

RW-PF Rain/Wind Sensor

Technical specifications and installation instructions

Item number 30159



1. Description

The **Rain/Wind Sensor RW-PF** measures wind speed and recognizes precipitation. Wind and rain alarm are output via dry contacts and displayed by LEDs on the board of the device. The wind threshold value is set with DIP switches.

Functions:

- **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
- Setting of the **wind threshold value** with DIP switches inside the housing
- **Potential-free output for wind alarm**, additional wind alarm LED on the board. Changeover contact can be used as normally open or normally closed contact
- In case of a malfunction of the wind sensor, wind alarm will be activated and the Power LED in the case will blink. Malfunction will also be triggered if there has been no change of the measured wind value within 48 hours (failure monitoring)
- Heated **precipitation sensor** (1.2 watts): No false reports as a result of fog or dew. Dries quickly after precipitation has stopped
- **Potential-free output for rain alarm**, additional rain alarm LED on the board. Changeover contact can be used as normally open or normally closed contact

1.0.1. Deliverables

- Weather station with combined wall/pole mounting

1.1. Technical specifications

Housing	Plastic material
Colour	White / translucent
Mounting	On-wall
Degree of protection	IP 44
Dimensions	approx. 96 x 77 x 118 (W x H x D, mm)
Ambient temperature	Operation -30...+50°C, Storage -30...+70°C
Operating voltage	12..35 V DC (12...28 V AC). An appropriate power supply unit can be obtained from Elsner Elektronik.
Cable cross-section	Massive conductors of up to 1.5 mm ² or conductors with fine wires
Current	12 V DC: 180 mA 24 V DC: 90 mA 14 V AC: 150 mA 28 V AC: 55 mA
Output „Rain“	dry changeover contact
Output „Wind Alarm“	dry changeover contact
Maximum load of the relays	max. 1 A at 30 V DC
Heating rain sensor	approx. 1.2 W
Measurement range wind	0...35 m/s
Accuracy (wind)	when incident flow 45...315°: ±22% of measured value when incident flow 90...270°: ±15% of measured value (Frontal incident flow corresponds to 180°)

The product conforms with the provisions of EU directives.

2. Installation and commissioning



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.

2.1. Location

Select an assembly location at the building where precipitation and wind may be collected by the sensors unobstructedly. Do not assemble any construction components above the sensor from where water may drop on to the rain and wind sensor after it has stopped raining or snowing.

At least 60 cm of clearance must be left all round the device. This facilitates correct wind speed measurement without eddies. The distance concurrently prevents spray (raindrops hitting the device) or snow (snow penetration) from impairing the measurement. It also does not allow birds to bite it.

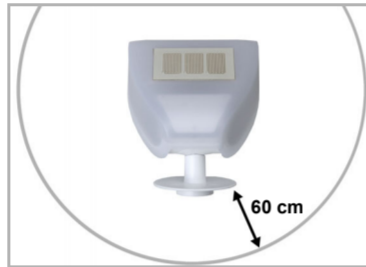


Fig. 1
There must be at least 60 cm of space below, to the sides and in front of the sensor left from other elements (structures, construction parts, etc.).

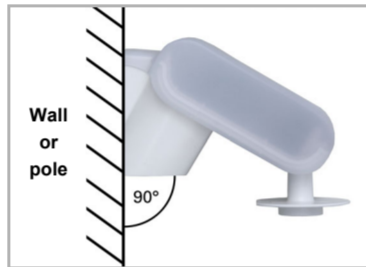


Fig. 2
The sensor must be mounted onto a vertical wall (or pole).



Fig. 3
The sensor must be mounted horizontally in the lateral direction.

2.2. Mounting the sensor

2.2.1. Attaching the mount

The sensor comes with a combination wall/pole mount. The mount comes adhered by adhesive strips to the rear side of the housing. Fasten the mount vertically onto the wall or pole.

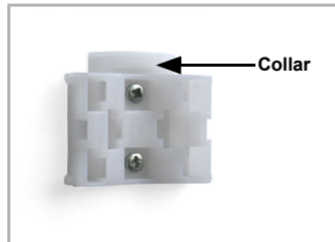


Fig. 4
When wall mounting: flat side on wall, crescent-shaped collar upward.

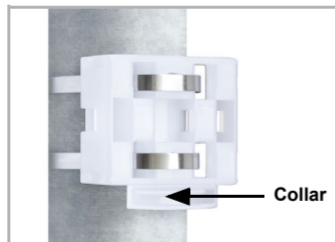


Fig. 5
When pole mounting: curved side on pole, collar downward.



Fig. 6
Different mounting arms are available from Elsner Elektronik as additional, optional accessories for flexible installation of the weather station on a wall, pole or beam. Example of the use of a mounting arm: Due to flexible ball joints, the sensor can be brought into ideal position.

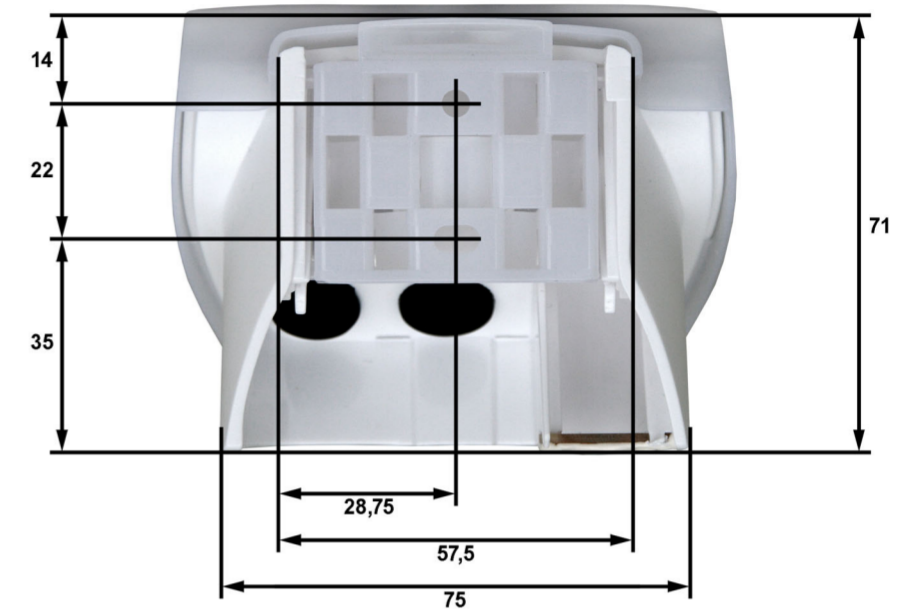
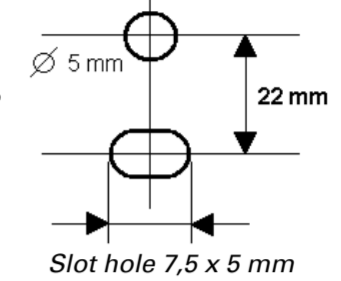


Fig. 7
Example use of the hinge arm mounting: Fitting to a pole with worm drive hose clips

2.2.2. View of rear side and drill hole plan

Fig. 8 a+b
Drill hole plan

Dimensions of rear side of housing with bracket. Subject to change for technical enhancement.



2.2.3. Preparing the sensor

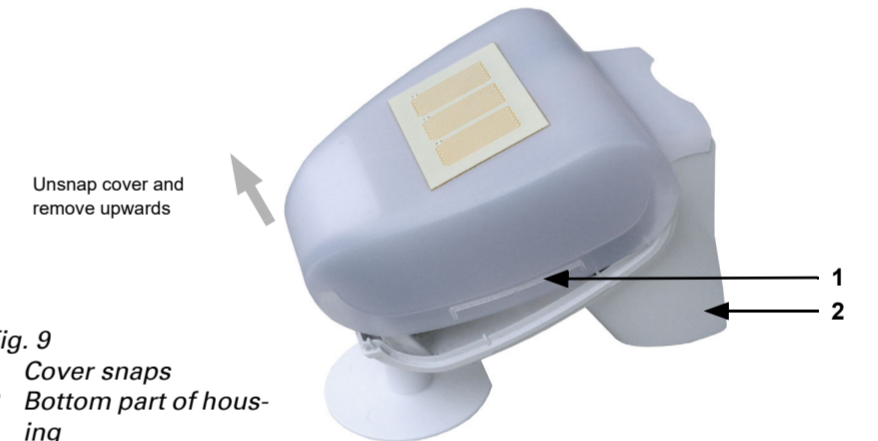


Fig. 9
1 Cover snaps
2 Bottom part of housing

The sensor cover of **RW-PF** snaps in on the left and right along the bottom edge (see Fig.). Remove the cover. Proceed carefully, so as not to pull off the **wire** connecting the PCB in the bottom part with the rain sensor in the cover (cable with plug).

Lead the cable for the connection cables through the rubber seals on the bottom of the device and connect voltage and relay outputs to the terminals provided.

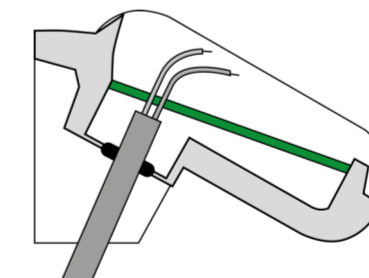


Fig. 10
Remove the cable shielding under the circuit board and only feed the connector cables upwards through the openings in the circuit board.

The connection cable between the cover and circuit board must be plugged in.

2.2.4. PCB Layout

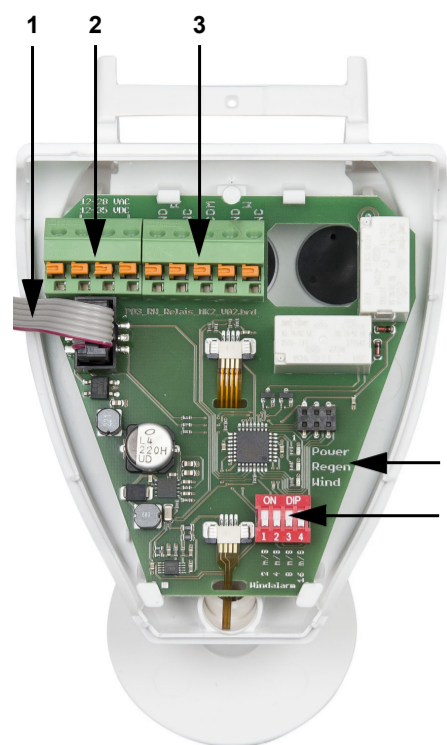


Fig. 11: Overview pcb

- 1 Connection to housing cover with rain sensor
- 2 Connection operating voltage 12-35 V DC or 12-28 V AC
- 3 Connection output
rain signal:
normally closed: R NC | Com
normally open: R NO | Com
wind signal:
normally closed: W NC | Com
normally open: W NO | Com
Maximum relay load capacity:
1 A at 30 V DC.
- 4 Both connectors suitable for massive conductors of up to 1,5 mm² or conductors with fine wires.
- 5 LEDs „Power“, „Rain“ and „Wind“, see **LED Signals**
- 5 Dip switch for wind threshold value, see **Setting of the wind threshold value**

2.2.5. Connection

Operation voltage:

Operating voltage
12...35 V DC or 12...28 V AC

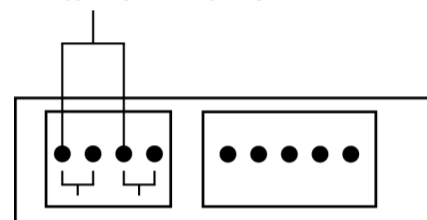


Fig. 12

Contacts are by-passed (e. g. to connect through)

Rain alarm at NC contact:

e. g. when used as replacement for no. 30155

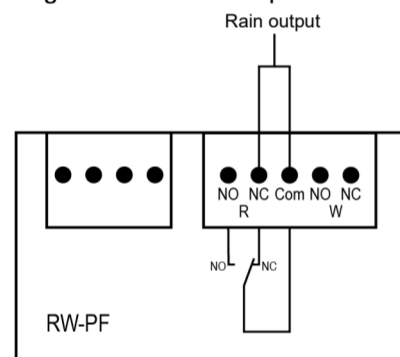


Fig. 13

Relay status of the RW-PF without voltage or with rain alarm (with voltage).
The contact of the rain output is **closed**.

Lead fracture in the system that uses the alarm message does **not** result in a **rain alert**.

Rain alarm at NO contact:

e. g. when used as replacement for no. 30155

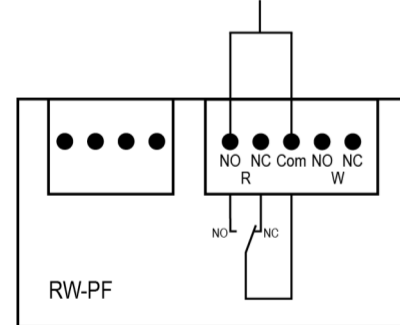


Fig. 14

Relay status of the RW-PF without voltage or with rain alarm (with voltage).
The contact of the rain output is **open**.

Lead fracture in the system that uses the alarm signal leads to **permanent rain alert**.

Wind alarm at NC contact:

e. g. when used as replacement for no. 30155

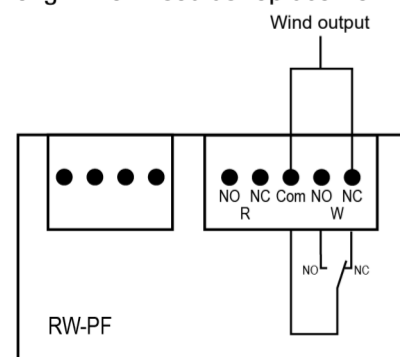


Fig. 15

Relay status of the RW-PF without voltage or with wind alarm (with voltage).
The contact of the wind output is **closed**.

Lead fracture in the system that uses the alarm message does **not** result in a **wind alert**.

Wind alarm at NO contact:

e. g. when used as replacement for no. 30155

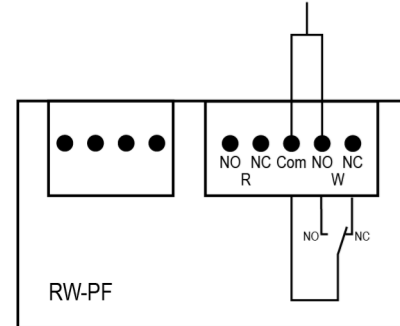


Fig. 16

Relay status of the RW-PF without voltage or with wind alarm (with voltage).
The contact of the wind output is **open**.

Lead fracture in the system that uses the alarm signal leads to **permanent wind alert**.

2.2.6. Mounting the sensor

Close the housing by putting the cover back over the bottom part. The cover must snap in on the left and right with a definite "click"

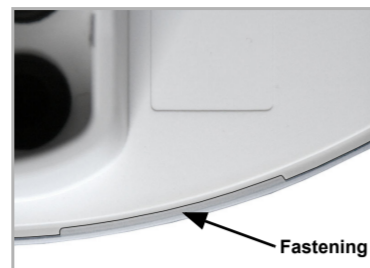


Fig. 17

Make sure the cover and bottom part are properly snapped together! This picture is looking at the closed sensor from underneath.



Fig. 18

Push the housing from above into the fastened mount. The bumps on the mount must snap into the rails in the housing.

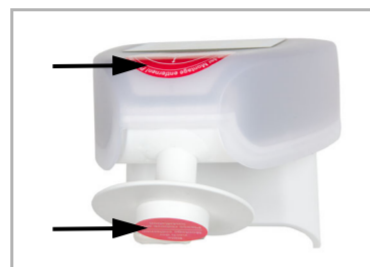


Fig. 19

After installation, remove the protective sticker on the wind sensor and the "distance" sticker on the top of the cover.

2.3. Notes on mounting and commissioning

Do not open the device if water (rain) might ingress: even some drops might damage the electronic system.

Observe the correct connections. Incorrect connections may destroy the sensor or connected electronic devices.

2.4. Setting of the wind threshold value

The wind threshold value is set with DIP switches inside the housing. You reach the favoured wind threshold value by adding the switches values (switch on top = on).

- Switch 1: 2 m/s
- Switch 2: 4 m/s
- Switch 3: 8 m/s
- Switch 4: 16 m/s

If all switches are set to OFF (delivery status), a threshold value of 1 m/s will be used.

Wind alarm at (m/s)	Dip switch			
	1 (2 m/s)	2 (4 m/s)	3 (8 m/s)	4 (16 m/s)
1	-	-	-	-
2	on	-	-	-
4	-	on	-	-
6	on	on	-	-
8	-	-	on	-
10	on	-	on	-
12	-	on	on	-
14	on	on	on	-
16	-	-	-	on
18	on	-	-	on
20	-	on	-	on
22	on	on	-	on
24	-	-	on	on
26	on	-	on	on
28	-	on	on	on
30	on	on	on	on

2.4.1. LED Signals

LED	Behaviour	
Power	On	Normal operation
	Blinks	Wind sensor failure
Rain	On	Precipitation recognized
	Blinks	Switching delay running. After precipitation has stopped, the relay will stay closed for another 5 minutes.
Wind	Off	No precipitation, switching delay is over.
	On	Wind threshold value exceeded.
	Blinks	Switching delay running. After wind threshold value is underrun, the relay will stay closed for another 5 minutes.

LED	Behaviour	
	Off	Wind threshold value is not exceeded, switching delay is over.

2.5. Maintenance of the sensor



WARNING!
Risk of injury caused by components moved automatically!
The automatic control can start system components and place people in danger.
• Always isolate the device from the mains for servicing and cleaning.

The device must regularly be checked for dirt twice a year and cleaned if necessary. In case of severe dirt, the sensor may not work properly anymore.



ATTENTION
The device can be damaged if water penetrates the housing.
• Do not clean with high pressure cleaners or steam jets.

3. Disposal

After use, the device must be disposed of in accordance with the legal regulations. Do not dispose of it with the household waste!