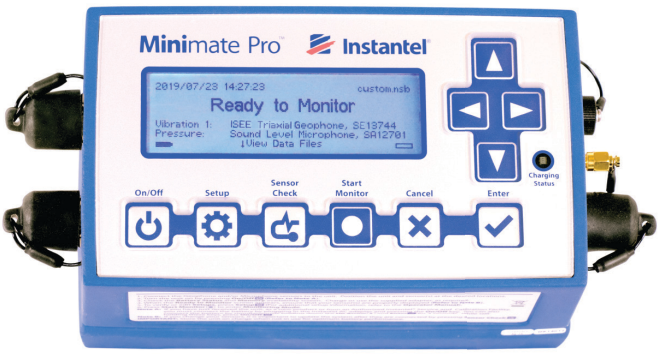
Minimate Pro 4™

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

ISEE Geophone with a Linear Microphone or Sound Level Microphone

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

Available Compliance Sensors

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)

Available Advanced Sensors

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 Svangningar
- Indian CMRI, DGMS India (A) & (B)
- Indonesian SNI 7571:2010
- ISEE Seismograph Specification -2017
- 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

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	**ISEE**	**DIN**
• Range	Up to 254 mm/s (10 in/s)	Up to 254 mm/s (10 in/s)
• Response Standard	ISEE Seismograph Specification (2017)	DIN 45669-1
• Resolution	0.00788 mm/s (0.00031 in/s)	0.00788 mm/s (0.00031 in/s)
• Frequency Range	2 to 250 Hz	1 to 315 Hz or 1 to 80 Hz
• Accuracy	From 2 to 4 Hz and 125 to 250 Hz: +5% to -3 dB of an ideal flat response, from 4 to 125 Hz: ±5% or ±0.5 mm/s (0.02 in/s) whichever is larger.	DIN: 45669-1 standard
• Phase Response	Phase shift from 2.5 to 250 Hz <10% of maximum absolute value of 2 superimposed harmonic vibrations.	
• Transducer Density	2.2 g/cc (137 lbs/ft^3)	2.2 g/cc (137 lbs/ft^3)
• Maximum Cable Length	75 m (250 ft)	1,000 m (3,280 ft)
Microphones	**ISEE Linear Microphone**	**Sound Level Microphone**
• Weighting Scales	ISEE Linear Microphone	A-Weight or C-Weight
• Response Standard	ISEE Seismograph Specification (2017)	Fast (125ms) or Slow (1s)
• Range	Up to 500 Pa (0.0725 psi) [148 dB]	30 to 140 dB A or C
• Resolution	0.0156 Pa (2.2662x10-6 psi)	0.05 dB (Display limit 0.1dB)
• Frequency Range	2 to 250 Hz	Up to 20 kHz
• Accuracy	2 Hz: -3 dB ± 1 dB, 3 Hz: -1 dB ± 1 dB, from 4 Hz to 125 Hz: ±1 dB, 200 Hz: +1 dB to -3 dB, 250 Hz +1 dB to -4 dB	IEC 61672 Class 1
• Maximum Cable Length	75 m (250 ft)	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
Auxillary Inputs and Outputs	External Trigger and Remote Alarm
Environmental	
• LCD Operating Temperature	-20 to 45 °C (-4 to 113 °F)
• Electronics Operating Temperature	-40 to 45 °C (-40 to 113 °F)
• Water Resistance	IP67 – submerse 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	Factory installed, for time synchronizing event data.
• Vision (Cloud-based software)	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).

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