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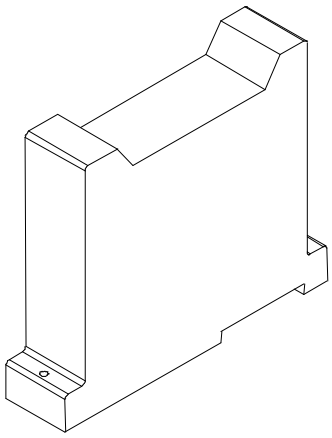
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1701/25 FieldMonitor™ Seismic Input Monitor for Velocity and Acceleration Input

Bently Nevada™ Asset Condition Monitoring



Description

The 1701/25 FieldMonitor™ Seismic Input Monitor is a 2-channel device that accepts signals from acceleration or velocity transducers via its associated transducer I/O module, conditions these signals into the appropriate measurement units, compares them to user-programmable alarm setpoints, and generates appropriate alarm signals for communication to the host control system. Numerous filtering and integration capabilities are provided for appropriate signal conditioning (refer to specifications for details). The monitor can also provide current values of its measured parameters to the control system for indication and trending. Embedded self-tests permit the monitor to assess its own integrity, and that of its connected transducers. A NOT OK condition can be detected and annunciated when problems with the monitor or its connected transducers exist.

The monitor can be programmed to provide any of the following measurements:

- direct velocity
- rms velocity
- integrated velocity
- filtered direct velocity
- filtered rms velocity
- filtered integrated velocity
- direct acceleration
- rms acceleration
- filtered direct acceleration
- filtered rms acceleration
- integrated direct acceleration (velocity)
- integrated rms acceleration
- filtered integrated direct acceleration
- filtered integrated rms acceleration

Note: Velocity and acceleration transducers cannot be mixed in the same 2-channel monitor. Each monitor channel can only provide one of the above measurements, depending on configuration.

imagination at work

Specifications

1701/25 Seismic Input Monitor for Velocity Input

Programmable Options

Proportional Values (one per channel):

- direct velocity
- rms velocity
- integrated velocity
- filtered direct velocity
- filtered rms velocity
- filtered integrated velocity

Alarms

Alarm 1 (Alert), Alarm 2 (Danger):

Over Alarm 1 & 2 on single proportional value.

Alarm Time Delays:

0.15, 0.2, 0.3, 0.5, 0.6, 1.0, 2.0, 3.0, 5.0, 6.0, 10.0, 20.0 seconds

Latching/Non-Latching Alarms:

Non-Latching only

Trip Multiply:

None, 1.5, 2, 3

OK Mode:

Non-latching only

Timed OK Channel Defeat:

Enabled or Disabled

Alarm Hysteresis:

0.5% of full-scale

Signal Processing Options

Bandwidth/

Filtering

Direct Velocity:

3 Hz to 5,500 Hz

Direct rms or integrated direct velocity:

10 Hz to 5,500 Hz

Filters:

Programmable low-pass (LP) and high-pass (HP) 4th order

(-80 dB/ decade)

Filter Programmable Options

High-Pass Corner Frequency in Hz

3, 10, 15, 18, 20, 25, 30, 50, 60, 80, 100, 110, 120

Low-Pass Corner Frequency in Hz

5500, 4000, 3000, 2000, 1600, 1400, 1200, 1000, 800, 600, 450, 400, 200, 120, 100

Note: The allowed programmable corner frequencies depend on the transducer type and the full-scale range.

Full-scale Ranges

Peak velocity (no integration):

0 - 0.5 in/s

0 - 1.0 in/s

0 - 2.0 in/s

0 - 3.0 in/s

0 - 10 mm/s

0 - 20 mm/s

0 - 50 mm/s

0 - 75 mm/s

Integrated velocity, pp:

0 - 5 mil

0 - 10 mil

0 - 20 mil

0 - 100 µm

0 - 200 µm

0 - 500 µm

RMS velocity:

0 - 0.5 in/s rms

0 - 1.0 in/s rms

0 - 2.0 in/s rms

0 - 3.0 in/s rms

0 - 10 mm/s rms

0 - 20 mm/s rms

0 - 40 mm/s rms

0 - 50 mm/s rms

0 - 75 mm/s rms

Barriers:

170190-01 for all sensors except CEC

170190-02 only for CEC transducers

- Internal galvanically isolated barrier (requires the 1701/06 Isolator Terminal Base)
- External Zener Barrier (Velomitors Only)
- External galvanically isolated barrier

Supported Transducer I/O Modules

170180-03-XX

Velomitor® I/O

170180-02-XX

Velocity I/O

170180-04-XX

Velomitor® A and Velocity B I/O

External Transducer Options

I/O Module

170180-03-XX

or

170180-04

Channel A only

Velomitor® transducer

170180-03-XX

or

170180-04

Channel A only

High Temperature Velomitor® transducer

170180-02-XX

or

170180-04

CEC 4 - 126, Moving coil Velocity transducer (When using Internal Galvanic Isolators, this transducer must be used with the 170190-02 isolator)

170180-02-XX

or

170180-04

9200 Series Seismoprobe Velocity transducer (use with 170190-01 isolator)

Control I/O

- Channel On/Off
- Monitor Reset
- Channel Inhibit
- Trip Multiply: Enabled, Disabled

Specifications at 25°C (77°F)

Direct accuracy:

1% of full-scale for full-scale ranges with voltage spans > 200mVp.

2% of full-scale for full-scale ranges with voltage spans =200mVp.

(exclusive of filters)

Direct resolution:

0.1% of full-scale

Power input:

-24 V, + 5 V, from 1701 Power Supply

Power Consumption:

1.5 Watt (not including transducers)

Setpoint resolution:

0.5% of full-scale

Flex read/write rate:

≥ 25 millisec (monitor to Flex adapter)

Buffered Output

(Buffered signal is unprocessed transducer signal):

30 m (100 ft) cable at 60pF/ft, not isolated

Output impedance:

200 Ω

Physical

Dimensions (HxWxD)

127 mm x 21.6 mm x 105 mm

(5 in x 0.85 in x 4.15 in)

Weight:

314 g (0.69 lb)

Environmental Limits

Operating Temperature:

-20°C to + 70°C (-4°F to +158°F)

Storage Temperature:

-40°C to + 85°C (-40°F to +185°F)

Operating Humidity:

5% to 95% non-condensing relative humidity.

Storage Humidity:

5% to 95% non-condensing relative humidity.

1701/25 Seismic Input Monitor for Acceleration Input

Programmable Options

Proportional Values (one per channel):

- direct acceleration
- rms acceleration
- filtered direct acceleration
- filtered rms acceleration
- integrated direct acceleration (velocity)
- integrated rms acceleration
- filtered integrated direct acceleration
- filtered integrated rms acceleration

Alarms

Alarm 1 (Alert), Alarm 2 (Danger):

Over Alarm 1 & Alarm 2 on single proportional value

Alarm Time Delays:

0.15, 0.2, 0.3, 0.5, 0.6, 1.0, 2.0, 3.0, 5.0, 6.0, 10.0, 20.0 seconds

Latching/Non-Latching Alarms:

Non-Latching only

OK Mode:

Non-Latching only

Trip Multiply:

None, 1.5, 2, 3

Timed OK Channel Defeat:

Enabled or Disabled

Alarm Hysteresis:

0.5% of full-scale

Signal Processing Options

Conversions

(Integrator position with respect to filtering: Filters before integrator only):

Integrated

rms

Bandwidth/Filtering

Two channels of acceleration input
Output type:

Selectable Filter Ranges (HP to LP)

Peak acceleration:

3 Hz to 31.55 kHz

rms acceleration:

10 Hz to 31.55 kHz

Peak velocity:

20 Hz to 14.05 kHz

rms velocity:

20 Hz to 14.05 kHz

One channel acceleration input, one channel unused
Output type:

Selectable Filter Ranges (HP to LP)

Peak acceleration:

3 Hz to 24.3 K Hz

rms acceleration:

10 Hz to 24.3 K Hz

Peak velocity:

20 Hz to 24.3 K Hz

rms velocity:

20 Hz to 24.3 K Hz

Filters:

Programmable low-pass (LP) and high-pass (HP) 4th order

(-80 dB/ decade)

Filter Programmable Options

Dual-Channel 14.05 kHz Accel Monitor Type 1
High-Pass Corner Frequency in Hz

3, 10, 12, 16, 20, 22, 25, 30, 50, 60, 100, 120, 150, 200

Low-Pass Corner Frequency in Hz

14050, 13200, 12100, 10600, 10000, 9000, 8100, 7000, 6100, 5000, 4100, 3100, 2100, 1100

Dual-Channel 31.55 kHz Accel Monitor Type 2
High-Pass Corner Frequency in Hz

3, 10, 12, 16, 20, 22, 25, 30, 50, 60, 100, 120, 150, 200

Low-Pass Corner Frequency in Hz

31550, 26000, 23700, 15800, 13250, 12100, 10600, 10000, 8100, 6000, 5000, 3000, 2100, 1000

Single-Channel 24.3 kHz Accel Monitor Type 3

High-Pass Corner Frequency in Hz

3, 10, 12, 16, 20, 22, 25, 30, 50, 60, 100, 120, 150, 200

Low-Pass Corner Frequency in Hz

24300, 21000, 18000, 15800, 13250, 12100, 10600, 10000, 8100, 6000, 5000, 3000, 2100, 1000

Note: The allowed programmable corner frequencies depend on the channel type and the full-scale range type.

Full Scale Ranges

Peak acceleration,

no integration:

0 - 2 g's pk

0 - 5 g's pk

0 - 10 g's pk

0 - 20 g's pk

0 - 25 g's pk

0 - 40 g's pk

0 - 50 g's pk

0 - 20 m/s^2 pk

0 - 50 m/s^2 pk

0 - 100 m/s^2 pk

0 - 200 m/s^2 pk

0 - 250 m/s^2 pk

0 - 400 m/s^2 pk

0 - 500 m/s^2 pk

Integrated acceleration, pk:

0 - 1.0 in/s pk

0 - 2.0 in/s pk

0 - 25 mm/s pk

0 - 50 mm/s pk

0 - 100 mm/s pk

RMS acceleration

0 - 2 g's rms

0 - 5 g's rms

0 - 10 g's rms

0 - 20 g's rms

0 - 25 g's rms

0 - 40 g's rms

0 - 50 g's rms

0 - 20 m/s^2 rms

0 - 50 m/s^2 rms

0 - 100 m/s^2 rms

0 - 200 m/s^2 rms

0 - 250 m/s^2 rms

0 - 400 m/s^2 rms

0 - 500 m/s^2 rms

RMS integrated acceleration:

0 - 1.0 in/s rms

0 - 2.0 in/s rms

0 - 25 mm/s rms

0 - 50 mm/s rms

0 - 100 mm/s rms

Barriers:

- Internal galvanically isolated barrier (requires the 1701/06 Isolator Terminal Base)
- External Zener Barrier
- External galvanically isolated barrier

Supported Transducer I/O Modules

170180-01-XX

Dual Proximitor®/Accelerometer I/O Module (for external -24 V BNC Accelerometer Interface Modules excluding Aero GT)

External Transducer Options

***23733-03**

100 mV/g pk

24145-02

High frequency acceleration

49578-01

100 mV/g pk

155023-01

High frequency acceleration

330400

100 mV/g pk

330425

25 mV/g pk

*** Note:** These products are not recommended for new designs because they are in the early stages of planned obsolescence. Use 330400 and 330425 acceleration systems where feasible.

Control I/O

- Channel On/Off
- Monitor Reset
- Channel Inhibit
- Trip Multiply: Enabled, Disabled

Specifications at 25°C (77°F)

Direct accuracy:

1% of full-scale for full-scale ranges with voltage spans >200mVp.

2% of full-scale for full-scale ranges with voltage spans =200mVp.

(exclusive of filters)

Direct resolution:

0.1% of full-scale

Power input:

-24 V, + 5 V, from 1701 Power Supply

Power Consumption:

1.5 Watt (not including transducers)

Setpoint resolution:

0.5% of full-scale

Flex read/write rate:

≥ 25 millisec (monitor to Flex adapter)

Buffered Output

(Buffered signal is unprocessed transducer signal):

30 m (100 ft) cable at 60pF/ft, not isolated

Output impedance:

200 Ω

Physical

Dimensions (HxWxD)

127 mm x 21.6 mm x 105 mm

(5 in x 0.85 in x 4.15 in)

Weight:

314 g (0.69 lb)

Environmental Limits

Operating Temperature:

-20°C to + 70°C (-4°F to +158°F)

Storage Temperature:

-40°C to + 85°C (-40°F to +185°F)

Operating Humidity:

5% to 95% non-condensing relative humidity.

Storage Humidity:

5% to 95% non-condensing relative humidity.

Ordering Information

FieldMonitor™ Seismic Input Monitor

for Velocity and Acceleration Input

1701/25-01

Hazardous Area Approvals

North America

Ex nA IIC T4

Class I, Zone 2

Class I, Div 2

Groups A, B, C, D

T4 @ -30°C = Ta = +70°C

Per drawing # 139255

Certification Number

CSA 1166985

European/ATEX

II 3G EEx nA [L] IIC T4

LCIE 00ATEX6016X

T4 @ -30°C = Ta = +70°C

II 1/3 G EEx nA[ia] ia IIC T4

LCIE 00ATEX6017X

T4 @ -30°C = Ta = +70°C

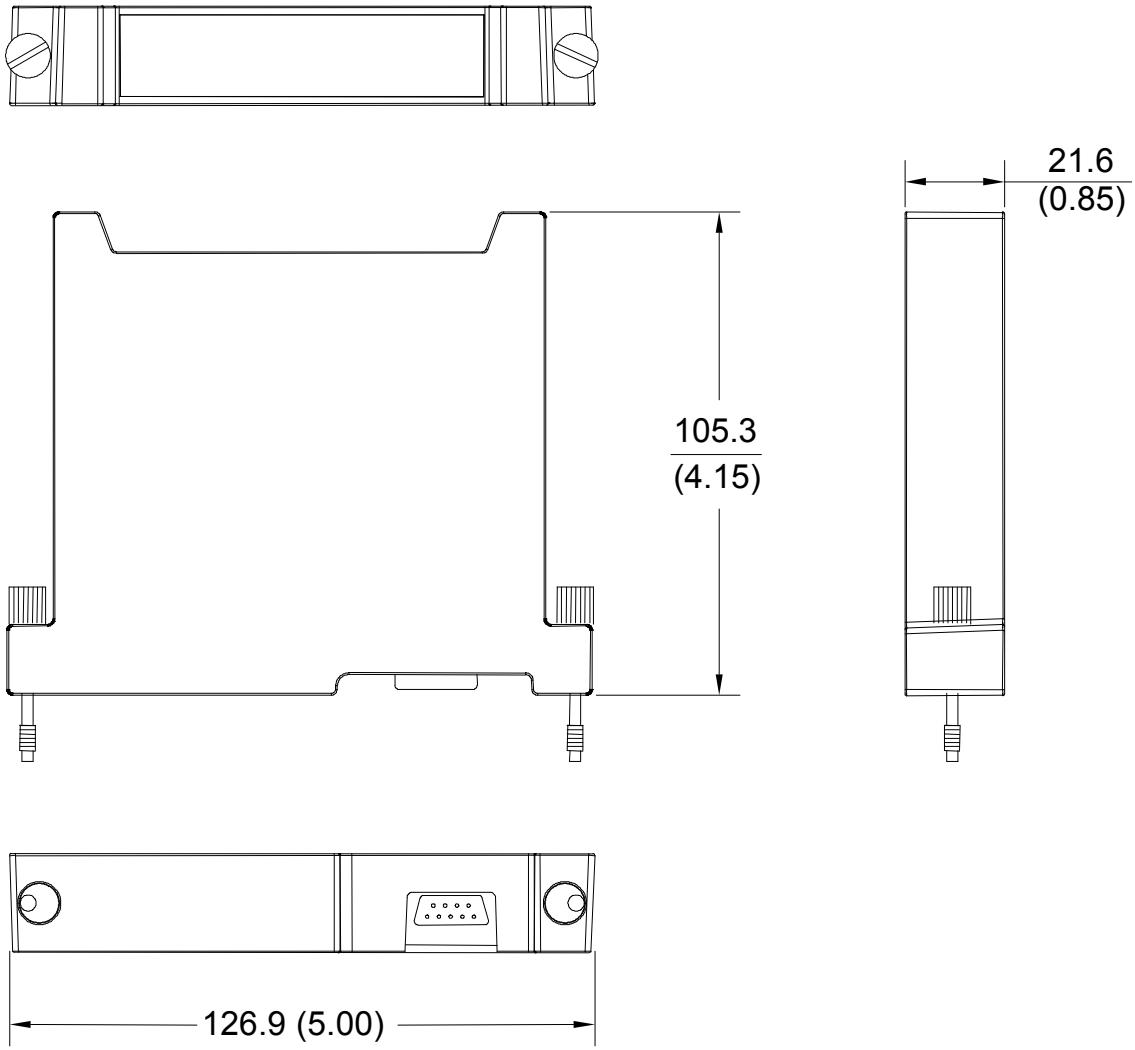
Brazil

Br-Ex nA [nL] IIC T4

MC, AEX-8304-X

T4 @ -30°C = Ta = +70°C

Dimensional Drawing



Dimensions are in millimetres (inches)

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1631 Bently Parkway South, Minden, Nevada USA 89423
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