

# WEATHER STATION



Every weather station is tailor made according to the client's requirements dependent upon the meteorological parameters that need to be measured.

This datasheet explains the functions of the more common examples of meteorological equipment.

In general the minimum requirements are a *thermohygrometer* and a *pluviometer* (rain gauge).

Additional equipment can include:

- ❑ *Wind Vane*
- ❑ *Anemometer*
- ❑ *Barometer*
- ❑ *Sunshine Recorder*

In special cases such as dams it is possible to include an *Evaporimeter*.

For agricultural purposes it is possible to add other specialist apparatus (e.g. moisture of foliage).

The equipment is normally mounted on a pole of galvanised steel,  $\varnothing 1.5''$ , using special stainless steel brackets.

The material used (stainless steel, anodised aluminium) ensure reliability and endurance.

The weather station may be integrated into a wider monitoring system consisting of other on-line devices or may be used a stand-alone installation.

In the latter case the station is supplied with Agisco's RADAS data acquisition system and powered by solar panels.

It may incorporate a GSM /GPRS system of data transmission.

### Thermohygrometer

This is utilised to measure the air temperature and its relative humidity.

It is equipped with a PT100 thermoresistant sensor and a capacitive humidity sensor.

The thermohygrometer is equipped with an anti radiation screen and is naturally or artificially ventilated.

### Anemometer

Used to measure wind speed.

The sensor is a 3 cup wind vane mounted on a toroidal magnet and a Hall (effect) sensor.

It can be supplied with an analogue output 4÷20 mA or an impulse output (6 pulses/revolution).

### Barometer

Used to measure atmospheric pressure.

It has an electrical pressure transducer sufficiently sensitive to measure to 1/1000000 of a Bar.

## TECHNICAL SPECIFICATIONS

	THERMOMETER	HYGROMETER	BAROMETER	ANEMOMETER
Transducer	Thermoresistance Pt100	Capacitive	Semiconductive	Magnetic
Measurement range	-50 °C ÷ +80° C	0 ÷ 98 %	850 ÷ 1050 mBar	0 ÷ 50 m/sec
Accuracy	±0.1 °C	±2 % F.S.	0.5 mBar	±0.25 m/sec in range 0 ÷ 20 m/sec ±0.7 m/sec in range over 20 m/sec
Sensitivity	0.01 °C	±0.5 % F.S.	0.1 mBar	0.25 m/sec
Output	Resistance variation or 4-20 mA	0 - 1 V or 4-20 mA	0 - 1 V or 4-20 mA	6 impulses/revolution or 4-20 mA

## Pluviometer

This is used to measure the quantity of rain or snow.

It is a balanced bucket type, with a cylinder of an area of 400 cm<sup>2</sup>, coated in teflon to remove error during periods of low rainfall where surface tension may prevent the collection of water.

The collecting cone may be heated should this be required.



## Wind Vane

An instrument for measuring wind direction.

The wind vane has a potentiometric transducer mounted on a low friction axle.



## TECHNICAL SPECIFICATIONS

	WIND VANE	PLUVIOMETER (Rain Gauge)
Transducer	Wind Vane	Balanced bucket
Measurement range	0 ÷ 360°	0 ÷ 200 mm/h
Accuracy	0.5 % F.S.	2 % F.S.
Sensitivity	—	0.2 mm
Output	0 ÷ 1 V or 4 ÷ 20 mA	Reed relay 4-20 mA

## Solar Radiometer

Used to measure radiation from the sun.

These measurements are important in many fields such as agriculture, hydrology, climatology and general meteorology.

The sensor may be programmed to measure:

- ❑ Global radiation
- ❑ Direct radiation
- ❑ Net Solar Radiation
- ❑ Diffused radiation
- ❑ Reflected radiation (Albedo)

### Global Solar radiation

- Transducer Thermopile
- Measuring Range  $0.3 \div 3.5 \mu\text{m}$
- Accuracy 1.5 % F.S.
- Output Signal  $0 \div 25 \text{ mV}$
- Temperature range  $-30 \div +80^\circ\text{C}$ .

### Net Solar radiation

- Transducer Thermocouple
- Measuring Range  $0.3 \div 60 \mu\text{m}$
- Accuracy 1.5 % F.S.
- Output Signal  $0 \div 25 \text{ mV}$
- Temperature range  $-30 \div +80^\circ\text{C}$ .

### Sunlight Duration

- Transducer Electronic
- Measuring Range  $0.4 \div 1.1 \mu\text{m}$
- Accuracy  $\pm 2 \%$  F.S.
- Output Signal  $-5 \div +5\text{V}$   
Optional  $4 \div 20 \text{ mA}$
- Temperature range  $-25 \div +50^\circ\text{C}$ .

## Evaporimeter

The evaporimeter system measures the effect of wind and temperature on evaporation levels.

The stainless steel tank is supported by a wooden support coated in a protective ma-

The level sensor uses a float which moves away from the sensor as evaporation takes place.

There are a number of differing methods of measuring water level for evaporation e.g. float method.

The variation in distance between the sensor and float is transformed into a measurable electrical signal.

## TECHNICAL SPECIFICATIONS

	EVAPORIMETER
Transducer	Differential transformer
Measurement range	$\pm 25 \text{ mm}$
Accuracy	$\pm 0.5 \%$ F.S.
Sensitivity	$\pm 0.1 \text{ mm}$
Output	$0 \div 2 \text{ V}$ $4-20 \text{ mA}$
Temperature	$-2^\circ \text{ C to } +70^\circ \text{ C}$



Evaporimeter Complex



Agisco reserve the right to change their products and specifications without notice

AGISCO s.r.l.

Via A. Moro 2 - 20060 LISCATE (MI) Italia

Tel. +39 02.9587690 - Fax. +39 02.9587381

www.agisco.it - agisco@agisco.it