

2300 Series Monitors

Bently Nevada* Asset Condition Monitoring

Description

The 2300 Monitors feature two seismic channels and a speed channel, providing continuous monitoring and protection for BOP (Balance of plant) equipment. It is a perfect match for proactively managing your assets, rather than waiting until production outages to replace equipment.

The 2300 series monitors enable condition based monitoring and protection with support for various interfaces and functions. Inputs include seismic and speed transducers, and outputs include relays, buffered output, TCP/IP Ethernet, and an LCD display. This monitor is available in 2 versions. The 2300/20¹ which has 2 4-20 mA output, and the 2300/25², which supports the Trendmaster SPA line interface.

The 2300/20 Monitor can be used to replace legacy Bently Nevada monitors such as the 1900/27 but more importantly is a full featured monitor for use monitoring and protecting assets such as motors, pumps, fans and so on.

The monitor is software configurable, and includes software to display the overall values on a PC. There is also an integrated LCD and multiple LEDs to show the channels' real-time data and status locally.

Effective plant asset management, and particularly effective fleet management of machinery assets often depends on remote access using condition monitoring software such as System1.



¹ 2300 Series will have 4-20mA and Modbus available in mid-2015

² 2300/25 available in mid-2015

2300 Monitor Key Features

- Two relay outputs with programmable setpoints
- 2 – 4-20mA outputs available on the 2300/20
- 2 Channel – Trendmaster SPA interface on the 2300/25
- Ethernet 10/100 Base-T communication for connection to System 1 and BNMC. The 2300 monitor series also supports Modbus.
- One dedicated speed and Keyphasor channel supporting Proximity probes, Magnetic pickup and Proximity switch type sensors
- Three buffered transducer outputs (including speed signal) providing short circuit and EMI protection. Buffered outputs for each signal are through BNC connectors.
- Available 240/110VAC DIN rail mounted power supplies
- Continuous monitoring and protection
- LCD display showing measurements and speed.
- Two acceleration inputs with synchronized sampling for advanced diagnostics.
- Key measurements(Direct 0-pk, pk-pk, True RMS, Derived pk, integrated direct pk) real-time provided with alarm configuration
- LEDs show the monitor status
- Local configuration lockout
- Package: 127 mm x 127 mm x 76.2 mm (5" x 5" x 3" inches)

Specifications

Inputs / Outputs

Power Input:

- DC Input: 18~36VDC, 6.5 W

Supports 2 seismic channels:

- Supports most ICP accelerometers
 - Bandpass variable: 0.1 Hz High pass, 40 kHz Low pass
 - Scale Factor range: 5 to 1000 mV/g
 - Full scale range: 2 to 80 g peak
 - Bias output voltage: -12VDC
 - Configurable Upper OK limit: -0.25 to -22 V (greater than lower ok)
 - Configurable Lower OK limit: -0.25 to -22 V (less than upper ok)
 - Current Sink Source: 3.3 mA \pm 5%
 - Open Circuit Voltage: -21 to -24 VDC
 - Accuracy: \pm 1% of full scale range
- Supports custom accelerometers (2/3 wire)

Speed/Keyphasor* Inputs

- Supported Keyphasor transducers include:
 - Proximity probe
 - Proximity switch
 - Magnetic Pickup
- Supports multiple events per revolution and event ratios for speed inputs up to 20 kHz
- Threshold voltage resolution: 0.1VDC
- Proximity Transducer Interface:
 - Supply Voltage: -22.8 to -25.2 VDC
 - Maximum Rated Current: 15 mA
 - Short Circuit Current: 15.1 mA to 23.6 mA
 - Accuracy: \pm 1% of full scale range
 - Input Impedance: 3-wire Voltage Mode, 10 k Ω
 - Rpm range: 1 to 120,000
- Proximity Switch Interface:

- Supply Voltage: -10 to -24 VDC
- Lower Not Ok limit: -2.75 \pm 0.05 V
- Rpm range: 1 to 120,000

- Magnetic Pick up:

- Input voltage up to \pm 125V (250Vp-p)
- Rpm range: 200 to 120,000

Contact Inputs

Monitor provides the capability of 3 contact inputs with terminals. One is used for configuration lock, one is for alarm reset function, and the 3rd one is used for monitor Alarm/Relay Inhibit.

- Activate: 0 to 10 k Ω
- De-activate: 150 k Ω to infinite

Button Inputs

- External button to reset alarm and relay
- One buried button provides 3 functions:
 - Display monitor information including:
 - User account/Password
 - IP address
 - FW/HW version
 - LCD contrast adjustment
 - Reset settings to default including:
 - User account name
 - Password
 - Network configuration

Jumper between COM & Chassis GND

- There is a 2Pin terminal interface which allows connection of COM and Chassis GND together.
- Alternatively, COM can be connected to earth ground separately through a terminal.

Buffered Output

- There are three buffered outputs available on the monitor through BNC connectors.

Relay Output

- There are 2 dry-contact relay outputs
- May be normally energized or de-energized
- Relay circuit specification
 - Type: Single pole, double throw

- Sealing: Epoxy sealed
- Contact life:
100,000 cycles @ 5 amps 250 VAC
200,000 @ 1 amp, 24 VDC
- Insulation resistance:
1000 MΩ minimum @ 500 VDC
- Relay closed contact resistance:
1 Ω maximum
- Relay open contact resistance:
1 MΩ minimum
- Maximum switched contact voltage: 400V
AC /150V DC
- Maximum breaking contact current: 6A
@250VAC /6A @24VDC
- Maximum switched power:
1500VA AC /150 Watts DC

LEDs

- OK: Indicates when the monitor is operating properly.
- Protection fault
- User inhibit/bypass
- Relay status
- TX/RX: Indicates the Ethernet status and monitor communicating with remote software
- Speed channel status
- Channel Alarm Status:
 - Alert LED
 - Danger LED

LCD

LCD will provide static values and necessary monitor information

Communications

Ethernet

- Ethernet, 10Base-T and 100Base-TX. Conforms to IEEE802.3.
- BN Protocol using Ethernet TCP/IP.
- RJ-45 for 10Base-T/100Base-TX Ethernet cabling.
- Cable length: 100 meters (328 feet) maximum.

Environmental Limits

Operating Temperature:

- -30 °C to +65 °C (-22 °F to +149 °F)

Storage Temperature:

- -40 °C to +85 °C (-40 °F to +185 °F)

Humidity:

- Up to 95%, non-condensing

Battery Life for Real Time Clock:

- Powered: 38 years @ 50°C (122 °F)
- Un-powered: 12 years @ 50°C (122 °F)

Compliance and Certifications

General and Electrical Safety:

UL Std. No. 61010-1 (3rd Edition) with May 11, 2012 National Differences CAN/CSA-C22.2 No. 61010-1-12

2006/95/EC Low Voltage

Standard:

EN 61010-1: 2010

European Community Directives:

2006/95/EC Low Voltage

EMC

Standards:

EN 61000-6-2 Immunity for Industrial Environments
 EN 61000-6-4 Emissions for Industrial Environments
 EN61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements
 EN61326-2-3 Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

European Community Directives:

EMC Directive 2004/108/EC

Hazardous Area Approvals

Approval Option (01)

CSA, Canada and U.S.

Class 1, DIV 2/Zone 2

ATEX: II 3G Ex nA nC [ic] IIC T4 Gc

IECEx: Ex nA nC [ic] IIC T4 Gc

For further certification and approvals information, visit the following website: www.ge-mcs.com/bently

Physical

Dimensions (Width x Depth x Height)

127mm (5 in) x 127mm (5 in) x 76.2mm (3 in)

Weight

1.03kg (2.26 lbs)

Mounting

Panel mount or DIN rail adapter included

Ordering Information

2300/20-AA: Monitor with 4-20ma Outputs (including DIN rail mount assembly, manual and monitor configuration software)

AA: Approvals

0 1 C1D2 ATEX/IECEX

2300/20_KIT-AAA-BB: Bently Nevada 2300/20 Condition Monitoring System Kit

AAA: Configuration

001

- 1 - Monitor 2300/20
- 1 - 6 ft shield Ethernet cable
- 1 - 14x12x8 fiberglass housing with window
- 2 - Commtest accelerometer sensor
- 2 - 4.8M accelerometer cable
- (Excluding keyphasor sensor and 24 VDC power supply)

002

- 1 - Monitor 2300/20
- 1 - 6 ft shield Ethernet cable
- 1 - 14x12x8 fiberglass housing with window
- 1 - Commtest accelerometer sensor
- 1- 4.8M accelerometer cable
- (Excluding keyphasor sensor and 24VDC power supply)

003

- 1 - Monitor 2300/20
- 1 - 6 ft shield Ethernet cable

2- Commtest accelerometer sensor

2- 4.8M accelerometer cable

(Excluding keyphasor sensor, enclosure and 24 VDC power supply)

BB: Approvals

0 1 C1D2 ATEX/IECEX

Accessories

105M6193-01 Fiberglass NEMA 4X/IP68 weatherproof housing with window in door (includes mounting plate for monitor)

104M9881 Power supply: 110/220 VAC to 24 VDC DIN mount

AM3100T2-Z2 Commtest Accelerometer sensor

100M0741 Proximity Switch

284947 Magnetic Pickup

Proximity Probes Please refer to proximity probe datasheet (**141194-01**) for details

02120015 Bulk Cable from Proximity sensor to monitor (500 feet)

CB2W100-AAA Cable for accelerometer

AAA:

0 1 5 15 feet (4.8 m)
0 3 2 32 feet (9.8 m)
0 6 4 64 feet (19.5 m)
1 1 2 112 feet (34.1 m)
1 2 5 125 feet (38.1 m)
1 5 0 150 feet (45.7 m)
2 0 0 200 feet (61.0 m)
2 5 0 250 feet (76.2 m)

286244 Magnetic Mounting base ¼-28 threaded hole

105M6203-01 Spare 35mm DIN rail mount and screws (included with 2300/20 monitor)

Ethernet Cables

Standard 10 Base-T/100 Base-TX Shielded Category 5 Cable with RJ-45 connectors (solid conductor)

138131-AAA

AAA: Cable Length:

0 0 6 6 feet (1.8 m)

0 1 0	10 feet (3.0 m)
0 2 5	25 feet (7.6 m)
0 4 0	40 feet (12.2 m)
0 5 0	50 feet (15.2 m)
0 7 5	75 feet (22.9 m)
0 8 5	85 feet (25.9 m)
1 0 0	100 feet (30.5 m)
1 2 0	120 feet (36.6 m)
1 5 0	150 feet (45.7 m)
2 0 0	200 feet (61.0 m)
2 5 0	250 feet (76.2 m)
3 2 0	320 feet (97.5 m)

Software

100M9465-01

BN Monitor Configuration SW DVD

Version 4.0 or greater

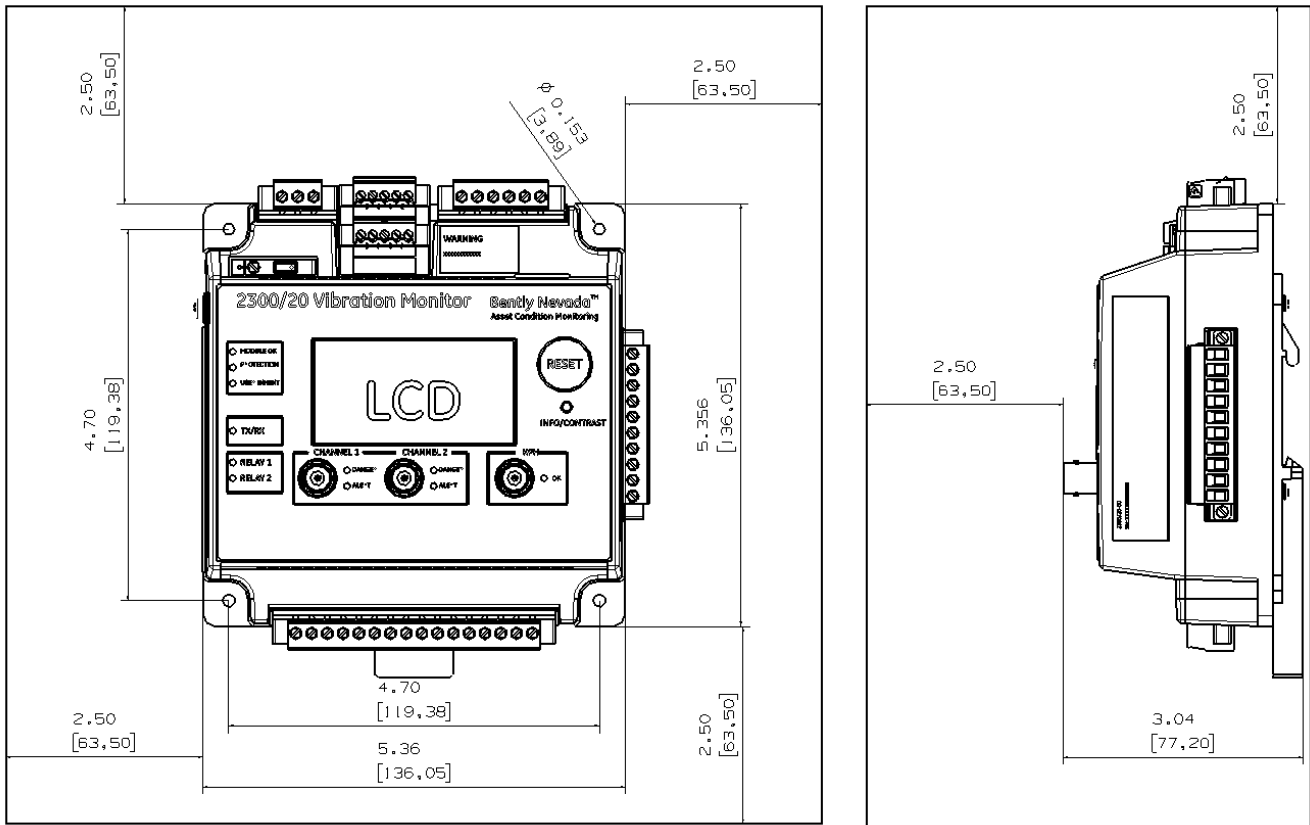
(DVD including Datasheet and Operation & Maintenance manual also)

User Manual

105M0341-01

Operation and Maintenance Manual

Graphs and Figures



The monitor must have 2.5 inch clearance on each side for wiring installation.

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