User Manual

(Version 1.0)

ESR-TH-485B

Duct type temperature and humidity transducer

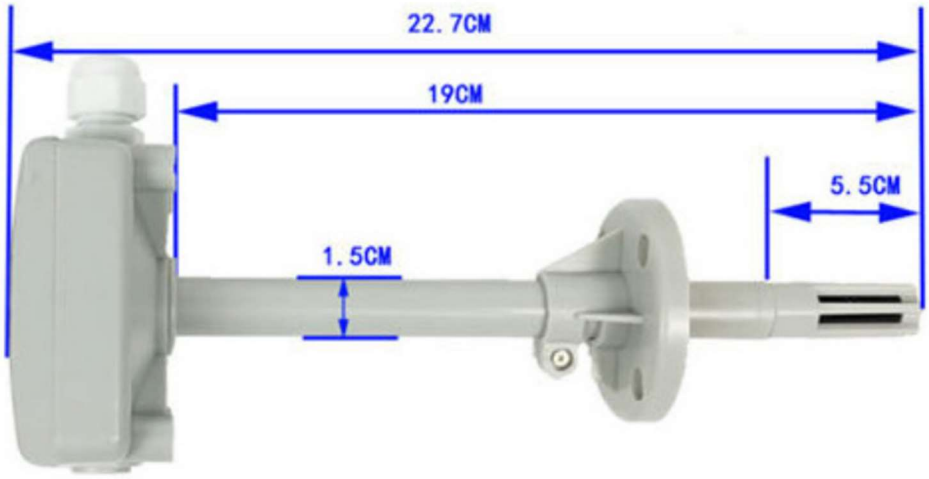
Introduction

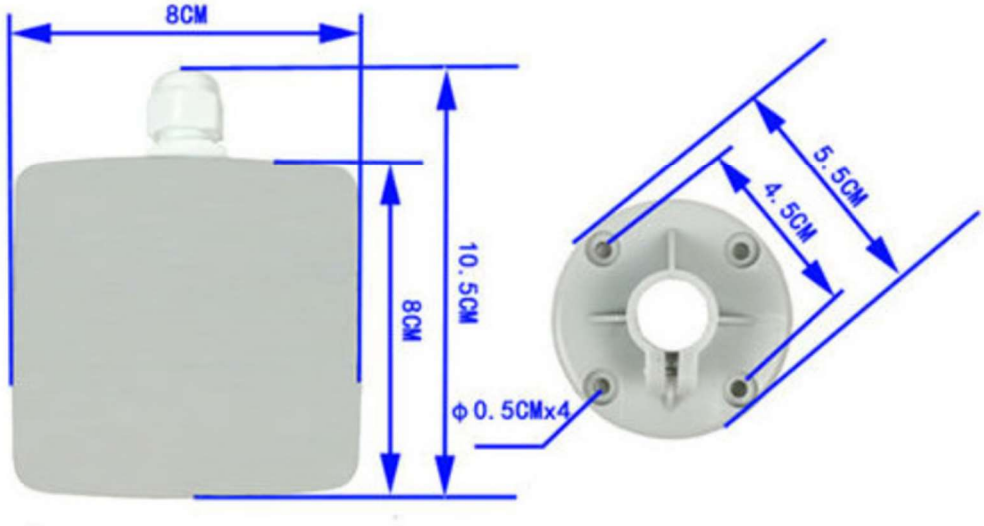
This product uses the industrial standard RS485 bus and Modbus RTU protocol, which is convenient for access to various instruments or systems such as PLC, DCS, etc., and is used to monitor state quantities such as temperature and humidity. High-precision sensor cores are used internally to ensure that the product has high reliability and excellent long-term stability.

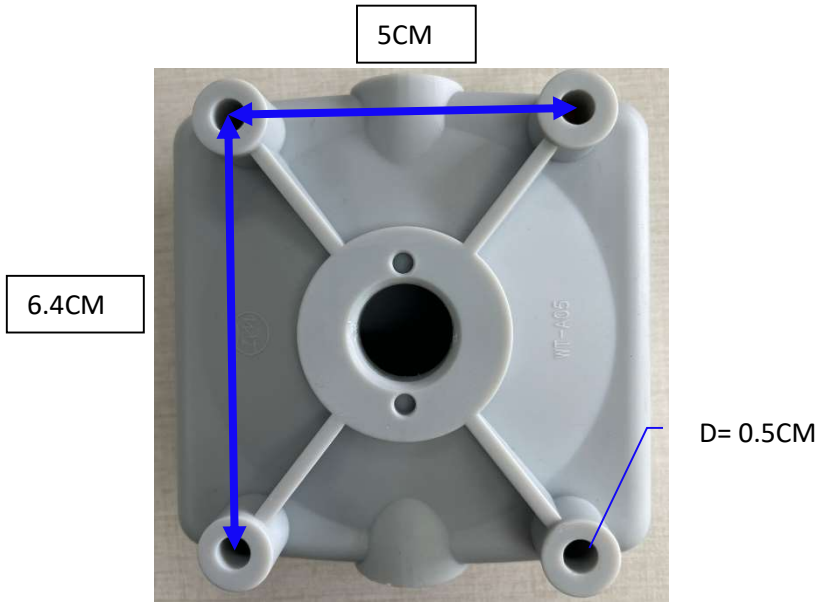
Technical specifications

Parameters	specifications
Temperature detect range	-30℃~80℃
Temperature measurement precision	±0.5℃ @25℃
Interface	RS485
Protocol	Modbus RTU
Default communication settings	9600 8 n 1
Power supply	DC12~24V 0.2A
Operating temperature	-40~80°C
Operating humidity	5%RH~90%RH

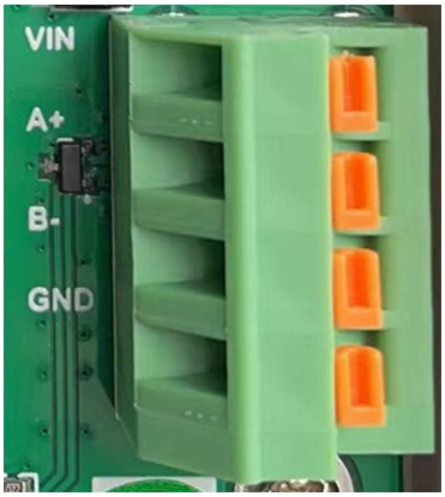
Dimensions


22.7CM
19CM
5.5CM
1.5CM


8CM
10.5CM
8CM
5.5CM
4.5CM
ϕ0.5CMx4

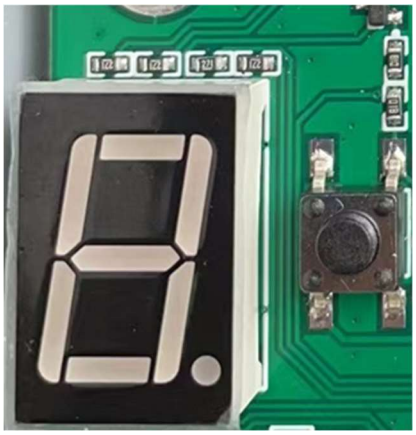

5CM
6.4CM
D= 0.5CM

Terminal blocks definition



Symbol	meaning
VIN	Power supply V+
A+	RS485 A+
B-	RS485 B-
GND	Power supply V-

Device address change



Power on, the LED displays the character '8' by default for 2 seconds and then turns off.

Display the current device address:

- When the LED turns off, press the button once, the LED will display the current device address
- display range 1~15 (where 10~15 displays A b C d E F)

Note: Addresses greater than 15 are uniformly displayed as '-'
Note: The button only supports setting addresses 1~15
Note: The MODBUS bus can still set the address range specified by the protocol according to the protocol

Change the device address:

- Press the button and hold for 3 seconds, the digital tube flashes to display the current device address, and enters the settable state
- Press the button once to increase the device address one, and start from 1 after reaching 15, and so on

Save the device address:

5 seconds after stopping pressing the button, the address will be saved and the LED will stop blinking

Completely exit the setting:

20 seconds after stopping pressing the button, the LED turns off and the address cannot be set.

Reset serial port configuration function:

Within 5 minutes after the device is powered on and the LED is in OFF status, press and hold the button for 20 seconds until the digital tube displays 'r' and then release the button, at this time, the serial port parameters are restored to the default values: device address = 1, and '9600 8 n 1', and the device automatically restarts after 2 seconds.

Parameters list

PLC address	Registers address	description	direction	Range	unit	Effective
40001	00 00	temperature	R	0~65535	℃*0.01	
40002	00 01	humidity	R	0~65535	RH*0.01	
40003	00 02	Sensor state	R	0~65535		
40004	00 03	Sensor fault	R	0~1	1= fault	
40101	00 64					
40102	00 65					
40103	00 66	Device address	R/W	1~249		immediately
40104	00 67	Baud rate	R/W	1=1200, 2=2400, 3=4800, 4=9600, 5=14400, 6=19200, 7=38400， 8=57600		reset
40105	00 68	parity	R/W	0=none, 1=odd, 2=even		reset
40106	00 69	Stop bit	R/W	1=1bit, 2=2bits		reset
40107	00 6A	command： MCU reset	R	0X5AA5		immediately
		command： restore default	R	0X5BB5		reset