

# PRODUCT USER GUIDE

## Portable Vibration Monitoring Unit PART1



### Configuration Available

- ▶ Vibration guidelines Australia
- ▶ Vibration guidelines Int.
- ▶ Int. Standards and documents

### Introduction

This first part booklet is intended to provide basic information for users of the Mabey Hire Ltd. Portable Vibration Monitoring Unit and to draw the client's attention to the 'Selecting Peak Particle Velocity (PPV Values) process. It is assumed that clients are familiar with the current codes and practices, relevant standards and site requirement for the use of this Unit.

The hirer of the Portable Vibration Monitoring Unit is responsible for determining the actual site-specific peak particle velocity (PPV) limits as positioning of the geophone in the critical monitoring locations.

The information provided within this document will summaries the current standards and guidance, so the user has information of the recommended PPV thresholds if the values have not yet been determined or provided. However, the information contained within shall not be construed as relieving any other party of their responsibilities or contractual obligations. Site specific vibration monitoring requirements based upon a qualified appraisal should always be used were possible.

Vibration environmental factor can be assed within two categories: Human comfort and Building Damage.

It is advisable, before commencing the Vibration recording, to read the notes below and to become familiar with the standards involved when using the Portable Vibration Monitoring Unit.

### IMPORTANT NOTES

All the Geophone critical monitoring locations must be thoroughly planned before work commences on site to identify hazards and assess risk.

These instructions form guidance are for a correct use of the unit within the Australian and International Standard. Non-standard applications should be approved by a suitably qualified engineer.

Ensure all personnel engaged in recording operations are properly briefed and adequately supervised by a competent person.

All hire for this equipment will be supported by a portable monitoring unit manual (**Part2**). This must be read in conjunction with these instructions.

WWW.MABEY.COM.AU

AUS: 1800 622 394

NZ: 0800 622 394

Uncompromising Service  
to Deliver Successful  
Projects

## Contents

### 1. Vibrations Guidelines

▶ Vibration Guidelines in Australia .....	3
▶ Vibration international Standard .....	3
▶ Nominated Codes, Standards and Documentation .....	3

### 2. Extracts from Nominated: Codes, Standards and Documents

▶ Guidance for Human Comfort - BS 7385 .....	4
▶ Guidance for Building / Structural damage - BS 7385 & Din 4150.....	4
▶ Guidance for Retaining Walls - BS 5228-2:2009+A1:2014 .....	6
▶ Guidance for Under Ground Services - BS 5228-2:2009+A1:2014 .....	6
▶ Guidance for Underground Services – DIN 4150-3: 2016 .....	7
▶ Guidance for evaluation of big components and underground structures – Din 4150-3:2016-12 .....	7
▶ Guidance for Underground Services- Cadet (UK) Gas Network.....	8

## 1. Vibrations Guidelines

### 1.1 Vibrations Guidelines Used in Australia

There is no specific Australian Standard referring to structural vibration in buildings. However, Appendix J of AS 2187.2 – 1993[9] recommends maximum peak particle velocities measured at the ground surface due to blasting. The lower recommended peak particle velocity is 5 mm/s. The standard states however, that structures, which may be particularly susceptible to ground-borne vibration, should be examined on an individual basis. It is suggested that in the absence of a particular site-specific study then a maximum peak particle velocity of 5 mm/s is used.

### 1.2 Vibrations International Standard

There are 2 commonly used international standard used in Australia:

1. British Standard BS 7385-2 1993 – Evaluation and Measurement for vibration in buildings – Part 2: Guide to damage levels form groundbourne vibrations
2. German Standard DIN 4150-2 : 1999-06 – Structural vibration – Part 2: Human exposure to vibration in buildings + DIN 4150-3:2016-12 Vibrations in buildings – Part 3: Effects on structures



### 1.3 Other Useful International Standards & Documents

1. British Standard BS 5228-2:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.
2. Cadent document SSW22\_v1 – Specification for safe working in the vicinity of Cadent assets (UK gas network) – requirements for third parties.

## 2. Extracts from nominated codes, standards and documentation

### 2.1 Guidance for Human Comfort – BS 7385


Table 1 – Guidance on effects of vibration Levels to Human response – BS 7385-21993

Vibration level <sup>A), B), C)</sup>	Effect
0.14 mm·s <sup>-1</sup>	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm·s <sup>-1</sup>	Vibration might be just perceptible in residential environments.
1.0 mm·s <sup>-1</sup>	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 mm·s <sup>-1</sup>	Vibration is likely to be intolerable for any more than a very brief exposure to this level  in most building environments  .



<sup>A)</sup> The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient.

<sup>B)</sup> A transfer function (which relates an external level to an internal level) needs to be applied if only external measurements are available.

<sup>C)</sup> Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS 6472-1 or -2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment. 

### 2.2 Guidance for Building / Structural Damage – BS 7385 & DIN 4150

Table 2 – Transient vibration guide values for cosmetic damage – BS 7385-2 1993

Line (see Figure B.1)	Type of Building	Peak component particle velocity in frequency range of predominant pulsev	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures Industrial and heavy comercial buildings	50 mm/s at 4 Hz and above	50 mm/s at 4 Hz and above
2	Unreinforced or light framed structures Residential and light comercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz

Note 1: Values referred to are at the base of the building.

Note 2: For line 2, at frequencys bellow 4 HZ, a maximum displacement of 0.6mm (zero to peak) is not to be exceeded.

Figure 1 – Transient vibration guide values for cosmetic damage– BS 7385-21993

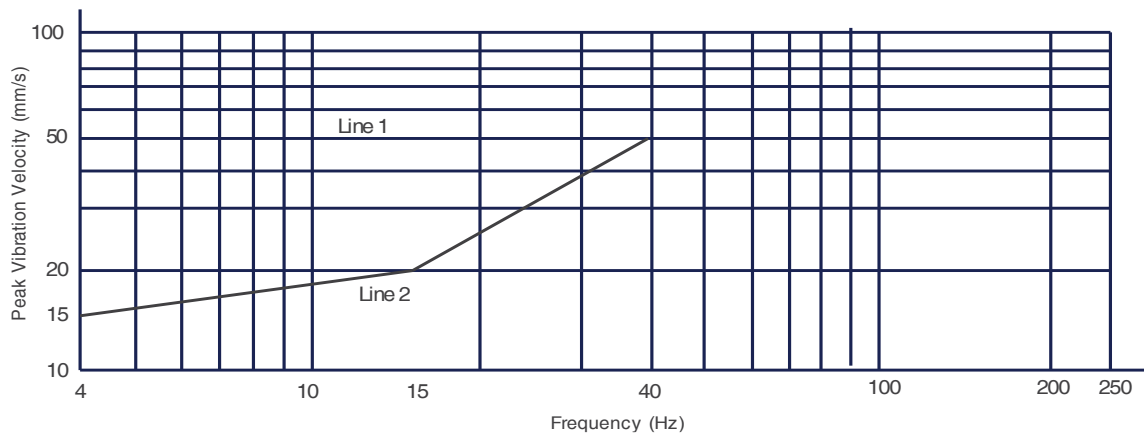


Table 3 – Guideline values for vibration velocity,  $v_i$ , max, for evaluating the effects of short-term vibration on structures – DIN 450-3:2016-12 Vibration in Buildings – Part 3

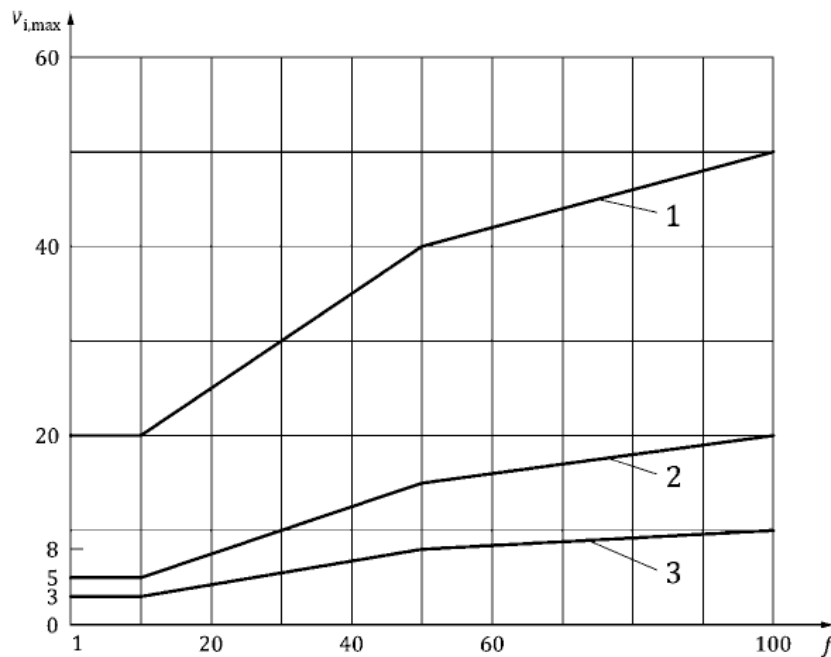
Guideline values for  $V_{i,max}$  in mm/s

Type of Structure	Foundation, all directions, $i=x,y,z$ at a frequency of			Topmost floor, horizontal direction $i=x,y$	Topmost slabs, Vertical direction $i=z$
	1 HZ to 10Hz	10 HZ to 50Hz	50 HZ to 100Hz (a)	All Frequencies	All Frequencies
1	2	3	4	5	6
1 Building used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	20
2 Residential building and buildings of similar design and/ or occupancy.	5	5 to 15	15 to 20	15	20
3 Structures that because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic values (e.g listed building)	3	3 to 8	8 to 10	8	20

Note: Even if guideline values as in line 1, columns 2 to 5, are complied with, minor damage cannot be excluded

(a) At frequencies above 100 Hz guidelines values for 100Hz can be applied as minimum values.  
 (b) Paragraph 2 of 5.1.2 shall be observed

Figure 2 – Graphical representation of guideline values specified in table 3 for velocities measured at the foundation – DIN 450-3:2016-12 Vibration in Buildings – Part 3



**Key**

1 Line 1  
 2 Line 2  
 3 Line 3

$f$  Frequency (Hz)  
 $v_{i,max}$  Peak vibration velocity (mm/s)

In the case of building types as in Table 3, line 3, it may be necessary to lower the relevant guideline value markedly to prevent minor damage.

Table 4 – Guideline values for  $v_{i,max}$ , for evaluating the effects of long-term vibration on buildings – DIN 450-3:2016-12 Vibration in Buildings – Part 3

Guideline values for $V_{i,max}$ in mm/s				
Type of Structure		Foundation, all directions, $i=x,y,z$ at a frequency of		
		Topmost floor, Horizontal direction $i=x,y$	Topmost slabs, Vertical direction $i=z$	
Column	Line	1	2	3
	1	Building used for commercial purposes, industrial buildings, and buildings of similar design	10	10
	2	Residential building and buildings of similar design and/or occupancy.	5	10
	3	Structures that because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic values (e.g listed building)	2.5	10 (a)
Note: Even guideline values as in line 1, column 2, are complied with, minor damage cannot be ruled out				
(a) 6.1.2 Shall be observed.				

In the case of building types as in Table 3, line 3, it may be necessary to lower the relevant guideline value markedly to prevent minor damage.

**2.3 Guidance for Retaining Walls – BS BS5228-2:2009+A1:2014**

“Unlike conventional buildings, which are tied together by crosswalks, intermediate floors, and roofs, retaining walls might have little lateral restraint near their tops. This can result in substantial amplification of vibrations particularly in the horizontal mode normal to the plane of the wall. Amplification factors of between 3 and 5 are typical.

For slender and potentially sensitive masonry walls, it is recommended that threshold limits for PPV of 10 mm·s<sup>-1</sup> at the toe and 40 mm·s<sup>-1</sup> at the crest should generally be adopted. Propped or tied walls or mass gravity walls can be subject to values 50% to 100% greater than these limits. Similar values could be applied to well-supported steel pile and reinforced concrete retaining walls. Where walls are in poor condition, the allowable values should be diminished and at the same time additional propping or other methods of support should be devised. For continuous vibrations, all the above levels should be reduced by a factor of 1.5 to 2.5 according to individual circumstances”.

**2.4 Guidance for Underground Services – BS BS5228-2:2009+A1:2014**

“Some statutory undertakers have introduced criteria governing the maximum level of vibrations to which their services should be subjected. These criteria are usually conservative, and it is recommended that the following limits be used in the absence of specific criteria from the undertakers:

- a) maximum PPV for intermittent or transient vibrations 30 mm·s<sup>-1</sup>
- b) maximum PPV for continuous vibrations 15 mm·s<sup>-1</sup>.

Criteria should be applied at the nearest point to the source or activity.

Even a PPV of 30 mm·s<sup>-1</sup> gives rise to a dynamic stress which is equivalent to approximately 5% only of the allowable working stress in typical concrete and even less in iron or steel.

In the event of encountering elderly and dilapidated brickwork sewers, the base data should be reduced by 20% to 50%. For most metal and reinforced concrete service pipes, however, the values in a) and b) are expected to be quite tolerable. There is often some difficulty in assessing the true condition of underground pipes, culverts, and sewers. Among the factors which could mean that such services are in a state of incipient failure are poorly formed joints, hard spots, badly prepared trench bases, distortion due to settlement or heave, or unstable”.

**2.5 Guidance for Underground Services – DIN 450-3:2016**

**Evaluation of buried pipework – Short-Term**

“Table 5 gives guideline values for evaluating the effects of vibration on buried pipework.

It shall be assumed that the pipes have been manufactured and laid using current technology; if this is not the case, special considerations will have to be made. This also applies if soil mechanical processes in the ground could have deleterious effects on pipes, or where there are different conditions of restraint (e.g., at junctions with structures).

The guideline values for foundations also apply to the first 2 m (nearest to the building) of service pipes connected to premises (for further information regarding gas supply pipes, see DIN EN 1594)”.

*Table 5 – Guideline values for vibration velocity,  $v_i$ , max, for evaluating short-term vibration on buried pipework*

Line	Pipe Material	Guideline values for $V_i$ , max in mm/s
1	Steel, welded.	100
2	Verified clay, concrete, reinforced concrete, prestressed concrete, metal (with or without flange)	80
3	Mansory, Plastics	50

*Drainpipes shall be evaluated using the values given in Table 5, line 3.*



Evaluation of buried pipework – Long-Term

“The guideline values given in Table 3 may be reduced by 50 % without further analysis when evaluating the effects of long-term vibration on buried pipework”.

2.6 Guidance for Evaluation of massive Structural Components and underground Structures – DIN 4150-3:2016-12

“For civil engineering structures such as reinforced concrete constructions used as abutments or block foundations, a value of 80 mm/s shall be used as a guideline value, provided no hazards arise because of soil mechanical processes in the ground.

For evaluating the effects on linings of tunnels, galleries and cavities in rock, the guideline values given in Table 2 shall be used. It shall be assumed that the lining has been manufactured and applied using current technology; otherwise, lower values will need to be applied”.

Table 6 – Guideline values for,  $v_i$ , max, for evaluating the effects of short-term vibration on the lining of underground cavities

Line	Lining Material	Guideline values for $V_i$ , max in mm/s
1	Reinforced or sprayed concrete, tubbing segments	80
2	Concrete, Stone	60
3	Mansory, Plastics	40
Note: The guideline values were measured during the nearby mine blasting operations and apply only to the lining of underground structures, but not to any associate installations.		

2.7 Guidance for Underground Services- Cadet (UK) Gas Network

Cadent Gas owns, operates, and maintains the largest natural gas distribution network in the United Kingdom, transporting gas to 11 million homes and businesses across West Midlands, Northwest England, East of England, and North London

A useful document produced titled, “Specification for safe working in the vicinity of Cadent assets – requirements for third parties, SSW22\_v1”, provides information on working in the vicinity of gas assets whilst exceeding 2 bar and not exceeding 2 bar.

Information contained within this document recommends the maximum below vibration limits:

OPERATION	PIPE MATERIAL	GAS ASSETS EXCEEDING 2 BAR	GAS ASSETS NOT EXCEEDING 2 BAR
<b>Piling</b>	Steel or P.E	75mm/sec	75mm/sec
<b>Piling</b>	Ductile or Cast Iron	-----	25mm/sec
<b>Demolition</b>	Steel or P.E	75mm/sec	75mm/sec
<b>Demolition</b>	Ductile or Cast Iron	-----	25mm/sec
<b>Blasting</b>	Steel or P.E	75mm/sec	75mm/sec
<b>Blasting</b>	Ductile or Cast Iron	-----	25mm/sec

**NOTE: This information is published for reference only. The suitability of this information is to be assessed for local accuracy.**

While information in this Guide is correct at time of printing, product specifications and product availability are subject to change without further notice. Please visit our website for the most up to date information. Job site photos are strictly intended for general product illustration only and may not comply with all applicable safety standards or site requirements. Specification data has been taken from manufacturers' serialised specific tabulated data.

**1800 622 394**

**[www.mabey.com.au](http://www.mabey.com.au)**



# PRODUCT USER GUIDE

## Portable Vibration Monitoring Unit PART2



### Documents Available

- ▶ Quick Setup
- ▶ PUG- Components
- ▶ PUG- Selecting Peak

### Introduction

This second part booklet is intended to provide basic information for users of the Mabey Hire Ltd. Portable Vibration Monitoring Unit and to draw the client's attention to the practical aspects of this unit operational procedures and basic maintenance which need to be considered when compiling method statements, risk assessments and safe system of works. It is assumed that clients are familiar with general safe practices applicable to this type of work.

The Portable Vibration Monitoring Unit is a reliable device for live and recorded measurements of "Peak Particle velocity" (PPV). Housed in a virtually unbreakable, IP67 rated case, the Portable Vibration Monitor can be moved around site as a project progresses and features audible and visual alert beacons to warn of any breaches.

Our Portable Vibration Monitor is fully compliant to BS7385, BS5228 and DIN4150-2 and is ideal for use in a wide range of applications thanks to its light weight and easy intuitive touchscreen operation that also store its data into the unit memory for download and analysis at a later stage.

It is advisable, before commencing the Vibration recording, to read the notes below and to become familiar with the procedures involved when using the Portable Vibration Monitoring Unit.

### IMPORTANT NOTES

All Monitoring record work must be thoroughly planned before work commences on site to identify hazards and assess risk.

These instructions form guidance for the typical Vibration and monitoring process resulting on data collection, reported and approved by a suitably qualified engineer.

Ensure that all personnel involved in the unit induction operations are thoroughly briefed and adequately supervised by a qualified individual.

All hire for this equipment will usually be accompanied by a general arrangement or quick setup guide. This must be read in conjunction with these instructions.

WWW.MABEY.COM.AU

AUS: 1800 622 394

NZ: 0800 622 394

## Contents

### 1. General Notes

- ▶ Safe System of Work and Method Statement ..... 3
- ▶ Access, Hard standing Areas and Site Storage ..... 3
- ▶ Personnel ..... 3
- ▶ During Setting up ..... 3
- ▶ After Setting the Unit on ..... 3
- ▶ Return of Equipment Off-Hire ..... 3

### 2. Component Identification

- ▶ IP67 Case Unit ..... 4
- ▶ IP67 Case Unit accessories ..... 5
- ▶ InstanTel Carrying Case..... 6
- ▶ InstanTel Carrying Case accessories..... 6

### 3. Accessing to Micromate Menus.....7

- ▶ Micromate LCD..... 8
- ▶ Micromate Keypad ..... 8
- ▶ View Events on the Micromate..... 8
- ▶ Save Events on the Micromate..... 8
- ▶ Delete Events on the Micromate ..... 9

### 4. Complementary Software: Thor.....9

### 5. Alarm Lights and General Settings Guide.....9

### 5. Portable Vibration Unit Set up.....11

- ▶ Quick Set up Form ..... 11
- ▶ Setting up Geophone and Alarm Box System ..... 12

### 7. Usages.....13

### 8. Maintenance.....13

### 1. General Guidance notes

#### Safe System of Work

These guidance notes are intended to draw the client's attention to practical aspects of Mabey Hire Pty Ltd. Portable Vibration Monitoring Unit and its components during it is in use and basic maintenance which need to be considered when completing method statements for a safe system of work.

#### Access, Hard standing Areas and Site Storage

- Suitable firm, level, dry areas should be made available on site for storage in case it is left at the site construction.
- Suitable lifting of the equipment should be provided to keep its accuracy.
- Smaller components should be stored withing the InstanTEL carry bag.

#### Personnel

The Management of Health and Safety at Work Regulations require that personnel deployed are suitably trained, experienced, and supervised by a competent person.

- Handle all equipment and accessories with care.
- Do not operate the equipment if the enclosure has been damaged, immediately turn the instrument off and have inspected by Mabey Hire PTY Ltd. Authorized personnel.
- Ensure that the AC adapter is fully inserted and rated for the AC supply voltage of the outlet.
- Ensure the connectors are clean prior use
- Ensure the proper operation charge the battery immediately when the Portable Vibration Monitoring Unit indicates a low battery condition.
- Disconnect the battery in the Unit if storing for prolonged periods of time or shipping by commercial courier. Do no open the unit.
- The Portable Vibration Monitoring Unit is water resistant. Do not immerse in water. Clean with a damp cloth.

#### During the Portable Monitoring Unit setting up Works

- Be familiar with Australian and International Standard for the use of the Portable Vibration Monitoring Unit (PART1)
- Check the Quick set up Guide.
- Check the InstanTEL Micromate Manual

#### After Installation Works

- Each excavation, demolitions, construction, pile driving, etc. must be inspected daily before personnel begin work to ensure that the site construction, building, bridge, etc, does not having any changes.
- Thor Software installation in your dispositive to be able to interact with the information provided by the unit.

#### Return of Equipment Off-Hire

Clients should ensure that on the last use, all accessories are appropriately stored withing the InstanTEL carry bag and the IP67 case as well.

## 2. Component Identification

Upon receipt of the unit, you will be provided with:



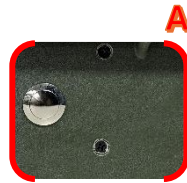
IP67 CASE UNIT

INSTANTEL  
 CARRYING CASE

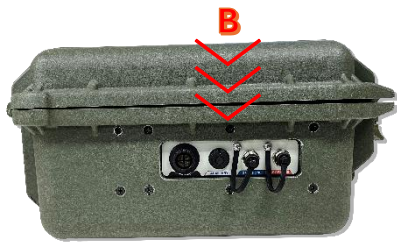
### 2.1 IP67 Case Unit



Alarm Box  
 Resent Button



On the **LHS** of the case is the alarm box reset bottom. Pushing this stop and resets the lights from the flashing after a trigger event.



Box **External**  
 Connection points



① ② ③

On the **LHS** of the case are four (4) no. connection points. There are only three (3) that require connection at any time.

	Connections Points	Function
1	Battery Charger	- Twist and clip connection
2	Micromate Alarm Box <u>OR</u> SCU Cable	- Twist and clip connection
3	ISEE Triaxial Geophone	- Screw Connection

2.2 IP67 Case Unit Accessories



	Item	Function
1	InstanTEL Micromate Monitoring Unit	This is the Computer Control Unit
2	Battery Packs – These Power the Units	This is the Power Source
3	ISEE Triaxial Geophone	This is the vibration Monitoring Device
4	Mounting Spikes for Geophone	These can be screwed into base of Geophone
5	Pen Stick	Download and User Guide Information

Box **Internal** Connection points



Inside the case, are two (2) connection points.

1	PC download Port	Connects unit direct to Thor Software
2	Flash Drive Port	Data transfer port for data from Micromate to Flash Drive

2.2 InstanTel Carrying Case



**INSTANTEL CARRYING CASE**

2.3 InstanTel Carrying Case Accessories



**Micromate Alarm Box**

These light balls are acting as a **Visual Alarm** for set trigger values.



**Battery Charger**

This dispositive acts as the **Battery Charger**.



**Wall Plate Fixing**

This plate can be used for **connecting** the portable unit to the walls.



**Data Transfer Cable**

This cable connects the **portable unit to computer** for data transfer.



**Saros Computer Unit (SCU) Cable**

This cable Connects the **portable Unit to Computer** to edit SCU.

### 3. Monitoring Unit: Accessing Micromate Menus

The Micromate display is a sensitive display. This provides the ability to use your finger, with or without gloves, to access menus. In addition, to the touch screen, the Micromate also supports 6 functions keys and 4 arrow keys for navigate through menus. The key can ben be used in combination with the touch screen providing additional flexibility.



**D** “Heartbeat” LED will Flash slowly when the battery is connected, and the LCD is off. It will flash faster if the unit is monitoring and very fast in the unit is recording an event.

#### 3.1 Micromate LLCD

The screen functionality has been divided into 3 sections (see the image below). The icons in

##### Section 1

The icons in this section are context sensitive and **will change** depending on the currently open screen.

##### Section 2

The main display section **will display the current state of the unit as well as user changeable data**. Selecting a menu in this section will either allow for toggling through the options or will open a new scree for editing. When edition numbers, use the Up and Down arrow keys ore simply scroll down in the highlighted box. To select a different item, use the left and right arrow keys or simply the desired entry.

##### Section 3

Provides **shortcuts to the most used functions** or menus within the Micromate program.



**Section 1 – Context Sensitive Icons**



	Battery Charger Level		Save Information
	Charger Connected		Print Events
	Available Memory		Delete
	75% Free Memory		Context Sensitive Help
	Owner Information		Return to Home Screen
	Instantel Information		Cancel
	Add Operator Name	<p>Compass Keys Data exist in the direction of the highlighted key. Use a finger swipe or use the arrow keys to view</p>	

**Section 3 – Short-Cut Icons**



	Edit the trigger level		Edit password
	Edit Record Time		Unit setup
	Event List		Perform Sensor Check
	Edit date and Time		Start Monitoring
	Edit User Preferences		Enter / Accept
	Edit User Preferences		Owner Information
	Maintenance Menu		Instantel Information

**3.2 View Events on the Micromate**

Select the **Event List icon** or **press the Down arrow key** to view the list of recorded events. Select the desired event from the Event List and either double tap on the entry or press the right arrow key. Navigate through the event results using the touch screen or keypad.

**3.3 Save Events – To Pen Stick**

With the **Event List displayed on the Micromate screen**, connect a USB memory stick to the (USB) port in the SCU “Flash Drive” port . The Save icon will appear at the top of the screen. Select the event(s) to save and press the Save icon.

### 3.4 Delete Events

With the Event List displayed on the Micromate screen, select the event(s) to be deleted and press the Delete icon.

## 4. Complementary Software: THOR

THOR from InstanTel, is a **software platform designed for storing and managing event data directly on your local computer**. With this software, you can efficiently handle your event data, visualize it through waveform charts and bar graphs, and conduct various analytical calculations to gain deeper insights. Additionally, THOR enables you to quickly configure, customize, and manage your fleet of monitoring units, allowing you to update onboard parameters to meet specific monitoring needs.

**Within the features, THOR** allows you to: Customizable Event Reports, integrated Auto Call Home, Remote Access, Organize Event Data

## 5. Alarm Lights and General Settings Guide

### 5.1 Alarm Lights Colours



**Flashing Amber** means that the level that the Micromate is recording in an event is a catalogued as **“Trigger Level”**.



**Flashing Red** means that the actual required maximum PPV level i.e. is catalogues as a **“Warning Level”**.

To **reset the lights**, simply press the round silver bottom on the right-hand side of the IP67 Case once.



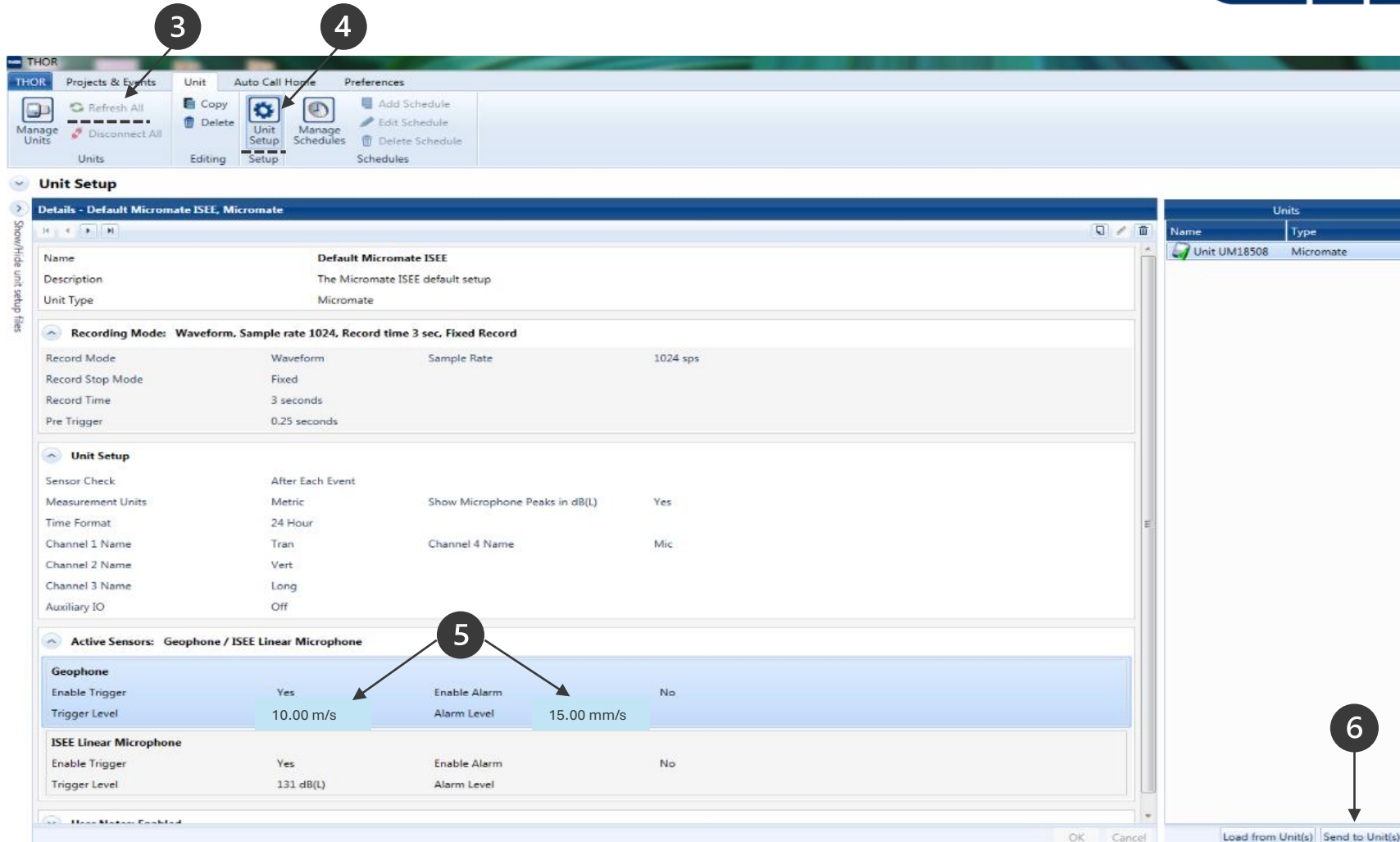
**Alarm Box**  
Reset Button



### 5.2 Changing Alarm Set Values

To change the light Box Settings:

1. If not already done so, install “Thor Software” and load up.
2. Connect Data Transfer Cable from “PC Download” on ICU to USB on laptop.
3. Click on “Unit” tab and “Refresh All” to connect Unit to Thor
4. Click on the relevant unit and press “Unit Setup”.
5. Click Edit and change both alarm fields and to suit and save.
6. Click Edit and change both alarm fields and to suit and save.



### Changing Other Values

To edit any other values such as record mode etc. Change to suit the desired values at the time of editing mode once it is ready, Send them to Unit to upload.

## 6. Portable Vibration Unit Set up Guide

### 6.1 Standard Recording Setup

#### RECORDING MODE

<b>Record Mode</b>	Histogram Combo
<b>Sample Rate</b>	1024 sps
<b>Histogram Interval</b>	2 Seconds
<b>Record Stop Mode</b>	Fixed
<b>Record Time</b>	3 seconds
<b>Pre-Trigger</b>	1.00 seconds

#### UNIT SETUP

<b>Sensor Check</b>	Before Monitoring
<b>Measurements</b>	Metric
<b>Show Microphone Peaks in dB(L)</b>	No
<b>Time Format</b>	24 Hours
<b>Channel Name</b>	CH1 = Tran, CH2 = Vert, CH3 = Long, CH4 = Mic
<b>Auxiliary IO</b>	Remote Alarm
<b>Warning Hold Time</b>	2 sec
<b>Alarm Hold Time</b>	2 sec

#### ACTIVE SENSORS: GEOPHONE

<b>Enable Trigger</b>	Yes
<b>Enable Alarm</b>	Yes
<b>Trigger Level</b>	10.00 mm/s - (The level the Micromate Starts to Record an Event at)

# PRODUCT USER GUIDE

## PORTABLE VIBRATION MONITORING UNIT



### 5.2. Setting up Geophone and Alarm Box System

1. If any settings or values need to be changed read segment 4 “Alarm Lights & General Setting” first (**Page4**).



2. Open the Case



3. Remove **Geo-phon**e from the case and connect to **port 3** located on side of case.



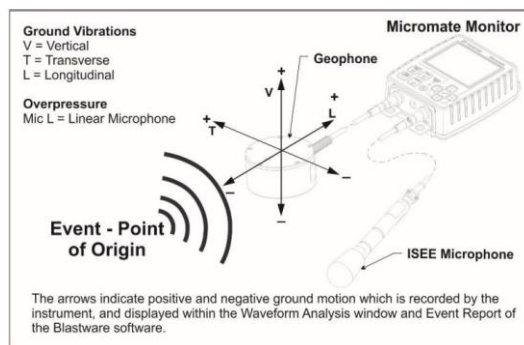
3. If using the alarm box system, remove the **Alarm Warning Unit** and connect to **port 2** (Auxiliary) on side of case.



4. Connect the **red battery** lines & check power status (should be full charged).



5. Turn on the InstanTEL Micromate Monitoring Unit (**hold for 5 seconds**).



6. **Confirm** that sensors (geophone or microphone or both) are properly levelled and connected to the Micromate. **Ensure** cable connections are properly seated.



6. Place Geophone at the required monitoring location and press “**Perform Sensor Check**”. The sensor



8. Assuming sensor check has passed, press ‘**Start Monitoring**’. Position Monitor as above.

## 7. Usages

The portable Vibration Monitoring unit offer innovative features and variety of recording formats that increase the functionality and allow for flexibility across wide variety of applications such as blasting, demolition, mining, quarrying and construction activities. Some examples might be:

- Blast monitoring for compliance
- Near-field blast monitoring
- Far-field blast monitoring
- Demolition activity monitoring
- Construction activity monitoring
- Heavy transportation monitoring
- Pile driving monitoring
- Dynamic compaction monitoring
- Tunnelling and subway monitoring
- Structural monitoring and analysis
- Bridge monitoring
- Remote access monitoring
- Environmental monitoring

## 8. Maintenance

### Periodic Cleaning

Use a soft cloth dampened with water and or a vacuum to remove any dust, dirt and sand from the Micromate unit, protective boot, geophone, microphone (including cables) and carrying case. DO NOT use paint thinners or Ketone solvents as these will damage the Micromate and protective boot. To avoid scratching, do not scrub any of the surfaces with abrasive cleaners, cleaning pads or stiff brush

### Storage:

When storing the Micromate for an extended period of time, ensure the battery has been charged for at least 24 hours. Then use the Maintenance menu or press and hold the power button for five seconds to disconnect the internal battery.

## Battery Charging



It is recommended that the batteries are fully re-charged after every 3 days of monitoring.

Since our policy is one of continual improvement, components may vary in detail from the descriptions given in this publication.

While information in this Guide is correct at time of printing, product specifications and product availability are subject to change without further notice. Please visit our website for the most up to date information. Job site photos are strictly intended for general product illustration only and may not comply with all applicable safety standards or site requirements. Specification data has been taken from manufacturers' serialised specific tabulated data.

**1800 622 394**

[www.mabey.com.au](http://www.mabey.com.au)

