Using the MetOne 50.5 Sonic Anemometer with Symphonie Loggers

Introduction

The MetOne 50.5 can be configured to provide 0 to 2.5 V output signals for wind speed and wind direction. In this configuration, it is compatible with the Symphonie, Symphonie*PLUS* and Symphonie*PLUS3* loggers. This Application Note supplements your Symphonie Logger User's Manual and explains how to connect the sensor signals to the logger and how to scale and process the data.

Powering the Sensor

The Symphonie logger system can provide power for the electronics of the MetOne 50.5 when any model iPack is included. If auto-call data downloads are not required, the "PV only" iPack provides 12 V battery power and solar charge regulator for use with PV panels or other external power.

The MetOne 50.5 is not a low power sensor- it draws 10 mA from the 12-volt supply. Depending on how much solar power is available at your site, the standard iPack and PV panel provided for the iPack may not be sufficient to power the MetOne as well. Consult with RNRG if you are not sure.

If you are using the de-icing heaters of the MetOne, you will need to provide external power. If you use a 24V power supply for the heaters, the same supply can also maintain the logger system so that it can provide power for the sensor electronics.

Channel configuration

The Symphonie and Symphonie*PLUS* loggers have six analog channels, numbered 7 to 12. Symphonie*PLUS3* loggers have flex channels 4 to 6, which can be used as wind speed channels, or analog channels. Channels 7 and 8 are pre-configured for wind direction on all three loggers; they are compatible with the Met One direction signal without modification. Symphonie and Symphonie*PLUS* loggers can use any of channels 9 to 12 for the Met One speed. Symphonie*PLUS3* logger can use channels 4 to 6 and 9 to 12. This note assumes that you will use channel 8 for wind direction and channel 9 for wind speed.

The pre-configured vane channels of the Symphonie and Symphonie*PLUS* and Symphonie*PLUS3* loggers are compatible with the Met One direction signal without modification. You may also configure your logger with a 200P Wind Vane Signal Configuration Module (SCM) in any of channels 9 to 12 to accommodate the direction signal from the MetOne (as well as 4 to 6 on the Symphonie*PLUS3* flex channels). For this discussion, we assume you will use channel 8 (Vane 8).

The MetOne speed signal is a linear analog signal. To configure a channel for the MetOne speed signal, use a "110S Temperature" SCM. This SCM provides a 2.5 V input span and identifies the channel as a linear analog (not a vane). When configuring the logger channels, install the 110S Temperature SCM in the desired channel to accommodate the speed signal from the MetOne. For this discussion, we assume you will use channel 9 (Analog 9).

Refer to your Logger User's Manual for more information on SCMs and configuring Symphonie logger channels.

Wiring the Sensor signals to the Logger

All sensor signal connections are made to the field-wiring panel on the Symphonie logger. Refer to this diagram for terminal names and positions.

Symphonie Logger

Symphonie*PLUS* Logger

Symphonie*PLUS3* Logger

As always, ensure that the logger ground wire is connected to a suitable earth ground before connecting sensors. Make sure that you discharge any static electricity by touching the earth ground before handling the sensor wires. Connect the Sensor Power last.

- Connect the cable shield (white and brown striped wire) to one of the "Shields" terminals.
- Connect the Sensor Common (orange wire) to the Vane 8 "-" terminal (GND) (this is connected to the channel 9 "-" internal to the logger).
- Connect the Speed Signal (blue or yellow wire) to the Analog 9 "Sig" (SIG) terminal.
- Connect the Direction Signal (red wire) to the Vane 8 "Sig" (SIG) terminal.
- If using logger power for the sensor electronics, connect the +12 Power wire (white wire) to the logger's "Sensor Power" (EXC) terminal, and the 12V Common (green wire) along with the Sensor Common to the Vane 8 "-" (GND) terminal.
- If you are providing external power for the sensor, apply +9 to +18 V power to the sensor +12 power wire (white wire), with the power supply return connected to the sensor's 12V Common (green wire).
- The sensor's serial output (brown and black wires) is not used. Make sure that they do not short to any other wires.

Entering Sensor Information into the Logger

As with all sensors, the Symphonie logger calculates and stores data in raw units, no scaling is applied to the data in the logger. Descriptive and scaling information entered into the logger is used to display present values, and is stored with the data for later use. Refer to your logger User's Manual for more details on entering values into the Symphonie logger.

When the Logger is started, it will identify channel 8 as an RNRG 200P Wind Vane. Press [Home][4][2][8] then press [SET] to change the description. Press [SET] to see the scale factor 0.351. Leave this unchanged; press [SET] to see the offset, 0.000. Leave this unchanged; press [SET] to see the units, "deg". Leave this unchanged; press [SET]. Enter the sensor height if desired; press [SET]. Enter the sensor serial number if desired. Press [SET] to complete the settings for channel 8.

The logger will identify channel 9 as a 110 S Temperature Sensor. Press [Home][4][2][9] then press [SET] to change the description. Press [SET] to set the scale factor. Enter the value from the table below for the desired units.

Press [SET] to see the default offset of 0.00. Leave this unchanged; press [SET] to see the units, enter "m/s" or "mph" as desired. Press [SET]; enter the sensor height if desired. Press [SET]; enter the sensor serial number if desired. Press [SET] to complete the settings for channel 9.

Scaling of Met One 50.5 Speed signal		
Desired units	Enter Scale Factor…	Enter Offset…
m/s	0.0488	0.0
mph	0.109	0.0

Once these parameters are entered, press [Home][1], then use the [▪] key view the present values of channels 8 and 9.

Data Processing

When creating the site in Symphonie Data Retriever (SDR), the site parameters entered at the logger will be transferred to the site information editor automatically. If desired, you can make additions or corrections to the site parameters before saving the site.

There are no special considerations for processing the data from the Met One sensor. Refer to your logger User's Manual for more information on using SDR for data scaling, data viewing, and other site data processing.