

# WFS系列 风速传感器 使用说明书

[WT-197V2.0]

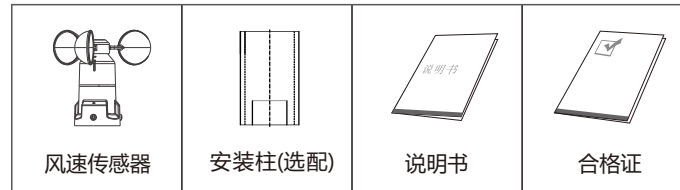
微特技术有限公司



微特技术有限公司  
地址：中国(湖北)自贸区宜昌片区港城路6号  
客户服务热线：400-008-2600  
传真：0717-6906018  
邮编：443005  
<http://www.wtau.com>



## 1 开箱清单



打开包装箱请检查风速仪的外观是否完好无损，清点所有配件。如有不符请立即通知销售人员沟通解决。

## 2 产品说明

WFS-1型风速传感器应用典型三杯式设计，由壳体、风杯、和电路模块等组成。

本产品通过风杯和进口轴承及其附件的配合，将风的流速转换成机械转速，再通过内部非接触式磁感应换成电信号，实现对风速的电信号检测。

本产品壳体采用改良型工程塑料注塑成型，美观大方、耐热、耐低温、防水耐腐蚀、电气性能优良。广泛用于铁路、港口、码头、电厂、索道、环境、养殖、农业、节能监测、工程机械等领域。

## 3 主要技术参数

测量范围：1.0~60m/s  
准确度： $< 30\text{m/s} \pm (0.5 + 0.05v)$   
 $\geq 30\text{m/s} \pm 5\%$   
起动风速： $< 0.1\text{m/s}$   
工作电压：DC12-36V  
响应时间： $< 0.5\text{s}$   
环境温度： $-20^\circ\text{C} \sim +70^\circ\text{C}$   
湿度：20%-90%RH(25°C不结露)

- 1 -

## 5.3 MODBUS RTU通讯协议

### 5.3.1 参数说明

我公司对外输出的通讯采用标准modbus的RTU协议。

串口通信方式：RS485

通信参数设置：波特率:9600

数据位:8

停止位:1

校验位:无

通信超时:建议设置50ms以上

轮询间隔:建议设置50ms以上

### 5.3.2 消息说明

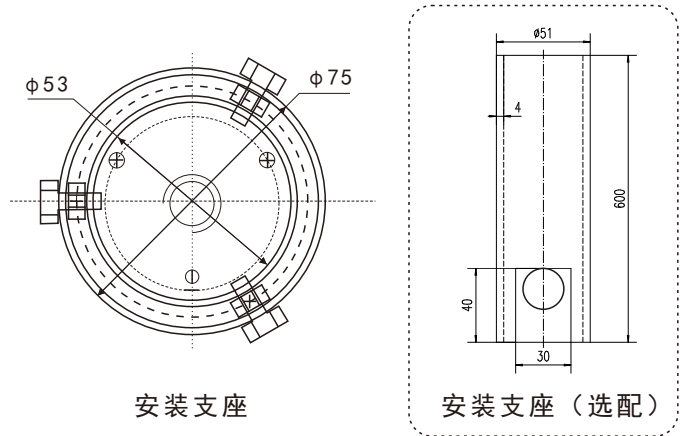
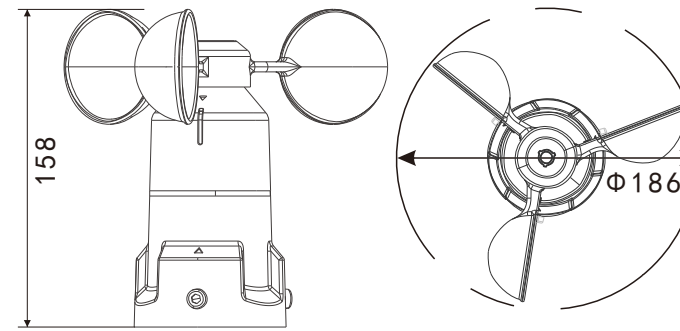
接收的命令字格式如下：

字节序号	类别	内容	说明	备注
01	消息头	XX	仪表地址	根据仪表系统参数设置
02		03	功能码	固定
03	回传的数据	00	寄存器地址H	固定
04		01	寄存器地址L	
05		XX	数据长度H	
06		XX	数据长度L	
07		XX	CRC16 校验码	
08	消息尾	XX	CRC16 校验码	随数据的变化而变化

- 4 -

## 4 产品尺寸

风速传感器安装底座



安装支座

安装支座（选配）

- 2 -

## 5 产品型号及输出定义

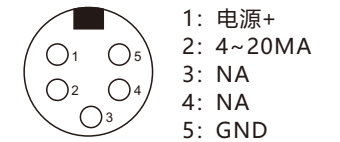
### 5.1 产品选型及引脚定义

厂家型号	输出型号代码	输出型号类型
WFS-1	1	
	2	4~20mA
	3	0~5V
	4	Rs485

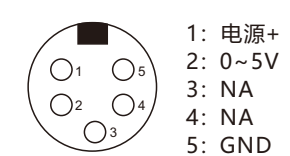
例、WFS-1-3 表示信号输出为0-5V。

### 5.2 信号输出航插座引脚定义

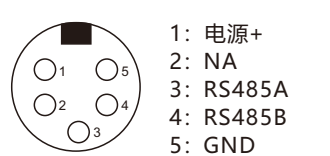
WFS-2-2 接线定义



WFS-2-3 接线定义



WFS-2-4 接线定义



- 3 -

当仪表接收到正确的命令字后，开始回传正确的数据，命令格式如下：

字节序号	类别	内容	说明	备注
01	消息头	XX	仪表地址	根据仪的地址设置
02		03	功能码	固定
03		XX	数据长度	根据每台需要来
04	回传的数据	H	数据1(风速)	数据的长度和每个数据代表的含义根据每台仪表的情况来确定
05		L		
06		H	数据2(风级)	
07		L		
08		H	数据3	
09	L			
.....	消息尾	XX	CRC16校验码	随数据的变化而变化
.....		XX		

## 6 维护和保养

本产品属精密电子产品，正确的维护保养有助于保护仪器性能、延长传感器的使用寿命，应注意以下几点：

- 按说明书要求正确使用，接线有误可能导致传感器损坏。
- 轻拿轻放，误压，否则导致产品结构变形损坏，或精度降低。
- 勿私自拆卸、改装本传感器，以免损坏、导致失去保修权利。
- 水平安装空旷处，迎风面。
- 本品质保期自交付之日起12个月内（人为损坏或使用不当、不可抗力因素导致损坏的除外）。
- 产品返修时请注明详细的故障现象、使用工地、联系方式等内容。

- 5 -

附表：风速风级对照表

风力等级	名称	陆地地方物体特征	相当风速	
			km/h	m/s
0	无风	静，烟直上	<1	0~0.2
1	清风	烟能表示风向	1~5	0.3~1.5
2	清风	人面感觉有风，树叶微动	6~11	1.6~3.3
3	微风	树叶及微枝摇动不息，旌旗展开	12~19	3.4~5.4
4	和风	能吹起地面灰尘和纸张，书的小枝摇动	20~28	5.5~7.9
5	劲风	有叶的小树摇摆，内陆的水面有小波	29~38	8.0~10.7
6	强风	大树枝摇动，电线呼呼有声，举伞困难	39~49	10.8~13.8
7	疾风	全树摇动，迎风步行感觉不便	50~61	13.9~17.1
8	大风	微枝折毁，人向前感觉阻力甚大	62~74	17.2~20.7
9	烈风	草房遭受破坏，大树枝可折断	75~88	20.8~24.4
10	狂风	树木可被吹到，一般建筑遭破坏	89~102	24.5~28.4
11	暴风	陆上少见，大树可被吹倒，一遍建筑遭严重破坏	103~117	28.5~32.6
12	飓风	陆上绝少，起摧毁力极大	118~133	32.7~36.9

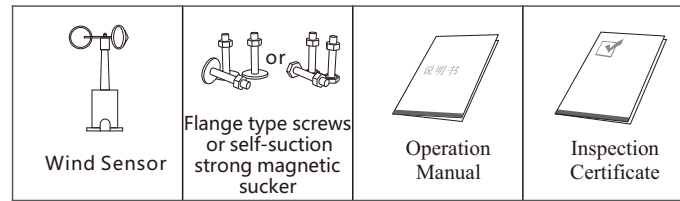
- 6 -

# WFS-1 Wind Sensor Operation Manual

[WT-174V2.0]

WEITE TECHNOLOGIES CO.,LTD.

## 1 Unpacking list



Please confirm if the Anemometer's appearance is in good, condition and check all the components, if anything is missing, please contact with seller.

## 2 Use summary of wind speed sensor

WFS-1 type wind speed sensor use typically three-cup design, consist of monoblock, wind cup, circuit module.

The wind speed sensor transfer the wind speed to machinery speed by the cooperation of wind cup and bearing with connect parts. And transfer the machinery into electronic signal by the Non-contact magnetic sensing and electronic transfer mechanism.

The wind speed sensor's monoblock was made of black ABS+PC engineering plastic to injection molding with elegant appearance. It has many advantages like: heatproof, low temperature resistance, also with excellent electrical properties. It is always used in highway, port, wharf, power plant, cableway, clutivation, agriculture, energy saving detection, engineering machine and ect.

## 3 Main Technical Parameters

Measurement range: 0.1 ~ 60 m/s	Work environment: -30 °C~+60
Accuracy: < 30 m/s ± (0.5 + 0.05 v)	humidity: 20%-90%
≤30 m/s±5%	
Resolution: 0.1 m/s	RH(25 degree with no dew)
Starting wind speed: < 0.7 m/s	Word power: DC12-24V

- 1 -

## 5.3 MODBUS RTU communication protocol

### 5.3.1 Parameter Description

Our company uses standard modbus RTU protocol as external output communications

Serial communication: RS485

Communication parameter settings:

Baud rate: 9600	Data bits: 8
Stop bit: 1	Parity bit: None
Communication timeout: 50ms or more is recommended	
Polling interval: 50ms or more is recommended	

Through the modbus function code 03, using RTU mode to read the corresponding instrument parameters

### 5.3.2 Message description:

The received command word has the following format:

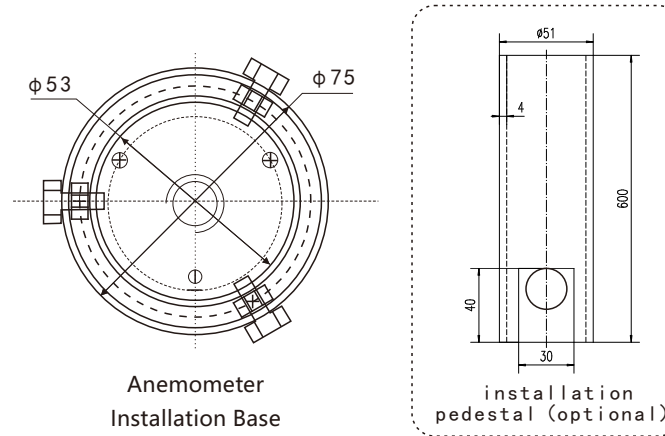
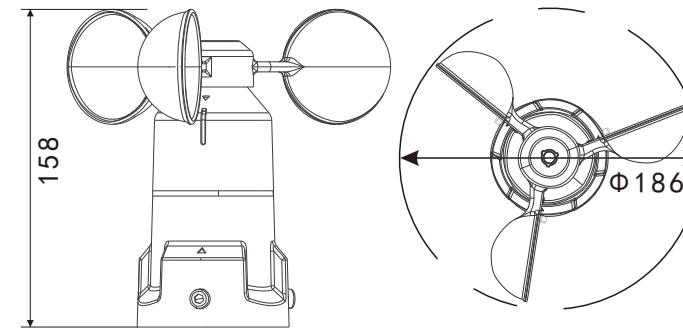
Byte sequence number	Class	Content	Description	Remark
01	Message headers	XX	Instrument address	Settings according to the instrument system parameter
02		03	Function code	Fixed
03	Variable	00	Register add. H	Fixed
04		01	Register add. L	
05		XX	Data length H	Settings according to the needs of each instrument
06		XX	Data length L	
07		XX	Check code	
08	XX	Check code		

When the instrument receives the correct command word, start to return the correct data, the command format is as follows:

- 4 -

## 4 Product Dimension

### Anemometer Dimension



Anemometer  
Installation Base

- 2 -

Byte sequence number	Class	Content	Description	Remark
01	Message headers	XX	Instrument address	Settings according to the instrument system parameter
02		03	Function code	Fixed
03		XX	Data length	Settings according to the needs of each instrument
04	Data return back	H	Data 1(wind speed)	The length of the data and the meaning of each data representative are determined by each instrument
05		L		
06		H	Data 2(wind scale)	
07		L		
08		H	Data 3	
09	L			
.....	Message ending	XX	Check code	Changing according to the data
.....		XX		

## 6 Maintenance

The wind speed sensor is a kind of precision electronic instrument, regularly maintenance is good to protect the equipment's function, and save its life. Pls note as following:

1. Please use the equipment according to user manual, wrong connection may easily damage the sensor.
2. Lightly take it, Please do not press it the product, in case damage it or recision reduction.
3. Please do not dismantle or change it, in case cannot get the guarantee right when damaged.
4. Installed in flat open place, to face to wind.
5. Guarantee time: within 12 months after receiving the goods(except human damage, wrong operation and deterministic forces.)
6. Please note the details include Fault phenomenon, working site, contact information when repair it.

- 5 -

## 5 Product model and output

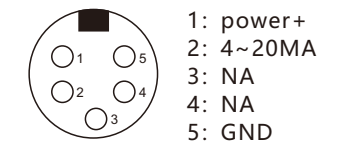
### 5.1 Product model chose and pin

Model	Output model code	Output model type
WFS-1	1	
	2	4~20mA
	3	0~5V
	4	Rs485

For example, WTF-1-3 ,means signal output is 0-5V.

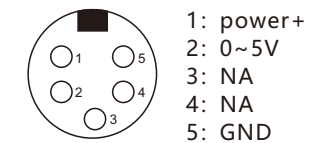
### 5.2 Signal output jack pin

#### WFS-2-2 connection



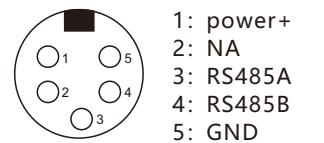
- 1: power+
- 2: 4~20MA
- 3: NA
- 4: NA
- 5: GND

#### WFS-2-3 connection



- 1: power+
- 2: 0~5V
- 3: NA
- 4: NA
- 5: GND

#### WFS-2-4 connection



- 1: power+
- 2: NA
- 3: RS485A
- 4: RS485B
- 5: GND

- 3 -

## Attached List Wind scale and Wind speed list

Wind Scale	Wind Name	Status at sea	wind speed		Wind Pressure
			km/h	m/s	
0	Calm	Calm	< 1		0~0.2
1	Gentle breeze	Smoke rises vertically. Direction of wind shown by smoke drift, but not by wind vanes.	1~5		0.3~1.5
2	Light Wind	Wind felt on face; leaves rustle; ordinary vanes move by wind.	6~11		1.6~3.3
3	Gentle breeze	Leaves and small twigs in constant motion; wind extends light flag.	12~19		3.4~5.4
4	Moderate breeze	Raises dust and loose paper.	20~28		5.5~7.9
5	Fresh breeze	Small trees in leaf begin to sway.	29~38		8.0~10.7
6	Strong breeze	Large branches in motion; whistling heard in telegraph wires.	39~49		10.8~13.8
7	Moderate gale	Whole trees in motion; inconvenience felt when walking against the wind.	50~61		13.9~17.1
8	Fresh gale	Breaks twigs off trees; generally impedes progress.	62~74		17.2~20.7
9	Strong gale	Slight structural damage occurs (chimney-pots and slates removed).	75~88		20.8~24.4
10	Very strong wind	Trees uprooted; considerable structural damage occurs.	89~102		24.5~28.4
11	Storm	Seldom experienced inland; accompanied by wide-spread damage.	103~117		28.5~32.6
12	Hurricane	Very rarely experienced; accompanied by serious damage.	118~133		32.7~36.9

- 6 -



WEITE TECHNOLOGIES CO.,LTD.

ADD: NO.6GangchengRoad, Yichang, Free trade Area (Hubei) China.

SERVICE HOTLINE TEL: (+86)400-008-2600

FAX: (+86) 0717- 6906018

ZIP CODE: 443005

WEB: http://www.wtau.com

