SymphoniePLUS™

15-channel data logger

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— Eddie Sheehan
Micro Wind Systems
Ireland

The Industry Standard

Expand your wind energy measurement study using NRG Systems SymphoniePLUS™ data loggers.

Built on the industry-trusted Symphonie data logger platform, PLUS three more anemometer channels.

- **Proven**
  Pre-configured for the wind industry
- **More Anemometers**
  Up to nine anemometer channels — 15 channels total
- **Easy to use**
  Intuitive programming and data software operation
- **Internet Ready**
  - Iridium Satellite
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NRG SYSTEMS

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SymphoniePLUS™ 15-channel data logger

Specifications

Description

Instrument type	15 channel internet-enabled wind energy data logger
Applications	• wind resource assessment
Sensor compatibility - counter channels	• NRG #40C anemometer • opto anemometer • reed switch anemometer • rain gauge
Sensor compatibility - analog channels	• NRG 200P direction vane • NRG 110S temperature • Li-Cor 200SA pyranometer • NRG BP-20 absolute pressure (requires optional iPack power) • RH-5 relative humidity (requires optional iPack power)
Counter channels	Channels 1-6 and 13-15 are counter inputs: • channels 1-3 and 13-15 are pre-programmed for NRG #40C anemometers or compatible sensors • channels 4-6 use counter Signal Conditioning Modules (SCMs) to configure the channels for other sensors
Analog channels	Channels 7-12 are analog inputs: • channels 7 and 8 are dedicated for NRG 200P direction vane • channels 9-12 use analog Signal Conditioning Modules (SCMs) to configure the channels for other sensors

Data Collection

Sampling interval	2 seconds
Averaging interval	10 minute, fixed
Real time clock	internal battery-backed
Storage medium	32 MB MultiMedia Card (MMC), non-volatile FLASH
Maximum data storage	664 days
Parameters recorded for each channel	• each 10 minute interval is time/date-stamped • average • standard deviation • min* • max* *min and max not used for wind direction vanes
File format	• Windows compatible • (1) 14 KB binary file per day • header includes site, serial number and sensor information
Software	Symphonie Data Retriever for Windows (included) • scales raw data • creates measurement database for each site • creates basic reports • maintains site and sensor information • configures iPacks
Reader	Windows compatible MMC reader accesses data stored on MMC
Data delivery	• MMC cards, and/or internet email via optional iPack: GSM, CDMA (Verizon or Telus) and Iridium Satellite

Resolution

Analog measurement resolution	0.1% of full scale (1024 counts)
Counter average stored resolution	0.1% of the value stored
Analog average stored resolution	0.1% of the value stored
Min / Max stored resolution	0.4% of the value stored
Standard deviation stored resolution	4% of the value stored

Configuration

User interface	• Liquid Crystal Display (LCD) 4 x 20 characters • 16 key pad (6 navigation keys plus numeric/phone pad) with audible feedback
Configurable parameters	• clock • time zone • site number • display scaling (defaults are provided for each channel based on channel type)
iPack options	• iPack configured via serial port connection to your PC • serial connection direct to iPack or through logger's iPack access port • Symphonie Data Retriever for Windows integrates iPack settings

Connections

Sensor wiring	• sensors connect to removeable field wiring panel • ground stud connects to earth ground with included ground cable • male DB25 interfaces to one optional iPack communications module • iPack access port facilitates field programming and accepts headset for voice calls • 3 SCM slots for counter channels 4, 5, 6 • 4 SCM slots for analog channels 9, 10, 11, 12

Power requirements

Batteries	• (2) 1.5 Volt D-Cell Batteries (included) • nominal voltage: 1.5 Volts • minimum voltage: 0.9 Volts • battery life approximately one year, depending on configuration
External power input	• provided by an optional iPack
External solar input	• provided by an optional iPack
Other	• optional iPacks provide 12V power (20mA max.) • PV/Battery only iPack provides power to sensors and logger for stand alone configurations

Installation

Mounting	• mounts with 4 bolts (included) to keyed slots inside of metal shelter box • shelter box mounts to tower with hose clamps
Tools required	• screwdriver for input terminals, included • 8 mm (5/16 inch) wrench or nut driver for logger mounting screws • 3/8 inch wrench or nut driver for logger ground nuts

Environmental

Operating temperature range	-40°C to 65°C (-40°F to 149°F) Note: display readable -30°C to 55°C (-22°F to 130°F)
Operating humidity range	0 to 100% RH non-condensing
Lifespan	10 years +

Physical

Weight	1.3 kg (2.6 pounds), including batteries
Dimensions	22.2 cm (8.7") h x 18.8 cm (7.4") w x 7.7 cm (3.0") d, including field wiring panel

Materials

Faceplate	injection molded black ABS
Buttons	white elastomer dome keypad
Wiring panel	fiberglass-epoxy terminal board, sealed gold plated pins, zinc plated screws and terminals
Enclosure	weatherproof polycarbonate, meets the following specifications: • NEMA type 4, 4X and 13 • IEC: IP65

Ordering Information

■ SymphoniePLUS 15-channel data logger – Item No. 4289

To Place Your Order

Contact NRG Sales, 802-482-2255 or visit nrgsystems.com

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