

1900/65A General Purpose Equipment Monitor

Bently Nevada™ Asset Condition Monitoring



Description

The 1900/65A General Purpose Equipment Monitor is designed to continuously monitor and protect equipment that is used in a variety of applications and industries. The monitor's low cost makes it an ideal solution for general-purpose machines and processes that can benefit from continuous monitoring and protection.

Inputs

The 1900/65A provides four transducer inputs and four temperature inputs. Software can configure each transducer input to support 2- and 3-wire accelerometers, velocity sensors or proximity sensors. Each temperature input supports Type E, J, K, and T thermocouples, and 2- or 3-wire RTDs.

Outputs

The 1900/65A provides six relay outputs, four 4-20 mA recorder outputs, and a dedicated buffered output. The user can use the 1900 Configuration software to configure the relay contacts to open or close according to the OK, Alert and Danger statuses of any channel or combination of channels, and to provide data from any variable from any channel on any recorder output. The dedicated buffer output can provide the signal for each transducer input.

A Modbus® Gateway option allows the monitor to provide static variables, statuses, event list, time and date information directly to any Modbus client, including Distributed Control Systems (DCSs), Supervisory Control and Data Acquisition (SCADA) systems, Programmable Logic Controllers (PLCs), or System 1® software. The monitor uses an internal counter and a Modbus client/master time reference to generate time and date information. Users can upgrade monitors without the Modbus Gateway by ordering the 1900/01 Communications Upgrade (see the Ordering Information section). The 1900/65A supports Modbus communications via Ethernet and a software-configurable RS232/485 serial port.

Configuration

The user defines monitor operation and the Modbus Gateway register map by using software running on a laptop or PC to create a configuration file and download the file to the monitor through the built-in Ethernet connection. The 1900/65A permanently stores configuration information in non-volatile memory, and can upload this information to the PC for changes.

Display Module

The 1900/65A supports an optional display/keypad to view channel information or make minor configuration changes. This allows the 1900/65A to operate as a stand-alone package. If desired, the user can mount the display up to 75 metres (250 feet) from the Monitor Module



Feature List

- Continuous monitoring and protection is suitable for auto-shutdown applications
- Stand-alone operation on general-purpose equipment
- Optional Modbus communications via 10BaseT/100BaseTX Ethernet, or software-configurable 485/232 serial port
- Small package. Monitor Module: 196.9 mm x 149.4 mm x 74.4 mm (7.75" x 5.88" x 2.93"). Monitor Module with attached Display Module: 196.9 mm x 149.4 mm x 97.8 mm (7.75" x 5.88" x 3.85")
- DIN rail or bulkhead mounting options
- 18 to 36 Vdc power input. (optional 110-220 Vac external supply)
- 24-bit ADC conversion
- Four vibration/position/speed inputs
- Four temperature inputs
- Configurable scale factors and full scale ranges
- Up to four processed variables per channel with independent integration and filter control
- Internal OK checking with status
- Independent Alert and Danger setpoints
- 200-entry event list
- Six relay outputs. Relay operation is programmable
- Buffered outputs for each transducer channel
- Four configurable 4-20 mA recorder outputs
- Optional NEMA 4X/IP66 fiberglass housing with window for display
- Painted or stainless steel weatherproof door for panel-mount display
- Hazardous area approvals
- Maritime Approvals

Specifications

Inputs

Transducer Inputs

Users can configure Channels 1 through 4 to accept input from acceleration, velocity or displacement transducers.

Transducer Channel Types

Channel Types define the functionality for processing that will be applied to an input signal and the kind of variables or measurement values that will be derived from this input. Channel Types also define the kind of sensor that must be used. Transducer Channel Types include:

- Acceleration or Reciprocating Acceleration
- Velocity or Reciprocating Velocity
- Radial Vibration (shaft vibration)
- Thrust (shaft axial displacement)
- Position
- Speed

Acceleration and Reciprocating Acceleration Channel Types

The Acceleration Channel Type and Reciprocating Acceleration Channel Type support two- and three-wire acceleration sensors. The Reciprocating Acceleration channel type has timed OK channel defeat disabled.

Acceleration Variables and Reciprocating Acceleration Variables

Acceleration Variables and Reciprocating Acceleration Variables are filtered and processed measurements from

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	raw transducer signals. The Acceleration Channel Type and Reciprocating Acceleration Channel Type continuously processes up to four variables per channel.	<i>Enveloping High-Pass:</i>	25 Hz to 5 kHz, configurable 4-pole
<i>Vibration:</i>	Up to three bandpass filtered amplitude measurements.	<i>Enveloping Low-Pass:</i>	125 Hz to 25 kHz, configurable 2-pole
<i>Acceleration Enveloping:</i>	Users can apply the acceleration enveloping algorithm to one Acceleration or Reciprocating Acceleration Variable.	<i>Enveloped Variable High-Pass:</i>	0.1 Hz min., but greater than Enveloped Variable low-pass 2-pole
<i>Bias Voltage:</i>	Users may assign the value of the transducer bias voltage to any of the variables.	<i>Enveloped Variable Low-Pass:</i>	Greater than Enveloped Variable high-pass and less than Enveloping high-pass 4-pole
Configuration Options	Each variable is independently configured with the following options.	<i>Bias Filter:</i>	0.01 Hz 1-pole low-pass
<i>Vibration Variables:</i>	Peak or RMS Metric or English units Filter corner frequencies Full scale range Acceleration integrated to velocity	<i>OK Filter:</i>	2.4 kHz 1-pole low-pass
<i>Enveloped Variable:</i>	Filter corner frequencies Standard or Enhanced demodulation	Full Scale Range	
Filters		<i>Vibration:</i>	20 to 500 m/s ² (2 to 50 g) peak and RMS
<i>Vibration Variable:</i>	0.5 Hz – 25 kHz configurable 4-pole high-pass, 4-pole low-pass	<i>Enveloped:</i>	20 to 500 m/s ² (2 to 50 g) peak and RMS
		<i>Integrated:</i>	10 to 100 mm/s (0.4 to 4 in/s) peak and RMS
		<i>Bias Voltage:</i>	-24 V
		Accuracy	
		<i>Vibration Variables:</i>	±1% of full scale range