Cirrus Research plc
dedicated to noise measurement

INVICTUS NOISE MONITOR
WEATHER SENSOR

TECHNICAL GUIDE

CIRRUS RESEARCH PLC
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This document provides information for ordering and installing the Invictus Noise Monitor Weather Stations.

Ordering Information

The Invictus Noise Monitors support two versions of weather stations, these being:

1. MT:247/1 Weather Station providing for the measurement of
    a. Windspeed
    b. Wind Direction
    c. Barometric Pressure
    d. Relative Humidity
    e. Air Temperature
    f. Rainfall

The sensors are connected to COM B on the Invictus instrument

2. VC:247/2 Weather Station and Video Overlay providing for the measurement of
    a. Windspeed
    b. Wind Direction
    c. Barometric Pressure
    d. Relative Humidity
    e. Air Temperature
    f. Rainfall
    g.

The weather sensors are connected to COM A and the Video OSD is connected to COM B.

Both of these systems are supplied with a standard 10m cable. The length of cable can be configured when ordering the system, up to a maximum of 10m.

Installation

Installation

Tools Required

The following tools will typically be required to install the Weather Station:

- Small flat screw driver
- Medium cross head screw driver
- Small cross head screw driver
- Open ended spanner (required for cable gland)
- Spanner for pole mount
- Compass

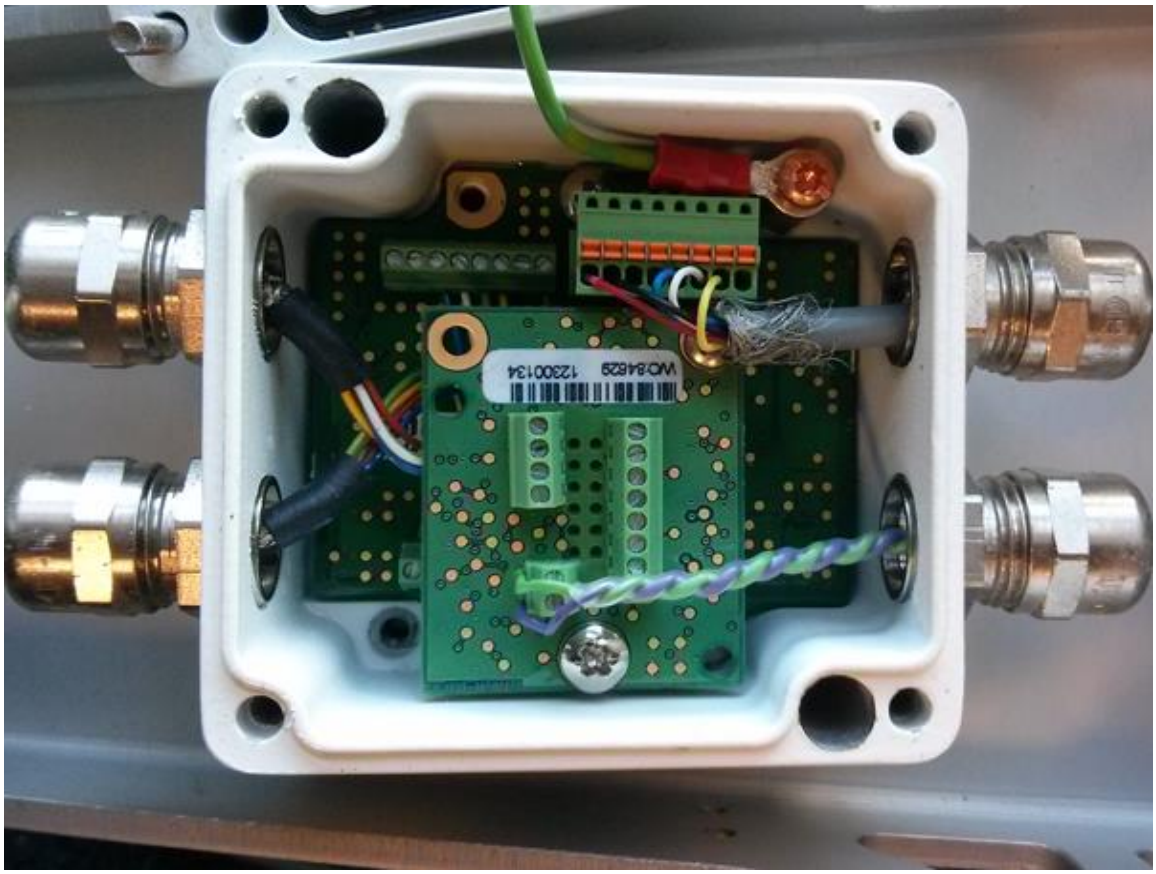
Electrical Installation

The Weather station will be delivered with a cable and connector to directly plug into Invictus COM A or COM B depending on the option ordered.

This cable is wired into the Weather Station into connector J5 with the following connections:

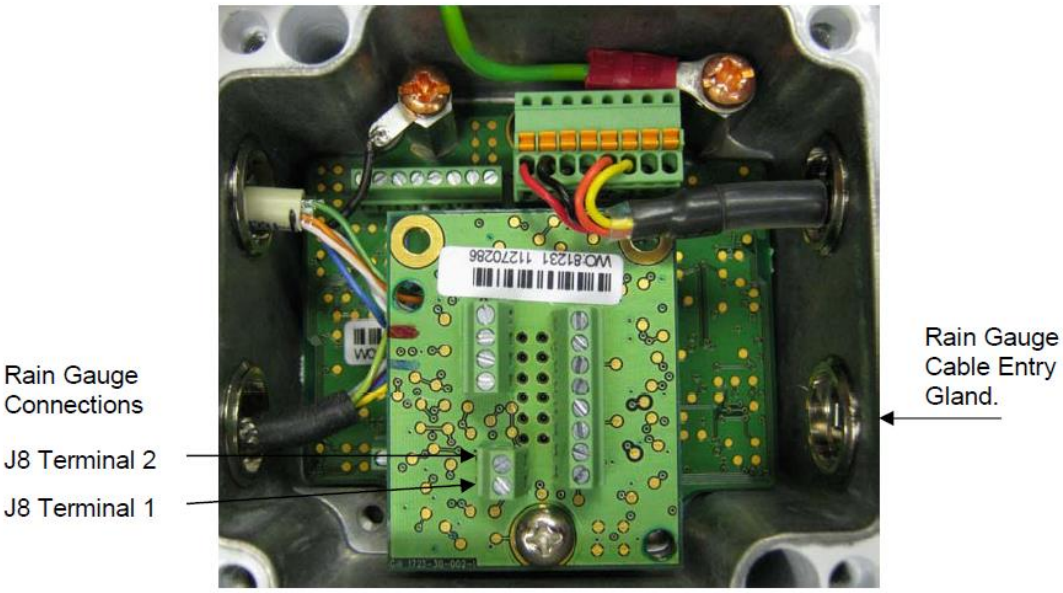
Weather Station Connections		
J5 Pin Number	**Wire Colour**	**Signal**
2	Yellow	Comms_Rx
3	White	Comms_Tx
4	Blue	Ground RTN
7	Black	Ground RTN
8	Red	+ve supply (approx. 12V)
Screw Terminal	Screen Wire	Chassis Ground

See figure below showing connection to J5 – screen wire not made for clarity.



The digital rain sensor connection should be made on site to avoid damage to the units when shipped.

See figure below for necessary connections:



Rain Gauge Connections		
J8 Pin Number	**Wire Colour**	**Signal**
1	Black	RTN
2	Clear or White	Switch Contact
Terminal Post	Screen Wire	Chassis Ground

Mounting the Weather Station

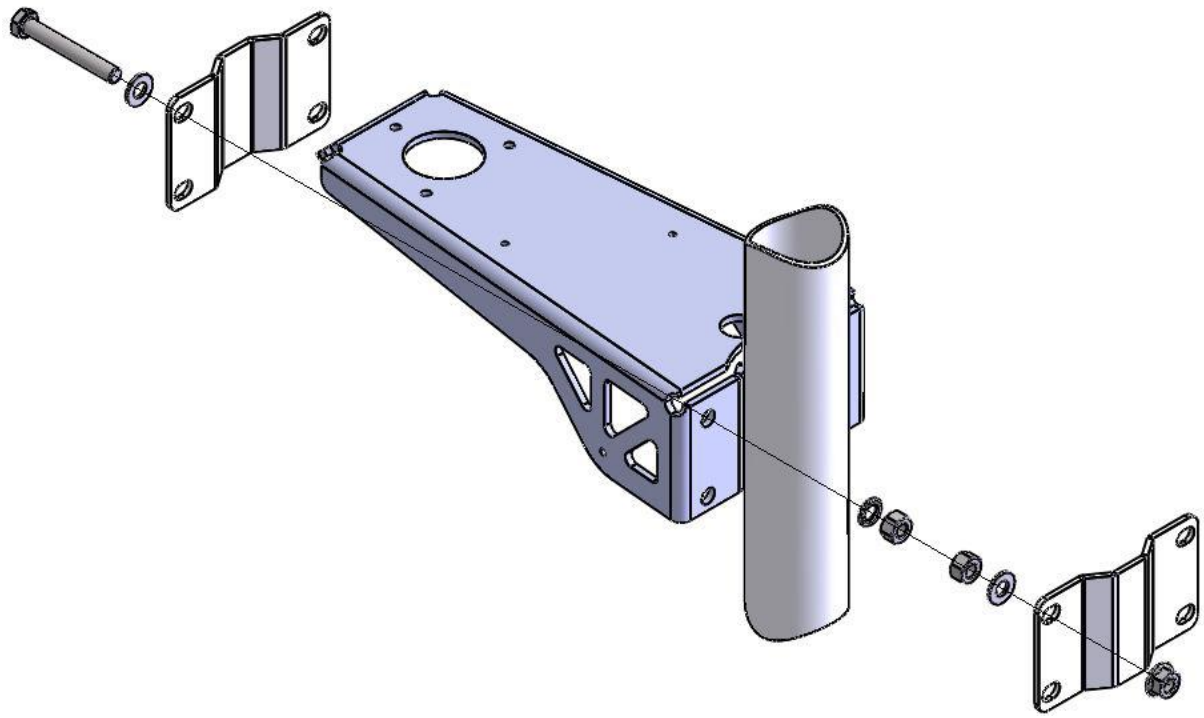
The Weather Station uses a mounting clamp suitable for attaching to a vertical pole with a diameter of 30-58mm (1.2 to 2.3 inches).

Poles up to a maximum of 75mm (3inches) can be accommodated using alternative nuts.

When mounting the station, consider the position, orientation and alignment of the unit.

Note that the mounting pole should first be degreased and the outer clamp nuts should be tightened evenly to a torque figure of 3 Nm.

The moving part of the clamp should be reversed for poles below 38mm.



Mounting Bracket Assembly Exploded View

Installation Notes:

Position	It is the responsibility of the customer to ensure that the Weather Station is mounted in a position clear of any structure, including the mounting post, which may obstruct the airflow or induce turbulence.

Orientation	Normally, the Weather Station is mounted on a vertical pole, ensuring a horizontal Measuring Plane. For indoor use the unit may be mounted with the Measurement Plane set to any required orientation.
Alignment	The Wind Sensor should be aligned to point to the north, or other required reference direction. There are two arrows, a coloured rectangle, and a alignment notch on the Wind Sensor that should point to North to aid alignment.

Mounting the Rain Gauge

The rain gauges tipping bucket mechanism is immobilized before shipping to prevent damage in transit.

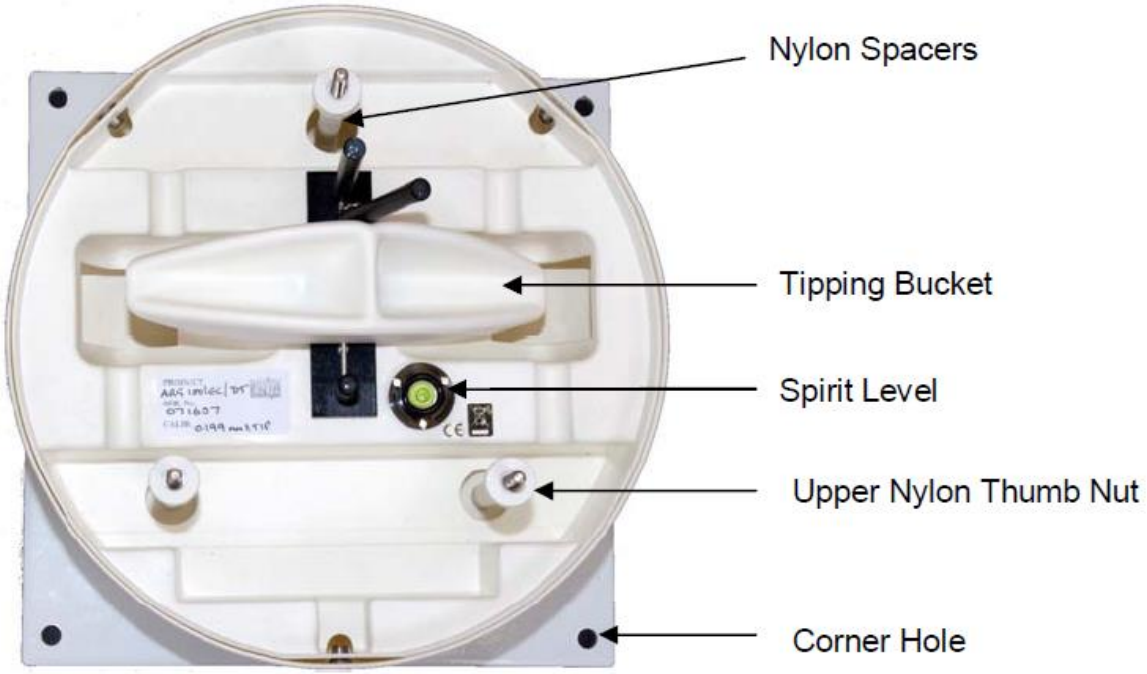
To release the mechanism, remove the funnel from its base by unscrewing the three nylon thumbscrews.

Remove the piece of foam from under the bucket mechanism. This foam may be saved and used whenever the rain gauge is moved.

Baseplate Mounting

Due to the low weight of the rain gauge (1kg approximately) it must be mounted securely. The use of the Baseplate is recommended for this.

However the gauge may be mounted via the three holes in the base to a paving slab for example. It is suggested that rawlbolts are used for this purpose as they provide a means of leveling the rain gauge.



Unscrew the 3 upper nylon thumb nuts and remove all the nylon spacers from the studs.

Lift off the tipping bucket base assembly to leave the metal baseplate and studs.

Fix the baseplate to level ground using the 4 pegs provided through the 4 corner holes. The baseplate may be mounted to hard surfaces like concrete by replacing the 4 supplied pegs with screws and rawlplugs.

For temporary mounting on hard surfaces use some bricks or heavy weights on the four corners of the baseplate (the height of the weights should be kept as low as possible to cause the minimum interference with the aerodynamics of the rain gauge).

Refit the tipping bucket base assembly.

Refit the nylon spacers over the 3 studs.

Loosely screw on the 3 nylon thumb nuts.

Leveling the Base Assembly

Upon completion of the above adjust the 3 leveling thumb nuts under the tipping bucket to align the spirit level bubble to within the centre circle.

Now tighten the upper 3 thumb nuts ensuring that the spirit level bubble remains within the centre circle.

NOTES:

Ensure that the Foam insert under the tipping bucket is removed before re-fitting the funnel.

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