SymphoniePLUS3®

15-channel data logger

CONTINUOUS IMPROVEMENT HAS ITS REWARDS

Key Features:

- **Universal Anemometer Channels**
  - Six counter channels accomodate the anemometer brand of your choice.
  - Counter channels do not require SCM cards.
- **One-second Sample Rate**
  - Conforms to IEC 61400-12-1.
- **Three 'Flex' Channels**
  - Flex channels configure automatically based on SCM installed.
  - Allows for numerous sensor configuration options.
- **Password Protected Access**
  - Unauthorized user lockout prevents access to logger via the keypad.

Global leader in wind measurement technology®

Complete Systems | Sensors | Remote Sensors | Tilt-Up Towers | Data Loggers | Turbine Control

NRG SYSTEMS®

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SymphoniePLUS®3 15-channel data logger

Specifications

Description

Instrument type	15 channel internet-enabled wind energy data logger
Applications	• Wind resource assessment • Turbine power performance verification
Sensor compatibility - counter channels	• NRG Class 1 anemometer • NRG #40C anemometer • Opto anemometer • Reed switch anemometer
Sensor compatibility - analog channels	• NRG Systems #200P direction vane • NRG Systems #110S temperature sensor • Li-Cor #200SZ pyranometer • NRG Systems #BP20 absolute pressure (requires optional iPack power) • RH-5X relative humidity (requires optional iPack power)
Counter channels	Channels 1-3 and 13-15 are counter inputs • Channels 1-3 and 13-15 are pre-programmed for NRG Class 1 / NRG #40C anemometers or compatible • Maxumum counter input frequency: 2500 Hz
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 each channel for a particular sensor
Flex channels	Channels 4-6 are 'Flex' channels • Analog OR counter inputs • Accept Signal Conditioning Modules (SCMs) to configure the channel for a particular sensor type

Data Collection

Sampling interval	One second
Averaging interval	10 minute, fixed
Real time clock	Internal battery-backed
Storage medium	SD Card, non-volatile FLASH
Maximum data storage	672 files
Parameters recorded for each channel	Each data 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 (SDR) for Windows • Scales raw data • Creates measurement database for each site • Creates basic reports • Maintains site and sensor information • Configures iPacks
Reader	Windows compatible SD Card reader
Data delivery	• SD Card • Internet email via GSM, CDMA, or Iridium Satellite with optional iPack

Resolution

Analog measurement	0.1% of full scale (1024 counts)
Counter average	0.1% of the value stored
Analog average	0.1% of the value stored
Min / Max stored	0.4% of the value stored
Standard deviation	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 • Field wiring panel plugs into logger • Ground stud connects to earth ground with included ground cable
Expansion slots	• Three (3) 'Flex' SCM slots accept analog or counter (digital) SCMs
Communication ports	• Four (4) SCM slots accept only analog SCMs • Male DB25 interfaces to one optional iPack communications module • iPack access port provides a connection to the iPack programming port without dismounting the iPack or logger

Power requirements

Batteries	• Two (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 required by some sensors • 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 and 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

- Contact NRG Systems' Sales, 802-482-2255
- Visit www.nrgsystems.com

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