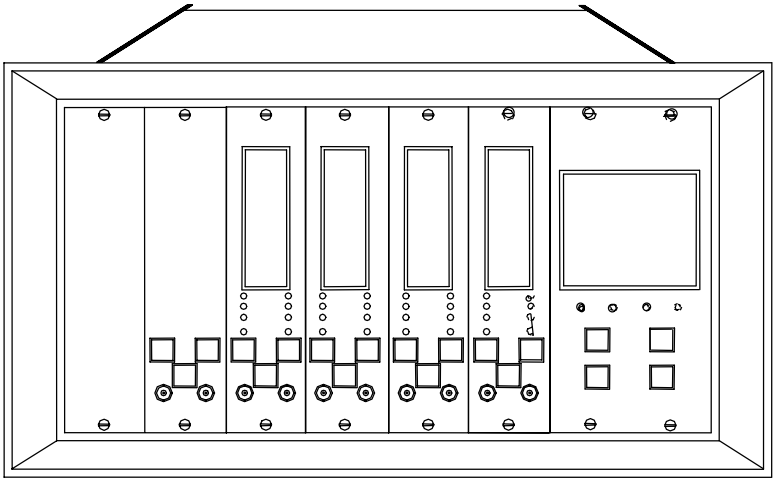
Operation Manual

Bently Nevada™ Asset Condition Monitoring

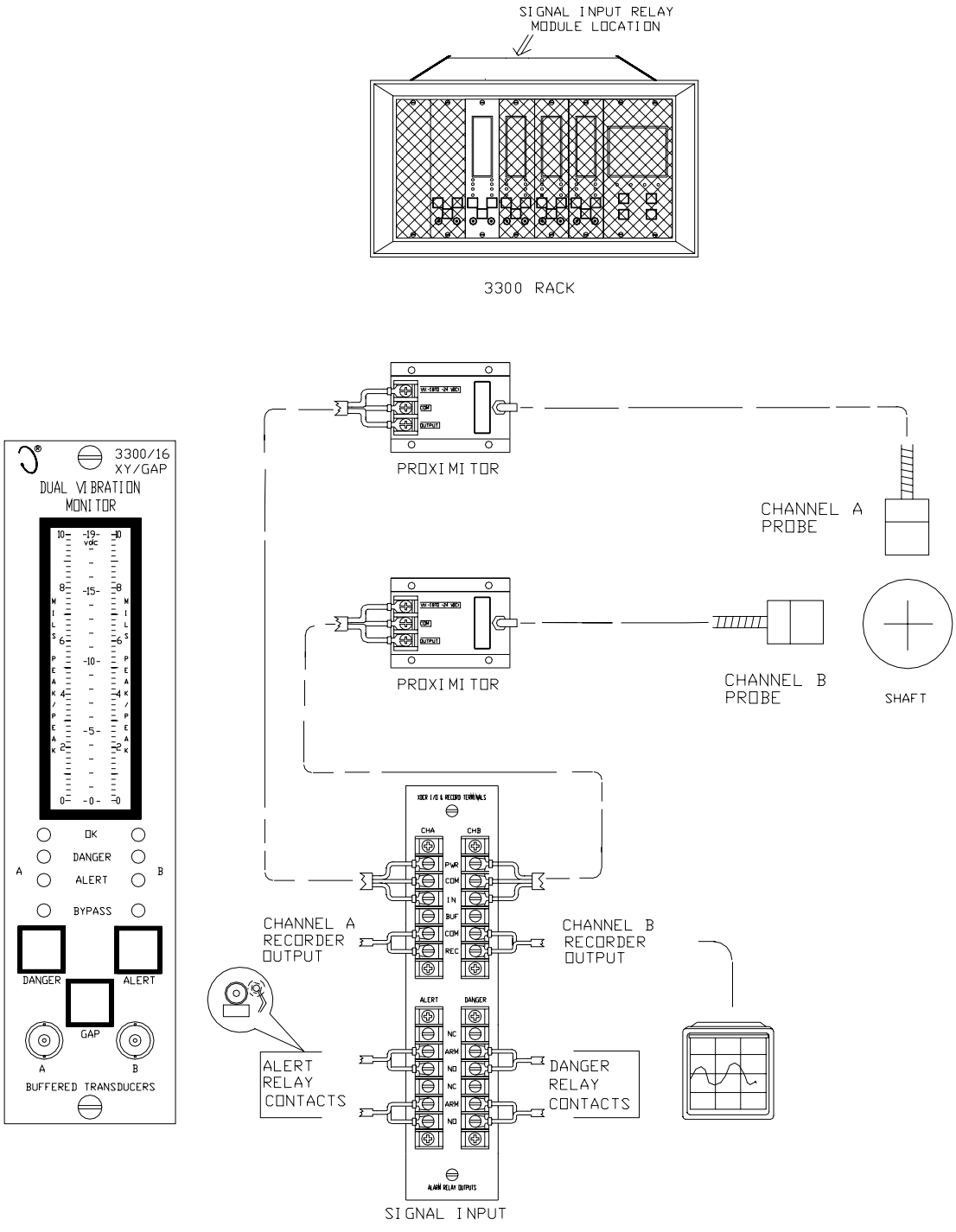


3300/16 Dual Vibration Monitor

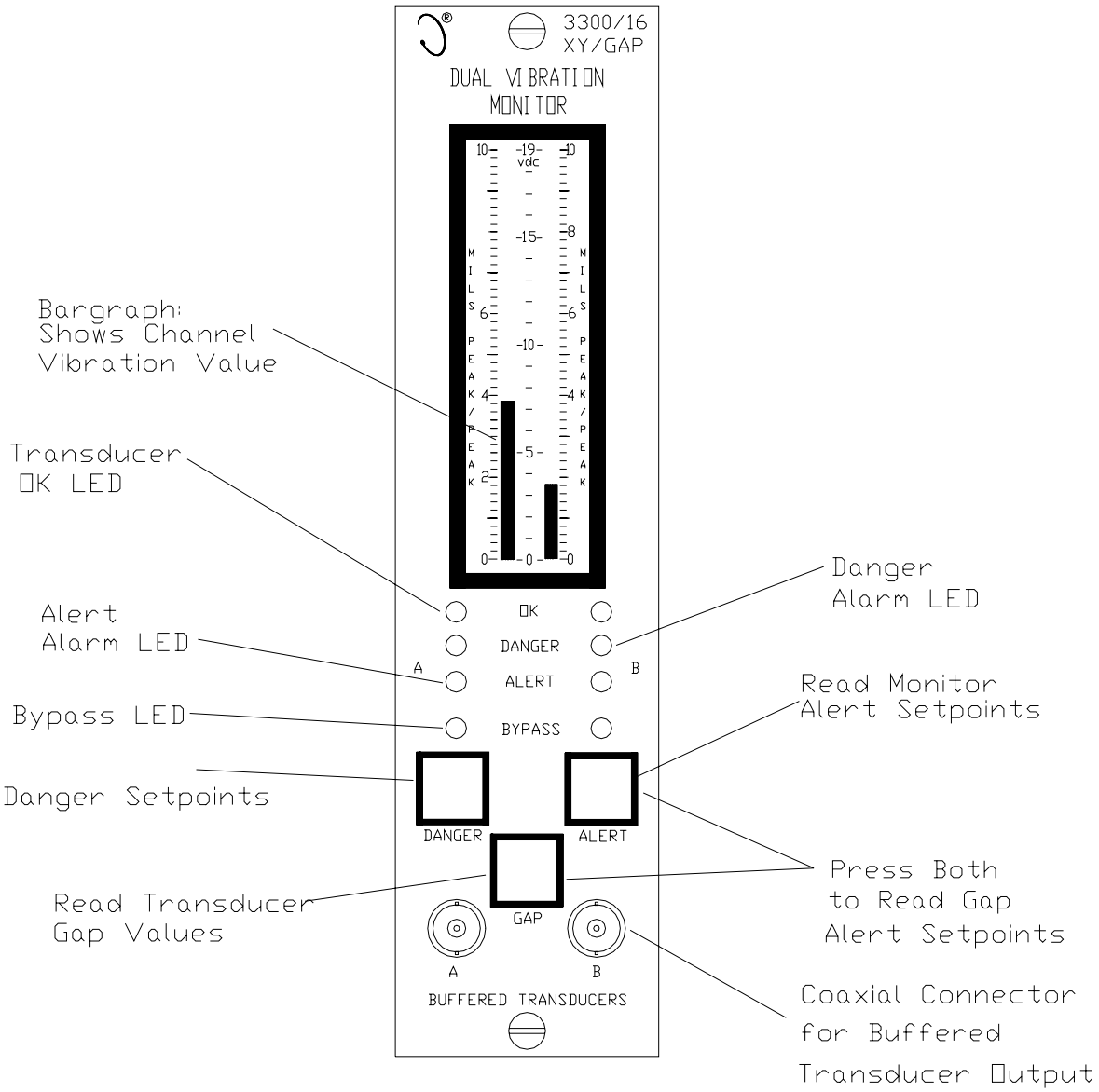
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Part Number 86830-01
Rev. P (08/07)

1. Dual Vibration Monitoring System



2. Front Panel Features



3. Monitor Functions

RADIAL VIBRATION - Radial vibration is defined as shaft dynamic motion in a direction perpendicular to the shaft centerline. The Dual Vibration Monitor displays values for two channels (Channel A and B).

PROBE GAP VOLTAGE - Probe gap is measured as a negative dc voltage that is directly proportional to the gap distance between the face of a proximity probe and the surface being monitored. Probe gap value for each channel is displayed on the front panel meter by pressing the GAP switch.

OK - When the Proximitor output voltage is within its upper/lower limits, the transducer is defined as OK. The OK detection circuit controls the channel **OK** LED and the monitor relay drive to the system Relay.

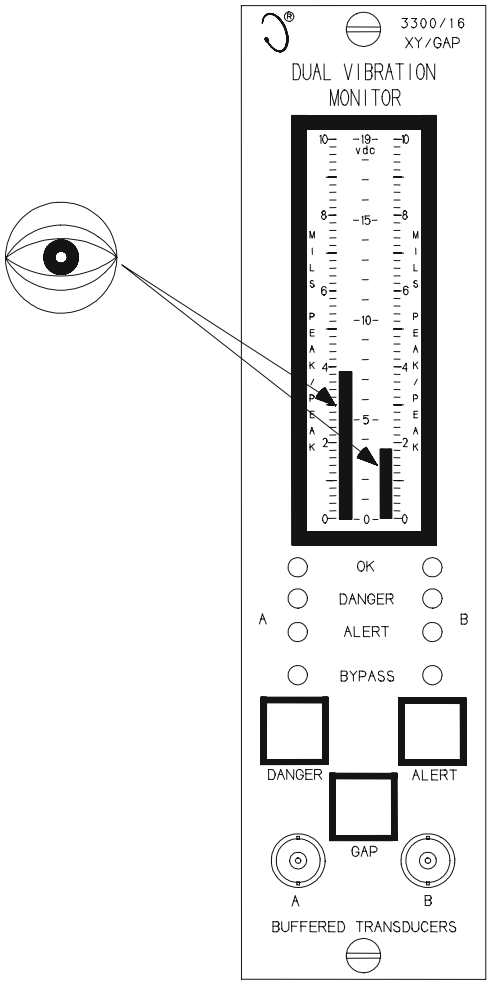
OK RELAY - The OK Relay is located on the Power Input Module. Every channel in the rack must be OK or bypassed to energize the OK Relay.

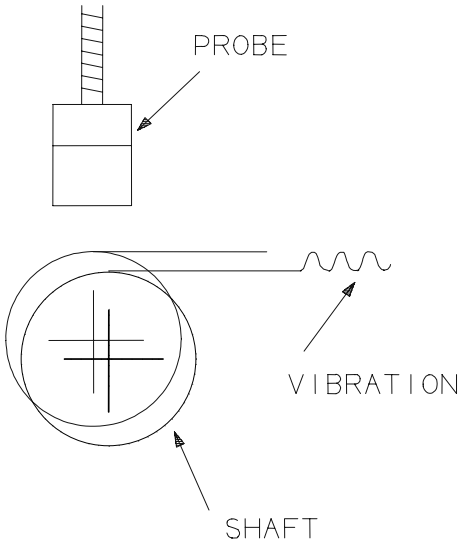
TIMED OK/CHANNEL DEFEAT - Timed OK/Channel Defeat prevents faulty transducer wiring from causing false alarms. If the probe input signal level on a given channel is not within upper/lower OK limits, that channel **OK** LED goes off, the **BYPASS** LED goes on, the channel is disabled, and the OK Relay deenergizes. Once the channel input signal level is restored within the upper/lower OK limits for at least 30 seconds, the channel **OK** LED will start flashing at 1 Hertz (Hz) to indicate the OK state is restored, the BYPASS LED goes off, and monitoring is enabled. You must press the **RESET** switch on the front panel of the System Monitor to stop the **OK** LED from flashing (it will then remain on steadily). If the channel remains in the not OK state, set the Channel Bypass switch on the monitor circuit board to put the channel "out of service". You can then operate the monitor as a single-channel monitor, and the OK Relay will return to an OK state (energized). Without this feature, the OK Relay could not be reactivated. In the Timed OK/Channel Defeat and Channel Bypass modes, the recorder output is clamped to zero vibration value and the display is clamped to zero.

VIBRATION ALARM - Pressing the **ALERT** or **DANGER** switches on the front panel of the monitor displays the Alert (first-level alarm) or Danger (second-level alarm) vibration setpoints on the front panel meter. When the radial vibration signal level is equal to or exceeds preset Alert setpoints for the selected time delay, the **ALERT** LEDs come on and the appropriate Alert Alarm relay contacts are activated. When the radial vibration signal level exceeds preset Danger setpoints, the **DANGER** LEDs come on and the appropriate Danger alarm relay contacts are activated.

4. Channel Vibration

The monitor continuously indicates measured vibration for channels A and B.





10. Monitor Options

PART NUMBER	FULL SCALE RANGE	TRANSDUCER INPUT	ALARM RELAY	AGENCY APPROVAL
3300/16 –	AXX –	BXX –	CXX -	DXX
	01 = 0 - 3 mil pp 02 = 0 - 5 mil pp 03 = 0 - 10 mil pp 04 = 0 - 15 mil pp 05 = 0 - 20 mil 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	01 = 3300 8mm or 7200 5mm & 8mm or 3300XL 8mm Proximitor® Sensor 200 mV/mil 02 = 3000 Proximitor® Sensor 200 mV/mil 03 = 7200 11mm Proximitor® Sensor 100mV/mil 04 = 3300 HTPS 16mm 7200 14 mm 3300 XL 11 mm Proximitor® Sensor 100 mV/mil 05 = 3300 RAM Proximitor® Sensor 200 mV/mil	00 = NONE 01 = EPOXY SEALED 02 = HERMETICALLY SEALED 03 = QUAD RELAY	00 = NOT REQUIRED 01 = CSA/NRTL 02 = BASEEFA

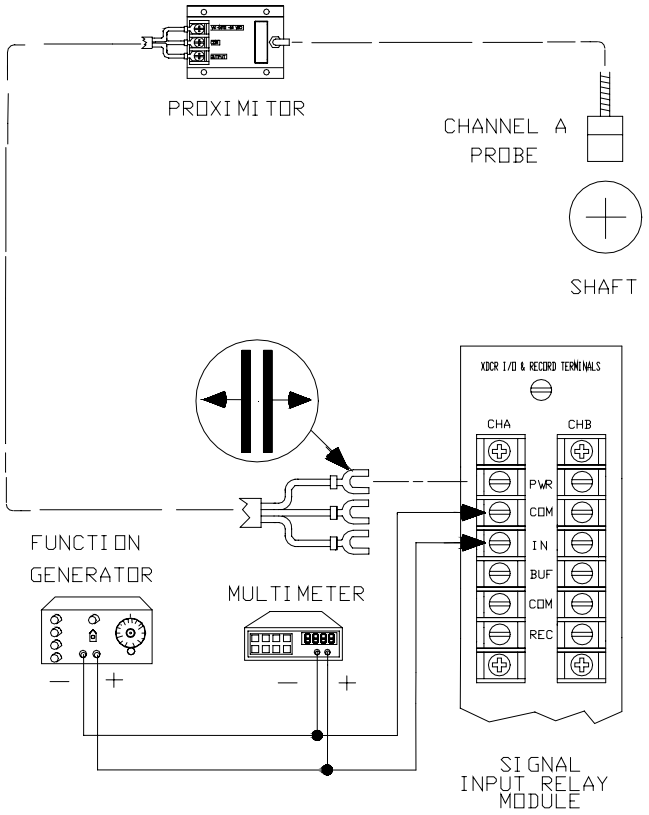
BARRIERS USED	TRIP MULTIPLY
EXX - FXX	
00 = NO 01 =EXTERNAL * 02 = INTERNAL	00 = NONE 01 = 2X TRIP MULTIPLY 02 = 3X TRIP MULTIPLY

* External barriers should only be used with 3300 8mm or 7200 5mm & 8 mm or 3300XL 8mm Proximitor® Sensors and 3300 RAM Proximitor® Sensors. * See Calibration Section **17.2** for more information.

NOTE: Verify that the transducer power supply level (-Vt) is appropriate for the transducer being used. Both the Power Supply and the System Monitor must be programmed to supply the correct voltage. The 3000 transducer requires a

15. Test Alarms

15.1 Test Equipment Setup



WARNING

High voltage present.

Contact could cause shock, burns or death.

Do not touch exposed wires or terminals.

Caution

Tests will exceed alarm setpoint levels and cause alarms to activate. Relay contacts may change state. See Danger Bypass section 14.

1. Disconnect the **COM** and **IN** wiring from the channel A terminals on the Signal Input Relay Module.
2. Connect the multimeter and the function generator (at 100 Hz and -9 Vdc bias) as shown above.

- In the event the function generator cannot supply the necessary DC offset, a floating DC Power Supply will need to be connected in series with the function generator. Connect the positive terminals of the function generator and power supply, connect the negative terminal of the power supply to **IN** signal and the negative terminal of the function generator to the **COM** signal.
- NOTE: the DC offset must be within the gap alarm setpoint window to avoid tripping the Gap alarm. If the recommended -9 Vdc offset is not within this window, adjust the function generator accordingly.

20. Error Codes

ERROR CODE	DESCRIPTION	EXPLANATION/RECOVERY
2	ROM checksum failed.	Tested at Power-up and User-invoked self test. This error is displayed on the front panel, but is not stored in memory. Install your spare monitor or contact your local Bently Nevada office for service.
3	Non-recoverable EEPROM failure.	Tested only at Cyclic self test. Install your spare monitor or contact your local Bently Nevada office for service.
4	EEPROM failure.	May be corrected by adjusting alarm setpoints in the monitor (see section **12**). If setpoint adjustment fails to correct this error, install your spare monitor or contact your local Bently Nevada office for service.
5	+7.5/-VT node out of tolerance.	Tested cyclically. If it is a stored error, recall and clear the error codes as described in the Self Test section. If it is an active error, replace the monitor with a spare or contact your local Bently Nevada office for service.
6	+VRH node out of tolerance.	
7	+5V node out of tolerance.	
8	MVREF node out of tolerance.	
9	+7.5V node out of tolerance.	
10	+VRL node out of tolerance.	
11	MVREF/-6.5V node out of tolerance.	
12	+5V/-7.5 node out of tolerance.	
13	Clock OK voltage out of tolerance.	
14	RAM failure.	Tested at Power-up and User-invoked self-test. These errors are displayed on the front panel, but not stored in memory. Install your spare monitor or contact your local Bently Nevada office for service.
17	COP watchdog not configured.	
22	**Incorrect jumper configuration.**	Tested cyclically. This error is not stored in memory. Correct the jumper configuration of the transducer option or the gap full scale option so that the two are compatible (See section **21, 22, or 23**).
NOTE: If the monitor experiences recurring stored errors contact your local Bently Nevada office for service.		

24. Recommended Spare Parts

QTY PER MONITOR	DESCRIPTION	REPLACEMENT PART NUMBER
1	FRONT PANEL ASSEMBLY	Order complete catalog number *
1	MONITOR CIRCUIT ASSEMBLY	
1	SPARE JUMPERS (100 PIECES)	88706-01
1	SIGNAL INPUT RELAY MODULE	
	NO RELAY	81544-01 *
	EPOXY SEALED RELAY	81545-01 *
	HERMETICALLY SEALED RELAY	81546-01 *
	QUAD EPOXY SEALED	84152-01 *
	NO RELAY WITH INTERNAL BARRIERS	88984 -03 *
	EPOXY SEALED RELAY WITH INTERNAL BARRIERS	88984-02 *
	HERMETICALLY SEALED RELAY WITH INTERNAL BARRIERS	88984-01 *

* To order replacement parts, specify the complete catalog number,
3300/16 – AXX – BXX – CXX – DXX – EXX – FXX, and the replacement part number.