

Temperature Humidity Transmitter

Manual V1.0



Notice: Please read this user manual carefully before using.

- 1) Please kindly check whether the transmitter is same as what you ordered after when you received the transmitter. Please contact us immediately if there are any errors on transmitter to offer you our technical support.
- 2) Please should read and master its connections and operation first carefully before testing and installing the transmitter.
- 3) Please should guarantee the transmitter is working on its required working conditions.

Technical data

※ Range:

RH: 0~99.9%RH

T: -20~ 80℃

※ Response time τ (63%):

T: min=2s, max= 5s

RH(Response time (90%) still air): 2s

※ Accuracy

T: $\pm 0.3^{\circ}\text{C}$ at 25°C ,

Long term stability: $< 0.04^{\circ}\text{C}/\text{year}$

RH: $\pm 3\%$ at RH 25°C ,

Long-term stability: $< 0.5\%\text{RH}/\text{year}$

※ Output signal:

RS485 communication MODBUS-RTU protocol

※ Power consumption: 8mA (typical value)

(Note: the above parameters shall be measured at 25°C unless otherwise specified)

General

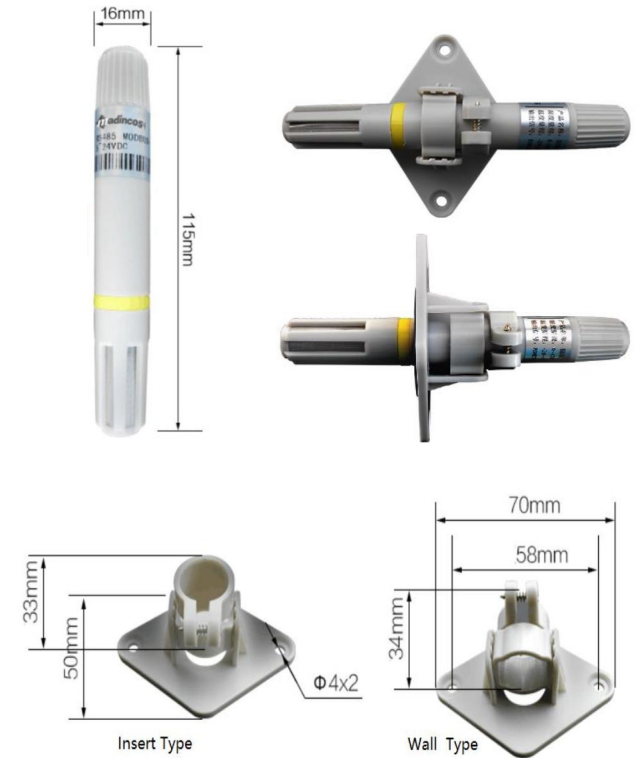
Operating : $-20\sim 80^{\circ}\text{C}$ 0~99%RH (no condensation)

working voltage: 9~30VDC

Storage temperature: $10\sim 50^{\circ}\text{C}$

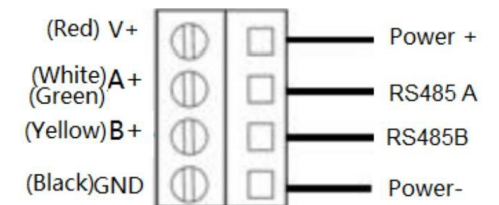
Storage humidity: 20~60%RH

Installation and Dimension(unit: mm)



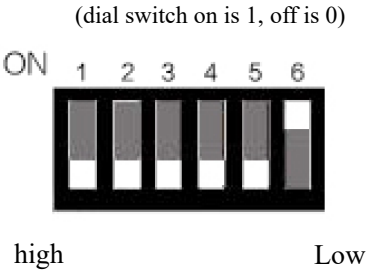
Installation with bracket

Electrical wiring diagram



Communication address setting

When RS485 output, please set the communication address of the transmitter, which will be achieved by 6 DIN switches on PCB. The on-off statue of the 6 DIN switch is corresponding to the communication address in binary system. There will be max 63 pcs in a RS485 fieldbus based on standard MODBUS-RTU protocol, can be configurable with PLC, DCS. HMI and so on flexibly. Notes: Please power off the transmitter and power before setting the address on the transmitter.

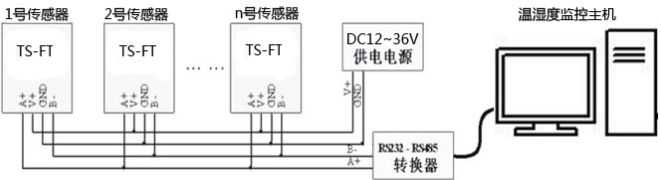


Note: please turn off the power supply of the transmitter before selecting the operation of setting the transmitter address.

Address setting example:

Dial switch address	Decimal address
000001	1
000010	2
000011	3
000100	4
.....
111111	63

※ Schematic diagram of RS485 networking



Communication protocol

※ The definition of Modbus communication format

parameter	Baud rate	Data bits	Stop bit	Check bit
value	9600	8	1	NONE

※ Definition and examples of communication instructions

1、Host command frame format

Byte	Function description	example
1	Address code	0x01
2	Function code	0x03
3	Register address high	0x00
4	Register address low	0x00
5	High number of registers	0x00
6	Low number of registers	0x02
7	CRC check code low	0xC4
8	CRC check code high	0x0B

2、Slave response frame format

Byte	Function description	example
1	Address code	0x01
2	Function code	0x03
3	Data length	0x04
4	High level of humidity data	0x02
5	Humidity data low	0xB1
6	High temperature data	0x01
7	Low temperature data	0x00
8	CRC check code low	0xAA
9	CRC check code high	0x3C

3. Numerical calculation

The value returned from the machine is divided by 10, corresponding to the unit of temperature (°C) and the unit of humidity (RH%). For example, if the humidity value returned by the slave machine is 0x02b1, the value obtained by converting 0x02b1 to decimal system is 689, and then 689/ 10 = 68.9, that is,

the humidity value is 68.9% RH.

※ The register address of humidity value is 0x0000, and that of temperature value is 0x0001.

※ When communicating with industrial configuration software, MODBUS-RTU, MODBUS-RTU and com are selected as communication parameters.

※ When the temperature is negative, it is expressed in the form of complement.

Accuracy

