SM1110B

SONBEST®

RS485　Temperature and humidity module

http:// www.sonbus.com

Product Overview

SM1110B temperature and humidity sensor with temperature and humidity sensors and the United States dedicated RS485 bus technology, based on industrial MODBUS-RTU protocol, to achieve low-cost online monitoring of temperature and humidity of practical integration of sensor.

Parameters

Parameter	Value	Unit
Humidity Measurement range	0～100	%Rh
Humidity Accuracy	± 4.5	%Rh
Temperature Measurement range	-30℃~+85.8	℃
Temperature Accuracy	± 0.5	℃
DC Supply Voltage Range	6-24	V
Output Signal	RS485,MODBUS-RTU	
Baud Rate	9600	bps
Support sensor number	1 , if need ,it can support 4	
Ambient Temperature Range	-30 - 85	℃
Dimensions	See **dimensions**	mm³

Typical application

The sensor can be (1) SMT industry temperature and humidity data monitoring (2) Electronic Equipment Factory of temperature and humidity data monitoring (3) cold storage temperature and humidity monitoring (4) storage temperature and humidity monitoring (5) pharmaceutical GMP monitoring system (6) Environment temperature and humidity control (7) telecommunications room temperature and humidity monitoring (8) hotels temperature and humidity control　(8) Others need to monitor a variety of occasions such as temperature and humidity.
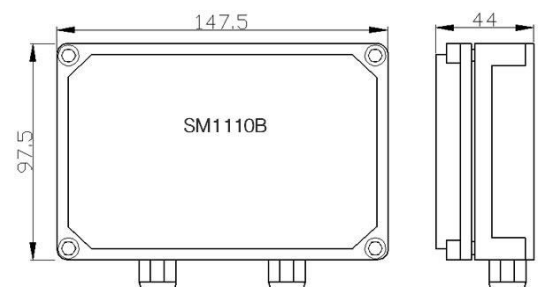
Interface

The Sensor have a RS485 interface, which is four-wire.

Wire color	Interface Line	Note
Red	VCC	Power supply, V+,6< V+<24V
Green	GND	Power supply, V-, Negative
Yellow	A +	RS485 A+
Blue	B-	RS485 B-

Sensor length is 1m.

ORDERING INFORMATION

Type	Interface
SM1110B	RS485

Package dimensions

Communication protocol

Equipment operation or Reply All commands are hexadecimal data. The default communication baud rate: 9600,8, n, 1.

Basic command format:

[Device Address] [Function code] [Start Address: 2 bytes] [Data Length: 2 bytes] [CRC16 Checksum: 2 bytes]

The following meanings:

A, Device Address: Device address range is 1-35, 250 of which 0xFA for general inquiries address, when we do not know the device address, the available general inquiry address this query.

B, function code: function code different needs of different applications, such as 3 to query input register data.

C, the starting address: query or operation register start address.

D, data length: read length.

E, CRC checksum: CRC16 checksum, low front and high in the post.

1) Read data (function code 0x03)

[Device Address] [03] [Start Address : 2 bytes] [Data Length : 2 bytes] [CRC16 checksum]

Note: The data length is 2 bytes , SM1810 temperature and humidity sensor value is fixed to 0x00 02

Device response:

[Device Address] [command number] [number of bytes returned] [Data 1] [Data 2] [CRC16 checksum]

Response data have the following meanings :

A, number of bytes returned : indicates the number of bytes of data , which is 1,2 ... n in the data value of n .

B, the data 1 ... N: each sensor measurement values, each data occupies two bytes. Integer data , the real value of this value divided by 100 .

For example : Query on the 1st device temperature and humidity sensor data:

Send : 01 03 00 00 00 02 C4 0B

Response : 01 03 04 0B 1D 15 68 67 6F

The reply data in the above example : 1,04 Table 01 Table Address data length of 4 bytes , the data length of a measuring point as two bytes , such as the first data 0B 1D, is converted into 10 hex : 2845 , because the module is a resolution of 0.01 , the value must be divided by 100 , that is the actual value of 28.45 degrees , empathy : 1568 is the first 2-way value , decimal data : 5480 , humidity is 54.80% RH.

2) Change the device address (Function number : 0x06 Auxiliary Command number : 0x0B)

Send command format:

[Device Address] [command number : 0x06] [auxiliary command number : 0x0B] [00 00] [Destination address : representing a byte] [CRC16]

Description:

A, destination address : Value range 1-35 , the target address with the current address is not the same .

B, 00 00 as a hexadecimal number to a fixed value , can not be changed .

Such as the device address 1 , changed to 2 , then the command is:

01 06 B 00 00 02 A 2F

Equipment Response: 022501029006

Device response format : [Device Address] [Search Device Address command number] [Data Length : 1 byte] [random bytes : 1 byte] [CRC16]

For example : 02 25 01 18 11 CD show more master after the current device address 02 .

3) query the device address (Function number : 0x25 Auxiliary Command number : 0x02)

If you do not know the current device address, and only one device on the bus , you can use this command to query the current device address.

Send command format:

[Device Address : 0xFA] [command number : 0x25] [auxiliary command number : 0x02] [00 00 01] [CRC16]

Description:

A, device address 0xFA a generic device inquiry address.

B, 00 00 01 as a hexadecimal number to a fixed value , can not be changed .

Such as query the current device address , command FA 25 02 00 00 01 99 FE

Equipment Response : 02 25 01 18 11 CD

Device response format : [Device Address] [command number] [Data Length : 1 byte] [random bytes : 1 byte] [CRC16]

For example : 02 25 01 18 11 CD indicates the device address 02 .

register	Meaning	Type	Range	Actual value
4x0001	Temperature	int	0-65535	-40-120
4x0002	Humidity	int	0-10000	0-100