WMS100

Wind Monitoring System

Campbell Scientific's WMS100 is a turn-key wind measurement data acquisition system, designed specifically to meet the requirements of IEC 61400-12-1 *Power Performance Measurements of Electricity Producing Wind Turbines*. This system measures wind speed, wind direction, air density, and electric power (optional). Real-time or interval data are stored locally on the datalogger, and can be collected via Modbus, DNP3, LoggerNet, or other standard communication protocols over an RS-485, fiber optic, TCP/IP, cellular, or satellite link.

Campbell Scientific data acquisition systems are manufactured in the USA and used worldwide in the wind industry. The WMS100's components are known for their versatility, precision, and dependability—even in harsh, remote environments—minimizing measurement uncertainty.

Though offered as a turn-key package, the WMS100 retains the powerful, modular nature of the Campbell Scientific product line, allowing you to customize the station to meet all your data monitoring objectives. An extensive sensor, communication, and power supply product line allow nearly every aspect of the system to be customized to fit application specific requirements.

Prior to shipment, the WMS100 datalogger is programmed and a complete system test is performed. Factory fabrication, programming and testing of the WMS100 minimizes potential field wiring errors and deployment time.

Features/Benefits

- Contains a Campbell Scientific CR1000 or CR3000 Measurement and Control Datalogger
- Enables integration of nearly every available sensor
- Provides a modular, programmable, and customizable system
- Reduces installation time by using a factory fabricated and programmed datalogger enclosure
- Supports nearly all communication technologies such as RS-485, fiber, TCP/IP, cellular, or satellite
- Complies with Modbus, PakBus, CanBus, and DNP3 protocols
- Provides a battery back system that allows data collection during power outages and network failure
- Undergoes full system testing prior to shipment
- Includes schematics and Modbus register mapping

The WMS100 is a wind monitoring data acquisition system for power performance.

The WMS100 has field wiring options that simplify the attachment of sensors and down-tower cables.

Ordering Information

The components of the Campbell Scientific WMS100 Wind Monitoring System consist of the datalogger, sensor array, datalogger enclosure, power supply, and communication device. Multiple wiring options are available, including quick-sensor connectors, junction boxes, and wireless data transfer.

Dataloggers	
CR1000	The CR1000 is our most widely used datalogger. It can be used in a broad range of measurement and control functions. Rugged enough for extreme conditions and reliable enough for remote environments, it is also robust enough for complex configurations.
CR3000	The CR3000 Micrologger® is a powerful measurement and control instrument, with more channels, more pulse counters, more control ports, and greater voltage accuracy than the CR1000 datalogger. It is the core of complex measurement systems, while still being rugged, reliable, and compact.

Wind Sensors	
Measurements	wind speed and wind direction
Types	cups, vanes, ultrasonic, 3D sonic anemometers, heated options, wireless options
Manufacturers	P2546A (Riso), Thies, Vector, NRG, Met One, R. M. Young, Gill, Vaisala, Lufft, etc
Outputs	Any typical wind speed sensor output including analog, digital, or serial.

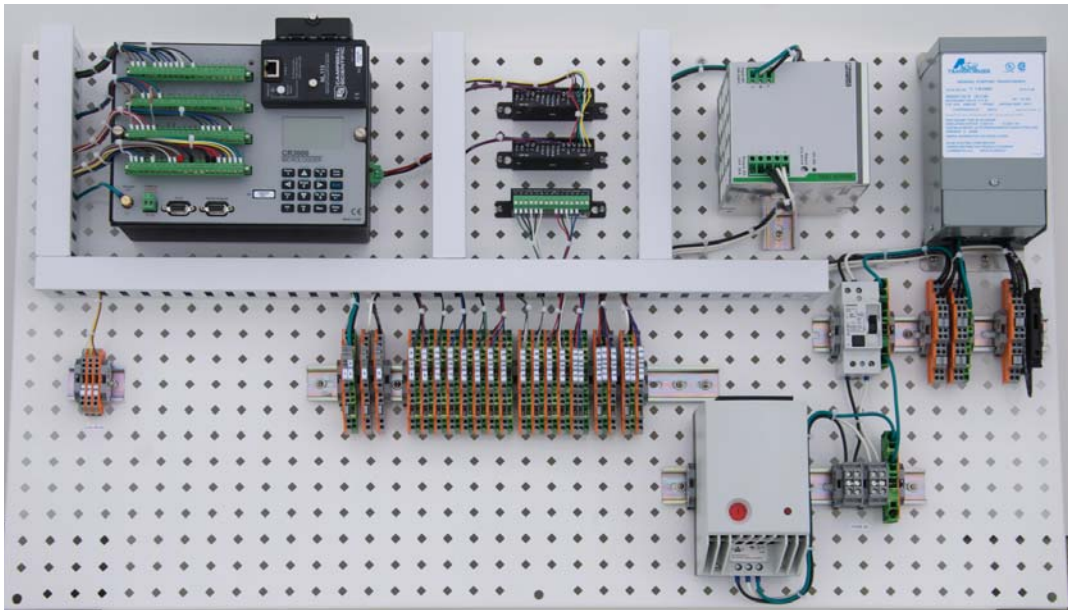
Other Sensors	
Meteorological Measurements	air temperature, differential air temperature, relative humidity, barometric pressure, precipitation, solar radiation, and lightning potential
Power and Structural Measurements	ac voltage, ac current, ac power, dc voltage, dc current, generator frequency/shaft speed, vibration, movement, and stress

Datalogger Enclosures	
Advantages	backplate fabrication, datalogger program, full system test, no-field wiring options
Material	stainless steel, mild steel, fiberglass

Power Supplies	
Solar Power Systems	Solar panels and batteries are ideal for off-grid locations
Backup Power Systems	AC wall chargers convert utility AC power to DC power.

Communications	
Supported Hardware	field display, cellular, satellite, Ethernet, fiber optic, direct (e.g, RS-485), radio
Supported Protocols	MODBUS, DNP3, CanBus, TCP/IP, email, SDI-12, PakBus, information services (e.g., HTTP, FTP, Telnet, SNMP, DHCP, DNS, SMTP)

Technical Support	
Sources	documentation, system drawings, customer support, training



The electronics of a WMS100 system are attached to an enclosure backplate. This system has a CR3000 Micrologger, and an NL115 Ethernet/CompactFlash module.