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Reliable meteorological registrations are essential for agricultural and environmental research. In addition to the mechanical instruments mentioned in the brochure we supply a great number of automatic instruments, as well as completely equipped weather stations.

Rain gauges

Rain gauges are used to determine the precipitation at a certain point which is representative for a certain area. It is essential that the day-figures have an accuracy of 0.2 mm.

Important characteristics of rain gauges are:

- An adequate measuring area.
- A collecting bucket with a sharp edge, a smooth inside and such a shape that splashing out of precipitation is avoided.

Our rain gauges should meet these norms.

16.74 Rain gauge, type Rain-O-Matic

Combined electronic rain- and temperature meter with 10 m cable and digital read-out unit with memory and an accuracy of 1.0 mm which is especially used at home. The digital LCD is placed indoors. The meter has a memory function for precipitation, and highest and lowest registered temperatures during the measuring period.

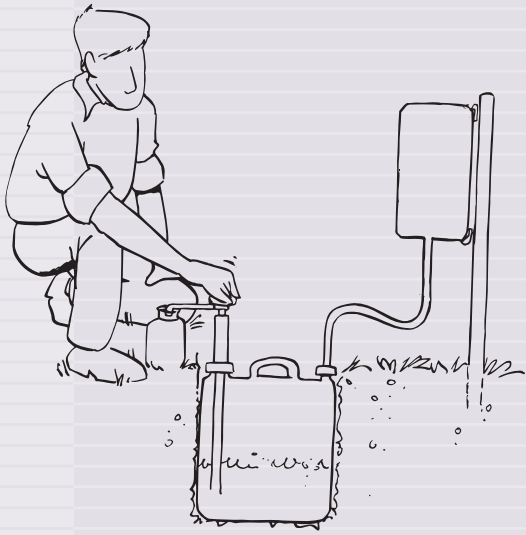
16.76 Rain gauge with large (external) collecting jar

Rain gauge consisting of a collecting funnel with collecting jar and measuring vessel. The rain gauge is connected to an external collecting jar (contents 20 liter) by a syphon tube. The rain gauge is specially designed for intensive precipitation (tropics). The collecting area measures 200 cm^2.

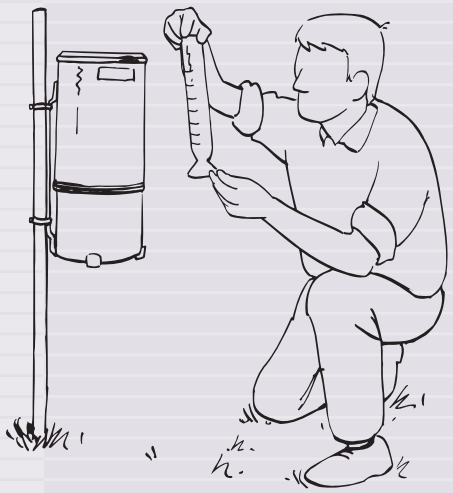
16.77 Standard rain gauge

Rain gauge (in accordance with DIN 58666C) consisting of a collecting funnel with a 1 liter collecting jar and measuring vessel of 0-10 mm with a 0.1 mm division. Collecting area 200 cm^2.

Using the hand-pump the precipitation is pumped from the collecting jar.



Measuring the precipitation with the standard rain gauge.

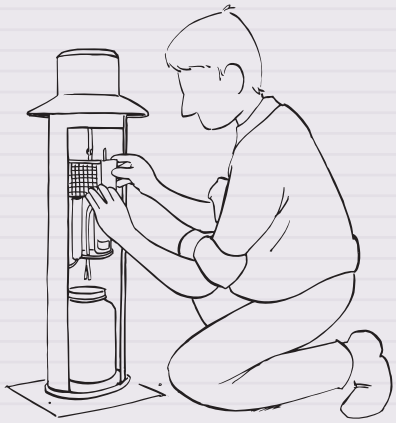


Rain gauge with large collecting jar

Eijkelkamp Agrisearch Equipment
www.eijkelkamp.com

METEOROLOGICAL INSTRUMENTS

Exchanging the recording sheets of the self-recording precipitation recorder.



16.78 Mechanical precipitation recorder

Mechanical self-recording rain gauge with sheet metal funnel with limit ring and siphon with automatic drain after 10 mm height of precipitation. The precipitation recorder has a collecting area of 200 cm^2.

Registration over a 7 day period. Scale division 0.1 mm. Complete with recording sheets and accessories. The mechanical self-recording rain gauge is suitable for measuring the precipitation intensity (determination of precipitation peaks).

16.81 Rain gauge with data-logger

The rain gauge is made from UV resistant plastic and has an aero-dynamic design.

The rain gauge operates on the tipping bucket principle and is provided with a switch closure output, which is connected to the built-in datalogger. The pulses returned during rainfall are counted over any time interval desired allowing accurate determination of the rainfall intensity. This variable is frequently used in soil erosion studies and is relevant to some aspects of crop pathology.

The body of this rain gauge has a profile which has been designed to reduce drag and turbulence and therefore be sited conventionally on exposed sites with some confidence.

The rain gauge has a collecting area of 507 cm^2. The meter is supplied with built-in datalogger (memory for 11.000 registrations), RS232 cable and software.

16.84 Rain gauge with data-logger and solar energy system

As an alternative the rain gauge with datalogger can be supplied with a solar energy system. The unit gives an output of 12 Volts and it incorporates a high grade polycrystalline solar panel, which is capable of powering a datalogger continuously in almost all parts of the globe.

Rain gauge, solar energy system and datalogger (memory for 11.000 registrations) are mounted on a baseplate.

Data gathered with the rain gauge with datalogger can be processed further with a personal computer.

Standard rain gauge

Rain gauge with datalogger

Mechanical precipitation recorder

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Anemometers and barograph

There are several methods for the measuring of wind: instantaneous wind measuring (actual), the wind path meter (day averages) and the continuous registration (wind speed and wind direction).
In addition an altimeter and a barograph have been included in our product range to determine and register height and air-pressure.

16.53 Anemometer

Measuring of local wind speed. Scale in km/h (0-120), Beaufort (0-12), m/s (0-35) and MPH (0-80).

16.57 Wind path meter

The wind path meter is equipped with a counting device for the determination of the wind path.
A simple determination of the day-average: for instance important for evaporation studies.
Measuring range: 0.5 - 60 m/s, up to a maximum of 999999 km. Maximum wind speed 60 m/s. One measuring unit equals 100 m.

16.61 Self-recording wind path and -direction recorder

A light metal mechanical self-recording wind speed meter to record the wind direction and wind speed. Measuring range for speed 0.5 - 60 m/s.

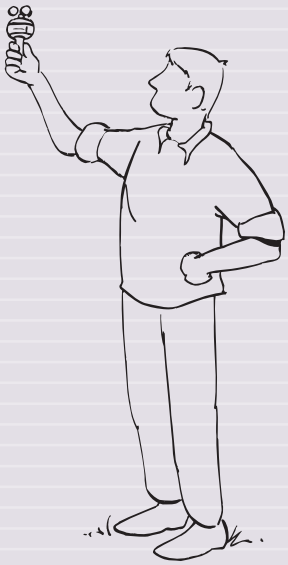
16.05 Altimeter

The altimeter indicates heights above sea level. The principle employed is that of a sensitive aneroid barometer which responds to small variations in atmospheric pressure. Measuring range 0 - 6000 m, accuracy 20 m and height divisions in 10 m. The meter is temperature compensated till 0.25 m/°C.

16.08 Barograph

Temperature compensated measuring device with eight segment measuring element. Measuring range 945 - 1052 hPa (mbar). Accuracy +/- 1% of the measuring range. Rotation time of 7 days.
Can be set in 4 partial measuring ranges. The absolute reach can be adjusted for heights up to 2500 m above mean sea level.

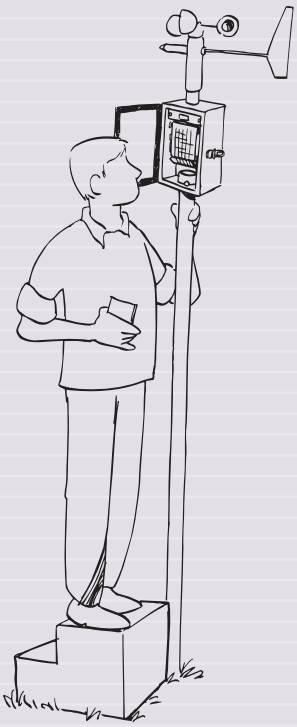
Determining the actual wind speed.



Anemometer

Self-recording wind speed meter

Reading the self-recording anemometer.



Wind path meter

Barograph

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METEOROLOGICAL INSTRUMENTS

The temperature in a compost stack is measured with a long probe.

Temperature and humidity

Temperature and humidity are two important meteorologic parameters. They have a great influence on numerous processes in nature, such as the evaporation rate of water, germination of seeds and the spread of (plant) diseases. Specially the daily temperature cycle is important here.
Measuring the air temperature usually takes place at a standard height. The thermometer must be protected against direct sunlight.
This can be done by using a temperature screen.

16.34 Digital thermometer

The K-thermocouple thermometer has a standard probe with a length of 12 cm packed in a case.
There are also three specially designed compost temperature probes available with a length of 50, 100 and 150 cm.

The thermometer is waterproof (IP67), has a large display and membrane key-pad.

The thermometer can be used to measure temperature in degrees Celsius and Fahrenheit and has a measuring range of -50 tot +150°C. Accuracy is 0.5°C. The display can be read to 0.1°C. The thermometer has options to display the measurement and to reset the maximum- and minimum temperature and hold facility. Power supply four 1.5 V AAA batteries.

The stainless steel compost temperature probes have a handle and a rod with a diameter of 10 mm. The point of the rod contains a temperature sensor, thermical insulated from the rod by an insulation collar. Influence of heat exchange between rod and material to be measured is minimal. The instrument can also be used to measure temperature in ensilage, hay, peat or other soft materials or liquids.

The Assmann psychrometer should be readout and checked frequently.

Digital thermometer with compost temperature probe

Assmann psychrometer

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16.42 Assmann psychrometer

Model in chromed design. The model is equipped with two thermometers and a psychrometer with a measuring range of -10 to +60°C. The psychrometer is fitted with a mechanical ventilator. Accuracy of both thermometers +/- 0.2°C. Division 0.2°C. The psychrometer is supplied inclusive accessories and psychrometer table.

16.45 Portable relative humidity and temperature meter

The portable digital relative humidity and temperature meter displays directly relative humidity or temperature.

The meter is equipped with a separate probe with 1.5 m cable and has a high contrast LCD display.

Measuring range relative humidity 0 to 100%.

Resolution 0.1%. Accuracy +/- 2%.

Measuring range temperature -20 to +60°C.

Resolution 0.1°C. Accuracy +/- 0.2°C.

16.46.Q Thermo-hygrograph

The hygro-thermograph independently measures and records the relative humidity and the temperature of the surroundings.

This self-recording thermohygrograph has a bimetal as temperature element and a hair-wire measuring element for humidity.

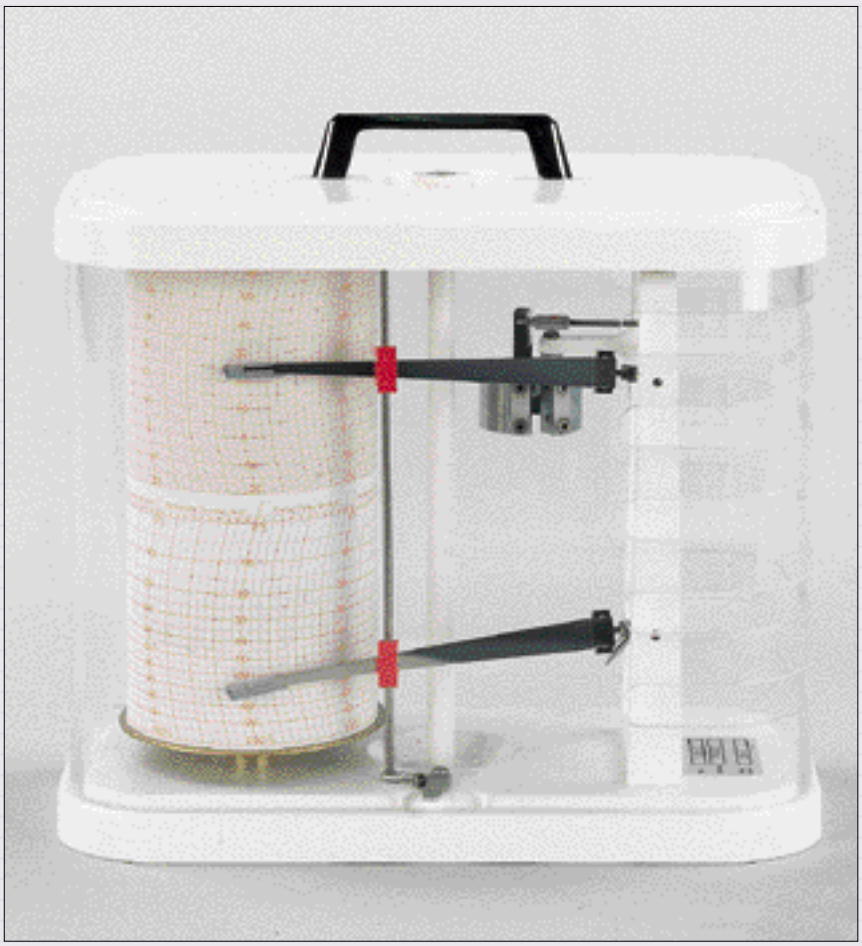
The instrument is supplied with a quartz clockwork (switchable 1, 7 or 31 days).

Measuring range 0-100% relative humidity. Accuracy +/- 2.5% of the measuring range.

Temperature range -10 to +50°C. Accuracy +/- 1%.

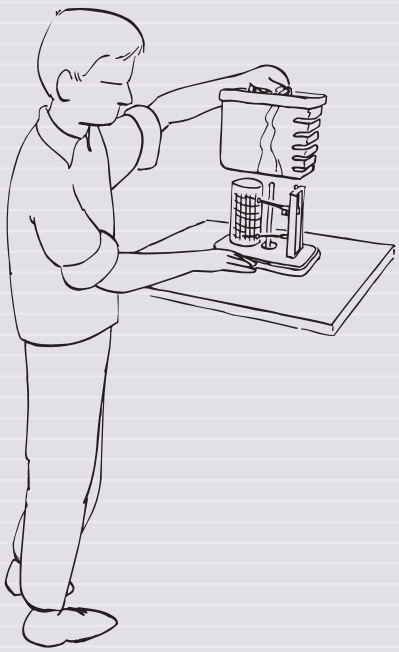
Inclusive registration charts with recording period of 7 days and spare pens.

The temperature and relative humidity is measured with the portable meter.



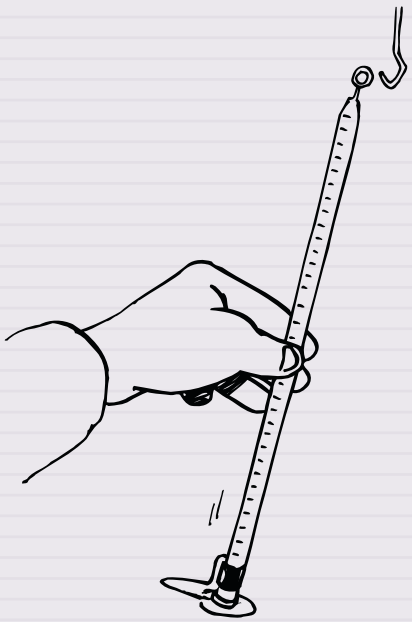
Thermo-hygrograph

After exchanging the recording sheet the hood is placed over the thermo-hygrograph again.



METEOROLOGICAL INSTRUMENTS

The evaporation meter should hang free to obtain correct measurement.



Evaporation

Measuring the evaporation rate is particularly important for irrigation projects to determine the watering regime.

16.85 Piche evaporation meter

Simple and cheap instrument for measuring the evaporation.

A humid filter paper disk is used here under a glass measuring tube closed at one end and filled with water.

The paper surface is constantly wetted.

Division 0 - 30 mm.

Inclusive evaporation discs and disc holder.

The instrument only indicates the evaporation rate.

Suitable for educational purposes.

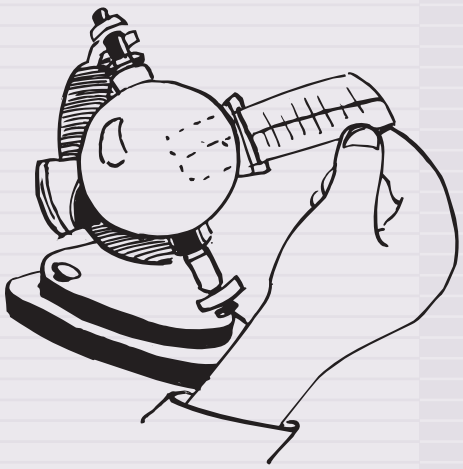
16.93 Sunshine recorder

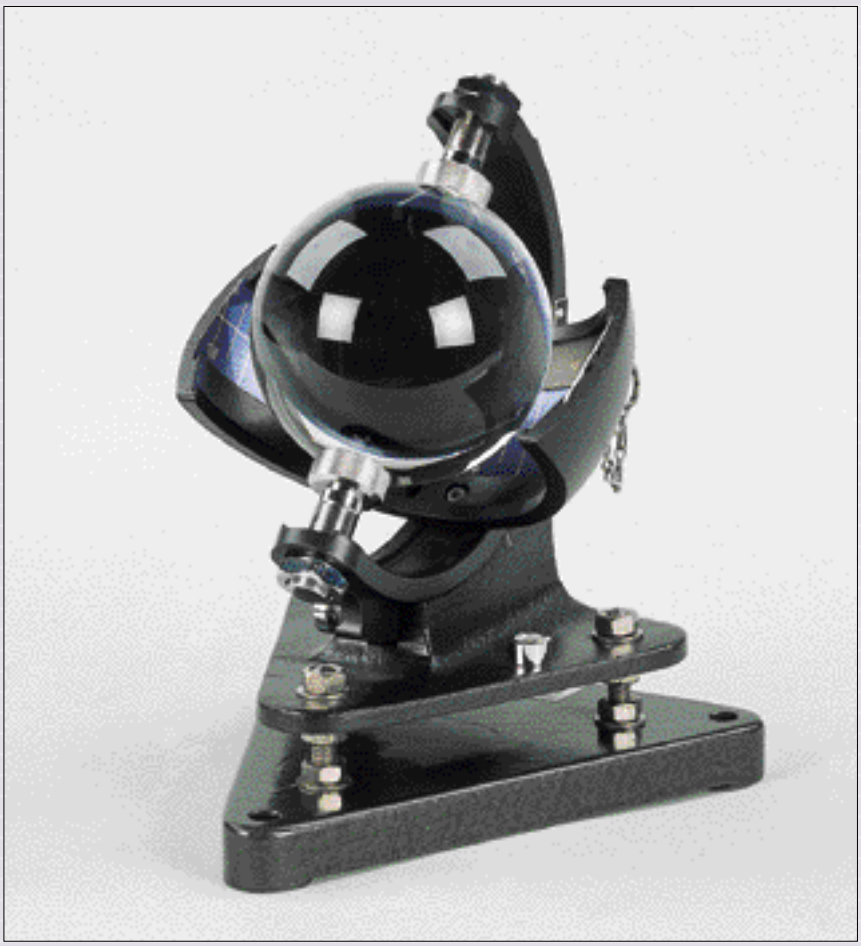
Sunshine recorder according to Campbell-Stokes for the registration of the number of hours of sunshine per day.

To be used between 40° NL (northern latitude) and 40° SL (southern latitude).

With glass sphere in frame and balance water level on the ground plate. the sunshine recorder is supplied inclusive recording sheets.

The recording sheet is placed in the sunshine recorder.





Sunshine recorder

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16.89 Evaporation pan

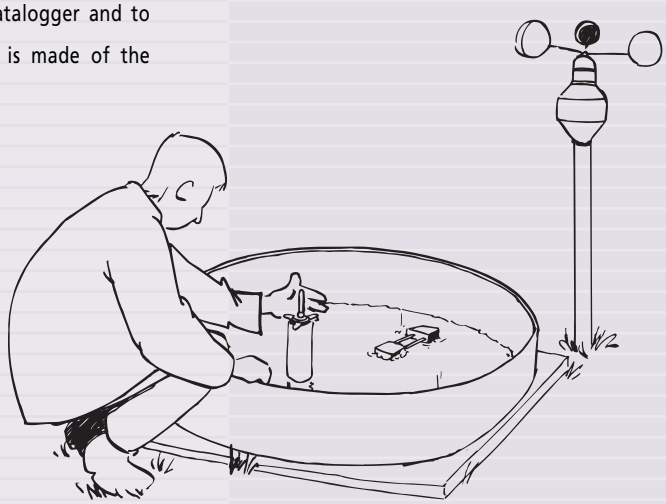
The class-A evaporation pan is used to determine the evaporation rate of open water.

The pan has a 1206 mm diameter and an inside height of 254 mm, an evaporation area of 1.15 m and is made of high grade stainless steel.
The evaporation pan is supplied complete with highly qualified evaporation micrometer and stilling well (wave dampening cylinder), water level and wooden support for evaporation pan.
Measuring range of the evaporation micrometer 100 mm. Accuracy 0.02 mm.

For a more exact use of the evaporation pan it is recommended to use an additional wind path meter.

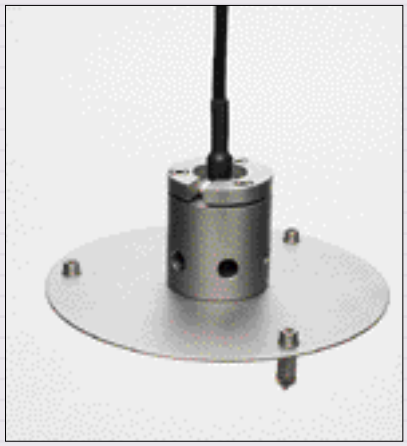
For automatic measurement of the evaporation use can be made of a level sensor. The level sensor consists of a sensitive pressure transducer built in a stainless steel housing.
The sensor has a pressure range of 0-20 mbar, accuracy 0,25%. Output signal 0-20 mA, power supply voltage 8-28 V. The sensor is supplied with 5 m cable.
The sensor is read-out with a datalogger. To configure and read-out the datalogger and to process the measuring data, use is made of the evaporation pan software.

As the wind influences the evaporation rate, it is important to use a wind path meter in combination with the evaporation pan.



Evaporation pan, complete set

Evaporation micrometer



Automatic level sensor

Eijkelkamp Agrisearch Equipment
www.eijkelkamp.com

METEOROLOGICAL INSTRUMENTS

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Frequent observation and recording of the instruments in the field station.

Weather stations

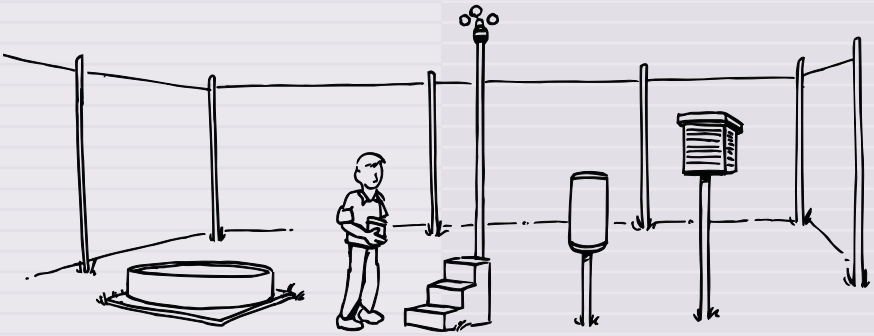
To be able to execute useful meteorological observations field stations should meet a number of essential requirements:

- The location should be representative for the area where the measurements are important, taking into account: plant-, soil- and climatic conditions.
- The measuring instruments shoul be reliable, solid and easy to maintain.
- It should be possible to execute and record the observations without too much effort.
- The observation staff should be well trained.

For more information: FAO, Irrigation and drainage paper: Agro-meteorological stations.

There is no standard lay-out for a meteorological station.
An important requirement, however, is that the separate instruments should not influence one another.
For instance the protection of a thermometer also obstructing precipitation, or the shade of a fence on the sunshine recorder.

A special product information leaflet is available for dataloggers and sensors which can be assembled in, amongst others, automatic weather stations (like below). Ask for leaflet P4.30.



Automatic meteostation