EN

P04/3-RS485

Weather Stations

Item numbers
30152 P04/3-RS485-GPS
30153 P04/3-RS485-CET
30154 P04/3-RS485 basic

elsner® elektronik

Installation and Adjustment

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, operational start-up and troubleshooting should only be performed by an authorised electrician.

CAUTION!
Live voltage!
There are unprotected live components inside the device.

- Inspect the device for damage before installation. Only put undamaged devices into operation.
- Comply with the locally applicable directives, regulations and provisions for electrical installation.
- Immediately take the device or system out of service and secure it against unintentional switch-on if risk-free operation is no longer guaranteed.

Use the device exclusively for building automation and observe the operating instructions. Improper use, modifications to the device or failure to observe the operating instructions will invalidate any warranty or guarantee claims.
Operate the device only as a fixed-site installation, i.e. only in assembled condition 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

The **Weather Station P04/3-RS485** measures temperature, wind speed, brightness and it recognizes precipitation.

The weather station sends the currently recorded weather data, date and time once every second. This data can be analyzed by an end device such as SPS, PC or MC. The **P04/3-RS485** has 2 connections for data output (A/B) and 2 for power supply (24 V DC).

Functions:

- **Brightness measurement** with 3 separate sensors for east, south and west. Recognition of twilight/dawn
- **Wind measurement:** The wind strength measurement takes place electronically and thus noiselessly and reliably, even during hail, snow and sub-zero temperatures. Even turbulent air and anabatic winds in the vicinity of the weather station are recorded

- **Temperature measurement**
- Heated **precipitation sensor**: No false reports as a result of fog or dew. Dries quickly after precipitation has stopped

Models:

- **P04/3-RS485-GPS:** With integrated **GPS receiver**. Output of UTC (Universal Time Coordinated), position (degree of longitude, latitude) and solar position (azimut, elevation)
- **P04/3-RS485-CET:** With integrated **GPS receiver**. Output of Central European Time (CET), automatic summer/winter time switch-over
- **P04/3-RS485 basic:** without time reception

3. Notes on commissioning

The correct wind value is only supplied about 30 seconds after the supply voltage has been connected.

4. Transfer protocol

All characters and/or digits are based on the ASCII standard, i.e. every reading processed internally as an integer or float value will always be broken down into and transferred in its individual ASCII format characters. They must then be reassembled in the reverse process by the receiver.

Transfer rate: 19200 Baud
Data bits: 8
Stop bit: 1
Parity: none

The checksum is calculated by adding all transferred bytes (without checksum).

Units:

Temperatures in degrees Celsius
Sun intensity in kilolux
Daylight in Lux
Wind in metres per second

4.1. Protocol P04/3-RS485-GPS

Byte No	Char	Description
1	G	Start of string
2	+ / -	Outdoor temperature in °C, sign
3	0 … 9	Outdoor temperature in °C, tens digit
4	0 … 9	Outdoor temperature in °C, units digit
5	.	Outdoor temperature in °C, decimal point
6	0 … 9	Outdoor temperature in °C, tenths digit
7	0 … 9	Sun south in kLux, tens digit

Byte No	Char	Description
8	0 ... 9	Sun south in kLux, units digit
9	0 ... 9	Sun west in kLux, tens digit
10	0 ... 9	Sun west in kLux, units digit
11	0 ... 9	Sun east in kLux, tens digit
12	0 ... 9	Sun east in kLux, units digit
13	J / N	Lux twilight indication
14	0 ... 9	Daylight in Lux, hundreds digit
15	0 ... 9	Daylight in Lux, tens digit
16	0 ... 9	Daylight in Lux, units digit
17	0 ... 9	Wind in m/s, tens digit
18	0 ... 9	Wind in m/s, units digit
19	.	Wind in m/s, decimal point
20	0 ... 9	Wind in m/s, tenths digit
21	J / N	Rain indication
22	? / 1 ... 7	UTC weekday (1 = mondy ... 7 = sunday | ? = UTC not OK)
23	0 ... 9	UTC date day, tens digit
24	0 ... 9	UTC date day, units digit
25	0 ... 9	UTC date month, tens digit
26	0 ... 9	UTC date month, units digit
27	0 ... 9	UTC date year, tens digit
28	0 ... 9	UTC date year, units digit
29	0 ... 9	UTC time hour, tens digit
30	0 ... 9	UTC time hour, units digit
31	0 ... 9	UTC time minute, tens digit
32	0 ... 9	UTC time minute, units digit
33	0 ... 9	UTC time second, tens digit
34	0 ... 9	UTC time second, units digit
35	0 / 1	GPS report azimuth/elevation/longitude/latitude (1 = OK, 0 = not OK)
36	0 ... 3	Azimuth in °, hundreds digit
37	0 ... 9	Azimuth in °, tens digit
38	0 ... 9	Azimuth in °, units digit
39	.	Azimuth in °, decimal point
40	0 ... 9	Azimuth in °, tenths digit
41	+ / -	Elevation in °, sign
42	0 ... 9	Elevation in °, tens digit
43	0 ... 9	Elevation in °, units digit
44	.	Elevation in °, decimal point
45	0 ... 9	Elevation in °, tenths digit
46	O / W	Longitude in ° (O = east, W = west)

Byte No	Char	Description
47	0 / 1	Longitude in °, hundreds digit
48	0 … 9	Longitude in °, tens digit
49	0 … 9	Longitude in °, units digit
50	.	Longitude in °, decimal point
51	0 … 9	Longitude in °, tenths digit
52	N / S	Latitude in ° (N = north, S = south)
53	0 … 9	Latitude in °, tens digit
54	0 … 9	Latitude in °, units digit
55	.	Latitude in °, decimal point
56	0 … 9	Latitude in °, tenths digit
57	0 … 9	Checksum thousands digit
58	0 … 9	Checksum hundreds digit
59	0 … 9	Checksum tens digit
60	0 … 9	Checksum units digit
61	0x03	end identifier

4.2. Protocol P04/3-RS485-CET

Byte No	Char	Description
1	W	Start of string
2	+ / -	Outdoor temperature in °C, sign
3	0 … 9	Outdoor temperature in °C, tens digit
4	0 … 9	Outdoor temperature in °C, units digit
5	.	Outdoor temperature in °C, decimal point
6	0 … 9	Outdoor temperature in °C, tenths digit
7	0 … 9	Sun south in kLux, tens digit
8	0 … 9	Sun south in kLux, units digit
9	0 … 9	Sun west in kLux, tens digit
10	0 … 9	Sun west in kLux, units digit
11	0 … 9	Sun east in kLux, tens digit
12	0 … 9	Sun east in kLux, units digit
13	J / N	Lux twilight indication
14	0 … 9	Daylight in Lux, hundreds digit
15	0 … 9	Daylight in Lux, tens digit
16	0 … 9	Daylight in Lux, units digit
17	0 … 9	Wind in m/s, tens digit
18	0 … 9	Wind in m/s, units digit
19	.	Wind in m/s, decimal point
20	0 … 9	Wind in m/s, tenths digit
21	J / N	Rain indication
22	? / 1 … 7	CET weekday (1 = mondy ... 7 = sunday | ? = UTC not OK)

Byte No	Char	Description
23	0 … 9	CET date day, tens digit
24	0 … 9	CET date day, units digit
25	0 … 9	CET date month, tens digit
26	0 … 9	CET date month, units digit
27	0 … 9	CET date year, tens digit
28	0 … 9	CET date year, units digit
29	0 … 9	CET time hour, tens digit
30	0 … 9	CET time hour, units digit
31	0 … 9	CET time minute, tens digit
32	0 … 9	CET time minute, units digit
33	0 … 9	CET time second, tens digit
34	0 … 9	CET time second, units digit
35	J / N	Summertime (daylight saving time) J = Yes, N = No
36	0 … 9	Checksum thousands digit
37	0 … 9	Checksum hundreds digit
38	0 … 9	Checksum tens digit
39	0 … 9	Checksum units digit
40	0x03	end identifier

4.3. Protocol P04/3-RS485 basic

Byte No	Char	Description
1	W	Start of string
2	+ / -	Outdoor temperature in °C, sign
3	0 … 9	Outdoor temperature in °C, tens digit
4	0 … 9	Outdoor temperature in °C, units digit
5	.	Outdoor temperature in °C, decimal point
6	0 … 9	Outdoor temperature in °C, tenths digit
7	0 … 9	Sun south in kLux, tens digit
8	0 … 9	Sun south in kLux, units digit
9	0 … 9	Sun west in kLux, tens digit
10	0 … 9	Sun west in kLux, units digit
11	0 … 9	Sun east in kLux, tens digit
12	0 … 9	Sun east in kLux, units digit
13	J / N	Lux twilight indication
14	0 … 9	Daylight in Lux, hundreds digit
15	0 … 9	Daylight in Lux, tens digit
16	0 … 9	Daylight in Lux, units digit
17	0 … 9	Wind in m/s, tens digit
18	0 … 9	Wind in m/s, units digit

Byte No	Char	Description
19	.	Wind in m/s, decimal point
20	0 ... 9	Wind in m/s, tenths digit
21	J / N	Rain indication
22	0 ... 9	Checksum thousands digit
23	0 ... 9	Checksum hundreds digit
24	0 ... 9	Checksum tens digit
25	0 ... 9	Checksum units digit
26	0x03	end identifier

Questions about the product?

You can reach the technical service of Elsner Elektronik under
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)
- Description of the problem
- Serial number or software version
- Source of supply (dealer/installer who bought the device from Elsner Elektronik)

elsner® elektronik

Elsner Elektronik GmbH Control and Automation Engineering

Sohlengrund 16
75395 Ostelsheim
Germany

Phone +49 (0) 70 33 / 30 945-0 info@elsner-elektronik.de
Fax +49 (0) 70 33 / 30 945-20 www.elsner-elektronik.de