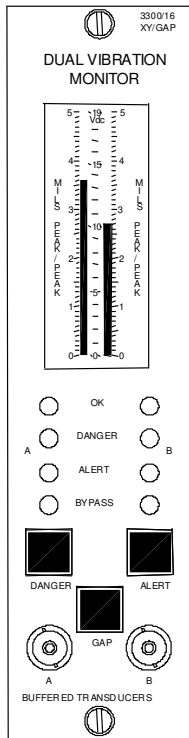


3300/16 XY/GAP Dual Vibration Monitor

Bently Nevada™ Asset Condition Monitoring

Description

The 3300/16 XY/Gap Dual Vibration Monitor continuously measures and monitors two independent channels of radial vibration, and average shaft position (gap), accepting inputs from two proximity probe/ Proximitor® systems. This monitor is designed to supersede the 3300/15 Dual Radial Vibration Monitor, which does not provide radial position gap alarms.



Specifications and Ordering Information
Part Number 141498-01
Rev. J(04/07)

Specifications

Signal Inputs

Accepts one or two proximity probe signals.

Input Impedance:

10 k Ω .

Sensitivity:

100 mV/mil (4 V/mm) or
200 mV/mil (8 V/mm) user-programmable.

Power Consumption

2 watts (nominal)

Signal Conditioning

Accuracy at +25° C (+77° F):

Within $\pm 0.33\%$ of full-scale typical,

- $\pm 1\%$ maximum.
- $\pm 2\%$ maximum with 2X Trip Multiply
- $\pm 3\%$ maximum with 3X Trip Multiply

Frequency Response:

User-programmable for 4 to 4,000 Hz

(240 to 240,000 cpm), or

1 to 600 Hz (60 to 36,000 cpm); -3dB nominal.

Note: The 1 to 600 Hz (60 to 36,000 cpm) option is not recommended for machine applications with rapid startup and coastdown rates where acceleration /deceleration exceeds 1000 rpm/s. Because of the extended low frequency range to 60 cpm, the monitor circuitry will retain vibration transients normally experienced during fast startups (such as with motor driven equipment). This can hold vibration levels above alarm setpoints beyond alarm time delays. This may result in Danger relay actuation after the internal time delay has lapsed, even if

actual vibration has decreased below the Danger alarm setpoint level. If the standard 4 Hz (240 cpm) low frequency limit is not satisfactory for your application, contact your sales professional. The 1 Hz (60 cpm) option is recommended for applications where shaft rotative speed is less than 1,000 rpm.

Recorder Outputs

User-programmable for +4 to +20 mA, 0 to -10 Vdc, or +1 to +5 Vdc. Voltage or current outputs are proportional to programmed monitor full-scale. Individual recorder outputs are provided for each channel. Monitor operation is unaffected by short circuits on recorder outputs.

Output Impedance (voltage outputs):

100 Ω . Minimum load resistance is 10 k Ω .

Voltage Compliance (current outputs):

0 to +12 Vdc range across load. Load resistance is 0 to 600 Ω when using +4 to +20 mA option.

Recorder Accuracy (in addition to signal conditioning accuracy) at +25°C (+77°F):

- +4 to +20 mA: $\pm 0.7\%$ of signal, ± 0.09 mA offset.
- +1 to +5 Vdc: $\pm 1.1\%$ of signal, ± 10 mV offset.
- 0 to -10 Vdc: $\pm 1.1\%$ of signal, ± 15 mV offset.

Buffered Transducer Outputs

There is one coaxial connector per channel on the front panel and one terminal connection per channel on the rear panel. All are short circuit protected.

Output Impedance:

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100 Ω .

Transducer Supply Voltage

User-programmable in Power Supply for -24 Vdc, or -18 Vdc, current limited on individual monitor circuit board.

Note: Contact your sales professional if 3000 series transducers are to be used in the monitoring system which also uses 3300 and/or 7200 series transducers.

Alarm Setpoints

In addition to vibration Alert and Danger setpoints, gap Alert setpoints are available for both channels.

Resolution:

Alarms are digitally adjustable from 0 to 100% of full-scale and can be set within LCD resolution ($\pm 1.6\%$) to desired level.

Repeatability:

Once set, alarms are repeatable within $\pm 0.39\%$ of full-scale.

Gap Alarm Time

Delay:

6 seconds.

Relays

One alarm relay module can be installed behind each monitor. At least one relay module must be ordered with each 3300 System.

Displays

Non-multiplexing vertical bargraph type Liquid Crystal Display (LCD). Individual 63 segment LCD per channel. Probe Gap indicated on a third, center scale. LCD also displays error codes and monitor ADJUST mode.

Resolution:

Within $\pm 1.6\%$ of monitor full-scale.

Size:

83 mm (3.25 in), vertical dimension.

LED Indicators

OK:

One constant ON green LED per channel indicates OK condition of monitor, transducers, and field wiring. Constant OFF indicates NOT OK condition or Channel Bypassed (red Bypass LED will be ON). OK LED flashing at 1 Hz indicates channel has been NOT OK, but is now OK. OK LED flashing at 5 Hz indicates error code(s) stored in memory.

Alarm:

Two red LEDs per channel indicate alarm status (individually for Alert and Danger). Flashing alarm LED indicates First Out (independent for Alert and Danger).

Bypass:

Two red LEDs indicate the status of Danger Bypass and Rack/Channel Bypass functions (individually per channel). LEDs flash when monitor is in Trip Multiply mode.

Environmental Limits

Operating

Temperature:

0°C to +65°C (+32°F to +150°F).

Storage

Temperature:

-40°C to +85°C (-40°F to +185°F).

Relative

Humidity:

To 95%, non-condensing.

CE Mark Directives

EMC Directive

Certificate of Conformity: 158710

Low Voltage

Directive

Certificate of Conformity: 135300

Hazardous Area Approvals


CSA/NRTL/C

Class I, Div 2
Groups A, B, C, D
T4 @ Ta = +65 °C

Certification
Number

150368 – 1002151 (LR 26744)

ATEX

 II 3 G
EEx nC[L] IIC
T4 @ Ta = -20°C to +60°C

When installed per document
number 132577-01.

Certification
Number

BN26744C-55A

Physical

Space

Requirements:

One rack position (any position
except 1 and 2, which are
reserved for Power Supply and
System Monitor, respectively).

Weight:

1 kg (2.2 lbs.).

Ordering Information

For spares, order the complete catalog number as
described below. This includes a front panel
assembly, monitor PWAs with sheet metal, and
appropriate relay module. This unit is optioned,
tested and ready to install in your system. Spare
relay modules can be ordered separately.

XY/GAP Dual Vibration Monitor

3300/16-AXX-BXX-CXX-DXX-EXX-FXX

Option Descriptions

A: Full-scale Range Option

01 0-3 mils peak-to-peak (pp)

02 0-5 mils pp
03 0-10 mils pp
04 0-15 mils pp
05 0-20 mils pp
11 0-100 µm pp
12 0-150 µm pp
13 0-200 µm pp
14 0-400 µm pp
15 0-500 µm pp

B: Transducer Input Option

01 3300 8 mm, 3300 XL 8mm or
7200 5 mm and 8 mm
Proximator Sensor, 200 mV/mil
02 3000 Proximator Sensor, 200
mV/mil (Transducer Output
Voltage in power supply must
be set for -18 Vdc or use a
power converter.)
03 7200 11 mm Proximator®
Sensor(not XL), 100 mV/mil
04 3300 XL 11 mm or 7200 14 mm
or 3300 HTPS Proximator®
Sensor, 100 mV/mil
05 3300XL NSv and 3300 RAM
Proximator® Sensor, 200
mV/mil

Note: Contact your local office if 3000 series transducers are to be
used in the monitoring system which also uses 3300 and/or 7200
Series transducers.

C: Alarm Relay Option

00 No Relays
01 Epoxy-sealed
02 Hermetically-sealed
03 Quad Relay (Epoxy-sealed
only)
04 Spare Monitor – No SIM/SIRM

Notes:

1. AND voting logic is not available with Quad Relays.
2. At least one relay module must be ordered with each
3300 System. If one common relay module per system
has been ordered, all monitors of this type must be
jumper programmed at the factory to activate a relay
bus. Order SCK (Special Configuration Kit) 157516-122
& -123 for bus one or 157516-124 & -125 for bus two.
3. Agency approval places limitations on the relay
module. Refer to the Relay Module data sheet for
information.
4. Quad Relays are not available with the Internal Safety
Barriers option.

D: Agency Approval Option

00 Not required

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- 01 CSA/NRTL/C
- 02 ATEX self certification

Note: ATEX approval requires the monitor rack be installed in a weatherproof housing.

E: Safety Barrier Option

- 00 None
- 01 External
- 02 Internal

Notes:

1. External Safety Barriers must be ordered separately.
2. Quad Relays are not available with the Internal Safety Barriers option.

F: Trip Multiply Option

- 00 None
- 01 2X
- 02 3X

Spare Relay Module Assemblies

(Order the option in parenthesis for ATEX approved spares)

81544-01(02)

No Relays

81545-01(02)

Dual Epoxy Relays

81546-01(02)

Dual Hermetic Relays

84152-01(02)

Quad Relays

88984-01(04)

Dual Hermetic, Internal Barriers

88984-02(05)

Dual Epoxy, Internal Barriers

88984-03(06)

No Relay, Internal Barriers

Field-programmable Options

These options are field-programmable via plug-in jumpers. **Bold text** indicates options as shipped from the factory.

First Out Option

- Enabled**
- Disabled

Alarm Time Delay Option

- 0.1 second
- 1 second
- 3 seconds**
- 6 seconds

Frequency Response Option

- 240-240,000 rpm**
- 60-36,000 rpm

Alert Reset Option

- Latching**
- Nonlatching

Danger Reset Option

- Latching**
- Nonlatching

Recorder Outputs Option

- +4 to +20 mA**
- +1 to +5 Vdc
- 0 to -10 Vdc

Recorder Clamping Mode (+4 to +20 mA option only)

- Not OK = +2 mA**
- Not OK = +4 mA

Danger Relay Voting Option

- OR voting for relay drive**
- AND voting for relay drive

Note: For Quad Relays, AND voting logic must be done externally by wiring the contacts in series.

Alert Relay Mode Option

- Normally de-energized**
- Normally energized

**Danger Relay
Mode Option**

Normally de-energized

Normally energized

Gap Alarms

Disabled

Enabled

**Gap Full-scale
Range**

- **-19 Vdc (All Transducers)**
- 15-0-15 mils (-01, -02 or -05 Transducer Input options).
- 25-0-25 mils (-01, -03 or -04 Transducer Input options).
- 50-0-50 mils (-03 or -04 Transducer Input options).
- 300-0-300 μm (-01, -02 or -05 Transducer Input options).

- 600-0-600 μm (-01, -03 or -04 Transducer Input options).
- 1000-0-1000 μm (-03 or -04 Transducer Input options).

**Timed
OK/Channel
Defeat**

This function is always enabled on this monitor.

Accessories

89634-01

-24V to -18V Proximito[®] Power Converter

128112

Galvanic Isolator Kit

02245002

External Barrier

02200214

Surge Protector