



Anemometer PCE-WS RS485 MODBUS

PCE-WS range of PCE Instruments

Wind Speed sensor designed for different industries and sector

PCE-WS RS485 is a digital output anemometer, with RS485 Modbus communication.

Industrial design for extreme environments

RS485 MODBUS digital output

Stainless Steel bearings

Measurement range up to 180 km/h

Made in Spain

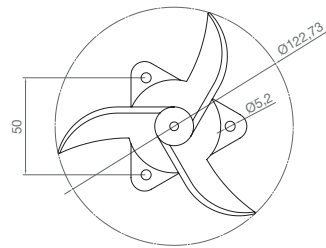
APPLICATIONS

PCE-WS RS485 Modbus has been designed to be used in industrial applications: cranes, solar panels, wind turbines, weather stations, greenhouses, irrigation systems...
 It is usually connected to process displays, PLC's or dataloggers to display the wind speed and/or set alarms to predefined values or to obtain records during predefined periods of time.

OPERATING

Up to 180 km/h of wind speed.
 Output is a RS485 MODBUS RTU.
 The wind sensor must be fixed on a vertical position.

DIMENSIONS



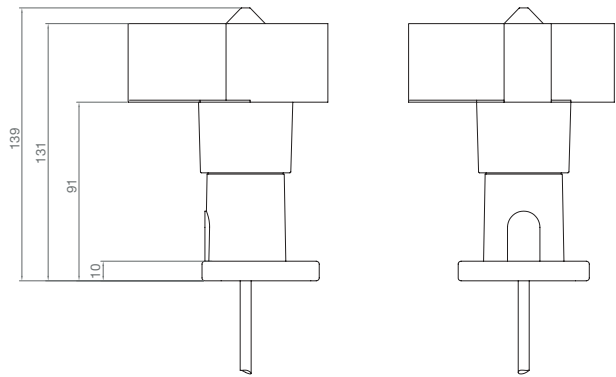
CONNECTION

Unit is provided with a 4x0.65mm cable with 25 meters length.

Wire colors:
 VCC: blue
 GND: white
 A: orange
 B: yellow

Termination resistor included (120 Ω)

For no termination resistor version, please, contact us.



PROTOCOL

Data format:
1 start bit, 8 data bits and 1 stop bit. 19200 baudios. Even parity. (For other options, please, contact us)

Protocol type:
MODBUS RTU

| | | | | | | | |
|------|----|----|----|----|----|------|------|
| Addr | 04 | 00 | 00 | 00 | 01 | CRCH | CRCL |
|------|----|----|----|----|----|------|------|

The wind speed in km/h is stored in 2 registers: @30001 y @40001. The user can read this value by using any of the 2 available functions (Read Input Register and Read Holding Register).

The PCE-WS RS485 default address is 244 <=> 0xF4. This value is stored in Holding Register @40002 and can be edited by the user. The user can configure any address in the range 1 (0x01) to 255 (0xFF).

Example: If Addr =3

READING. METHOD 1

Read request of wind speed from master by Read Input Register (function 0x04):

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 03 | 04 | 00 | 00 | 00 | 01 | 30 | 28 |
|----|----|----|----|----|----|----|----|

Slave's answer (PCE-WS RS485 MODBUS RTU):

| | | | | | | |
|----|----|----|----|----|------|------|
| 03 | 04 | 02 | SH | SL | CRCH | CRCL |
|----|----|----|----|----|------|------|

SHSL is the wind speed value in km/h.

Slave's answer example for 100km/h (0x0064):

| | | | | | | |
|----|----|----|----|----|----|----|
| 03 | 04 | 02 | 00 | 64 | C1 | 1B |
|----|----|----|----|----|----|----|

READING. METHOD 2

Read request of wind speed from master by Read Holding Register (función 0x03):

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 03 | 03 | 00 | 00 | 00 | 01 | 85 | E8 |
|----|----|----|----|----|----|----|----|

Slave's answer (PCE-WS RS485 MODBUS RTU):

| | | | | | | |
|----|----|----|----|----|------|------|
| 03 | 03 | 02 | SH | SL | CRCH | CRCL |
|----|----|----|----|----|------|------|

SHSL is the wind speed value in km/h.

Slave's answer example for 100km/h (0x0064):

| | | | | | | |
|----|----|----|----|----|----|----|
| 03 | 03 | 02 | 00 | 64 | C0 | 6F |
|----|----|----|----|----|----|----|

WRITING

Write request of Address by Write Single Register (función 0x06):

| | | | | | | | |
|----|----|----|----|----|----------|------|------|
| 03 | 06 | 00 | 01 | 00 | NEW_ADDR | CRCH | CRCL |
|----|----|----|----|----|----------|------|------|

Note: The unit address (Addr) is stored in the Holding Register @40002

Slave's answer (PCE-WS RS485 MODBUS RTU):

| | | | | | | | |
|----|----|----|----|----|----------|------|------|
| 03 | 06 | 00 | 01 | 00 | NEW_ADDR | CRCH | CRCL |
|----|----|----|----|----|----------|------|------|

NEW_ADDR is the new unit address. It must be in the range from 1 (0x01) to 255 (0xFF).

Example for NEW-ADDR 0x02:

Write request:

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 03 | 06 | 00 | 01 | 00 | 02 | 58 | 29 |
|----|----|----|----|----|----|----|----|

Slave's answer:

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 03 | 06 | 00 | 01 | 00 | 02 | 58 | 29 |
|----|----|----|----|----|----|----|----|

NOTE: the slave's address changes its value immediately after the answer message.

TECHNICAL SPECIFICATIONS

Electrical features

| | |
|------------------------|----------|
| Power supply | 9-30 Vdc |
| Maximum current | 100 mA |
| Output | RS485 |
| Output maximum current | 100 mA |

Measurements

| | |
|----------------|--------------------------------------|
| Range | 3-180 km/h |
| Starting speed | 8 km/h |
| Survival speed | 200 km/h |
| Accuracy | 1km/h (3-15 km/h) 3% (15-180km/h) |

General features

| | |
|---------------------------------|---------------------------------------------|
| Material | PA + FV |
| Bearings | Stainless steel X65Cr13 |
| Type of connection | 4x0.65mm ² Lenght: 25 m |
| Weight (without cable) | 160 g |
| Dimensions | 125x139 mm |
| Storage temperature | -35°C +80°C |
| Working temperature without ice | -20°C +70°C |
| EMC | EN 61000-6-2:2001 EN 55022:2001, Class B |
| Protection | IP65 (UNE 20324:1993) |

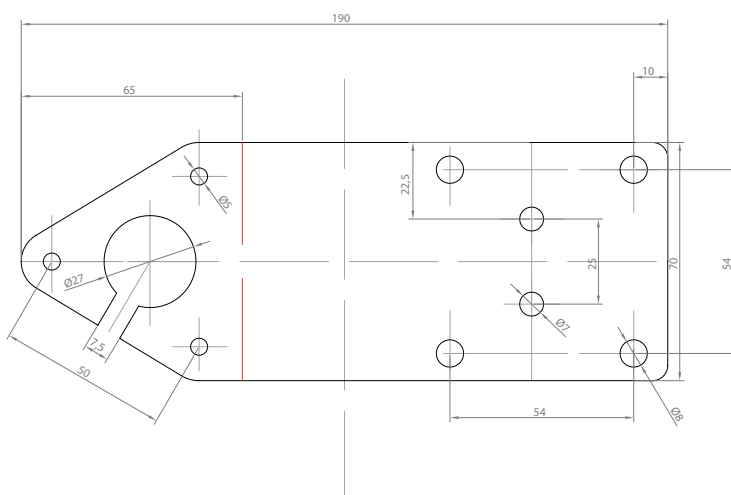
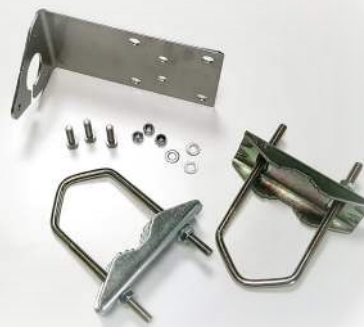
REFERENCES AND ACCESSORIES

References

| | |
|--------------|------------------------------------------------|
| PCE-WS RS485 | PCE-WS RS485 Modbus 25m cable 9-30Vdc power |
|--------------|------------------------------------------------|

Accessories

| | |
|------------------|---------------------------------------------------------------------|
| PCE-WS/ MOUNT | Optional mounting kit for PCE-WS anemometers & PCE-WV wind vanes |
|------------------|---------------------------------------------------------------------|



Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU devices must be properly disposed of in accordance with this regulation, we give them to a recycling company which disposes of the devices in line with law. For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations. If you have any questions, please contact PCE Instruments.



Contact information for each country and user manuals in various languages can be found on our website: www.pce-instruments.com



All dimensions and sizes are approximate. Specifications and prices are subject to change without notice.