

Instromet Wireless Wind Sensor Interface Installation Instructions



Wind speed and direction only

Introduction:

These instructions cover the installation and operation of Instromet Weather Systems' wireless wind speed and direction interface. The purpose of the interface is to extend the reach of the sensor past the max 100m range of a cable system, up to a max of 3km with clear line of sight.

Package contents:

1 x sensor transmitter
1 x receiver
1 x 12V DC adaptor

General specifications:

Wind Sensor (supplied seperately):

Wind Speed:

Typical accuracy 5% or 1.5 m/s
Resolution better than 0.5 m/s

Wind Direction:

Accuracy +/- 5 degs. typical (+/- 10 degs. worst case)
Resolution Generally < 1 deg. (+/- 10 degs. at North)



Interface receiver

Radio Transmitter / Receiver:

Each part incorporates a Radiocraft RC1180HP-RC232 Transceiver module. These modules are completely shielded and pre-certified for operation under the European (EN300220, EN301489, EN60950) and Indian radio regulations (G.S.R.564(E)/168(E))

Frequency Bands: 868.0 - 870.0 Mhz
Range: 3 - 5km line of sight

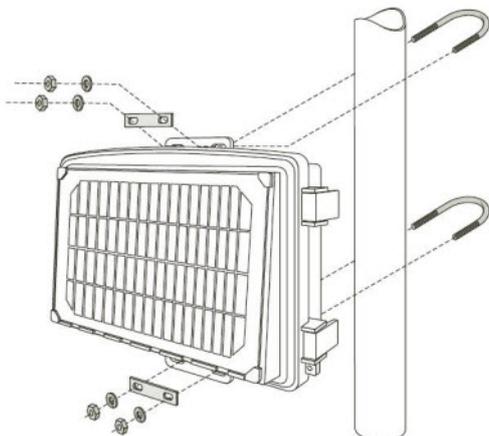
Transmitter Enclosure:

Dimensions (width x length x height) . . 13.75 X 10 X 4.15 inches; (34.9 X 25.4 X 10.5 cm)

Weight: 7.65 lbs.; 3.47 kg (without transmitter)

Battery: 6V 12Ahr

Solar panel: 5Watt

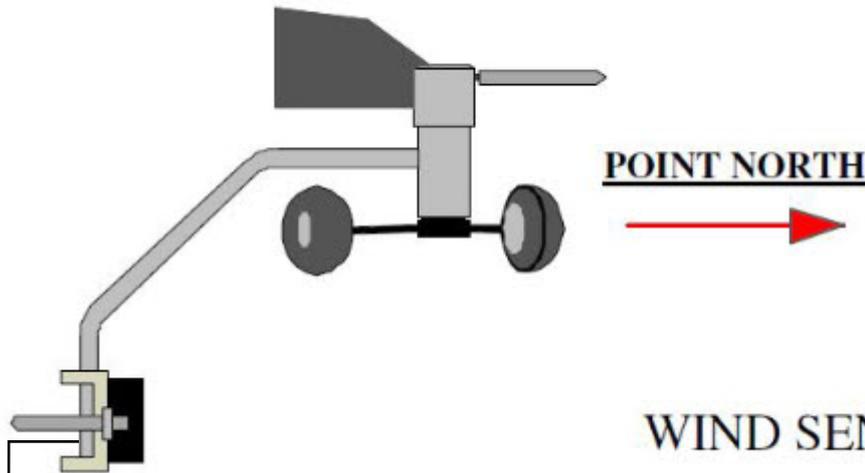


Mounting on a Pole

Mount the shelter onto a pipe with an outside diameter of 0.84" to 1.84" (21 mm to 27 mm) using the U-bolts, backing plates, washers, and hex nuts provided.

Note: For mounting on larger diameter pipes, the housing can accommodate U-bolts with 5/6" (8 mm) threads for pipes up to 2.40" (61 mm) outside diameter (not provided).

Wind Sensor and Transmitter Installation:



The sensor is designed to be mounted to a mast of between 30 - 50 mm diameter by means of a V-shaped clamp and bracket. This allows simple orientation to North using the compass provided; the only setting up required.

WIND SENSOR

Note - Wind sensor supplied separately

Sensor cable 5m supplied. 4 cores

Red - 5V dc supply
Blue - Wind Speed
Yellow - Wind Dir
Black - Common.

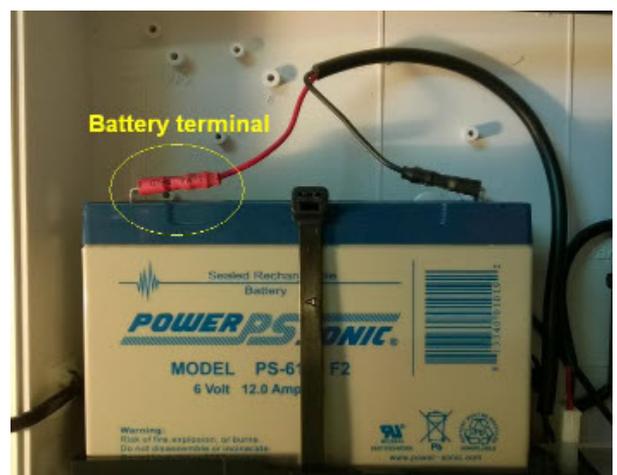
Exploded view of sensor connections within the transmitter enclosure.



For installing the wireless transmitter and sensor, follow the above diagram for guidance. But Ultimately ensure the wind sensor is as high as possible to be clear of obstructions and anything which could cause wind turbulence. Make sure the Sensor arm is pointing North with the supplied compass.

It is important that the shelter be mounted so that the solar panel gets the greatest amount of sunshine: the solar panel should be facing south (in the northern hemisphere) or north (in the southern hemisphere).

Once the transmitter enclosure has been mounted, the positive terminal of the battery will need to be connected to allow operation of the transmitter to commence.



Receiver connection:

The wireless receiver connects to the peripheral equipment as per a normal wind sensor except the red sensor power terminal is not required.

Once the receiver is wired to the peripheral equipment in the place of a wind sensor, connect the supplied 12v DC power supply to the socket at the base of the receiver to power the device.

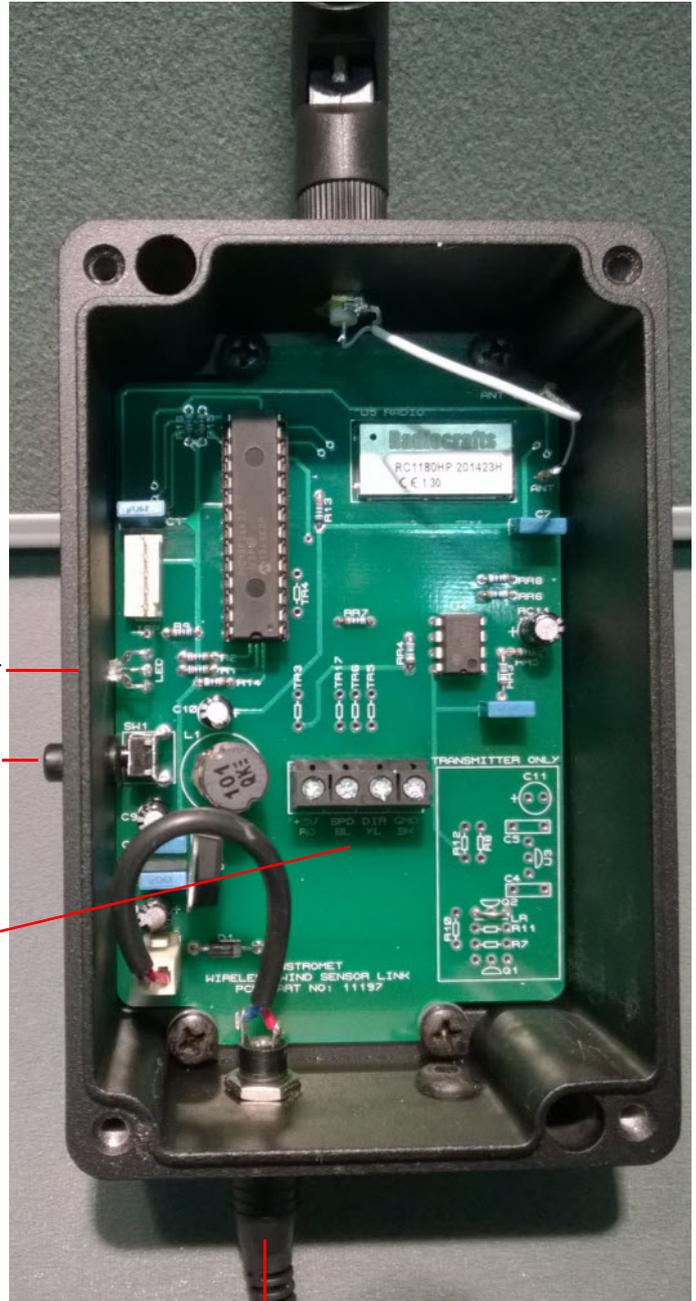
Once powered the status LED will illuminate and the receiver is then ready to be “paired” to the transmitter (see the following page for pairing detail).

Receiver controls / connection locations.

LED - Status indicator

Push button - Pair Key

Wind sensor output connections.
Note - red connection not required.



12v DC input

Once “paired” to the transmitter, the receiver will start to output the wind sensor data changing every 5 seconds as updated from the transmitter.

This output will either ramp up or down to the new figures to ensure an output is always present.

System Operation:

Transmitter:

Once the Transmitter is physically installed and the wind sensor connections made, the next step is to apply the power to the transmitter itself by connecting the red terminal of the battery.

Once this is done the status LED of the transmitter should flash green during normal operation.

The LED flashes green during normal transmission, and amber during pairing transmissions (see "PAIRING" below).

During normal operation the transmitter sends a data packet to the receiver / Display every 5 seconds.

As a power saving feature this timing will change under the below circumstances:

If the battery is below 6.1V, 30 seconds is added to the transmission interval.

If the battery is below 5.9V, the interval is set to 4 minutes 30 seconds.

Receiver:

At power-up, the outputs default to zero, and the unit waits for a data packet.

When a valid data packet is received, the outputs will ramp to the correct values over the interval specified as the transmission interval (the transmission interval is included in the data packet).

If a valid data packet has been received within the last 30 seconds, the LED will be solid green (this is the default state, overridden by the other LED states in increasing order of priority)

If a packet has not been received for more than 30 seconds, the LED flashes green.

If a packet has not been received for more than 5 minutes, the LED flashes red.

If the transmitter is reporting a battery level below 6V, the LED is solid red.

During pairing, the LED is solid amber (see "PAIRING" below).

Pairing:

- Pairing can be done receiver-first or transmitter-first.
- TRANSMITTER operation:
 - Press & hold the pair button on the transmitter, and the LED will flash amber to indicate "pairing" mode.
 - First, a new random ID number will be generated, and stored in non-volatile memory.
 - Next, the transmitter sends packets rapidly (interval = zero), with the "pairing" flag set.
 - After 255 packets (approx. five minutes), the transmitter exits "pairing" mode, and reverts to normal operation.
- RECEIVER operation:
 - Press & hold the button on the receiver, and the LED will turn amber to indicate "pairing" mode.
 - The receiver will wait for the next packet with the "pairing" flag set, and extract the ID number from it, which is stored in non-volatile memory.
 - The receiver will then switch back to normal (non-pairing) mode where all packets (pairing or not) are used so long as the ID number matches.

Troubleshooting:

Transmitter:

LED not illuminating - Check the red battery connection has been attached.

Receiver:

LED not illuminating - Check the 12v DC power supply is firmly plugged into the display and switched on at the wall socket.

Outputs not changing - Check the status LED is “Green” to indicate normal operation
Check the wind sensor connections at the transmitter and sensor are ok.
Check the transmitter status LED is blinking green to indicate its transmitting.

Status LED remains Amber when “pairing” - Ensure the transmitter is also in “pairing” mode

If still unable to resolve any possible problems then contact the Instromet service team below:

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