



Windancer Modbus

Weather Stations for Modbus

Item numbers

30176 Windancer Modbus

30177 Windancer GPS Modbus



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This manual is amended periodically and will be brought into line with new software releases. The change status (software version and date) can be found in the contents footer. If you have a device with a later software version, please check **www.elsner-elektronik.de** in the menu area "Service" to find out whether a more up-to-date version of the manual is available.

Clarification of signs used in this manual



Safety advice.



Safety advice for working on electrical connections, components, etc.

DANGER!

... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING!

... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

CAUTION!

... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.



ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

1. Safety and operating instructions



Installation, testing, commissioning and fault repair may only be carried out by a qualified electrician.



BEWARE! **Electric voltage!**

- Before installation, check the device for damage. Only operate devices if they are free from damage.
- Comply with local directives, provisions and conditions for electrical installation.
- Immediately switch off the device or system and secure it against accidental activation if safe operating is no longer guaranteed.

Only use the device for building automation and follow the instructions for use in the installation guide and manual. Incorrect use, changes to the device or non-observance of the operating instructions lead to warranty and guarantee claims becoming void.

The device may only be operated as a fixed-site installation, i.e. only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

For information on installation, maintenance, disposal, scope of delivery and technical data, please refer to the installation instructions.

2. Description

Functions:

- **Brightness measurement** with three separate sensors for east, south and west. Twilight detection
- **Wind measurement** with a robust dish anemometer (up to 200 km/h under laboratory conditions)
- Heated **precipitation sensor**: No incorrect measurements caused by dew or fog, fast drying after precipitation has stopped
- **Temperature measurement**

Additional functions of the Windancer GPS Modbus::

- **GPS receiver**: Output of UTC (Coordinated Universal Time), position (longitude, latitude) and sun position (azimuth, elevation)

The devices are Modbus servers with a RS485 interface and a RTU protocol. The Modbus client, such as PC, SPS or MC can read the Weather Stations measurement values with "Function 04h (Read Input Register)".

3. Transfer protocol

3.1. Windancer Modbus request string from the client

Byte No.	Variable		Meaning
0	Server address	xx	
1	Command	04H	Read Input Registers
2	Start address High Byte	xx	Register start address
3	Start address Low Byte	xx	
4	Number of words High Byte	xx	Number of registers to be read
5	Number of words Low Byte	xx	
6	CRC Low Byte	xx	
7	CRC High Byte	xx	

Example query string for reading all data:

0x01 0x04 0x00 0x00 0x00 0x11 0x30 0x06

3.2. Windancer Modbus output string to the client

Byte No.	Register address	Variable		Meaning
0		Server address	xx	
1		Command	04H	Read Input Registers
2		Number of bytes	xx	Client request * 2
3	0	Outdoor temperature	H	with sign, value/10 = temperature xx.x °C
4		Outdoor temperature	L	
5	1	Sun sensor, south	H	1...99 Kilolux
6		Sun sensor, south	L	
7	2	Sun sensor, west	H	1...99 Kilolux
8		Sun sensor, west	L	
9	3	Sun sensor, east	H	1...99 Kilolux
10		Sun sensor, east	L	
11	4	Light	H	0...999 Lux
12		Light	L	
13	5	Wind	H	Value/10 gives wind speed in m/s (metres per second)
14		Wind	L	

Byte No.	Register address	Variable		Meaning
15	6	GPS / RTC		1 = GPS; 0 = quartz clock 50 ppm (*)
16		Rain		1 = rain; 0 = no rain
17	7	Day	H	
18		Day	L	Date Day (*)
19	8	Month	H	
20		Month	L	Date Month (*)
21	9	Year	H	
22		Year	L	Date Year (*)
23	10	Hour	H	
24		Hour	L	Time Hour (*)
25	11	Minute	H	
26		Minute	L	Time Minute (*)
27	12	Second	H	
28		Second	L	Time Second (*)
29	13	Azimuth	H	Value/10 = sun position; angle 0.0 ... 359.9 degrees (*)
30		Azimuth	L	
31	14	Elevation	H	Value/10 = sun position; height range +/-90.0 degrees (*)
32		Elevation	L	
33	15	Degree of longitude	H	Value/100 +/- xxx.xx°; + = east / - = west (*)
34		Degree of longitude	L	
35	16	Degree of latitude	H	Value/100 +/- xxx.xx°; + = north / - = south (*)
36		Degree of latitude	L	
37	CRC		L	
38	CRC		H	

(*) Only available in the Windancer GPS Modbus version (with GPS module). In the Windancer Modbus version (without GPS), the value '0' is returned when these registers are queried.

Negative values are represented in the two's complement notation.

Time indicated as: UTC (Coordinated Universal Time).

Questions about the product?

Please contact your specialist retailer or, if you purchased the product directly from Elsner Elektronik, our technical service at

Tel. +49 (0) 70 33 / 30 945-250 or
service@elsner-elektronik.de

We need the following information to process your service request:

- Type of appliance (model name or item number)
- Serial number or software version
- Description of the problem
- Proof of purchase (invoice)

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