VORTEX™

INSTRUCTIONS – Inspeed Vortex with Madgetech "Pulse" Data Loggers

Thank you for purchasing an Inspeed Field Logging Kit! Here are some things you should know about it:

Overview
The Inspeed Vortex wind sensor produces one pulse per rotation. The Madgetech data logger is designed to count the number of pulses during a given time interval. Given the pulse rate to wind speed formula, which is specific to each rotor type, the Madgetech data logging system produces an output which is AVERAGE WIND SPEED during that interval.

Use & Operation
The BC1200 display is to provide wind speed information only. It is **not** required for operation. NOTE: In case of problems, reverse the display wires to the logger; sometimes there is a polarity conflict that can result in zero readings. Check the polarity of the display wires and connect the high to + and ground to -; the red & black colors mean nothing.

Both the BC1200 and the data logger (in the box) are VELCRO MOUNTED: just pull to remove!

First, follow the instructions for the Madgetech data logger to load the software, select your appropriate time interval and data logging scheme. Note that shorter intervals will produce shorter periods during which the logger can be left alone, since the total number of intervals is fixed).

Once the data logger is set up, simply connect the two wires from the wind sensor to the data logger and be sure that the logger has been started.

After the wind data has been acquired and downloaded to your PC, it will be necessary to transfer the data to a spreadsheet to calculate average wind speed per interval. The equation for converting pulses per interval to average speed per interval is this:

Average wind speed per interval = (P/t)*C

Where:
      P = # of pulses in that interval
      t = time duration of the interval (in seconds)
      C = conversion factor for the rotor

      C for the **M1** rotor is **3.4 mph per Hz**
      C for the **D2** rotor is **2.5 mph per Hz**
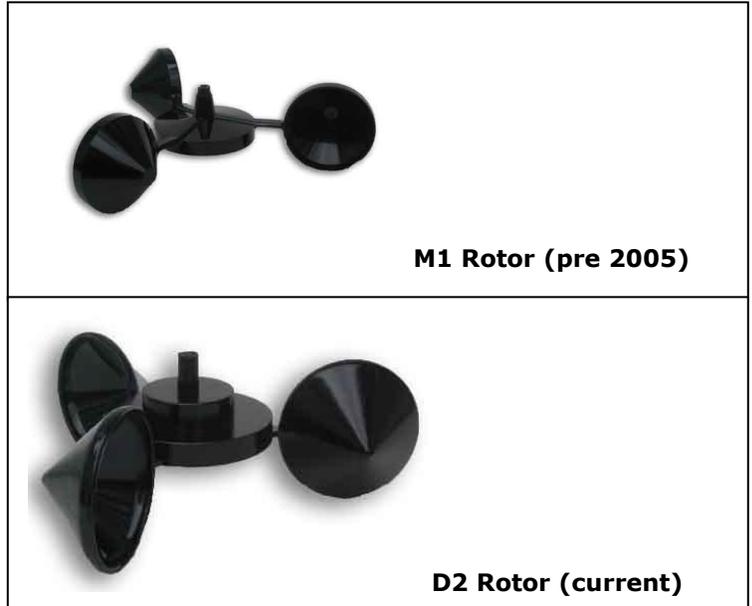
M1 Rotor (pre 2005)

D2 Rotor (current)

For example: for a time interval of two minutes, if one interval contained 240 pulses and we were using the D2 rotor, the average speed would be:

$$AWS = (240 \text{pulses}/120 \text{sec})*2.5 = 5 \text{ mph}$$

It is also possible to set a "gain" factor in the Madgetech software such that wind speed is downloaded in units directly. The "gain" factor is as follows:

For the **M1** rotor: g = 3.4/(interval in seconds) **mph**
For the **D2** rotor: g = 2.5/(interval in seconds) **mph**

Convert to other units using appropriate factors.

Cleaning and maintenance of the Wind Sensor
If by chance dirt or contamination should enter the bearings of the Vortex, it is not hard to clean, as follows:
- Remove the two screws that hold the plate under the Vortex body
- Carefully remove (pry off) the circlip on the bottom of the shaft (good luck finding it if you drop it!)
- Remove the shaft and rotor assembly and clean the body thoroughly – do not wet lubricate or oil – graphite dry lube only if desired (not needed).
- Reassemble in reverse order

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