

Minimate Pro 4™

Advanced Vibration, Air Overpressure and Sound Monitoring Using 4 Channels

With over 38 years of expertise, Instantel has set the industry standard with our vibration, air-overpressure, and sound monitoring units. Our monitoring units are used worldwide enforcing our reputation as a global leader of tough, rugged, and reliable products.

Key Features

- 8,000+ events storage capacity. (32,000 with extended memory)
- Uninterrupted monitoring with zero dead-time between events.
- Records full waveform events up to 2.5 hours long. (triggered, 4-channel at 1024 SPS)
- Records full waveform events up to 24 hours long. (manual, 4-channel at 1024 SPS with extended memory)
- Histogram-Combo mode captures full-waveform events in parallel to Histogram recording.
- Synchronize event data to within 100 microseconds. (optional GPS required)
- EMI Shielding, Ethernet Connection and Waterproof rating of IP67.
- Internal battery lasting up to 10 days.

Range of Applications

- Construction Activity
- Near/Far-Field Blast Analysis
- Vibration Dose Value (VDV)
- Underwater Monitoring
- Demolitions
- Heavy Transportation
- Sound Monitoring
- Research/Education
- Pile Driving

Monitor Remote Locations

- Integrates seamlessly into Instantel's THOR/Vision Event Management Software
- Auto Call Home relays your data straight to you or automatically posts the data to Vision

Sensor Options (Compliance)

- ISEE Triaxial Geophone
- DIN Triaxial Geophone (1-80 Hz or 1-315 Hz)
- Triaxial Borehole Geophone
- ISEE Linear Microphone
- Sound Level Microphone

Sensor Options (Requires THOR Advanced License)

- High-Frequency Geophones and Boreholes (30 - 1,000 Hz)
- High-Pressure Microphone (up to 10 psi)
- Hydrophone (8 - 500 Hz)
- Accelerometers (1 - 3,000 Hz for 0.5 g and 50 g, 0.5 - 500 Hz for 500 g)

Enhance Your Data Analysis Using Instantel's THOR Advanced Software

- Reduce vibrations efficiently using the Signature Hole Analysis feature.
- Calculate the structural response based on a comparison of two waveforms recorded inside and simultaneously outside a structure.
- Calculate the effects of vibrations (Vibration Dose Value, VDV) with our Human Exposure Reports feature.

THOR Includes the Following Compliance Standards and Graphs

- Australia 2187.2-1993
- Brazilian Standard NBR 9653/2005
- British Standard 7385
- BS 6472:1992 (Curves 8,16,20,32,60,90,128)
- Criterio Prevencion (Une 22.381)
- Czech and Slovak Standard
- DIN 4150
- DIN 45669-1 (2010)
- Function de Ponderation
- GFEE + Ministère Environnement
- Harmoniska Svängningar
- Indian CMRI, DGMS India (A) & (B)
- Indonesian SNI 7571:2010
- ISEE Seismograph Specification -2022
- New Zealand 4403:1976
- NOM-026-SESH-2007
- NZS/ISO 2631-2:1989 Combined curves
- QLD APP Standard
- Recommendation GFEE/GFEE*
- Swiss SN 640 312a (Mining/Pile Driving/Traffic)
- Toronto 514-2008
- Turkey Mining & Quarry
- USBM RI8507 And OSMRE



ISEE Geophone with a Linear Microphone or Sound Level Microphone



Available Compliance Sensors



Available Advanced Sensors

General Specifications

Minimate Pro Channels

Channels 1-3, ISEE or DIN Triaxial Geophone or various configurations of advanced sensors.
Channel 4, ISEE Linear Microphone or Sound Level Microphone or a single channel advanced sensor.

Geophone

- Range
- Response Standard
- Resolution
- Frequency Range
- Accuracy
- Phase Response
- Transducer Density
- Maximum Cable Length

ISEE

Up to 254 mm/s (10 in/s)
ISEE Seismograph Specification (2022)
0.00788 mm/s (0.00031 in/s)
2 to 250 Hz
From 2 to 4 Hz and 125 to 250 Hz: +5% to -3 dB of an ideal flat response, from 4 to 125 Hz: $\pm 5\%$ or ± 0.5 mm/s (0.02 in/s) whichever is larger.
Phase shift from 2.5 to 250 Hz <10% of maximum absolute value of 2 superimposed harmonic vibrations.
2.2 g/cc (137 lbs/ft³)
75 m (250 ft)

DIN

Up to 254 mm/s (10 in/s)
DIN 45669-1
0.00788 mm/s (0.00031 in/s)
1 to 315 Hz or 1 to 80 Hz
DIN: 45669-1 standard

Microphones

- Weighting Scales
- Response Standard
- Range
- Resolution
- Frequency Range
- Accuracy
- Maximum Cable Length

ISEE Linear Microphone

ISEE Linear Microphone
ISEE Seismograph Specification (2022)
Up to 500 Pa (0.0725 psi) [148 dB]
0.0156 Pa (2.2662x10⁻⁶ psi)
2 to 250 Hz
2 Hz: -3 dB \pm 1 dB, 3 Hz: -1 dB \pm 1 dB, from 4 Hz to 125 Hz: ± 1 dB, 200 Hz: +1 dB to -3 dB, 250 Hz +1 dB to -4 dB
75 m (250 ft)

2.2 g/cc (137 lbs/ft³)
1,000 m (3,280 ft)

Sound Level Microphone

A-Weight or C-Weight
Fast (125ms) or Slow (1s)
30 to 140 dB A or C
0.05 dB (Display limit 0.1dB)
Up to 20 kHz
IEC 61672 Class 1

75 m (250 ft)

Optional Advanced Sensors

High Pressure Microphone, High Frequency Geophone, High Frequency Borehole Geophone, Uniaxial and Triaxial Accelerometers, Hydrophone (Please contact InstanTel for more information).

Waveform Recording

Record Modes

Waveform, Waveform Manual

Seismic Trigger

0.13 to 254 mm/s (0.005 to 10 in/s)

Linear Acoustic Trigger

2.0 to 500 Pa (0.00029 to 0.0725 psi) [100 to 148 dB]

Sound Level Microphone Trigger

33 to 140 dB (A or C)

Sample Rate (per channel)

512, 1,024, 2,048, 4,096, (with an advanced license: 8,192, 16,384, 32,768, 65,536) S/s (independent of record time)

Record Stop Mode

Fixed record time, AutoRecord™ (see Auto Record Time below)

Record Time

1-9,000 seconds (1-30 seconds, then 30-second increments up to 9,000 seconds) plus a 0.25 second pre-trigger.

Auto Record Time

Event is recorded until activity remains below trigger level for duration of auto window, or until available memory is full.

Cycle Time

Recording uninterrupted by event processing, monitoring, or communication - no dead time below 65 KHz.

Storage Capacity

64 MBs. Optional 240 MBs.

Full Waveform Events

8,000+ 1-second events at 1,024 S/s sample rate (32,000 with extended memory)

Histogram Recording

Record Modes

Histogram and Histogram Combo™ (unit captures triggered waveforms while recording in Histogram mode)

Recording Interval

2 seconds up to 30 seconds (1-second increments), 30 seconds up to 60 minutes (30-second increments)

Histogram Storage Capacity

800,000 intervals, (18.5 days at 2-second intervals, >2 years at 1.5-minute intervals)

Histogram Combo Storage Capacity

30 days of Histogram recording at 1-minute intervals, and over 7,500 1-second waveform events at 1,024 S/s

Physical Specifications

Dimensions

25.4(l) x 11.75(w) x 10.80(h) cm (10.00 x 4.63 x 4.25 in); length dimension includes connectors and dust caps

Unit Weight

2.27 kg (5 lbs)

Battery

10 Days

User Interface

10 domed tactile with separate keys for common functions

Display

7-line x 32-character, high-contrast, backlit LCD

PC Interface

Ethernet cable, supplied, for PC to unit connection or RS-232 with an optional USB adapter

Auxiliary Inputs and Outputs

External Trigger and Remote Alarm

Environmental

- LCD Operating Temperature
- Electronics Operating Temperature
- Water Resistance

-20 to 45 °C (-4 to 113 °F)
-40 to 45 °C (-40 to 113 °F)

IP67 – submerge to 30 cm (1 ft) for 24 hours

Remote Communications

Supported modems: Sierra Wireless™ Airlink® RV-50, GX-400, LS-300. Automatically transfers events when they occur through the Auto Call Home feature, monitor start/stop timer.

Optional Features

- GPS
- Vision (Cloud-based software)

Factory installed, for time synchronizing event data.

Provides stakeholders with secure, encrypted, access to event data, and allows instant sharing for time-sensitive projects.

Electrical Standards

CE Class B. The Minimate Pro has been tested and passed IEC 61010-1:(2nd ed. 2001) (CB scheme test report available).