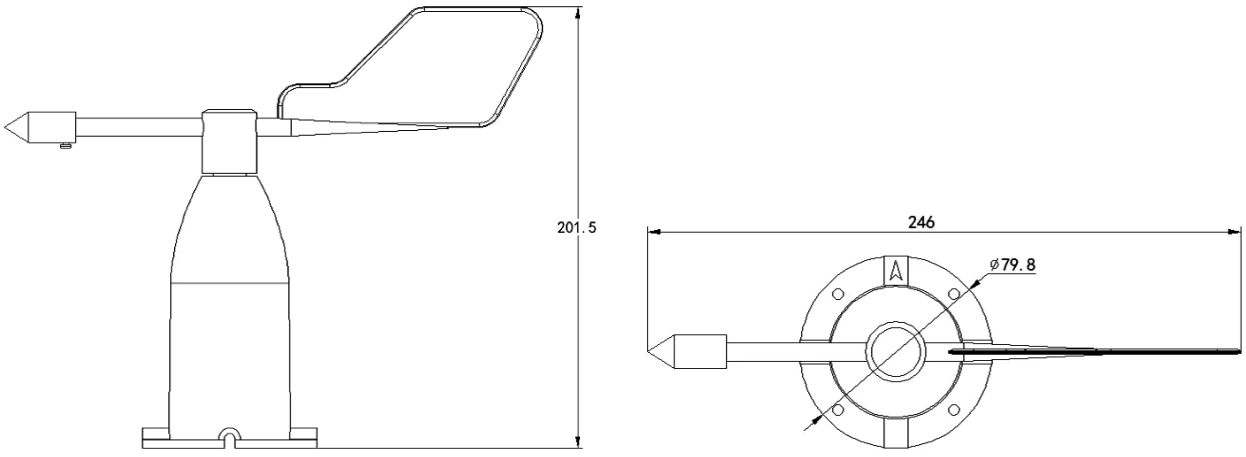
# Wind Direction Sensor Manual

# CWT-SWD-A-360-S (RS485 type)

## Basic parameters

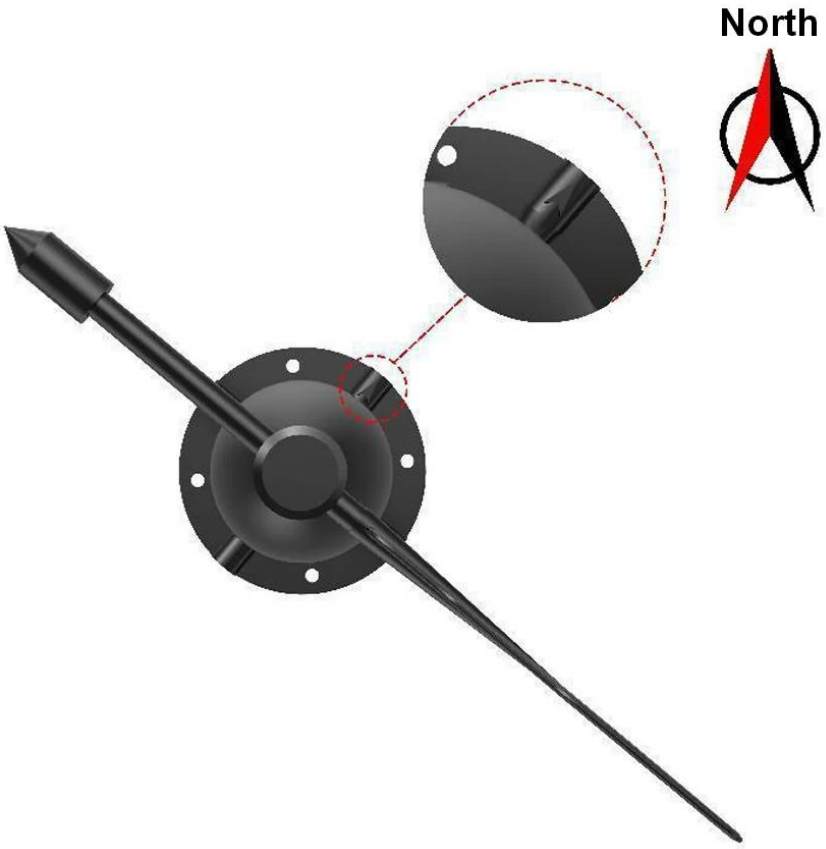
| | |
|---|---|
| Power supply | DC10-30V |
| Power consumption | ≤0.2W |
| Measuring range | 360-degree wind direction |
| Accuracy | ±1° |
| Response time | ≤0.8s |
| Working environment | -20~60℃ / 0~80%RH |
| output | RS485 （Modbus RTU protocol） |

## Size




Unit: mm

## Installation




## Wiring

| Cable color | Description |
|---|---|
| Brown | Power + (DC10-30V) |
| black | Power - |
| Green (or yellow) | RS485 A+ |
| blue | RS485 B- |

## RS485 communication

Default parameters: 4800,n,8,1

Default device address is 1

Modbus RTU protocol

| Read status registers, read function code: 0x30 | | | | | |
|---|---|---|---|---|---|
| Register address (Hex) | PLC Address (decimal) | Meaning | Number of bytes | Scale | Property |
| 0000 | 40001 | 360-degree (0-3599) reserves a decimal fraction | 2 | 0.1 | read |
| 0001 | 40002 | 360-degree (0-359) | 2 | 1 | read |

| Parameters registers, read function code: 0x30 (0x40), write function code: 0x60 | | | | | |
|---|---|---|---|---|---|
| 07D0 | 42001 | Slave ID | 2 | | 1-254 |
| 07D1 | 42002 | baud rate | 2 | | 0: 2400<br>1: 4800<br>2: 9600<br>Default 4800 |

E.g. master request:

| Address | Function Code | Start Address (Hi) | Start Address (Lo) | Number of Points (Hi) | Number of Points (Lo) | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|---|---|
| 0x01 | 0x03 | 0x00 | 0x00 | 0x00 | 0x02 | 0xC4 | 0X0B |

Sensor responds:

| Address | Function Code | Number of byte | Degree (0-3599) | Degree (0-359) | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|---|
| 0x01 | 0x03 | 0x04 | 0x06<br>0x48 | 0x00<br>0xA0 | 0x7A | 0xD5 |

**Set slave ID**

E.g., set slave ID=2, Master sends

| Address | Function Code | Start Address (Hi) | Start Address (Lo) | ID | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|---|
| 0x01 | 0x06 | 0x07 | 0xD0 | 0x00 0x02 | 0x08 | 0x86 |

Sensor responds:

| Address | Function Code | Start Address (Hi) | Start Address (Lo) | ID | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|---|
| 0x01 | 0x06 | 0x07 | 0xD0 | 0x00 0x02 | 0x08 | 0x86 |

**Set baud rate**

E.g., set baud rate to 9600, Master sends

| Address | Function Code | Start Address (Hi) | Start Address (Lo) | command | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|---|
| 0x01 | 0x06 | 0x07 | 0xD1 | 0x00 0x02 | 0x59 | 0x46 |

Sensor responds:

| Address | Function Code | Start Address (Hi) | Start Address (Lo) | command | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|---|
| 0x01 | 0x06 | 0x07 | 0xD1 | 0x00 0x02 | 0x59 | 0x46 |

**Enquiry slave ID**

Master sends

| Address | Function Code | Start Address (Hi) | Start Address (Lo) | Number of Points (Hi) | Number of Points (Lo) | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|---|---|
| 0xFF | 0x03 | 0x07 | 0xD0 | 0x00 | 0x01 | 0x91 | 0x59 |

Sensor responds:

| Address | Function Code | Number of Points | address | Error Check (Lo) | Error Check (Hi) |
|---|---|---|---|---|---|
| 0xFF | 0x03 | 0x02 | 0x00 0x01 | 0x50 | 0x50 |