The Senturion DNX8031 Vibration Transmitter is designed to measure relative shaft vibration on critical rotating plant. The unit operates in conjunction with Sensonics XPR range of 8mm tip diameter proximity probes, offering a choice of factory set vibration ranges.

Integrating the proximity probe driver functionality and signal processing to provide a peak to peak vibration measurement offers a cost effective approach to shaft vibration monitoring. The 4-20mA loop powered transmitter affords easy integration with either the machine PLC or a plant wide DCS.

The DNX8031 proximity probe system is made up of a calibrated probe, extension cable and transmitter. Utilising the eddy current principle, this combination forms a tuned circuit with the target material and variations in probe face to target distance are detected in this circuit by the transmitter providing a peak to peak relative vibration measurement output.

The transmitter unit offers selectable system lengths of 5 m, 7 m or 9 m and a voltage proportional to the gap between the probe face and target can be monitored at the terminals to assists with commissioning the probe system.

The cable system incorporates snap lock connectors which require no torquing and provide a shake proof solution important for heavy industrial applications. The double screened cable offers robustness in combination with high immunity to interference with optional stainless steel convoluted armour.
**System Performance**

Measurement Range: 0 to 100 um pk - pk  
Options: 0 to 125 um pk - pk  
0 to 250 um pk - pk  
Hi / Lo Output: 4.0 mA to 20.0 mA  
Loop Powered  
Linearity: ± 1% (% of FS)  
± 2%, 0 °C to +150 °C @ -10.0V  
Current Loop Sensitivity: 6.25 um / mA ± 1 % (0 – 100um)  
7.81 um / mA ± 1 % (0 – 125um)  
15.63 um /mA ± 1 % (0 – 250um)  
Resolution: <0.001 mm  
Interchangability: Maximum interchangability error replacing either probe, extension cable or transmitter in calibrated system is ± 5 %.

Available system lengths: 5 m, 7 m and 9 m  
Cable length tolerance  
Probe (1 metre): 1.0 m to 1.5 m  
Cable Extension (4 metre): 4.0 m to 4.4 m  
Cable Extension (6 metre): 6.0 m to 6.6 m  
Cable Extension (8 metre): 8.0 m to 8.8 m  
Frequency Response: 2Hz to 5 kHz  
Probe Gap Linear Range: 0.25 mm – 1.50 mm  
(10 mils – 60 mils)  
Reference Target Material: ANSI 4140  

**Probe**

Probe tip diameter: 8.0 mm  
Probe tip material: PPS 40 % Glass Filled  
Probe body material: 303 stainless steel  
Available probe body lengths: 20 mm to 250 mm  
0.8 in to 9.6 in  
Cable type: Triaxial 75Ohm Coaxial  
FEP outer jacket  
3.2 mm outer diameter  
Armoured option: Convoluted Stainless Steel  
6.4 mm outer diameter  
Probe Resistance: 3.1 Ohms ± 0.2 Ohm  
Operating Temp Range: -40 °C to +180 °C  
Storage Temp Range: -40 °C to +180 °C  
Minimum target diameter: 16 mm  
Effect of target curvature: +2 % for shaft diameter 150 mm  
+5 % for shaft diameter 25 mm  
Magnetic field effect: <1 % at 110 mT  
Connector: Female Miniature Coaxial

**Transmitter**

Maximum loop resistance: 1000 Ohms at +35.0V  
0.0 Ohms at +15.0V  
50 x (V – 15) Ohms  
Input Voltage Range: +15.0 to +35.0 Vdc  
Recommended Drive: 250 Ohms, +24.0 Vdc  
Signal Output Range: 2.0 V to 12.0 V  
0.25mm (10 mils) to 1.50 mm (60 mils)  
Signal Output Impedance: 10 K Ohm  
Signal Output Sensitivity: 8.0 V / mm ± 2%  
with 10 M Ohm Load  
Signal Output Temperature: ± 10% over range  
Sensitivity: 0 °C to +50 °C  
System Length Selection: Internal switch 5 m, 7 m or 9 m  
Calibration: CAL - adjustment potentiometer for zero setting  
Sensitivity to: Power Supply  
Sensitivity to: Gap Voltage  
< 1.0uA / um  
Transducer Failure: S/C or O/C, Loop Current <3.8mA (out of range)  
Sensor Connector type: Self Locking Miniature Male Coaxial  
Mounting: Din Rail or Plate  
Mass: 250 grams  
Operating Temp Range: -40 °C to +80 °C  
Storage Temp Range: -40 °C to +90 °C  

**Hazardous Area Approvals – ATEX / IECEx**

**Transmitter**

Ex II 1 GD  
Ex ia IIC T4 Ga  
Ex ia IIC T135°C Da  
Ex ia IIC T135°C/ T300°C Da  
-40°C ≤ Ta ≤ +80°C  
-40°C ≤ Ta ≤ +80°C /+180°C  

**Probe**

Ex II 1 GD  
Ex ia IIC T4/T2 Ga  
Ex ia IIC T135°C/ T300°C Da  
-40°C ≤ Ta ≤ +80°C /+180°C

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**Probe Mechanical Configuration**

**Straight Mount**

![Diagram of Straight Mount Configuration]

**Reverse Mount**

![Diagram of Reverse Mount Configuration]

**Extension Cable Mechanical Drawing**

![Diagram of Extension Cable Configuration]
Transmitter Mechanical Configuration

SNAPLOCK CONNECTOR FOR E.C.PROBE INPUT
BLA4 CONNECTOR BLOCK

CAL ADJUST POTENTIOMETER

2x M4 SCREWS
MOUNTING OPTION 2
MOUNTING CLIP

119.2mm MOUNTING SCREW PITCH
129.4mm CUP WIDTH

DNX8031

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**Probe Ordering Information**

**Cable length**
- 0.5 – 0.5 m
- 1.0 – 1 m
- 5.0 – 5 m
- 7.0 – 7 m
- 9.0 – 9 m

**Cable protection**
- U – Unarmoured double screened (standard)
- C – Conduit (convoluted stainless steel)
- S – Heatshrink isolation over conduit
- G – M20 cable gland fitted to standard cable

**Body Format**
- S – Straight Mount (for bracket mounting)
- R – Reverse (fixed nut with ‘O’ ring for use with probe holder)
- A – Right angled cable exit

**Thread type**
- 0 – 3/8”UNF (standard imperial)
- 1 – M10 x 1.0 (standard metric)
- 2 – M16 x 1.5
- 3 – 3/8” – 24 UNC
- 4 – M18 x 1.5
- 5 – M14 x 1.0
- 6 – M14 x 1.5
- 7 – M12 x 1.25
- 8 – M10 x 1.5

**Range (sensitivity)**
- 0 – 2.5 mm (7.87 mV/μm) (API670)

**Hazardous Area Approvals**
- 0 – None
- 1 – ATEX / IECEx

**Unthreaded Length**
Can be ordered in metric or inches.
Not required for reverse mount (fixed nut) option (00)
See Note 1.

**Overall Case length**
Can be ordered in metric or inches.
See Note 2.

**Note 1 - Unthreaded Length Option**

**Imperial Case**
Unthreaded length must be at least 0.8 inches less than the case length. Order in increments of 0.1 in.
Maximum unthreaded length: 8.8 in
Minimum unthreaded length: 0.0 in
Example: 04 = 0.4 in.

**Metric Case**
Unthreaded length must be at least 20 mm less than the case length. Order in increments of 10 mm.
Maximum unthreaded length: 230 mm
Minimum unthreaded length: 0 mm
Example: 06 = 60 mm.

**Note 2 - Overall Case Length Option**

**Imperial Case**
Order in increments of 0.1 in.
Maximum case length: 9.6 in
Minimum case length: 0.8 in
Example: 24 = 2.4 in

**Metric Case**
Order in increments of 10 mm.
Maximum length: 250 mm
Minimum length: 20 mm
Example: 06 = 60 mm.
Transmitter Ordering Information

System length
5 - 5m
7 - 7m,
9 - 9m

Range (sensitivity)
0 = 0 - 100um (0 - 39.4tou) (6.25um/mA)
1 = 0 - 125um (0 - 49.2tou) (7.81um/mA)
2 = 0 - 250um (0 - 98.4tou) (15.63um/mA)

Hazardous Area Approvals
ATEX / IECEx
(Leave blank for None)

Extension Cable Ordering Information

Cable length
4.0 - 4m
4.5 - 4.5m
6.0 - 6m
6.5 - 6.5m
8.0 - 8m
8.5 - 8.5m

Cable protection
U – Unarmoured double screened (standard)
C – Conduit (Convoluted SS)

Hazardous Area Approvals
0 – None
1 – ATEX / IECEx