



# WEATHER STATION

## MANUAL

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# INSTALLATION GUIDE

By purchasing this device you bought an advanced weather station, that measures temperature, relative humidity, precipitation and, in case of a Weather Station Pro, wind speed, wind direction and radiation. The weather data can be viewed in our web application. For more information go to [www.dacom.nl/en/](http://www.dacom.nl/en/).

Please handle the Weather Station with care and make sure to safely install the station. Always start with the aluminum poles and after, mount the sensors to the pole.

To prevent injuries please install the station with care. There are sharp edges around the poles.

## COMPONENTS

The Weather Station consists of:

- Data logger DSG S300E with five I/O ports, solar panel and communication function

### Sensors:

- Combi sensor: temperature and relative humidity
- Rain gauge

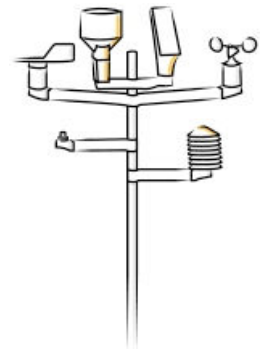
In case of a Weather Station Pro:

- Wind speed sensor
- Wind direction sensor
- SP-lite radiation sensor

- Set of hose clamps, 7 mm socket driver, pole pounder, deco cap and a magnet

- Set of aluminium poles consists of three different poles of around 120 cm each:

1. A straight pole without tapered end (bottom pole) that goes into the ground, the end with the slits should be on top.
2. A pole with a tapered end at the bottom and slits at the top (middle pole). It has one square hole near the top.
3. A pole with a tapered end at the bottom (top pole). This pole has one square hole near the bottom and four square holes near the top. The holes in the aluminium poles indicate the correct position of the sensors and allow you to the sensor cables internally to the data logger. This way, they are well protected.



Picture 1: Weather Station Pro

The weather station is delivered preconfigured and includes an Orange SIM card.

## GETTING STARTED

### 1. Contact service

Before placing the weather station in the field, contact [service@dacom.nl](mailto:service@dacom.nl) and we will activate the weather station. When the station is activated, you can install the weather station in the field.

### 2. Site selection

Wind, air temperature, humidity and precipitation are affected by the surrounding surface, the regional topography and nearby obstructions. To assure that the measurements are representable for a broader area and to avoid it is actually measuring a microclimate, make sure to locate the weather station in a suitable spot.

The site should be free from nearby obstructions like buildings, hedges, trees and steep slopes. A low spot should be avoided as it may trap cold air on clear nights with no wind. A wind sensor should have a distance of at least 10 times the height of a nearby building or obstruction.

The temperature and relative humidity sensor should not be closer than 4 times the height of a nearby obstruction and should be at least 30m away from a large paved area. For the solar radiation sensor, make sure the sun's path is not blocked. The precipitation sensor should also be clear of obstruction with a distance of 4 times the height of the obstruction.

Ideally the weather station should be installed on an open patch of grass which is maintained from time to time. Installation inside a crop is not recommended. The Dacom disease model will use the crop observations to calculate the micro climate inside a crop.

### 3. Place the bottom pole in the field

Choose a suitable spot in the field and start with the bottom pole. Place the plastic pole pounder on top of the pole for protection and use a hose clamp to keep it in place. Now hammer the pole straight down into the soil for about two thirds. Remove the pole pounder.



B. Mount the data logger, rain gauge and wind sensors to the top pole

#### A. Mount the radiation sensor to the top pole

Take the top pole and attach the radiation sensor near the bottom of the pole. Feed the cable upwards through the cut out hole and let the connector end stick out the largest hole at the front end of the pole. Temporarily place the top pole on the bottom pole, this way it's easier to mount the data logger and the other sensors. In the Northern hemisphere the sensor should be facing south and in the Southern hemisphere it should be facing north.



Picture 2: Sensor attached to pole with hose clamps

Mount the data logger just above the connector exit hole and make sure the solar panel faces in the same direction as the radiation sensor. Then mount the rain gauge above the data logger. Fit the rain gauge in such a way that the bucket isn't covered by other parts of the station. Make sure the top of the bucket is below the wind sensors. Now mount the wind speed and direction sensors with two hose clamps. The wind

direction sensor has an indication as to which side should be positioned north. If adjustment is needed, loosen the three hex nuts in the base of the sensors with a 3 mm hex driver (not included) and reposition the base of the sensors.

### 5. Cable management

Because the cables of all the sensors have a certain length, it's advised to first feed the cables of the rain gauge, wind speed and wind direction sensor. Feed the cables upwards so that they stick out of the top pole. Then feed the cables downwards to the hole below the data logger. Make sure you don't pull the cables out all the way, but just far enough so that they can easily be connected to the data logger.

### 6. Mount the combi sensor to the middle pole

Attach the combi sensor to the middle pole, it should cover the cut-out hole. Feed the connector cable upwards. Place an additional hose clamp around the top of the pole. Then feed the connector cable through the top pole and pull it out of the hole below the data logger. Once the weather station is fully assembled and installed, the combi sensor should be about 1,5 meter above the ground.



Picture 4: Combi sensor

### 7. Place the top pole onto the middle pole

After you've placed the top pole onto the middle pole tighten the hose clamp. Place the deco cap on top of the top pole. This will keep the rain out of the poles.

### 8. Connecting the sensors to the data logger

The data logger DSG S300E has five I/O ports. If you bought a Weather Station PRO, you have a full set of sensors. All the sensors, except the rain gauge, have 7 fine pin connectors to carry the signal. Take extreme care in properly connecting the sensors, if this doesn't go smooth, check again if it's properly aligned. Otherwise you may damage the connector. The rain gauge has a two-pin connector. The DSG S300E has one dedicated 2 pin female connector for the rain gauge. All other sensors are SDI-12 sensors and can be connected to any port, without recommended order.

### 9. Placing the assembled station in the field

Put the two assembled poles (middle and top pole) on top of the bottom pole and fix it with the hose clamp. Make sure the solar panel and radiation sensor face the proper direction (north in the Southern hemisphere and south in the Northern hemisphere) and that the wind direction sensor is properly aligned to the north.

To protect the station against extreme weather and roaming animals, it's advised to use guy wires and pegs for extra stability. A set of ratchets can also be useful. Just keep in mind that the station has to be taken down every now and then to clean the rain gauge and the solar panel.

In its final position, make sure the radiation sensor is mounted horizontally. To do so, check the built-in spirit level. If needed use the three leveling screws to adjust. Loosen the two bolts, adjust and tighten te bolts again.



Picture 5: Weather Station Pro in the field

## 10. Switch on the DSG S300 and finish the installation

Switch on the DSG by moving the magnet once from top to bottom on the right side of the solar panel. Make sure that the solar panel is aimed at yourself. You will hear a beep shortly after. The DSG is now switched on. Wait five minutes and then contact service via: **+31 88 3226601** and we will check if the Weather Station is operating properly



Picture 6: Swipe the solar panel

### VIEW THE WEATHER DATA OF THE STATION

The data collected by the weather station is sent automatically to Dacom online. To view the data, you should create an account on [www.dacom.nl](http://www.dacom.nl). For this, an additional subscription is required. If you can't view the data of the weather station please contact us at [service@dacom.nl](mailto:service@dacom.nl).

## MAINTENANCE, TROUBLESHOOTING & REPAIR

### MAINTENANCE

For a long lasting and reliable operation of the station it's important to maintain the weather station from time to time. Local circumstances will determine how often this should be done. The minimum would be once a year, ahead of the growing season.

Clean the solar panel of the data logger with a wet cloth, without using abrasive materials or fluids. Do the same with the top of the solar radiation sensor. Clean the orifice of the rain gauge. Remove any debris or dirt that may cause a blockade. Take of the orifice and rinse it if needed.

Check the tipping spoon inside the rain gauge. If dirt is stuck to the spoon, this will influence the measurements. Clean it with water and a soft cloth. Hold it in position with one finger on the back of the tipping spoon, while cleaning the inside of the spoon. If the rain gauge is frequently filled with bird droppings, contact Dacom via [service@dacom.nl](mailto:service@dacom.nl) to receive metal spikes that can be placed on top of the rain gauge.

Also make sure the area around the station is maintained. For example, the grass around the station shouldn't be too high as it may result in a micro climate. If over the years the sites surroundings change, new buildings being erected or trees getting larger, reconsider the location and move the station if needed. Or cut down the trees.

### OFF SEASON USE

The weather station doesn't have to be placed in storage off season. We recommend keeping it in its place all year round. But if you would like to store the weather station, please contact us at: [service@dacom.nl](mailto:service@dacom.nl). This will give us the opportunity to shut down the station remotely and put it in hibernation mode. Placing it in storage without allowing Dacom to shut it down, may result in a deep discharge of the batteries. This will decrease the life-span of the batteries and thus the life span of the data logger.

## TROUBLESHOOTING & REPAIR

The Weather Station is made of new durable materials for rugged outdoor use. For a long lasting and reliable operation, the following points should be observed:

- 1. Do not remove the screws at the bottom of the data logger.** No repairs may be carried out! Once the sealing has been broken, the warranty will be void.
- 2. When removing the Weather Station from the soil, do not damage the sensors!** First disassemble all the sensors from the aluminium poles and then remove the pole from the soil.

When you are encountering any failures or other problems, contact us via: [service@dacom.nl](mailto:service@dacom.nl).

## WARRANTY

The Weather Station is tested for correct operation before the device leaves the factory. The warranty period is 12 months after delivery of the hardware. For the duration of one year, Dacom guarantees that any defect in materials or manufacturing defects will be repaired free of charge. The rights under the warranty lapse if the defects or damage are wholly or in part caused by improper use or incorrect treatment, or if they are in any other way attributable to the customer. To qualify for warranty, please contact [service@dacom.nl](mailto:service@dacom.nl). For the warranty terms and conditions go to [www.dacom.nl](http://www.dacom.nl).

## ELECTROMAGNETIC COMPATIBILITY (EMC)

The Weather Station meets the provisions of the EU Directive 2014/30/EC (EMC Directive) and complies with the applicable standards on the condition that the Weather Station has been installed properly. Should such interference occur anyway, relocate the Weather Station.

## CORRECT DISPOSAL OF AN USED BATTERY OF THIS PRODUCT

This marking on the Weather Station, manual or packaging indicates that the batteries in this product should not be thrown away, mixed with other waste, at the end of their lifespan. The chemical symbol Pb indicates that the lead content in the battery is higher than the reference level in the Directive 2013/66/

EC. If the used batteries are not handled correctly, these substances can be harmful to human health or the environment. To protect natural resources and to promote material reuse, please separate your waste batteries from other types of waste and offer them for recycling to the free collection system for accumulators and batteries in your area.





# APPENDIX 1: VISUAL DIFFERENCE WEATHER STATION BASIC & PRO

WEATHER STATION BASIC



WEATHER STATION PRO

