    - Temperature
    - Relative humidity
    - Device status
    - Wi-Fi signal strength

Measured Parameters

Parameter	Measurement Range	Accuracy
CO_2	400 – 10,000 ppm	±(30 ppm + 3% of reading)
Temperature	−10 °C to +60 °C	±0.3 °C
Relative Humidity	0 – 100 %RH	±2 %RH

Technical Specifications

Power Supply	12–37 VDC
Power Consumption	< 0.5~0.8 W
Interfaces	Modbus RTU, MQTT
Wi-Fi Standard	802.11ax (Wi-Fi 6 – 2.4GHz)
MQTT QoS	0 (fast), 1 (reliable)
Enclosure	ABS-PC, IP54-rated
Firmware	Custom firmware options available
Updatability	OTA, USB, USB-Serial
Security	Designed with CRA (Cyber Resilience Act) compliance in mind
Operating Temperature	−20 °C to +80 °C
Dimensions	25 × 85 × 100 mm
Weight	90 gr
Certifications	CE (FCC pending)

Example MQTT Topics

Out-of-the-box firmware publishes the following topics:

(Continues)Read Only Topics:

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```
/cdta/CDT-A-XXXXXXXXXXX/CO1
/cdta/CDT-A-XXXXXXXXXXX/Temp1
/cdta/CDT-A-XXXXXXXXXXX/Hum1
/cdta/CDT-A-XXXXXXXXXXX/Relay1
/cdta/CDT-A-XXXXXXXXXXX/Analog1
/cdta/CDT-A-XXXXXXXXXXX/fw_version
/cdta/CDT-A-XXXXXXXXXXX/wifi_rssi
/cdta/CDT-A-XXXXXXXXXXX/wifi_quality_text
```

Writable Topics:

```
/cdta/CDT-A-XXXXXXXXXXX/set/co2_setpoint
/cdta/CDT-A-XXXXXXXXXXX/set/co2_hysteresis
/cdta/CDT-A-XXXXXXXXXXX/set/co2_min
/cdta/CDT-A-XXXXXXXXXXX/set/co2_max
/cdta/CDT-A-XXXXXXXXXXX/set/4-20mA
```

- *Users may configure custom topics via the device's web service (AP mode).*
- XXXXXXXXXXX is *the Wi-Fi MAC address.*

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Modbus RTU Register Map

Input Registers

Register address	Description	Data type	range	Default Value
30017	Temperature Level	Signed int	-200 to 1000	-
30018	Relative Humidity level	Unsigned int	0-1000	-
30019	CO2 level	Unsigned int	400 to 10000	-
30020	Analog Output (CO2)	Unsigned int	0-100	-
30021	Relay Output (CO2)	Unsigned int	0-1	-

Holding Registers

Register address	Description	Data type	range	Default Value
40001	Device Address	Unsigned int	1-247	1
40002	Modbus Baud Rate	Unsigned int	1-4	2
40003	Modbus Parity	Unsigned int	0-2	1
40004	Device Type	Unsigned int	-	20020 (CDT-A)
40005	Hardware Ver	Unsigned int	0-1000	-
40006	Firmware Ver	Unsigned int	-	-
40007	CO2 Hysteresis	Unsigned int	10-100	50 ppm
40011	Min Output Val	Unsigned int	0-100	0
40012	Max Output Val	Unsigned int	0-100	100
40013	Overwrite Mode	Unsigned int	0-1	0 (not overwriting)
40014	Overwrite Value	Unsigned int	0-100	0
40018	Start Output Value	Unsigned int	0-100	0
40025	CO2 Setpoint	Unsigned int	400 to 10000	1200 ppm

Applications

- Indoor air quality monitoring
- Demand-controlled ventilation (DCV)
- Residential and commercial buildings
- Schools, classrooms, and offices
- Smart home systems
- Building automation systems (BAS / BMS)
- IoT-based environmental monitoring

Ordering Information

Model	Communication	Outputs
CDT-A-MB	Modbus RTU	Relay + Analog
CDT-A-WF	Wi-Fi	Relay + Analog
CDT-A-MBWF	Modbus RTU + Wi-Fi	Relay + Analog

Included in Package: Device unit, user manual