

# Micromate®

## The Industry's #1 Selling Vibration Monitor!

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

### Key Features

- Fits in the palm of your hand.
- Histogram-Combo mode captures full-waveform events in parallel to Histogram recording.
- Versatile USB Port for USB memory sticks, field printer, and modem.
- Large, easy-to-read, color touch-screen display.
- Can store over 1,000 events (4,000 with optional memory).
- Trigger multiple units within 1 sample of each other.
- Synchronizes Class 1 noise monitoring or air-overpressure and vibration data on the same monitoring unit.
- Internal battery lasting up to 15 days.
- Uninterrupted monitoring with zero dead-time between events.

### Range of Applications

- Construction
- Blasting
- Demolitions
- Pile Driving
- Compaction
- Heavy Transportation
- Environmental
- Tunnels and Subways
- Sound/Noise
- Structural
- Bridges

### Monitor Remote Locations

- Integrates seamlessly into InstanTEL's THOR/Vision Event Management Software.
- Auto Call Home relays any InstanTEL unit's data to you via THOR/Vision.
- Schedule diagnostics, monitoring or Auto Call Home using the Scheduler tool in THOR.

### Sensor Options

- ISEE Triaxial Geophone
- DIN Triaxial Geophone
- Triaxial Borehole Geophone
- Swedish Pile Driving Geophone
- Swedish Blasting Geophone
- ISEE Linear Microphone
- Sound Level Microphone

### 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
- QLD APP Standard
- NZS/ISO 2631-2:1989 Combined curves
- Recommendation GFEE/GFEE\*
- Swiss SN 640 312a (Mining/Pile Driving/Traffic)
- Toronto 514-2008
- Turkey Mining & Quarry
- USBM RI8507 And OSMRE



Protective Boot

ISEE Geophone with a Linear Microphone or Sound Level Microphone



Available Sensors

## General Specifications

### Micromate Channels Geophone

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

Microphone and Triaxial Geophone (ISEE or DIN)

#### ISEE

Up to 254 mm/s (10 in/s)  
ISEE Seismograph Specification (2017)  
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: ±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/ft<sup>3</sup>)  
1,000 m (3,280 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  
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 (2017)  
Up to 500 Pa (0.0725 psi) [148 dB]  
0.0156 Pa (2.2662x10<sup>-6</sup> psi)  
2 to 250 Hz  
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  
75 m (250 ft)

#### Sound Level Microphone

A-Weight or C-Weight  
Fast (125s) or Slow (1s)  
30 to 140 dB (A or C)  
0.05 dB (Display limit 0.1 dB)  
Up to 20 kHz  
IEC 61672 Class 1  
75 m (250 ft)

## Waveform Recording

- Record Modes**
- Seismic Trigger**
- Linear Acoustic Trigger**
- Sound Level Microphone Trigger**
- Sample Rate**
- Record Stop Mode**
- Record Time**
- Auto Record Time**

Waveform, Waveform Manual  
0.13 to 254 mm/s (0.005 to 10 in/s)  
2.0 to 500 Pa (0.00029 to 0.0725 psi) [100 to 148 dB]  
33 to 140 dB (A or C)  
1,024 / 2,048 / 4,096 S/s per channel (independent of record time)  
Fixed record time, AutoRecord™ (see Auto Record Time below)  
1-90 seconds (programmable in one-second steps) plus a pre-trigger at 0.25, 0.50, 0.75, or 1.0 second  
Event is recorded until activity remains below trigger level for duration of auto window, or until available memory is full.

- Cycle Time**
- Waveform Storage Capacity**

Recording uninterrupted by event processing, monitoring, or communication - zero dead time between events.  
1,000 1-second events at 2,048 S/s (memory upgrade optional up to 4,000 1-second events at 2,048 S/s)

## Histogram Recording

- Record Modes**
- Recording Interval**
- Histogram Storage Capacity**
- Histogram Combo Storage Capacity**

Histogram and Histogram-Combo™ (unit captures triggered waveforms while recording in Histogram mode)  
2 to 30 seconds (1-second increments), and 30 seconds to 30 minutes (30-second increments)  
222,000 intervals (Examples: 5 days at 2-second intervals, 150 days at 1-minute intervals)  
30 days of Histogram recording at 1-minute intervals, and over 900 1-second waveform events

## Physical Specifications

- Dimensions**
- Unit Weight**
- Battery**
- User Interface**
- Display**
- PC Interface**
- Auxiliary Inputs and Outputs**
- Environmental**

101.6 x 135.1 x 44.5 mm (4.15 x 5.32 x 1.75 in)  
0.5 kg (1.1 lbs)  
10 day rechargeable lithium ion (optional 15 day battery upgrade available)  
10 domed tactile keys, colour touch screen, with display keyboard and dedicated shortcuts for common functions  
QVGA, 320 x 240 color touch screen  
USB  
External Trigger and Remote Alarm (factory installed option)  
-10 to 55 °C (14 to 131 °F)  
-40 to 45 °C (-40 to 113 °F)  
-40 to 55 °C (-40 to 131 °F) (LCD screen saver enabled and set to a maximum time-out of 2 minutes (Without USB sensors).  
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.

### Remote Communications

### Optional Features

- Printer
- GPS
- Vision (Cloud-based software)

Precision high-resolution  
Synchronize time and download coordinates  
Provides stakeholders with secure, encrypted, access to event data, and allows instant sharing for time-sensitive projects.  
CE Class B - The Micromate has been tested and passed IEC 61010-1:2010 (CB scheme test report available).

### Electrical Standards

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