EBYTE

Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual



RS485 Temperature and Humidity Acquisition Series

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1 Product Overview

1.1 Product Introduction



This series of temperature and humidity transmitters integrates high-precision sensors in a compact size, making them particularly suitable for space-constrained installation environments. Equipped with an RS485 communication interface and using the standard ModBus-RTU protocol, users can easily configure the Modbus address and baud rate to suit different system requirements. It supports DIN35 rail mounting, facilitating rapid integration into industrial automation environments. Due to its reliability and flexibility, this series is widely applicable for temperature and humidity monitoring and control applications in various industrial settings.

1.2 Features

- A version with a built-in high-precision digital temperature and humidity sensor (SHT30) is available .
- 5~36V DC wide voltage power supply with reverse connection protection;
- Supports RS485 interface communication;
- Supports the standard Modbus RTU protocol;
- Wide temperature measurement range: -40℃ to +125℃;
- Wide humidity measurement range: 0~100%;
- Supports 1 to 255 Modbus address settings ;
- Supports 8 baud rate configurations;
- Supports automatic search by host computer software;
- Supports temperature and humidity compensation offset;
- Supports data acquisition and export from the host computer;
- It features pluggable terminals, making installation and maintenance simple and convenient ;
- Supports mounting via positioning holes and guide rails;
- It is widely used in signal acquisition and control of industrial field equipment.

1.3 Product Model List

Product Model	Built-in sensor model
EID041-G01	AHT20
EID041-G01S	SHT30

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2 Technical indicators

2.1 Specifications

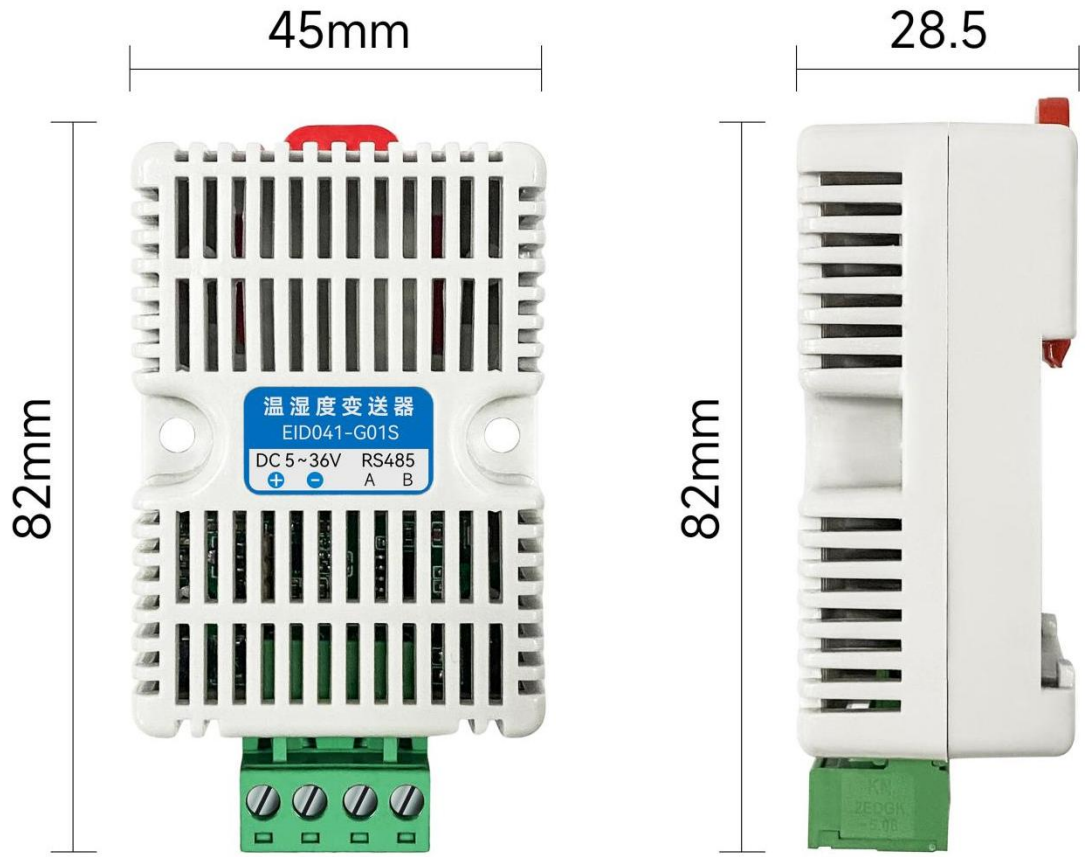
Category	Name	Parameter
Power supply	Operating voltage	DC 5 ~ 36V
	Power indicator	Green LED indicator
Communication	Communication interface	RS485
	baud rate	4800-115200 (8 baud rates available)
	Communication Protocol	Standard Modbus RTU Protocol
MODBUS	Device address	1~255
Temperature	Number of collection paths	Route 1
	Temperature acquisition accuracy	EID041-G01: ±0.3℃ EID041-G01S: ±0.2℃
	Temperature resolution	0.1℃
	Collection range	-40℃ to +125℃;
Humidity	Number of collection paths	Route 1
	Humidity sampling accuracy	EID041-G01: ±2%RH EID041-G01S: ±2%RH
	Humidity resolution	0.1%RH
	Collection range	0~100%
Power consumption	Maximum power consumption	0.1w
Other	Product Dimensions	82mm * 45mm * 28.5mm (Length * Width * Height)
	Operating temperature	-40 to +85℃
	Installation method	Positioning holes and guide rail installation

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2.2 Device default parameters

Category	Name	Parameter
Basic parameters	Modbus address	1
	Baud rate	9600bps
	Check bit	None
	Data bits	8
	Stop bit	1

2.3 Dimensions



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2.4 Ports and LED indicators

2.4.1 Port and LED indicator description

LED Indicator Light Description	
Name	Ilustrate
Power indicator light	Green LED light; On: System power supply is normal; Off: System power supply is abnormal.

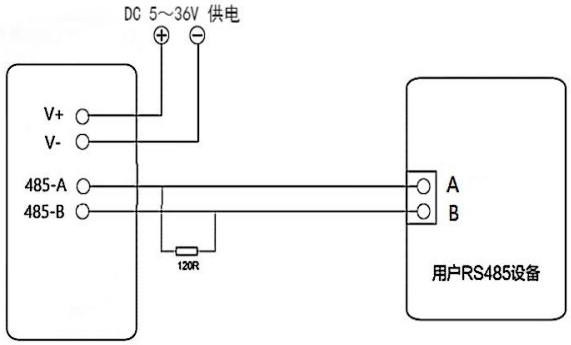
Port Description	
Name	Illustrate
Positive power supply	DC (5-36V) power supply positive terminal interface
Negative terminal of power supply	DC (5-36V) power supply negative terminal interface
RS485 A interface	RS485 A interface
RS485 B interface	RS485 B interface

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3 Quick Use

3.1 Equipment wiring

3.1.1 Power supply and RS485 wiring



Note: When transmitting high-frequency signals on the 485 bus, the signal wavelength is relatively short compared to the transmission line. The signal will be reflected at the transmission line terminal, interfering with the original signal. Therefore, a terminating resistor needs to be added to the end of the transmission line to prevent signal reflection. The terminating resistor should have the same impedance as the communication cable, typically 120 ohms. Its function is to match the bus impedance, improving the anti-interference capability and reliability of data communication.

3.2 Quick Start

3.2.1 Equipment preparation

For connection testing, we need to prepare the following equipment:

Name	Quantity
USB to RS485 module	1
EID041-G01S	1
12V power adapter 1A	2

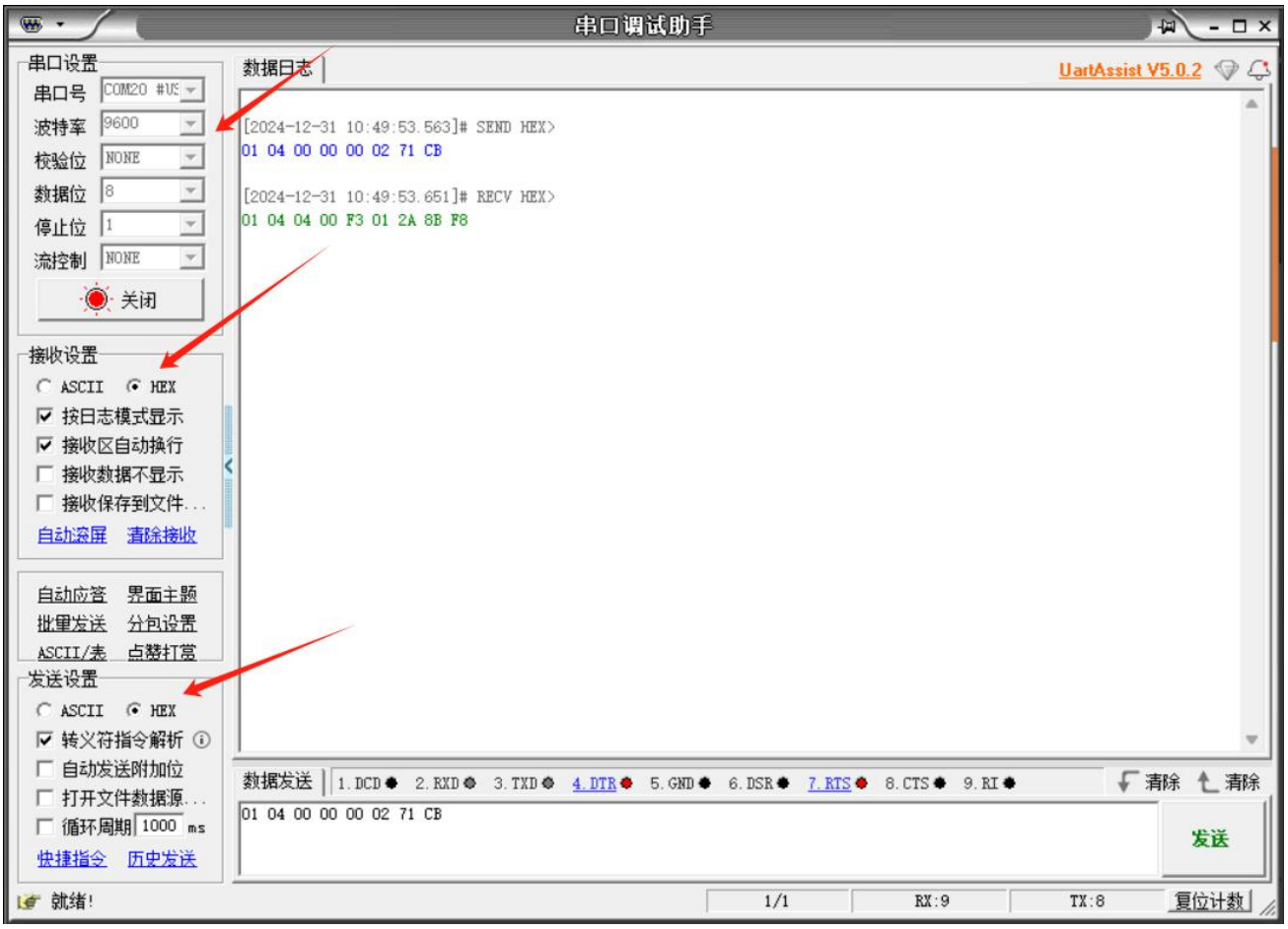
3.2.2 Device connection

Connect the A and B ports of the device's RS485 to the A and B ports of the USB to RS485 adapter, and turn on the device power (refer to the device wiring section for wiring instructions).

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3.2.3 Data collection test

Open the serial port connection to EID041-G01S , select the corresponding baud rate parameter, select hexadecimal transmission, and cancel automatic line wrapping, as shown in the figure.



Serial port configuration diagram

Send a message to EID041-G01S via serial port assistant :

01 04 00 00 00 02 71 CB (Simultaneously collect temperature and humidity data from the first channel)

EID041-G01S replies to the serial port assistant :

01 04 04 00 F3 01 2A 8B F8

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4 Register function definition

4.1 Input Register Function Definition List

Register address (hexadecimal)	Register address (decimal)	Register area	Function code	Function Description
0x0000	3-0001	Zone 3	R: 0x04	Temperature unit: °C (1) Positive temperature: Register value is 260, actual temperature value: 260 x 0.1 = 26℃ (2) Negative temperature: Uploaded in two's complement form. Actual temperature value: 0xFF9B (hexadecimal) = -101 → -10.1℃
0x0001	3-0002	Zone 3	R: 0x04	Humidity value: Unit: %RH Calculation method: Fix one decimal place Example: Register value is 300, actual humidity value: 300 x 0.1 = 30 (%RH)
0x0002	3-0003	Zone 3	R: 0x04	Temperature unit: °C Data type: 32-bit floating-point number, big-endian mode
0x0003	3-0004	Zone 3	R: 0x04	
0x0004	3-0005	Zone 3	R: 0x04	Humidity value unit: %RH Data type: 32-bit floating-point number, big-endian mode
0x000 5	3-000 6	Zone 3	R: 0x0 4	
0x000 6	3-000 7	Zone 3	R: 0x0 4	Temperature offset
0x000 7	3-000 8	Zone 3	R: 0x0 4	Humidity offset

4.2 List of holding register function definitions

Register address (hexadecimal)	Register address (decimal)	Register area	Function code	Function Description
0x0000	4-0001	Zone 4	R: 0x0 3	Temperature unit: °C (1) Positive temperature: Register value is 260, actual temperature value: 260 x 0.1 = 26℃ (2) Negative temperature: Uploaded in two's complement form. Actual temperature value: 0xFF9B (hexadecimal) =

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				-101 → -10.1℃
0x0001	4-0002	Zone 4	R: 0x03	Humidity value: Unit: %RH Calculation method: Fix one decimal place Example: Register value is 300, actual humidity value: 300 x 0.1 = 30 (%RH)
0x0002	4-0003	Zone 4	R: 0x03	Temperature unit: °C Data type : 32-bit floating-point number, big-endian mode
0x0003	4-0004	Zone 4		
0x0004	4-0005	Zone 4	R: 0x03	Humidity value unit: %RH Data type : 32-bit floating-point number, big-endian mode
0x000 5	4-000 6	Zone 4		
0x000 6	4-000 7	Zone 4	R: 0x03 W : 0x06	Temperature offset value The value range is set to -200 to 200, which corresponds to ±20°.
0x000 7	4-000 8	Zone 4	R: 0x03 W: 0x06	Humidity offset value The value range is set to -100 to 100, which corresponds to ±10% RH.
0x000 A	4-0011	Zone 4	R: 0x03 W: 0x06 W: 0x10	RS485 bus Modbus address/station number Setting range: 1~255 (factory default 1) Note: Changes will take effect after a restart.
0x000 B	4-0012	Zone 4	R: 0x03 W: 0x06 W: 0x10	Baud rate settings : 0:4800 1:9600 (factory default) 2:14400 3:19200 4:38400 5:56000 6:57600 7:115200 Note: Changes will take effect after a restart.
0x00 3D	4-0062	Zone 4	R: 0x03 W: 0x06 W: 0x10	Parity settings : 0: No verification (factory default) 1: Odd parity 2: Even parity Note: Changes will take effect after a restart.
0X003E	4-0063	Zone 4	W: 0x06 W: 0x10	Write 0x5BB5 to restore the module to factory settings.
0X003F	4-0064	Zone 4	W: 0x06 W: 0x10	Write 0x5BB5 and restart the module.

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4.3 Example of data collection command

Temperature of the first channel was collected.

From station address	Function code	Register start address		Number of registers	CRC check code	
01	04	00	00	01	31	CA

Humidity data collected from the first channel

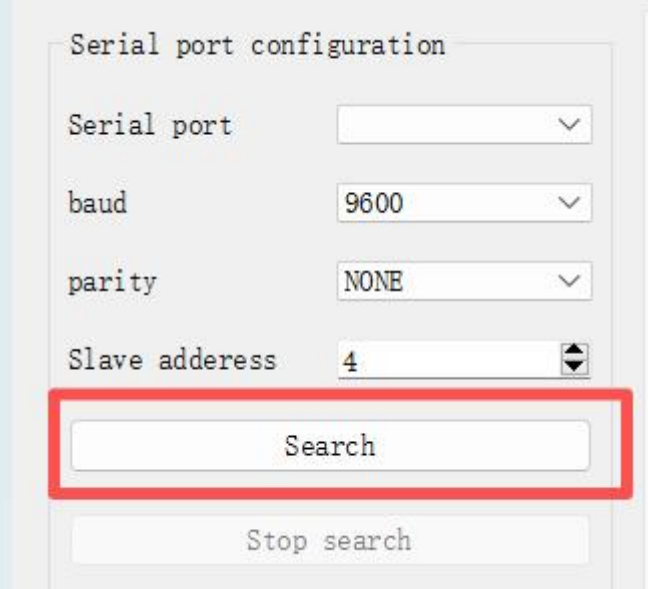
From station address	Function code	Register start address		Number of registers	CRC check code	
01	04	00	01	01	60	0A

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5 Host computer functions

5.1 Automatic search

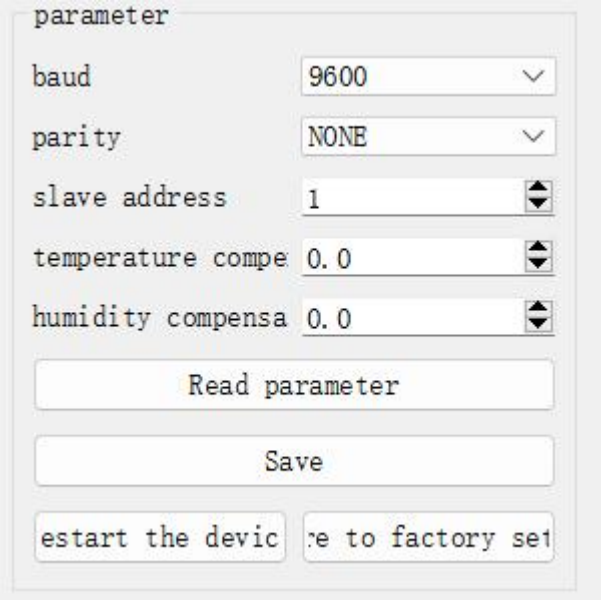
Select the serial port of the device, and then click "Auto Search". The device's baud rate, parity, and slave address will be automatically searched.



5.2 Parameter configuration

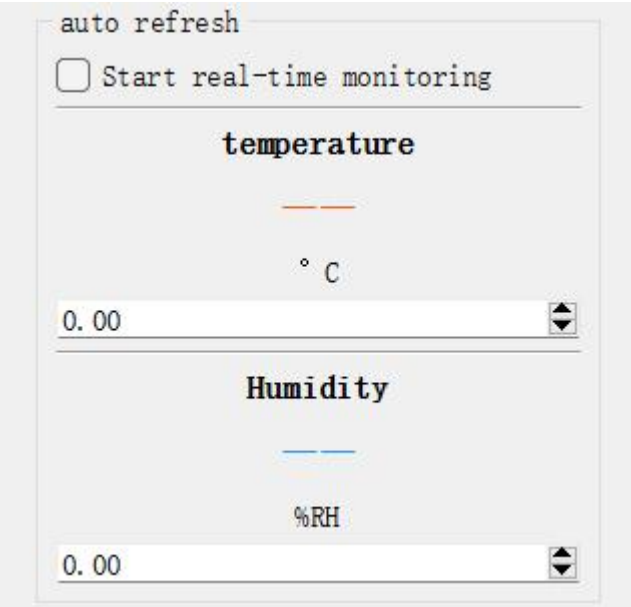
On the parameter configuration page, if the user has a more accurate temperature and humidity sensor or calibration device, they can set temperature and humidity compensation in the host computer after measurement to obtain more accurate values. Clicking the "Restore Factory Settings" button will reset all parameters. After restoring factory settings or modifying device parameters, power on the device again.

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5.3 Real-time temperature and humidity monitoring

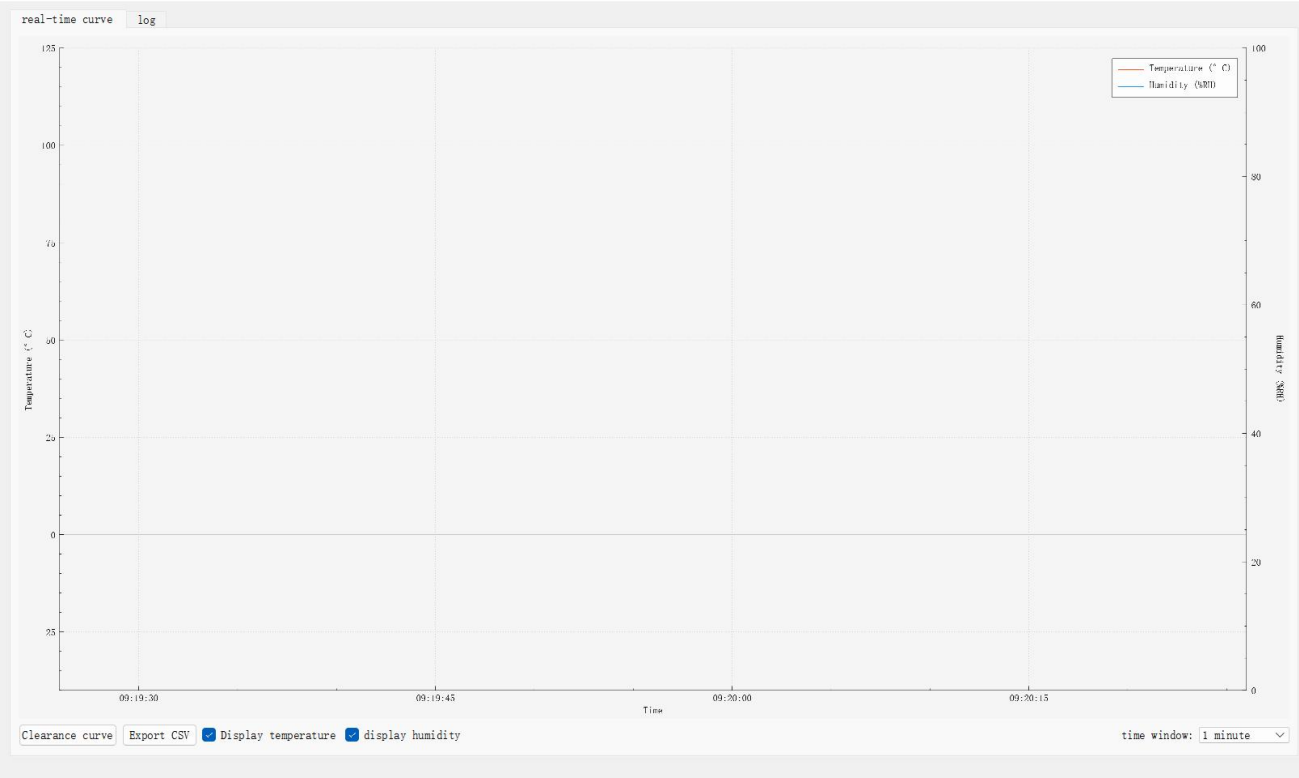
After the device is found, click to start real-time monitoring to get real-time changes in temperature and humidity.



5.4 Data export

Clicking on the real-time curve will show the temperature and humidity changes over time. After collecting data for a period of time, you can click to export a CSV file, which will show the temperature and humidity changes during that period.

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Revision History

Version	Revision Date	Revision Notes	Maintainer
1.0	2024-12-31	Initial version	LT
1.1	2026-05-19	Host computer software upgrade instructions	ZT

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Technical support: support@cdebyte.com
Documents and RF Setting download link: www.ebyte.com
Thank you for using Ebyte products! Please contact us with any questions or suggestions: info@cdebyte.com
---
Phone: +86 028-61399028
Web: www.cdebyte.com
Address: B5 Mould Park, 199# Xiqu Ave, High-tech District, Sichuan, China

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