Bently Nevada 3300/46-07-04-00-00

Ramp Differential Expansion Monitor

$995.00

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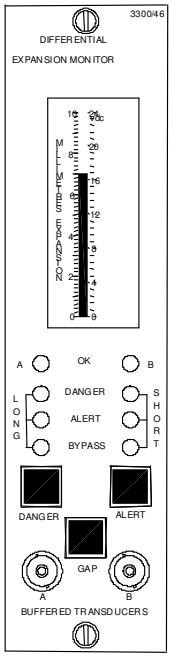
3300/46 Ramp Differential Expansion Monitor

Bently Nevada™ Asset Condition Monitoring



Description

Many large machines requiring differential expansion monitoring do not have a convenient location for mounting the large proximity probes required to make this important measurement. Extremely large machines may require a monitoring range beyond the linear range of even the largest available transducers. The 3300/46 Ramp Differential Expansion Monitor provides for an alternate measurement technique that allows increased monitoring ranges from standard transducers. It is also extremely useful when conventional methods from a collar are not possible.

Two proximity probes are used to observe ramp surfaces, on the rotor, in order to provide one channel of differential expansion. Using ramp surfaces allows increased monitor range with smaller transducers. The monitor's ability to use ramp surface targets also provides added flexibility when choosing a transducer mounting location.

Both the magnitude and direction of differential expansion are displayed on the LCD. The monitor provides four alarm setpoints (two over and two under alarms).

imagination at work

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Specifications

Inputs

Signal:

Accepts two proximity probe transducer signals.

Input Impedance:

10 k Ω.

Signal Scale Factor:

100 m/mil (4 V/mm), 20 mV/mil (0.787 V/mm) or

10 mV/mil (3.92 V/mm). Jumper-selectable.

Power Consumption:

Nominal consumption of 1.5 watts.

Signal Conditioning

Accuracy:

Within ±0.33% of full-scale typical, ±1% maximum.

Specified at ambient temperature of +25°C (+77°F).

Outputs

Recorder:

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

Recorder accuracy (in addition to signal conditioning accuracy):

All specified at +25°C (+77°F).

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

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.

Buffered Transducer Outputs:

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

Output Impedance:

100 Ω.

Transducer Supply Voltage:

-24 Vdc voltages are current limited per channel on individual monitor circuit board.

Alarms

Alarm Setpoints:

Both alarms (Alert and Danger) are digitally adjustable from 0 to 100% of full-scale and can be set within LCD resolution (±1.6% of full-scale) to a desired level. Once set, alarms are repeatable within ±0.4% of full-scale.

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Relay Modules

Location:

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

Display

Meter:

Nonmultiplexing vertical bargraph type Liquid Crystal Display (LCD). 63 individual LCD segments per channel. Probe Gap indicated on a center scale. LCD also displays error codes and monitor ADJUST mode.

Resolution:

Within ±1.6% of monitor full-scale.

Size:

83 mm (3.2 in), vertical dimension.

LED Indicators

OK:

One constant ON green LED per channel to indicate 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 transducer has been NOT OK but is now OK. OK LED flashing at 5Hz indicates error code(s) stored in memory.

Alarm:

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

Bypass:

Two red LEDs indicate status of Danger Bypass and Rack / Channel Bypass functions.

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%, noncondensing.

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

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Physical

Space Requirements:

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

Weight:

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.

Ramp Differential Expansion Monitor

3300/46-AXX-BXX-CXX-DXX

Note: The monitor range and ramp angle determine which transducers are compatible for the differential expansion measurement. When selecting the transducer type, refer to Table 1 to verify that it is compatible with the desired meter range and ramp angle.

Option Descriptions

A: Full-scale Range Option

0 1	5-0-5 mm
0 2	0-10 mm
0 3	0.25-0-0.25 in
0 4	0-0.5 in
0 5	10-0-10 mm
0 6	0-20 mm
0 7	0.5-0-0.5 in
0 8	0-1.0 in
0 9	1.0-0-1.0 in
1 0	0-2.0 in
1 1	25-0-25 mm
1 2	0-50 mm

B: Transducer Input Option

0 1	7200 11 mm (not XL)
0 2	7200 14 mm or 3300 HTPS or 3300 XL 11 mm
0 3	25 mm
0 4	35 mm
0 5	50 mm

C: Alarm Relay Option

0 0	No Relays
0 1	Epoxy-sealed
0 2	Hermetically-sealed
0 3	Quad Relay (Epoxy-sealed only)
0 4	Spare Monitor-No SIM/SIRM

Note: At least one relay module must be ordered with each 3300 System. If one common relay module per system has been ordered, all other monitors of this type will be jumper-programmed at the factory to activate relay bus one.

D: Agency Approval Option

0 0	Not required
0 1	CSA/NRTL/C

Note: CSA/NRTL/C option is only available with relays when the monitor is ordered in a system.

Spare Relay Module Assemblies

81544-01

No Relays

81545-01

Dual Epoxy Relays

81546-01

Dual Hermetic Relays

85119-01

Quad Relays

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

OK Mode Option

Nonlatching

Latching

Alert Reset Option

Latching

Nonlatching

Danger Reset Option

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Latching

Nonlatching

Recorder Outputs Option

+4 to +20 mA

+1 to +5 Vdc

0 to -10 Vdc

Alert Relay Mode Option

Normally de-energized

Normally energized

Danger Relay Mode Option

Normally de-energized

Normally energized

Danger Bypass Switch Option

Disabled

Enabled

Monitor NOT OK Defeat

Disabled

Enabled

Meter Response Time

Fast

Slow

Ramp Option

Dual

Single

Upscale Direction Option

Toward Probe A

Away from Probe A

Ramp Angle Option

Programmable for 4 to 45 degrees

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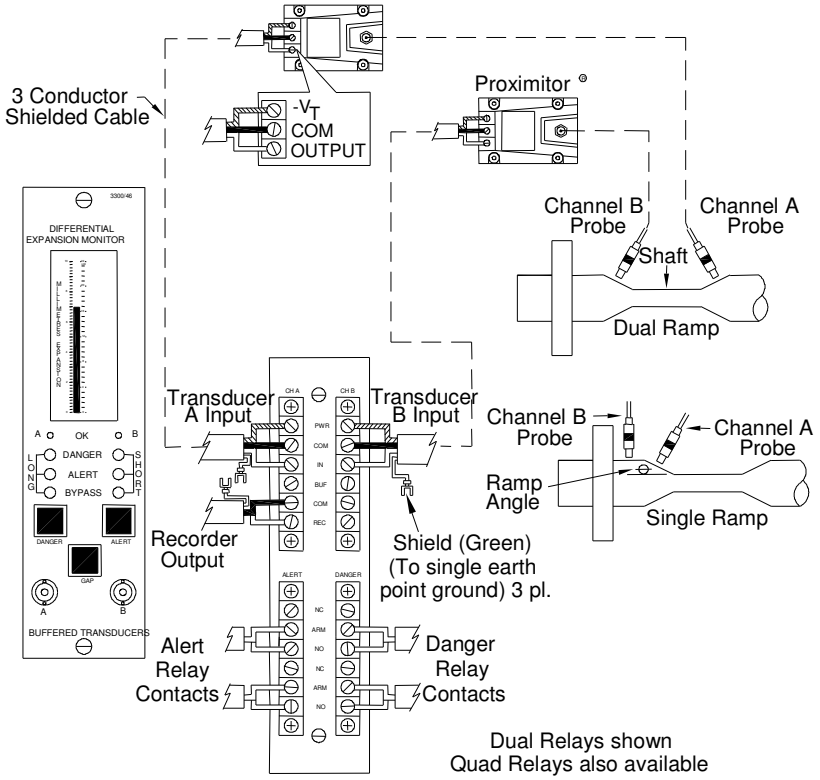
Table and Field wiring diagram

3300/46 Ramp Differential Expansion Monitor

Table 1: Transducer versus Meter/Ramp Ranges			
	Ramp Angles for each Transducer Type (in degrees)		
Meter Range	**11 & 14 mm,HTPS**	**25 & 35 mm**	**50 mm**
5-0-5 mm/0-10 mm	4 – 18	4 – 45	11 – 45
0.25-0-0.25 in/0-0.5 in	4 – 15	4 – 45	11 – 45
10-0-10 mm/0-20 mm	4 – 9	4 – 33	11 – 45
0.5-0-0.05 in/0-1 in	4 – 7	4 – 25	11 – 45
1-0-1 in/0-2 in	NA	4 – 12	11 – 28
25-0-25 mm/0-50 mm	NA	4 – 12	11 – 28
Options shipped from factory	7	12	12



Field wiring diagram for 3300/46 Ramp Differential Expansion Monitor

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