Met Station One

Quick Reference Guide

March 1, 2010

Met One Instruments

Met Station One

Measurements

Wind Speed and Wind Direction

Met Station One uses a three cup anemometer, for accuracy, sensitivity, and durability. The cups are connected to a shaft, which turns a sensing element that converts the rotation into a series of electronic pulses. The basic operation is based on the proven 014 Wind Speed Sensor.

A lightweight vane tail provides the motive power for the wind direction portion of the sensor. As the vane tail moves it turns a shaft on a pair of bearings. That shaft turns a sensing element that converts the rotation into analog voltage.

- Wind Speed Range — 0 – 50 m/sec
- Wind Speed Resolution — 0.1 m/sec
- Wind Speed Accuracy — ± 2%
- Wind Direction Range — 0 – 360°
- Wind Direction Resolution — 1°
- Wind Direction Accuracy — ± 5°
- Threshold, both Speed & Direction — 1 m/sec

Temperature and Humidity

Both Temperature and Humidity are built into the temperature shield at the bottom of the sensor. The integral shield limits errors due to solar radiation.
The RH sensor is a capacitive element enclosed in a protective membrane.

- Temperature Range — -40°C to +60°C
- Temperature Resolution — 0.1°C
- Temperature Accuracy — ± 0.5°C
- Relative Humidity Range — 0-100%
- Relative Humidity Resolution — 1%
- Relative Humidity Accuracy — ± 4%

Barometric Pressure

A solid state pressure sensor built into the sensor electronics provides accurate measurement of barometric pressure changes over a wide range. Electronic temperature compensation is included for highest accuracy over the operating temperature of the sensor.

- Measurement Range — 500 – 1100 mbars
- Measurement Resolution — 0.1 mbar
- Measurement Accuracy — ± 2 mbars

Met Station One

Easy Installation

Siting

- Find suitable location within cable length of recording electronics / display.
- Locate true north.

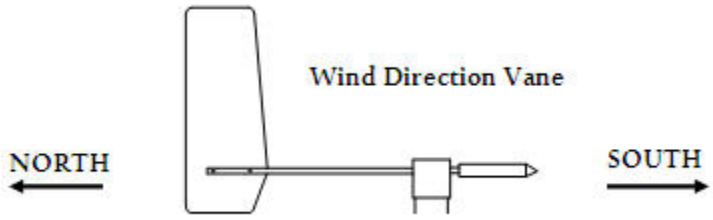
Mounting

- Use quick mount u-bolts to install on vertical or horizontal mast, pole or pipe.

- Tighten nuts, keeping sensor level.

Direction Alignment

- Install alignment shoulder screw into wind direction vane hub.
- Align sensor so wind direction counterweight is to the South, vane tail is to true North.



Check Operation

- Check that the vane and cups rotate freely.

Met Station One

Simple Serial Connections

The Met Station One platform comes standard with serial RS-232 and SDI-12 outputs for ease of data recovery. RS-485 or RS-422 is available upon request.

RS-232 Configuration

- **9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control**

SDI-12 Configuration

- **Default address 0**
- **Conforms to SDI-12 V1.3**

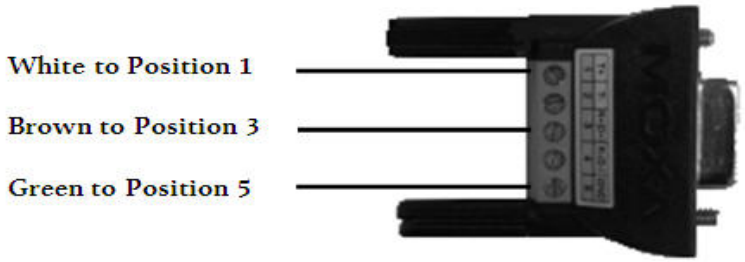
Output String Format:

SSS.S, DDD, +TTT.T, HHH, PPP.P, RRR.RR, XXXX, VV.VV, *CCCC<CR><LF>

- **SSS.S = Wind Speed**
- **DDD = Wind Direction**
- **+TTT.T = Temperature**
- **HHH = Relative Humidity**
- **PPP.P = Barometric Pressure**
- **RRR.RR = Rain (Optional)**
- **XXXX = Solar (Future Option)**
- **VV.VV = Battery Voltage**
- ***CCCC = Message Checksum**

Connections

- **Run cable to recorder or computer**
- **Connect using included screw-terminal DB-9 adaptor or solder DB-9 or DB-25.**



Wiring

RED	**+9 TO +17 VOLTS DC @ 4mA**
BLK	**POWER COMMON**
WHT	**RS-232 TX**
BRN	**RS-232 RX**
GRN	**RS-232 / SDI-12 COMMON**
BLU	**SDI-12**
WHT/BRN	**SHIELD (must be grounded for transient protection to function)**