Bently Nevada 3300 Series Service Manual

86517-xx-xx-01-02 MOD159840-01

1. Description

BENTLY NEVADA 86517-xx-xx-01-02 MOD159840-01 Accelerometer Interface Module

3. Product Information

BENTLY NEVADA 86517-xx-xx-01-02 MOD159840-01 Accelerometer Interface Module

ORDERING INFORMATION

Accelerometer Interface Module

86517 – AXX – BXX – CXX - DXX

A: Transducer Charge Input Sensitivity Option

01 = 50 pC/g

02 = 100 pC/g

B: Filter Corner Frequency Option

01 = 25 Hz high pass corner, 350 Hz low pass corner

02 = 100 Hz high pass corner, 560 Hz low pass corner

03 = 40 Hz high pass corner, 300 Hz

low pass corner

C: DC Signal Bias Voltage

01 = -10 Vdc, No other option available

D: Agency Approval

02 =CENELEC (SIRA)

The accelerometer interface module performs the following functions:

1. Converts a charge input from the accelerometer to a voltage acceleration

signal.

2. Scales the voltage signal to 10 mV/g peak (1.02 mV/m/s2 pk).

3. Buffers the acceleration signal so that it can be connected to

instrumentation over long cable lengths.

4. Bandpass filters the acceleration signal using a 12th order filter with

corner frequencies determined by option BB.

5. Integrates the filtered acceleration signal to a velocity signal with a

sensitivity of 100 mV/in/s pk (3.94 mV/mm/s pk).

6. Buffers the velocity signal so that it can be connected to monitoring

instruments over long cable lengths. The velocity signal is typically used to

monitor machines.

Wiring Recommendations:

2 Accelerometer to interface: Use extension cable, Bently Nevada part

numbers 45358-07 and -09, or 83387-xxx, or equivalent.

5 Interface module to monitor Power, Common, and +Velocity wiring

recommendation: 18 to 22 AWG stranded, three conductor wire with insulating

sheath and 100% shield coverage. 1000 feet (305 metres) maximum. 18 AWG

Belden 83336 or 22 AWG Belden 83334 can be used.

POWER

Supply Voltage: -23 Vdc to -26 Vdc

Current Draw: 22 mA maximum

INPUT

Acceleration: Differential input from a piezoelectric accelerometer

with a sensitivity of 50 pC/g pk or 100 pC/g pk.

Accelerometer pole to pole capacitance plus

extension cable capacitance should not exceed 8300

picofarads.

Overload: 50,000 pC peak for accelerometers with 50 pC/g pk

sensitivity, and 100,000 pC peak for accelerometers

with 100 pC/g pk sensitivity.

ACCELERATION OUTPUT

Sensitivity: 10 mV/g pk (1.02 mV/m/s2 pk) balanced output, 50

ohm nominal output impedance.

Dynamic Range: 750 gs (7350 m/s2) without barriers typical. 500 gs

(4902 m/s2) with barriers typical.

Frequency Response:

The low frequency response is controlled by the

charge amplifier. The -3 dB corner is at 4.7 Hz. The

high frequency response is controlled by the

combination of the accelerometer and extension

cable capacitance, the charge amplifier/scaling

stage, and the load capacitance on the acceleration output buffer. For an accelerometer capacitance of 1000 pF and a cable capacitance of 1000 pF the upper -3 dB frequency is approximately 5000 Hz.

VELOCITY OUTPUT

Sensitivity: 100 mV/in/s pk (3.93 mV/mm/s pk), balanced output. Output impedance 100 ohms nominal.

Dynamic Range: 20 in/s pk (508 mm/s pk) 25 Hz to 1000 Hz.

Frequency Response: Dependent on filters. See filter specifications.

7.2 Accelerometer Interface Module

VELOCITY OUTPUT

Accuracy: ±5.0% of calculated velocity from an ideal input in the passband of the bandpass filter at 77_x001f_ F (25_x001f_ C)

FILTERS

High and low pass corner frequencies are ordered as pairs, the following pairs can be ordered:

High Pass Corner Low Pass Corner

25 Hz 350 Hz

40 Hz 300 Hz

100 Hz 560 Hz

The high and low pass filters are 6th order with -36 dB/octave rolloff and have a butterworth response. Attenuation at the corner frequency is -3 dB ±0.5 dB.

ENVIRONMENTAL

Operating Temperature: +32° F to +158° F (0° C to 70° C)

Storage Temperature: -40° F to +185° F (-40° C to +85° C)

Humidity: 0 to 95%, noncondensing

MECHANICAL

Accelerometer Input Connector: MS-3112-8-3P

Power/Output Connector: 8 lug terminal block

Dimensions:

Height: 3.00 inches, (76.2 mm)

Width: 3.25 inches, (82.6 mm)

Length: 5.50 inches, (139.7 mm)