177230 Seismic Transmitter

Datasheet

Cordant™

177232 Rev. U



Description

The 177230 Seismic Transmitter is a simple, loop-powered device that can be quickly and easily installed. It can be integrated into your programmable logic controller (PLC) or controls system linked to a plant asset condition monitoring solution. Its simple design reduces training, maintenance, and service costs. The transducer helps you better manage downtime, optimize maintenance planning, and avoid unforeseen catastrophic failures of machinery assets.

The 177230 Seismic Transmitter incorporates robust CM design for reliability and implements an industry-standard 4 to 20 mA loop-powered transmitter.

Easily Installed and Integrated

- Interfaces with PLCs and control systems (including DCS and SCADA).
- Requires only a short learning curve for operations and maintenance, through a familiar interface similar to that for connecting other PLC or control system inputs.
- Requires no field configuration or adjustments.
- Needs few additional parts for a complete system.
- Includes technical support for customers on how to monitor their equipment.
- Includes self-test.
- Incorporates protected interface.
- Supports a variety of interface cables.

Data Quality

- Provides accurate and repeatable data.
- Uses simple data format.
- Provides raw vibration signal for verification and analysis.

Baker Hughes

Specifications

Electrical

Excitation Voltage	12 to 30 Vdc (Current limited to 40 mA)

This product is for use with PLCs, DCS, and SCADA systems that have internal power supplies which are typically current limited in the range of 30 mA to 35 mA.

Settling Time	Less than 15 seconds within 2% of final value
Mounted Resonant Frequency	Greater than 12 kHz
Transverse Sensitivity	Less than 5% of sensitivity
Sensing Element Type	Ceramic / Shear
Connector Wiring Convention	
Pin A	4-20 mA Positive Loop (Positive with reference to Pin B)
Pin B	4-20 mA Loop Return (Negative Loop Return for Pin A and common for Dynamic Signal)
Pin C	Dynamic Acceleration Signal (Unbuffered, referenced to Pin B)

The Dynamic Signal Negative (Pin B) requires isolation from any grounding. If this terminal is grounded, the 4-20 mA loop will short, resulting in no output.

Velocity Output	
Output Signal	4 to 20 mA Current Loop from Pin A to Pin B
Full Scale Range (-AA)	**00** - 12.7 mm/s (0.5 in/s) ± 10% **01** - 25.4 mm/s (1.0 in/s) ± 10% **02** - 50.8 mm/s (2.0 in/s) ± 10% Full Scale, broadband RMS (Root Mean Square)
Sensitivity - Main Loop	4 ± 0.3 mA equals 0.0 mm/s 20 ± 2 mA equals Full Scale Range
Frequency Response (-BB)	**01** - 10 Hz to 1 kHz ± 10% (600 cpm to 60 kcpm ± 10%) Output signal is proportional to the RMS vibration levels. **02** - 3 Hz to 1 kHz ± 10% (180 cpm to 60 kcpm ± 10%) Output signal is proportional to the peak vibration levels.
Acceleration Output	
Output Signal	Unbuffered Voltage from Pin C to Pin B (Reference)
Sensitivity	10.2 mV/m/s^2 (100 mV/g) ± 20%
Full Scale Range	147 m/s^2 (15 g) peak
Frequency Response	2.5 Hz to 10 kHz ± 10% (150 cpm to 600 kcpm ± 10%)
Linearity	± 1% of Full Scale
Output Bias	2.5 V ± 0.1 V (Referenced to Pin B)

Seismic Transmitter

177230-AA-BB-CC

A: Measurement Range	
00	0 - 12.7 mm/s (0 - 0.5 in/s)
01	0 - 25.4 mm/s (0 - 1.0 in/s)
02	0 - 50.8 mm/s (0 - 2.0 in/s)
B: Frequency	
01	10 Hz to 1 kHz (600 to 60 kcps) RMS (Root Mean Square)
02	3 Hz to 1 kHz (180 to 60 kcps) peak
C: Approvals	
05	Multiple Approvals (CSA/NRTL/C, ATEX/IECEx)

Only standard or common AA-BB-CC configurations are available.

Interconnect Cable without Armor

16925-AA

A: Length in feet
Order in increments of 1 foot (0.3 m)
Minimum length: 3 feet (0.91 m) Maximum length: 99 feet (30.2 m) Example: **25** = 25 feet

These standard lengths are available. You can order custom lengths at additional cost.

Feet	Meters (approx.)
10	3.1
12	3.6
15	4.5
17	5.0
20	6.0
25	7.6
30	9.0
99	30.0

Interconnect Cable with Armor

16710-AA

A: Length in feet
Order in increments of 1 foot (0.3 m)
Minimum length: 3 feet (0.91 m) Maximum length: 99 feet (30. 2m) Example: **25** = 25 feet

These standard lengths are available. You can order custom lengths at additional cost.

Feet	Meters (approx.)
08	2.4
10	3.1
12	3.6
15	4.5
17	5.0
20	6.0
30	9.0
99	30.0