Instruction Sheet
Micromate® Sound Level Microphone

The Sound Level Microphone for the Micromate monitoring unit, automates noise monitoring from building activities, construction, traffic, and mining operations. The Micromate combines noise and vibration monitoring in the same unit, making it a cost effective and flexible device for these applications.

It meets the requirements for IEC 61672 Class 1, including A and C weighted specifications and has a measuring range from 30 to 140 dB with a Fast or Slow response.

The record mode can be set to: Manual trigger, Waveform (records up to 90 seconds once it has been triggered), Histogram (2 sec. to 30 min. intervals) or simultaneously recording both Histogram and Waveform in Histogram-Combo mode.

Range of Applications

- Building Activities
- Construction
- Quarries
- Traffic
- Mining

Tools and Materials Required

- Micromate ISEE Base Unit . . . .(P/N: 721A2501) or
- Micromate DIN Base Unit . . . .(P/N: 721A2601) or
- Micromate Swedish Blasting Base Unit . . . .(P/N: 721A3601) or
- Micromate Swedish Pile Driving Base Unit . . . .(P/N: 721A3801)
- Sound Level Microphone . . . .(P/N: 721A2301)
  (stand and windscreen included)
- Extension cables, as required
  - 10 m (33 ft) . . . . (P/N: 721A0803)
  - 30 m (100 ft) . . . .(P/N: 721A0801)
  - 75 m (250 ft) . . . .(P/N: 721A0802)
  - Custom Extension Cable Kit. . . . .(P/N: 721A3201)
- THOR software (free version) or THOR Advanced . . .(P/N: 72300201)
- Optional Field Calibration devices
  - Delta OHM HD9101 Class 1
  - Brüel & Kjaer Sound Calibrator Type 4231
  - Rion NC-74 Sound Calibrator

Physical Installation

1. If required, assemble the stand.
2. Point the microphone in the direction of the sound or noise source.
   (If required, place the windscreen on the end of the microphone.)
3. Connect the microphone to the Micromate by aligning the red end of the connector with the indicated red microphone port.
4. Make sure the Micromate has the proper **Setup File** (see THOR Software Setup) and then perform a sensor check by pressing the **Sensor Check** key on the keypad.

Specifications

Field	Values
Response Standard	IEC 61672 Class 1
Frequency Weighting	A-Weight or C-Weight
Response	Fast (125 ms) or Slow (1 s)
Frequency Range	10Hz - 20 kHz
Amplitude Range	30 dB to 140 dB max 160 dB
Trigger Levels	33 dB to 140 dB
Sample Rates	1,024 - 4,096 S/s
Resolution	0.05 dB (display limit 0.1dB)
Cable Length	2 m (6.5 ft)
Maximum Cable Length	75 m (250 ft)
Temperature Range	-10° to 50°C (14° to 122°F)

Micromate Setup

1. On the Micromate keypad press the power button.

Note: To navigate the menus, use the arrow keys followed by the checkmark key or tap on the touchscreen display.

2. Press the **Setup** key then tap **View/Edit Current Setup.**
2. Tap **Active Sensors** until either **Microphone** or **Geophone/Microphone** is selected.
3. Tap **Microphone Type** until **Sound Level** is selected.
4. Select the **Record Mode** (Waveform Manual, Waveform, Histogram or Histogram-Combo).
5. Tap **Trigger Level,** then tap **Microphone Trigger** until **Enabled** is selected.
6. Tap **Trigger Level**, then swipe up or down on the spinner wheel or use the arrow keys.
7. Press the **Checkmark** key, this prompts you to save any changes. Use the **Checkmark** key to save the changes or the **Cancel** key to cancel the changes and return to the previous screen.
8. Tap **Response Time** to toggle between Fast=125 milliseconds or Slow=1 second.
9. Tap **Frequency Weighting** to toggle between either A or C.
10. Tap **LN1** then swipe up or down until the desired value.
11. Tap **LN2** then swipe up or down Embraer E170 the desired value. (Note LN2 must be greater than LN1)
12. Tap either the **Save** icon on the touchscreen display or press the **Cancel** key for a prompt to save the changes to a **Setup File**.
13. Select the checkmark and then **Save to Current File/Overwrite File**.
14. Perform steps 12 and 13 a second time for the higher level settings.

Field Calibration

The Micromate provides an option to calibrate the Sound Level Microphone in the field. The calibration date will be set to the current date, and the name of the calibrator will be set to "Field Calibration" this will also appear on event reports.
Note: Only use an Instantel recommended calibrating device (see the Tools and Materials Required section).

1. With the microphone connected to the Micromate, and the Micromate turned on, press the **Setup** key on the unit.
2. Tap **Maintenance Menu** then scroll down and tap **Calibrate Sound Level Microphone.**
3. Follow the field calibration device's operator instructions to properly join the microphone with the calibration unit. Set the reference to 94 dB at 1 kHz then turn the calibrator on.
   Note: You must remove the windscreen from the Sound Level Microphone before attaching the calibration device.
4. Tap the **Calibrate** button on the Micromate screen.
5. Tap the **Checkmark** key to confirm the **Proceed with calibration** popup box. This will display **Running Calibration**.
6. When the calibration is finished, the Micromate will display **Field Calibration Complete** along with the values for the measured **Sound Pressure, Gain, and Offset**.
7. In the **Field Calibration Complete** confirmation box, tap the **Checkmark** key.

THOR Software Setup

The Sound Level Microphone can be configured using THOR software and then sent to the unit.

1. Within THOR, click on the **Unit Tab.**
2. Click on the **Unit Setup** icon.
3. In the **Unit Setup** section, right-click and select **New Unit Setup File.**
4. Fill in the details and select **Unit Type: Micromate.**
5. Select the **Record Mode** and fill in the recording details.
6. Under **Active Sensors**, click on **Add Sensor.**
7. Under **Sensor** select **Sound Level Microphone**.
8. Fill in any **Trigger** details for Trigger level, Weighting, Response, LN1 and LN2 and click **OK**. In this section you can also configure the external alarm.
9. Select the Micromate unit and click **Send to Unit(s)** to send the configuration file to the Micromate unit.
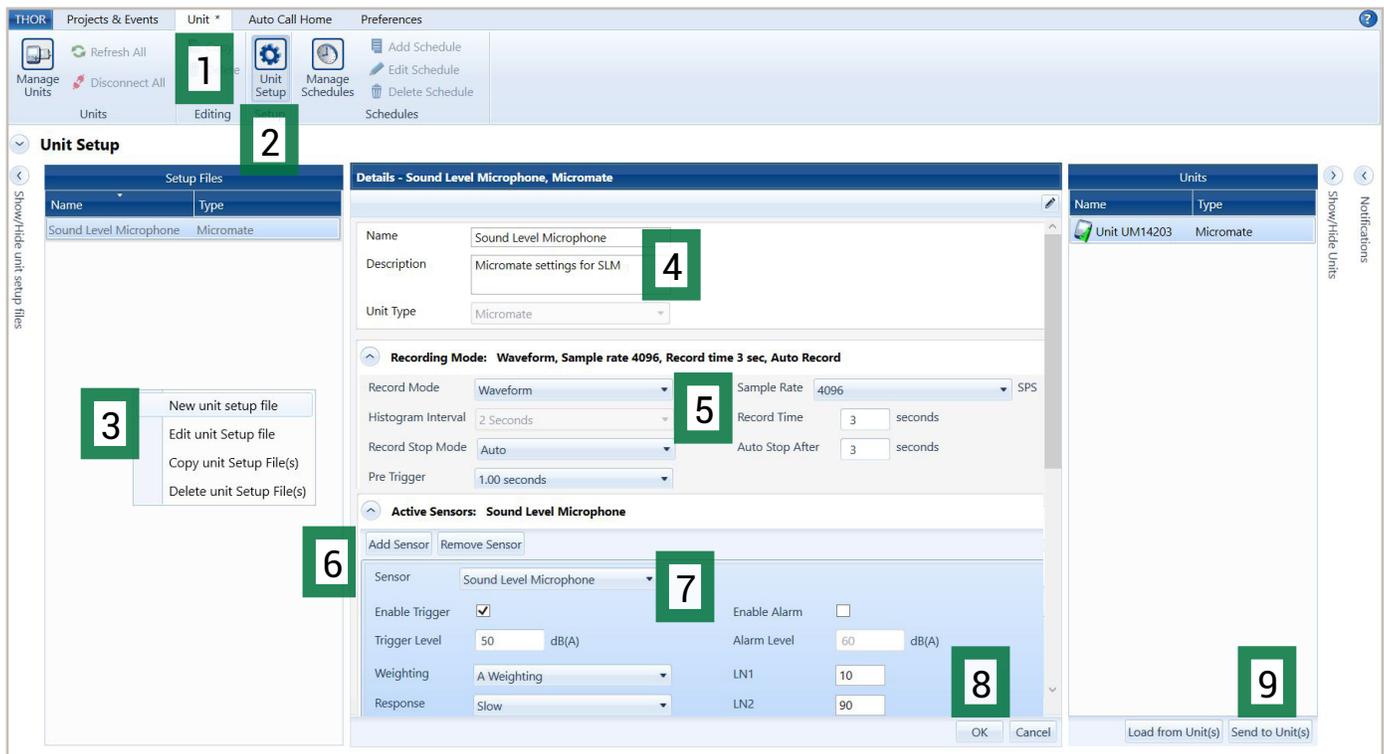
Warranty

Instantel products come with a one-year warranty. Monitoring units and sensors will have the warranty extended for a second year if they are returned to the Instantel factory for service and calibration within 30 days of the 'Next Calibration' date printed on the calibration label located on the product.

If within a period of one year from the date of shipment to a customer, the instrument fails to perform in accordance with Instantel's published specifications and the operator's manual, due to a defect in materials or workmanship, it will be repaired or replaced at Instantel's option, free of charge. This warranty is void if the equipment has been dismantled, altered or abused in any way. This warranty is nontransferable.

This warranty does not include any implied warranty of functionality for a particular purpose. Instantel assumes no responsibility for damages of any description resulting from the operation or use of its products. Since it is impossible to anticipate all of the conditions under which its products will be used either by themselves or in conjunction with other products, Instantel cannot accept responsibility for the results unless it has entered into a contract for services which clearly define such an extension of responsibility and liability.

Any shipments returned directly to Instantel Inc. must have our prior approval and all packages must display the Return of Material Authorization (RMA) number issued by Instantel. Shipping charges to Instantel's plant will be paid by the customer and those for return to the customer will be paid by Instantel.

To protect your warranty, you must complete and return a Warranty Registration Certificate, or complete the online Warranty Registration Form, within ten days of purchase. Products will be assumed out of warranty if there is no warranty card on file at Instantel. Retain this portion and the proof of purchase for your records.

EC Warning

This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.