



HBH-101

Temperature, Humidity and Atmospheric Pressure CO₂ Multi-in-one Transmitter

*Here referred to as THAPC multi-in-one transmitter

Features

- Adopt high precision MEMS imported sensor
- Grid hole layout facilitates heat dissipation and more accurate detection
- Available in with or without LCD display
- -40°C-80°C temperature range, suitable for a variety of complex environments
- Using the standard ModBus-RTU 485 communication protocol, the address baud rate can be set
- Strong stability, long service life
- The shell is mounted by wall hanging buckle, which is easy to install

HBH-101 THAPC multi-in-one transmitter with Swiss imported measuring unit, accurate measurement. Using a dedicated 485 circuit, standard ModBus-RTU communication protocol, address baud rate can be set, 485 communication distance up to 2000 meters. The shell is mounted by wall hanging buckle, which is easy to install. 10~30V wide voltage range.

Applications

- Building automation
- Climate and HVAC signal acquisition
- Climate stations for museums and hotels
- Greenhouse
- Pharmaceutical industry
- Storage

Machine design

HBH-101 THAPC multi-in-one transmitter consists of the following components:

- Wall-mounted housing for flexible installation
- Standard MODBUS-RTU communication interface design
- DIP switch that controls the temperature output range ("See Temperature output range Settings")
- DIP switch is set for the slave ID address ("See slave ID address")

Operating mode

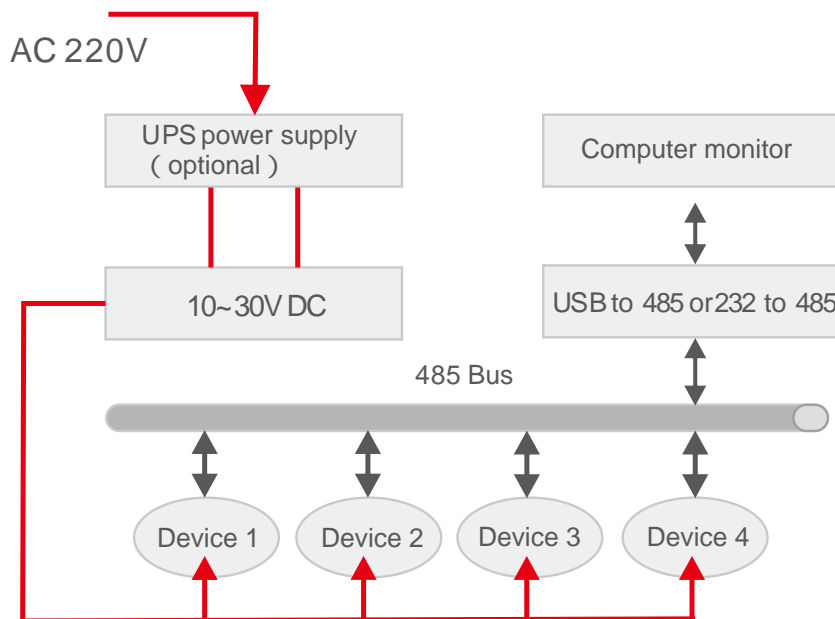
The high precision MEMS sensor imported from Switzerland is used to collect the temperature and humidity signals and convert them into current signals or voltage signal outputs that are linear with temperature and humidity, or digital RS-485 signals.

Specifications

Product data			
Power supply	10~30V DC	CO ₂ measurement range	400~2000ppm
Power draw	0.2W	CO ₂ accuracy	±(40ppm+5% reading)
Humidity measuring range	0~100% RH	Atmospheric pressure measurement range	30kPa~ 120kPa can be Customized(25°C)
Temperature measuring range	Use dip switches to set 0 to 3, 0=-10~50°C, 1=-20~80°C, 2=-40~60°C, 3=0~50°C.	Absolute pressure accuracy	-1.5~+1.5 (700 to 1100 mbar from 0 °C to 50°C) -3~+3 (700 to 1100 mbar from -20 to 70 °C)
Humidity accuracy	±2%RH	Relative pressure Accuracy	0.5 (700 to 1100 mbar in 25°C) ± 1.5 (700 to 1100 mbar from 0°C to 50°C)
Temperature accuracy	±0.3°C	Operating environment	-40°C~80°C 0~95%RH (non- condensation)
Response time	≤10s (20 °C , full flow rate air)	Output signal	RS485

Interface description

Wide voltage power input 10~30V can be used. 485 signal wire wiring, note that A\B two lines can not be reversed, the address between multiple devices on the bus can not conflict.



Electrical connection

NO.	Symbol	Description	Remark
1	GND	GND	
2	T	Temperature 0-10V output	
3	GND	GND	
4	H	Humidity 0-10V Output	
5	V+	The power input is positive	10-30VDC Input
6	GND	GND	
7	B-	RS485-B	
8	A+	RS485-A	

Slave ID address

The default value for the Slave ID address is 1, with a modification range of 1-64, where 0x00 is the broadcast receive address. It can be adjusted by modifying the ID dial switch, and the result is the sum of the ID dial.

Dip switch description

1 means ON

0 means OFF



Dip switch	1	2	3	4	5	6	Binary address
Address 0	0	0	0	0	0	0	1
Address 1	0	0	0	0	0	1	1
Address 2	0	0	0	0	1	0	2
Address 3	0	0	0	0	1	1	3
Address 4	0	0	0	1	0	0	4
Address 63	1	1	1	1	1	1	63

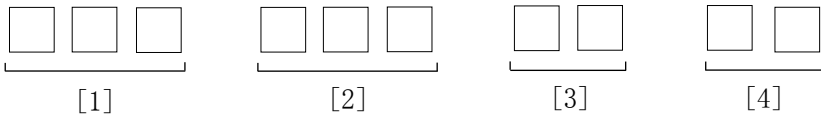
Temperature output range setting

Set with dip switch 0~3. 0=-10~50°C , 1=-20~80°C , 2=-40~60°C , 3=0~50°C.

Product name	Dip switch Settings	Temperature output range
HBH-101 THAPC multi-in-one transmitter		-10~50°C
		-20~80°C
		-40~60°C
		0~50°C

Order information

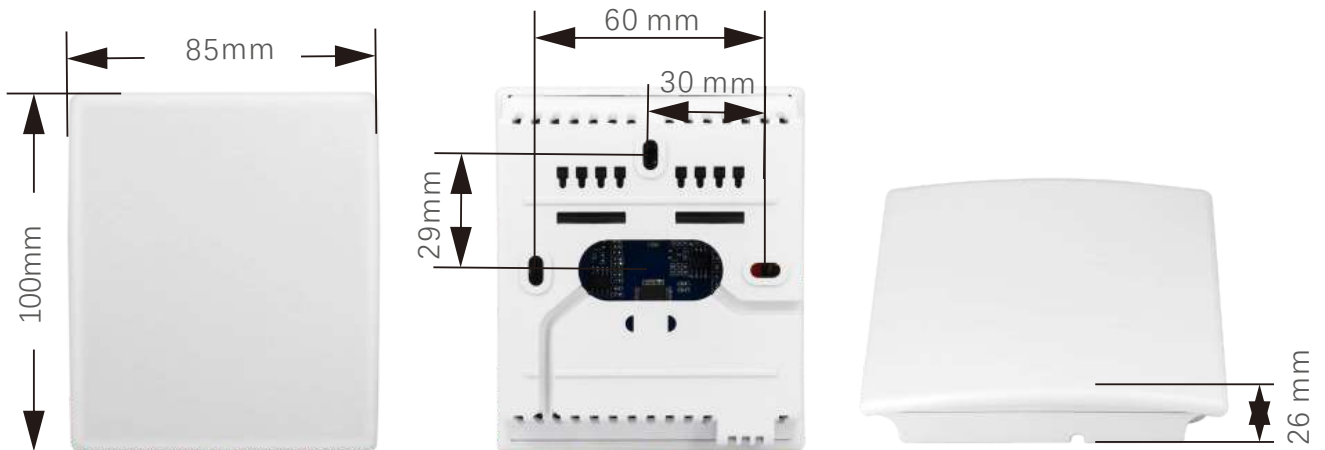
Example part number: HBH-101-5N-01



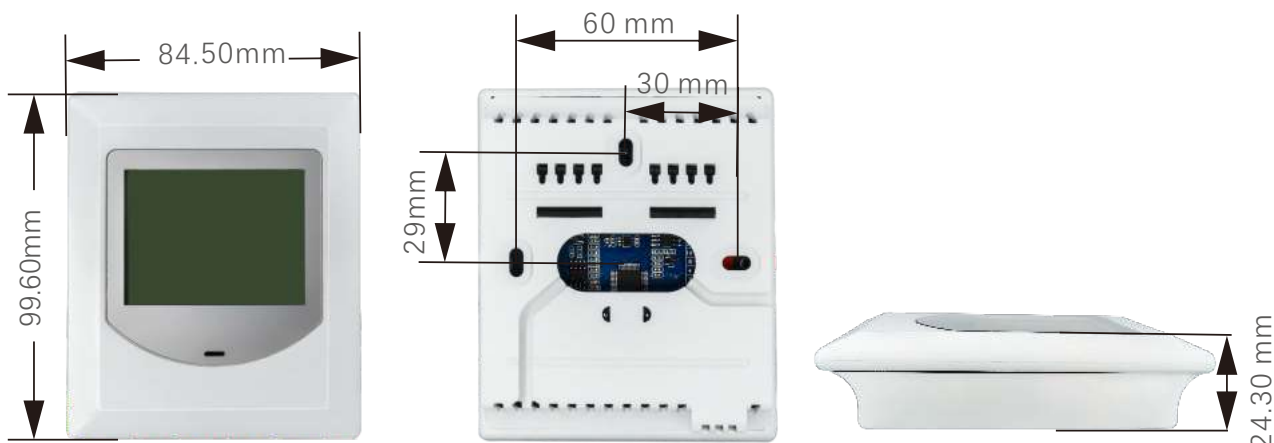
[1]		[2]		[3]		[4]	
Model	Product series	Output type		Product shell		Feature	
HBH	101	5	RS485	N	Without Display	01	Temperature and humidity
				D	With Display	02	Temperature and humidity +CO ₂
						03	Temperature and humidity + Atmospheric pressure

Outline dimensions

Dimensions without display



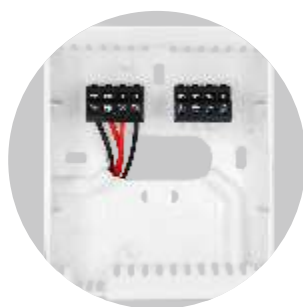
Dimensions with display



Wall mounted installation



Gently press the buckle on the back of the transmitter with your fingers to open the rear cover of the transmitter



Route the cable to be connected through the cable hole on the rear cover of the transmitter, and fasten the cable to the corresponding terminal with a screwdriver



Fix the back cover on the wall with a screw, and install the front cover clip

485 Field wiring instructions

- 1.No two nodes on the same bus can have the same secondary address.
- 2.The maximum length of the RS485 bus is 2000m.
- 3.The load capacity of the RS48 bus is generally less than 30 nodes, and it is recommended to add a repeater when more nodes are added.
- 4.The two ends of the bus should be set to a 120Ω terminal resistor.
- 5.The hand-in-hand Daisy chain layout does not support star cabling. The branch distance should not exceed 0.5 m.

Communication protocol

For details, please refer to the 《Communication Protocol of THAPC Transmitter.》

Equipment list

1 transmitter equipment, certificate, warranty card, calibration report, etc., USB to 485 (optional), 485 terminal resistor (optional).

Common problems and solutions

Possible reasons:

- 1.The computer has multiple COM ports, and the selected port is incorrect.
- 2.The device address is incorrect, or there are devices with the same address (the factory default is all 1).
- 3.The baud rate, verification mode, data bit, or stop bit is incorrect.
- 4.The host polling interval and the waiting time for a response are too short, so they must be set above 200ms.
- 5.The 485 bus is disconnected, or the A and B wires are incorrectly connected.
- 6.If the number of devices is too large or the wiring is too long, power the device nearby, add a 485 booster, and increase the 120Ω terminal resistance.
- 7.The USB to 485 device is not driven or is damaged.
- 8.The device is damaged.