

Digital Anemometer SCM

Introduction

This application note will assist you in using the digital anemometer Signal Conditioning Module (SCM) to interface a wide variety of digital pulse or reed switch sensors to the Symphonie, Symphonie*PLUS* and Symphonie*PLUS3* loggers.

Description

The digital anemometer SCM expects a frequency signal as either a square wave voltage or as reed-switch closures. The SCM includes a built-in 20 K Ohm pull-up resistor for reed switch or "NPN" style outputs. The signal high level must be above 3 volts, and the signal low level must be below 1.5 V for reliable detection of the signal. Input noise filtering rejects frequencies higher than approximately 2500 Hz.

When configuring your sensor channels in Symphonie Data Retriever Software, scroll to the appropriate channel number, click 'Load Defaults', and choose 'Unknown Anemometer' from the drop-down menu. Enter the manufacturer's recommended slope and offset values in the appropriate fields.

We have designed this card to be compatible with all of the sensors listed below. Renewable NRG Systems has run verification tests with those sensors marked with a ✓ check mark in the list. The other sensors listed should be compatible based on manufacturer's output specifications.

Pulse Anemometers

- ✓NRG #40H, (1901)
- ✓NRG IceFree 3 Hall Effect (2749, 2776, 2780, 3956, 3289, 3578) (when monitoring a turbine control anemometer)
- ✓Vector A100L
- ✓RMY 27106 Prop with opto chopper output option (Note: this is NOT the sensor Renewable NRG Systems sells as item 1765)
 - Thies <<first class>>
 - Thies Classic
 - Thies Compact
 - Vaisala WAA252
 - MetOne 010C
 - Wilmer
 - Vector A100M
 - Vector A100K

Reed Switch Anemometers

- ✓Vector A100R
- ✓WindSensor P2546A

Other

- kW or kWh outputs as "KYZ" contacts from utility meters

Sensor Wiring Examples

In some cases, cabling may be supplied by the sensor manufacturer. For convenience, we have included known wiring configurations here. These configurations may be subject to change; please refer to specific wiring instructions included with the sensor. Please note that the Scale Factor and Offset values listed below are provided as *default* values – these values can be used if calibration values are not available. Scale factor and offset values are listed on WindSensor Certificate for Calibration of Cup Anemometer reports which are included with every anemometer. These values are listed as *Calibration equation obtained* (ie. $v [m/s] = 0.6201 \cdot f [Hz] + 0.270$).

WindSensor P2546A Connection Information			
WindSensor Cable	Symphonie & SymphoniePLUS Wiring Panel	SymphoniePLUS3 Wiring Panel	
Brown wire	Ctr - (CH 4,5,6)	EXC (CH 1-3, 13-15) iPack required, no SCM needed	SIG (CH 4-6) w/ Digital Anemometer SCM, no iPack required
White wire	Ctr + (CH 4,5,6)	SIG (CH 1-3, 13-15) iPack Required, no SCM needed	GND (CH 4-6) w/ Digital Anemometer SCM, no iPack required
Bare wire braid (cable shield)	Shield or Earth Ground Stud	SHD - Shield	SHD – Shield
Default Scale Factor Value	0.6201	0.6201	0.6201
Default Offset Value	0.270	0.270	0.270

Specifications

Description	Accessory type	signal conditioning module (SCM)
	Applications	connect a pulse or reed-switch anemometer to NRG Symphonie loggers
	Instrument compatibility	NRG Symphonie Loggers
	Sensor compatibility - counter channels	one pulse or reed-switch anemometer
	Functions	provides input channel electronics to connect a pulse or reed-switch anemometer to a counter channel
Power requirements	Other	powered by logger
Installation	Mounting	plugs in to SCM slot in logger front panel
Physical	Connections	<ul style="list-style-type: none"> installs in Counter 4, Counter 5, or Counter 6 SCM slot on all Symphonie Loggers sensor is connected to logger input terminals
	Dimensions	41 mm x 27 mm x 5 mm (1.6 inches x 10.7 inches x 0.2 inches)