ATMOS
WEATHER MONITOR
BASIC/DUAL

Installation Instructions

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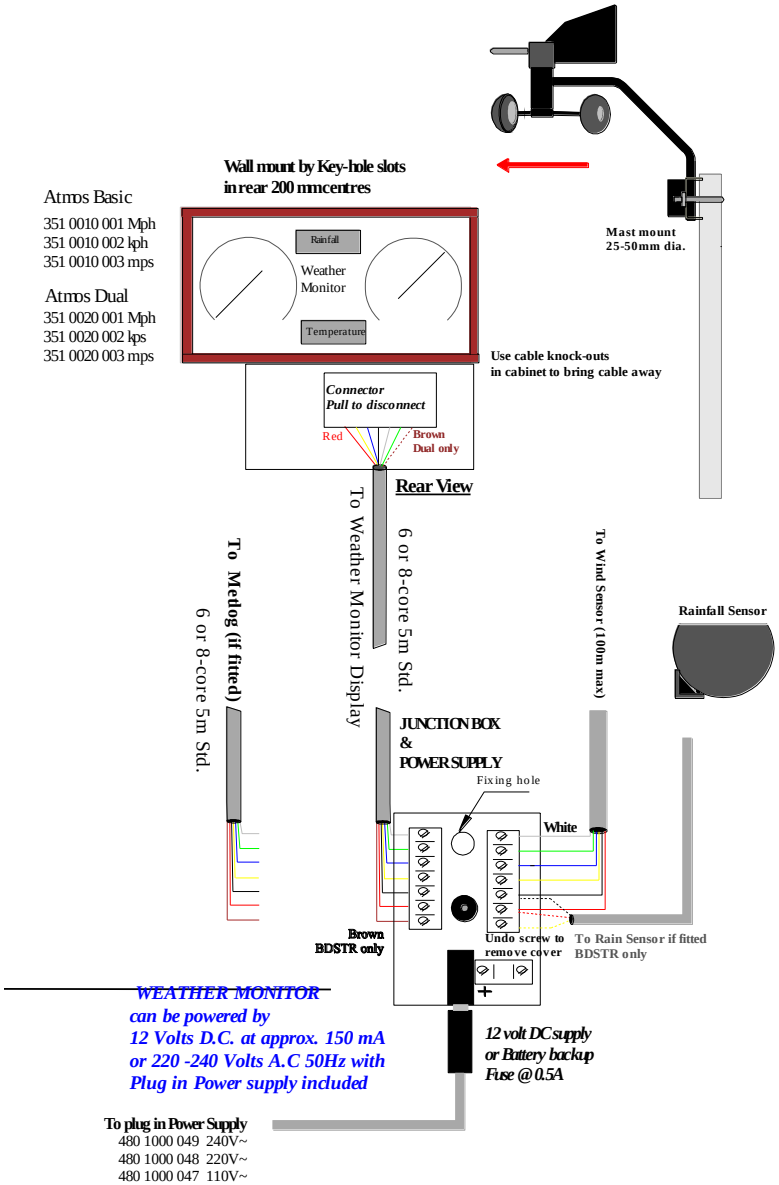

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RAIN SENSOR SITING & INSTALLATION

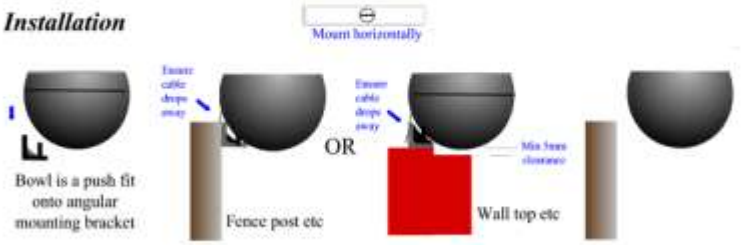
Siting

The Rain Sensor should, ideally, be situated at a distance of twice the height of local obstructions and mounted 30cm (12") above ground level. This requirement can often be difficult or impossible to achieve due to surrounding bushes, trees etc. For most practical purposes accuracy will not be greately impaired if the site is only a distance equal to the height of the obstructions.

It is important that the sensor is reasonably accessible as, from time to time, the filter will require cleaning. Very often the top of a fence post provides an excellent site so long as it is firm, clear of bushes and trees as above.

It is wise to avoid mounting on or near buildings which can cause wind turbulence and create dust. Avoid also mounting near to transmitter aerials which can in certain circumstances cause interference.

Installation



Screw the angular mounting bracket to a ***firm and rigid*** post, fence or wall ensuring that the funnel opening is absolutely horizontal. Ensure also there is at least ***5mm clearance*** between the ***bottom of the bowl and any surface below.***

To avoid the possibility of water running down the cable into the sensor, it is important that the cable drops away from the bowl. Leave some slack in the cable beneath the sensor to facilitate cleaning.

Now lay out the cable to the control box avoiding close proximity to power and transmitter cables. Be very careful not to nick the cable when being clipped to walls etc. If the cable is to be buried run cable through plastic hose etc. to avoid vermin biting through cable.

Maintenance

From time to time dust and other foreign bodies will accumulate on the funnel filters.

To clean;- carefully withdraw filter and sponge and clean under a tap.

Important - avoid touching the stainless steel filter mesh with bare fingers as this will deposit grease which may impair the flow of water.

Temperature reading inaccurate

If you suspect the temperature reading to be inaccurate please ensure that the thermometer with which you are comparing is accurate

If the temperature reading is only 1 or 2 degrees out then the display can be recalibrated as follows:-

Remove the display from the wall by lifting the unit and pulling forward.
At the back of the temperature display there is a small preset with a screw driver-slot visible through a hole in the back beneath and to the left of the connector. Adjust this with a small screw-driver to give correct display.

If the cable to the Wind/Temperature has been extended, the accuracy of the temperature will be reduced, and although this can be adjusted as above, extremes of temperature may show other errors.

If temperature reading is very inaccurate, showing HHH or LLL, check wiring to the junction box (usually *white* & *green* wires; see installation instructions) and cable.

Barometer showing incorrect pressure.

The barometer may need adjusting to the pressure at your location. First obtain a pressure reading from a reliable nearby source such as an airfield or local met office. Having done this locate the adjustment screw visible through the back panel and using a small screwdriver turn the adjusting screw until the pressure reading is the same as that obtained locally. Do not attempt to turn the screw more than one turn in either direction.

Rainfall not being measured.

Check that the rain sensor has not become blocked with leaves or bird droppings etc. Check also the sensor is mounted horizontally.

Very slowly put 5mL of water (a medicine spoon) into the Rain Sensor and check water is coming out of the bottom tube a drip at a time. If so this should give a reading of approximately 1.00 mm on digital display (ensure reset before starting).

If it still does not work check that the sensor has been wired correctly and the cable is not damaged. If wired underground check that rodents have not chewed through the cable

SPECIFICATION

Display unit size: 255mm wide x 125mm high x 53mm deep
Display parameters:
Wind direction: Analogue read-out displaying 4 cardinal points and 4 intermediate points with LED indicators sub-divided into 5 degree increments, electronically damped.
Accuracy: ± 10 degrees, resolution > 10 degrees
Wind speed: Analogue read-out with gust indicator pointer, calibrated 0- 90 mph, 0-80 knots and Beaufort scale.
Alternative kph and metres/second scales are available (see Model Numbers on front sheet)
Accuracy: ± 5% or 3 knots
Barometer: Analogue read-out with set pointer reset, range 950 -1050 mbar
(28 -31 inches Hg)
Temperature: LCD digital read-out in degrees F or C, selectable via push buttons
Range - 40 to + 50° C (- 40 to + 120° F), resolution 0.1° C
Rainfall: (Atmos Dual only) LCD digital read-out in 0.01mm increments
Accuracy: ± 5% (5ml of water = 1mm rainfall), resolution 0.01mm auto-sensing

SENSORS

Roof-mounted wind speed and direction sensor, temperature sensor, sunshine duration sensor with mounting clamps for easy installation on mast diameter 25 – 50mm. Remaining sensors wall or post mounted (see installation details with product)
Data cable length: 25m standard pre-wired (additional cable lengths are available when ordering).
Materials: sensor assemblies utilise anodised aluminium alloy, stainless steel, nylon, injection moulded polypropylene anemometer cups. Compass provided to align wind sensor arm to North.

POWER SUPPLY

220 – 240Vac 50Hz or 110Vac 60Hz moulded plug-in power supply unit. Alternative 12Vdc may be Customer supplied.

OPTIONAL EXTRAS

Met4Net ‘M’ Data Logger Part No. 354 0000 002: Data logger to PC RS232 serial port connectivity or via USB serial port adaptor cable (not supplied)
Software: Met4Net ™ bespoke software for data recording Part No. 356 0000 001.
Mounting Kits: Aluminium masts kit 36" long x 1½" dia. Part No. 480 1000 094
Aluminium mast kit 72” long x 1½" dia . Part No. 480 1000 096
or Roof/slate mounted mast kit for non-chimney dwellings Part No. 480 1000 097
Autostation: Electronic Weather Station inc MeT4NeT ™ software & Data Logger
Part No. 355 0000 001/002/003 for 240V/110V/220V respectively.

Installation Instructions

Weather Monitors consist of a display unit, a combined wind and temperature

sensor connected by a six core cable, a rain sensor connected by a 4-core cable (only 3-cores used) and a separate junction box & power supply.

Sensor wiring

The cables should be connected to the individual sensors via the terminal block on the sensor bracket. This can be accessed by removing the black cover, where a wiring identification label will be found.

Roof Top Wind/Temperature Sensor

This unit should be mounted on a mast of 25-50mm (suitable mast mounting solutions are available from Instromet sales), as high and as far away as possible from chimneys, roof peaks, buildings, trees and transmitter aerials which may cause wind turbulence or interference. Where possible the roof top wind sensor should be mounted at least 2 metres above roof peaks and be secured in position with the arm pointing accurately to the NORTH using the compass provided.

The cable from the roof top wind sensor should be run down to the junction box, making sure it is properly secured.

Please note! This cable should not be run in close proximity to power or transmitter cables. If it is necessary to shorten the cable please do this when connecting the cable to the display unit.

WARNING: Under no circumstances should the wind sensor junction box cover or the terminal block inside be sealed in any way as it is designed to breathe.

Rainfall Sensor (Dual only) - See separate page

Junction Box & Power Supply

This unit allows the wiring from the sensors to be terminated away from the main display cabinet and a single multi-core cable to be wired to the display. Five metres (15 ft) of cable are supplied which may be shortened if required. Increasing its length may cause inaccuracies in the temperature read-outs.

To avoid water travelling down cables into the junction box it is **important** to ensure that the cables drop below the junction box, preferably in the form of a 'U' bend. This will allow any water travelling down the cables to drip off.

The plug in mains power supply is connected to this unit and care should be taken to site the J.B. near to a 13A socket

The **Display Unit** should be wall mounted by the two key-hole slots in the back panel (200mm centres). The cable may be either channelled into the wall or brought out the side of the cabinet by using the cable knock-out holes at each side and at the bottom of the cabinet. Please make sure no dust gets into the display unit**.**

The display unit is connected to the junction box by a 6 or 8 core cable fitted to a 7 way plug. When connecting please **ensure that the connector is the correct way round.**

<u>Troubleshooting Guide</u>.

You've installed your Weather Monitor and find that despite careful attention to detail, it does not work as expected. The following notes may assist in getting your Weather Monitor to work.

Nothing appears to work.

Check that the power supply is turned on at the wall socket. Check power cable correctly plugged into the Junction Box. If the Direction lamps are illuminated then the power to the instrument is correctly wired and working.

Wind Direction wrong

If Wind Direction gives the wrong reading, check that the wind sensor has been mounted to point North. If the Northerly and North East wind direction lamps are permanently lit then the wind sensor is not connected to the instrument or is incorrectly wired. Note that if the wind sensor is incorrectly wired then neither wind speed nor direction will work.

Wind Speed not working

Check anemometer cups are turning freely and if so that wiring is correct (particularly the *blue* wire from the Wind Sensor) and the cable not damaged.

Temperature display flashing LLL.

This indicates that the temperature probe is not connected to the instrument. Check that the *green and white* wires from the wind sensor are correctly connected to the appropriate terminals.

Temperature display locked on a fixed temperature.

The display may have locked up during installation. Other indications are that none of the buttons located at the side of the instrument will have any effect on the display. This can sometimes happen and can be corrected as follows

Remove the Display from the wall (if wall mounted) turn off power, remove back and battery. Leave for one minute, during which time the display(s) should go blank, replace battery and back.

If this procedure fails to cure the problem, repeat the procedure once more, waiting a little longer before replacing the battery.

If the display counter has now advanced from zero then the cause of the problem will be due to either the integrity of the cable or connections, or the rain gauge itself.

Reconnect the yellow wire.

To test the cable it must first be disconnected from the gauge. Remove the small securing screw from the base of the gauge bowl and separate the two halves around the equator.
Identify and unplug the cable from the printed circuit board.
Ensure yellow wire is properly reconnected, power is on and reset the counter.

Using a short piece of wire (a paper clip suitably bent will suffice) short out several times the **Yellow and Red wires on the cable**. The wire link can be pushed into the appropriate holes on the connector if fitted. This should result in a count of several digits on the Rain display. If not, the cable is suspect and needs to be thoroughly checked. If the cable is buried beware of rodents who may have bitten through it.

If a count is recorded then the problem is almost certainly the gauge itself. Inspect the printed circuit board for corrosion and damage to the clear tube if fitted. If nothing obvious is observed then introduce a small amount of water into the funnel and watch to see if it emerges in discreet droplets – be sure to keep the funnel top horizontal while carrying out this test. If the water does not emerge correctly try cleaning unit again.

If all else fails, call service department **01692 502800** or return the sensor to us for checking or replacement.

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Certificate No. 3459

Products are all subject to availability and our continued product development means specifications may change at any time

Barometric Pressure

Calibration of the barometer is achieved by adjustment of the screw head on the barometer movement, accessible through a hole in the back panel.

Gust Pointer

Rotate the gust knob anti-clockwise until it connects with the wind speed pointer. It will now be carried up to show the maximum speed.

Outside Temperature

The LCD temperature display shows the outside temperature at the roof top sensor. Celsius or Fahrenheit display may be selected by pressing the lowest of the buttons on the left side of the cabinet.

Rainfall (Dual only)

The rainfall display shows the amount of rainfall since last reset in 0.01(1 hundredth)of mm.

Reset is accomplished by pressing the two upper buttons together.

LCD Display

The LCD display has a back up battery to allow for accidental loss of power whilst still maintaining the records of temperature. Under normal usage the battery should last at least 2 years.However, should the display reduce in contrast when the power is off, a replacement AAA Alkaline battery is easily fitted by disconnecting the power supply and removing the back panel.

Should the LCD display lock up, ie. numbers are fixed or strange turn off power, remove back, then battery for 30 seconds, replace battery and back. This should cure the problem. If not, repeat the operation.

The Instromet Rain Gauge will provide superb performance and super sensitivity with a resolution of only 0.01 mm. Unfortunately this sensitivity comes at a small price – the need for regular cleaning of the funnel and filters. The frequency of this cleansing will to a large extent depend on the locality of the site. In very dusty areas, in times of predominantly dry weather, the gauge may well have to be cleaned once a month whereas cleaner areas may only require attention twice a year.

1. Cleaning the gauge

Before any tests are carried out the gauge must be checked for cleanliness.

Remove the sensor from the wall/post bracket by pulling it up off the bracket.

Beware;- the funnel may have filled with water so there is a danger of spillage!

Pull out the filter post, which, if fitted, will reveal either a red filter sponge or a wire gauze disc filter. The sponge can be removed, preferably, with a pair of tweezers or small screwdriver. The wire gauze will have to be prised out carefully with again a small screwdriver.

At this point it would be advisable to wash the funnel and filters out with warm water and detergent, a small brush will be useful here.

It should now be possible to see a very small hole (less than 1 mm diameter) in the centre of the funnel. If not clear, a piece of wire (eg a paper clip straightened out or a medium sized sewing needle) should be pushed through any mire that may have stuck to the bottom.

If the unit has a clear tube fitted at the bottom it will be worth looking at the condition of this. If it is looking generally clear then no further action will be required. If, however, the clarity of the tube is severely impaired by algae then running water with diluted bleach or other cleansing fluid through it several times will be worthwhile.

Beware:

Do not allow the diluted bleach to come in to contact with skin or clothes.

Once all is clean and water will pass through the gauge replace the filters and re-mount the gauge on its bracket. Check again that water passes through by emptying a teaspoon full of water into the funnel. It may take a minute or two but water should eventually drip out of the bottom.

2. Testing the gauge

BE SURE TO RESET THE RAINFALL COUNTER TO ZERO BEFORE EACH TEST

Assuming that water has passed through satisfactorily as above, the unit can now be tested for accuracy.

What is required is to drip 5 ml of water into the funnel over a period of approximately one minute to simulate the rate of normal rainfall. Introducing large amounts of rainfall in one go will result in inaccurate results.

5ml of water introduced should produce a reading of 1.00 mm

A 5 or 10 mm syringe is ideal as a measuring device as the water can be measured accurately and dispensed slowly. Alternatively, although less accurate, a 5ml medicine spoon will do the same job although controlling the rate at which the water is dispensed will be difficult.

FAULT FINDING

If the testing above results in no readings being recorded then the following procedures will assist in locating the source of the problem.

Identify where the cable from the rain sensor is connected within the building be it to a junction box or to the back of the display itself. Disconnect the Yellow wire (White if screened cable) from the sensor.

Reset the counter.

With a short piece of wire connected to the Yellow terminal (make sure terminal screw is tight) short circuit several times to the Red terminal that also leads to the Rain gauge.

This should result in a count on the display. If not; repeat the test ensuring that the power is on and if still no success the problem will lie in the display or cable/connections leading from the junction box to the display.