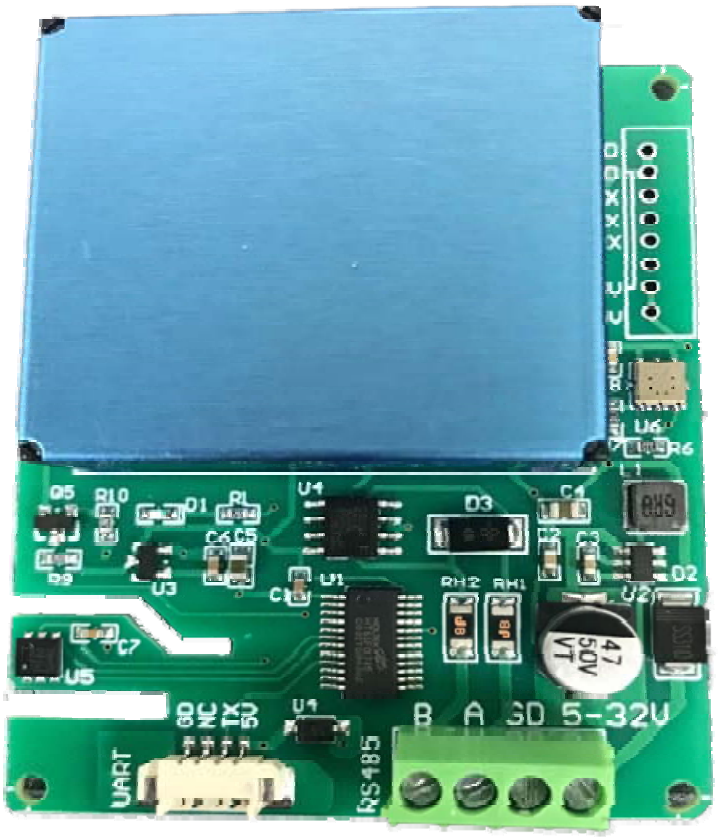
Seven in one sensor module

T W70SS 7-in-1 sensor module is a cost-effective wide working voltage, with multiple protection of digital serial port output sensor module, it simultaneously uses RS485 data bus and UART serial port TTL level two output modes, set CO2, formaldehyde, TVOC, laser PM2.5,PM10, Temperature, humidity in one. It can be real-time and comprehensive detection of the environment, with good stability, very convenient for customers to use.



Application fields:	
● Hotel room air quality monitoring	● Agricultural greenhouses, outdoor aquaculture environment monitoring
● Air purifier, air conditioning	● Smart home devices
● Air quality monitoring equipment	● Kitchen and bathroom ventilation control syste

Features:
●RS485 interface working voltage 5V-32V wide voltage, UART interface 5V voltage
● With power protection against reverse connection,RS485 signal line short circuit protection, overload protection, lightning protection
● Simultaneously output carbon dioxide, formaldehyde, TVOC, PM2.5, PM10, temperature, humidity, a total of seven sets of data

● High sensitivity, data stability
● At the same time using RS485 bus and UART TTL level two output mode, convenient for customers to choose and use
● Temperature accurate to 0.1℃, humidity accurate to 0.1%
● Automatic output of the seven groups of monitoring data every second through the RS485 interface

Specifications and parameters:

Class don't			
eCO2		400ppm～5000ppm	±100ppm
eCH2O	1ug/m3	1ug～1000ug	
TVOC	1ug/m3	0ug～2000ug	
PM2.5	0.8ug/m3	5ug～1000ug	±10%
PM10		5ug～1000ug	±10%
Temperature	0.01℃		±0.5℃
Humidity	0.04%	0～100%RH	±3%RH
Physical interface	4 pin terminal		
The output data	UART and RS485		
Working voltage	RS485 interface 5VDC ~ 32VDC; 5 VDC UART interface		
Working current	≤60mA		
Warm up time	2 minutes (only CO2,CH2O and TVOC need to be preheated, other parameters will be displayed when powered on)		
Working temperature	0℃～50℃		
Working humidity	≤95%RH		
Overall dimensions	63*50*13.5mm（L×W×H）		
The service life of the	5 years (in the air)		

Note:

The CO2 value and CH2O value output by the module are the equivalent value of TVOC. Please pay attention when purchasing and using the module.

RS485 interface definition:

interface	The name says	Can work
1	5-32V	Power supply 5V ~ 32VDC
2	GD	Power supply ground wire
3	A	RS485 data port D+/A
4	B	RS485 data port D-/B

UART interface definition:

interface	The name says	Can work
1	5V	The power supply 5 v
2	TX	UART data output pin
3	NC	dangling
4	GD	The power to

Communication protocol:

Baud rate	9600bps
Data bits	eight
Stop bit	1 a
Check digit	There is no

Serial port data stream format:

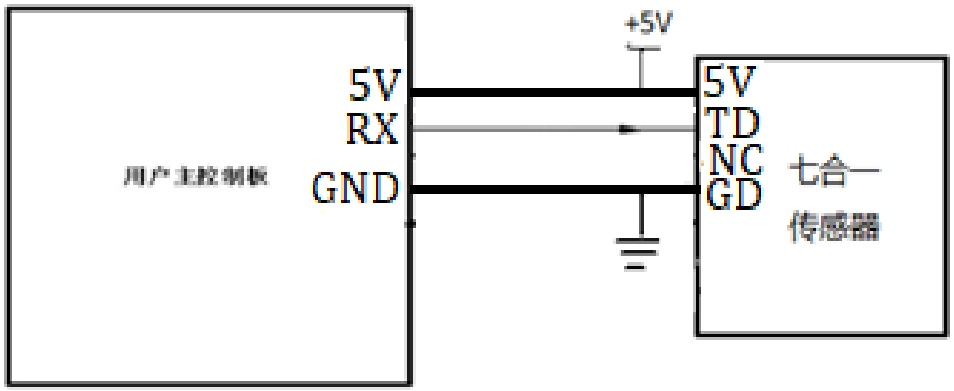
Word section	The name says	Said Ming
B1	The module addresses	A fixed value 3 ch
B2	The version number	A fixed value 02 h
B3	data	ECO2 high byte
B4	data	ECO2 low byte
B5	data	ECH2O high byte
B6	data	ECH2O low byte
B7	data	TVOC high byte
B8	data	TVOC low byte
B9	data	PM2.5 high byte
B10	data	PM2.5 low byte
B11	data	PM10 high byte
B12	data	PM10 low byte
B13	data	Temperature integral part
B14	data	Temperature Decimal part (accurate to 0.1℃)
B15	data	Humidity integer part
B16	data	Humidity fractional part (accurate to 0.1%)
B17	data	The checksum

Description:

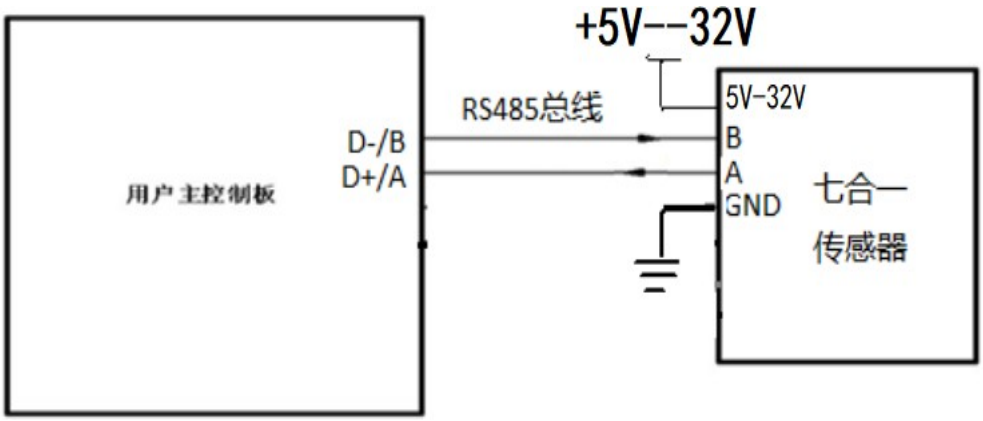
When the bit7 of temperature data B13 =1, it represents a negative temperature; when the bit7 of B13 =0, it is a positive temperature. For example, when B13= 9BH, Bit7 =1, indicating negative temperature, the actual temperature is -27℃. If B13=1Bh, then bit7=0, represents a positive temperature, and the actual temperature is 27℃.
B17= UNIT_8 (B1+B2+B3+B4+B5+B6+B7+B8+B9+B10+B11+ B13+B14+B15+B16)

Data sample:	
For example, read the value is: 3C 02 08 FC 00 79 01 D7 00 13 00 22 1B 03 30 02 18,	
The results are as follows:	
The checksum	B17=unit_8(3Ch+02h+08h+0FCh+00h+79h+01h+D7h+00h+13h+00h+22h+1Bh +03h+30h+02h)=18h
Carbon dioxide	B3*256+B4=08h*256+0FCh=2300ppm
formaldehyde	B5*256+B6=00h*256+79h=121ug/m3
TVOC	B7*256+B8=01h*256+0D7h=471ug/m3
PM2.5	B9*256+B10=00h*256+13h=19ug/m3
PM10	B11*256+B12=00h*256+22h=34ug/m3
Temperature is an integer	B13=1Bh=27℃
Temperature of the decimal	B14*0.1=03h*0.1=0.3℃
Humidity integer	B15=30h=48%RH
Humidity decimal	B16*0.1=02h*0.1=0.2%RH

UART connection diagram:



RS485 connection diagram:



Dimensions (63mm*50mm*13.5mm):