耘农智慧 NONG-IOT

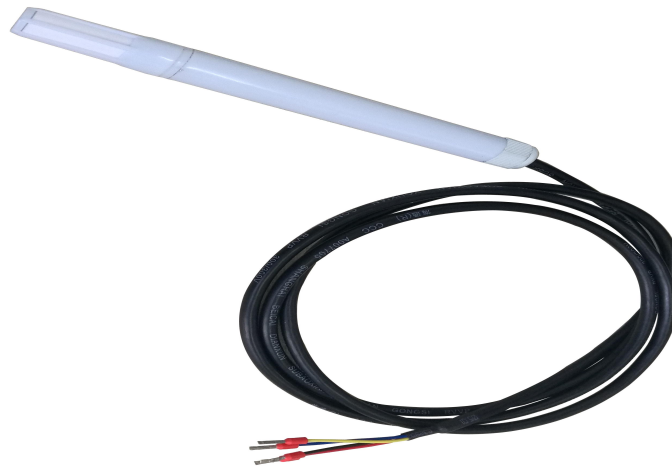**TEMPERATURE & HUMIDITY & ATMOSPHERIC PRESSURE SENSOR**

RY-WSY301

MANUAL

INTRODUCTION

RY-WSY301 measure temperature, humidity, atmospheric pressure. It adopts imported high integrated temperature and humidity sensor chip and atmospheric pressure chip.The chip adopts full range calibration digital output. The temperature and humidity sensor chip adopts CMOS ENS technology to ensure high reliability and excellent long-term stability , including a capacitive polymer humidity sensor and temperature sensor made of energy gap material. It is widely used in agriculture, forestry, meteorology and other industries as well as climate room and other places. The sensor can be equipped with ry-nt02 weather light shutter box for outdoor monitoring.

working principle:

The sensor adopts the imported SHT11 chip and the imported sensor module ms5540c. The module includes a temperature sensing element, a humidity sensing element, a piezoelectric resistance pressure sensing element and an ADC interface IC. It has a wide range and strong anti-static ability. They are converted into digital Modbus protocol output through the change of environment parameters (see Appendix 1).

TECHNICAL SPECIFICATION

- Measuring range：-40-60℃，0-100%RH，100-1100hPa
- Temperature Resolution：0.01℃
- Accuracy：≦±0.3℃(@25℃，typical）
    ≦±3%RH（@25℃，20%-80%RH，typical）
- Accuracy of air pressure measurement：Digital output 16 bits；
- Humidity measurement resolution：0.05%RH
- Air pressure measurement resolution ：0.1 hPa
- Working Voltage：9V～24V（12V）
- Work current：DC12V <20ma
- Power Consumption： DC12V <0.24W
- Output ：RS485(modbus)
- Cable length：1.5 米
- Farthest lead wire：Current200m、 RS485 100 m、voltage 50m
- Work environment：Temperature -40℃～60℃、Humidity：< 100%RH
- Ingress Protection：IP65
- Weight：<120g

COMMUNICATION PROTOCOL

Communication specification
9600,N,8,1
Write station number：
Device address Function code Start register address No. of registers Data length Data CRC check
xx 10 0001 0001 02   00xx CRCloCRChi（XX=0X01-0XFF）
Write register response
Device address   Function code   Start register address   No. of registers CRC check
  xx 10   0001 0001   CRCloCRChi
Example
Command 00 10 00 01 00 01 02 00 33 EA 04

Respond 00 10 00 01 00 01 51 D8

Read station number command (fixed command)

Device address	Function code	Start register address	No. of registers	CRC check
00	03	0001	0001	CRCloCRChi

Station respond

Device address	Function code	Data length	Data	CRC check
00	03	02	00xx	CRCloCRChi（XX=01-ff）

Example

Read station number

Command 00 03 00 01 00 01 D4 1B

Respond 00 03 02 00 FF C5 C4

Read Date

Device address	Function code	Start register address	No. of registers	CRC check
xx	03	0000	0003	CRCloCRChi

Data respond

Device address	Function code	Data length	Data	CRC check
xx	03	06	00yy	CRCloCRChi

Example

Command   FF 03 00 00 00 03 10 15

 Command FF 03 06 19 AD 1B E4 27 15 79 FA

Note：Temperature：4th, 5th 19 AD=6573/100-40=25.73℃

        Humidity：6th, 7th 1B E4=7140/100=71.4%

        Atmospheric pressure：8th, 9th   27 15= 10005/10=1000.5hpa

INSTALLATION & USAGE：

●Selection of installation location. This product can be installed indoors or outdoors, and far away from high-power electrical equipment to prevent interference.

●Welding of output cable. The temperature and humidity sensor is equipped with a four core cable. The user can match the cable with appropriate length as required. The cable specification is 0.2mm² Four core shielded cable, and the wiring color is defined as below：

Digital output	
Red	Positive pole
Black	Negative pole
Yellow	A
Blue	B

●After the product is fixed on the mounting rack or indoor wall, test whether the data collection is normal. If not, check whether the cable plug is well connected.

PRECAUTIONS & MAINTENANCE：

● After unpacking, please check whether the product is consistent with your order requirements, and whether the package and product are damaged. If there is any mistake, please contact us.

●Please connect the wires correctly according to this manual.

●Hot unplugging is prohibited when using this product.

● This product is a precision measuring instrument. It is strictly prohibited to hit, impact, forcefully clamp, disassemble or poke the pressure hole or metal diaphragm with sharp instrument.

●The conductor of this product shall not be laid together with high-voltage cable.

●Wipe the outside of the instrument with a clean, dry, soft cloth.

● Please do not input power more than the maximum access power of the device, otherwise the instrument will be damaged.

Remarks:

RY-W301 Temperature sensor：
Outpur：Current 4-20mA（3-line）
　　　　　Date RS485/MODBUS（4-line）

RY-WS301 Temperature & humidity sensor：
Outpur：Current 4-20mA（3-line）
　　　　　Date RS485/MODBUS（4-line）

RY-WSY301 Temperature & humidity & atmospheric pressure sensor：
Outpur：Date RS485/MODBUS（4-line）

ABS engineering plastics with light shutter box for outdoor type

WARRANTY & SERVICE

Warranty commitment: the warranty period is 12 months from the delivery period (except for the product problems caused by the failure to operate according to the corresponding technical requirements or other human behaviors).

After sales commitment: users can consult relevant technical problems by phone and get clear solutions. If it is a quality problem, it can be returned to the factory for maintenance or replacement.

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