Instruction Sheet
Minimate Pro™ Monitoring Unit
Sound Level Microphone

The Sound Level Microphone for the Minimate Pro4/Pro6 monitoring unit, automates sound/noise monitoring for a range of applications including: building activities, construction, traffic, mining operations and quarries. The Minimate Pro monitoring unit combines noise and vibration monitoring in the same unit making it a cost effective and flexible system.

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. It is also capable of recording the unfiltered response in one of two ranges, +/- 25 Pa or +/- 100 Pa (requires THOR Advanced).

The record mode can be set to Manual trigger, Waveform (records up to 9,000 seconds once it has been triggered) Histogram (2-second to 1-hour intervals) or simultaneously recording both Histogram and Waveform in Histogram-Combo mode.

In THOR's Advanced software setup, the Sound Level Microphone can also trigger and record unfiltered sound clips (1-125 seconds at 65,536 S/s or 1-32,400 seconds at 512 S/s). The resulting data file can then be played back in THOR to help determine the source, or it can be processed further, including third octave frequency analysis.

The Minimate Pro monitoring unit can monitor up to four (Pro4) or six (Pro6) Sound Level Microphones simultaneously in Advanced mode with the use of one or two Splitter Boxes (P/N: 720A5501).

Range of Applications

- Building Activities
- Traffic
- Construction
- Mining
- Quarries

Tools and Materials Required

- Minmate Pro4 monitoring unit . . . . (P/N: 720A2301) or
- Minmate Pro6 monitoring unit . . . . (P/N: 720A2401)
- Sound Level Microphone . . . . (P/N: 720A5101) Stand and windscreen included.
- Minimate Pro Splitter Box . . . . (P/N: 720A5501)
- Extension cables, as required
    - 30 m (98.4 ft) . . . . (P/N: 720A3301)
    - 75 m (246.1 ft). . . . . (P/N: 720A3302)
    - Custom Length Extension Cable . . . . (P/N: 301-000034-000)
    - Custom Cable Connector Assembly . . (P/N: 720A3305)
- THOR Advanced software . . . . (P/N: 72300201)
- Optional Field Calibration devices:
    - Delta OHM HD9101 Class 1
    - Brüel & Kjaer Sound Calibrator Type 4231
    - Rion NC-74 Sound Calibrator

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: Minimate Pro**
5. Select the **Setup Type**, **Compliance** or **Advanced.**
6. Select the **Record Mode** and fill in the recording details.
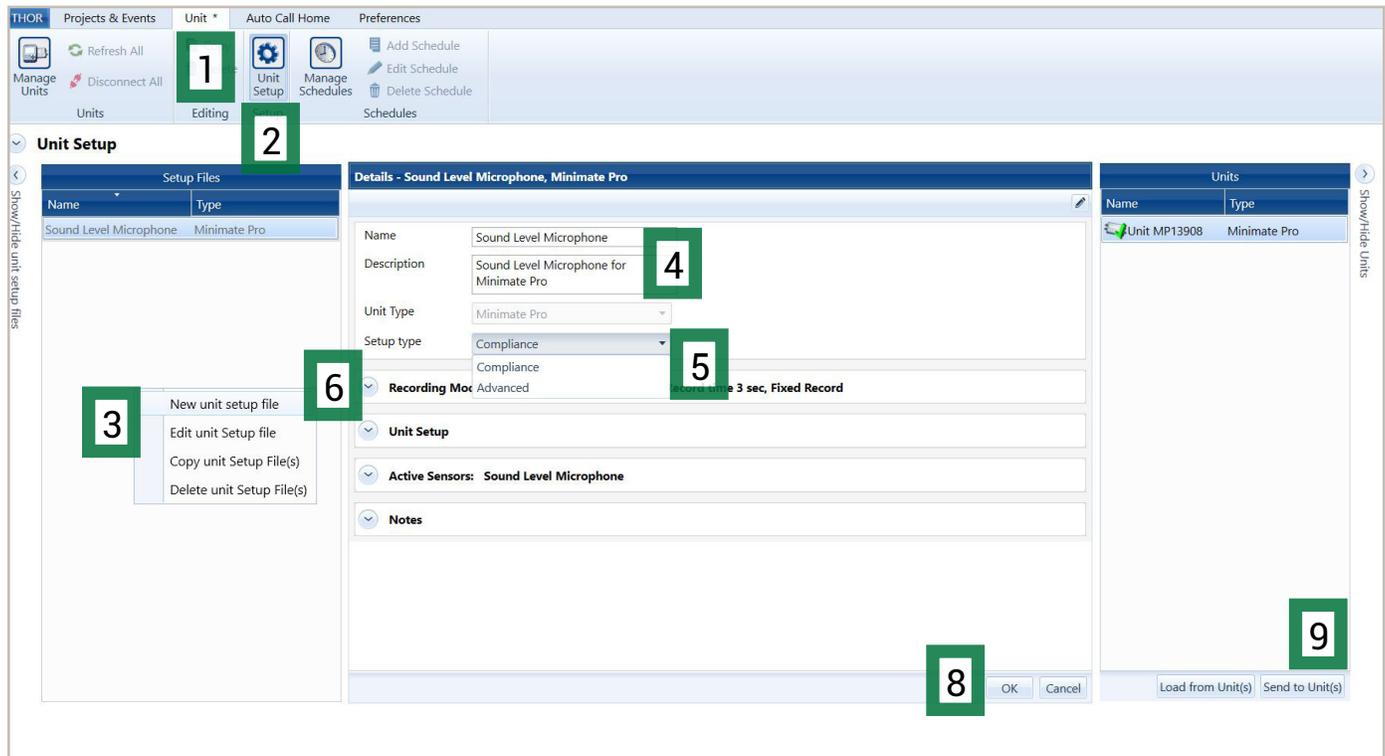
7. Depending on which **Setup Type** you choose you will have different options:

Compliance Mode
  i.   Under **Active Sensors**, click on **Add Sensor.**
  ii. Under **Sensor** select **Sound Level Microphone**.
  iii. Fill in any **Trigger** details for Trigger level, Weighting, Response, LN1 and LN2.
      (In this section you can also configure the external alarm.)

Advanced Mode
  i. Under **Active Channels**, click on **Add Channel**.
  ii. Under **Sensor Type** select **Other** and enter the **Sensitivity** according to the Microphone (0.12 or 0.0038).
  iii. Enter the units (Pa) and other parameters as required.
  iv. Repeat steps i. through iii. to add more Sound Level Microphones (Splitter Box required).
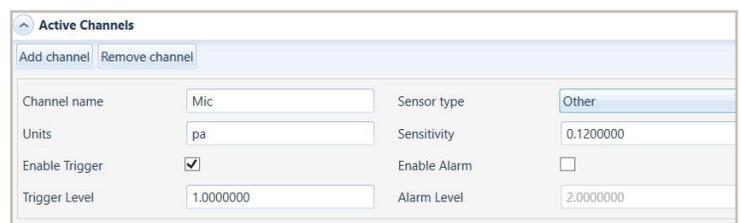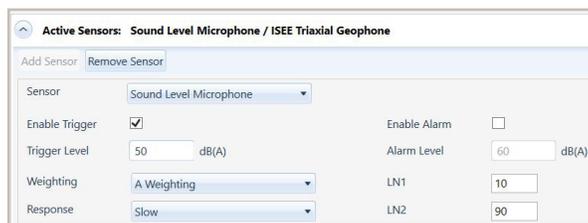
8. Click on **OK** to save the **Setup File**.
9. Select the Minimate Pro unit and click **Send to Unit(s)** to send the configuration file to the Minimate Pro monitoring unit.

Physical Installation

1. If required, assemble the stand.
2. Point the microphone in the direction of the sound or noise source.
3. Connect the microphone to the Minimate Pro as shown in page 4.
4. Push the Sensor Check button on the keypad to ensure proper functioning of the microphone (Only available when in Compliance mode).
5. If required, place the windscreen on the end of the microphone.

Specifications

Field	Compliance Mode	THOR Advanced Mode (Optional)	
		Normal	Sensitive
Weighting	A-Weight or C-Weight	Unfiltered	Unfiltered
Frequency Range	10 Hz to 20 kHz	10 Hz to 20 kHz	
Response	Fast (125 ms) or Slow (1 s)	N/A	
Sensitivity	N/A	0.0038 V/Pa	0.12 V/Pa
Resolution	0.05 dB (display limit 0.1dB)	0.03 Pa	0.89 mPa
Range	Automatic	+/- 100 Pa	+/- 25 Pa
Trigger Levels	33 dB to 140 dB	0.448 to 100 Pa	0.01424 to 25 Pa
Sample Rate	Up to 4,096 S/s (1,024 S/s recommended)	up to 65,536 S/s (recommended)	
Temperature Range	-10° to 50°C (14° to 122°F)	-10° to 50°C (14° to 122°F)	
Cable Length	2 m (6.6 ft)	2 m (6.6 ft)	
Maximum Amplitude	160 dB	160 dB	

Minimate Pro Monitoring Unit Setup

Once the Setup file is sent to the Minimate Pro unit, all parameters are ready for monitoring. If you wish to modify these parameters from the unit itself then:

1. On the Minimate Pro monitoring unit press the **Setup** key.
2. Use the down arrow key to reach **View/Edit Setup File** and press the **Enter (Checkmark)** key.
3. Use the down arrow key to reach **Sample Rate** then scroll through the available options with the right arrow key.
4. Use the down arrow key to reach **Sound Mic Setup** then enter the menu using the right arrow.
5. Use the right arrow key to choose between **A weighting** and **C weighting** then Mic Response **Slow** / **Fast** then press the **Enter (Checkmark)** key.
6. Use the down arrow key to reach **Trigger Level**, then enter the menu using the right arrow.
7. Use the down arrow key to reach **Pressure Trigger** and toggle between **On/Off** using the right arrow key.
8. Use the down arrow key to reach **Pressure Trigger Level** and enter the menu using the right arrow.
9. Use the arrow keys to set the trigger level and press the **Enter (Checkmark)** key to register the value.
10. Press the **Enter (Checkmark)** key 4x to save the values to the Setup file.

Field Calibration

The Minimate Pro monitoring unit provides an option to calibrate the Sound Level Microphone in the field. When calibrating in the field, the calibration date is set to the current date, and the name of the calibrator is 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. Attach the Sound Level Microphone to the Pressure channel of the Minimate Pro4 unit (Channel 4) or Minimate Pro6 unit (Channels 4-6).
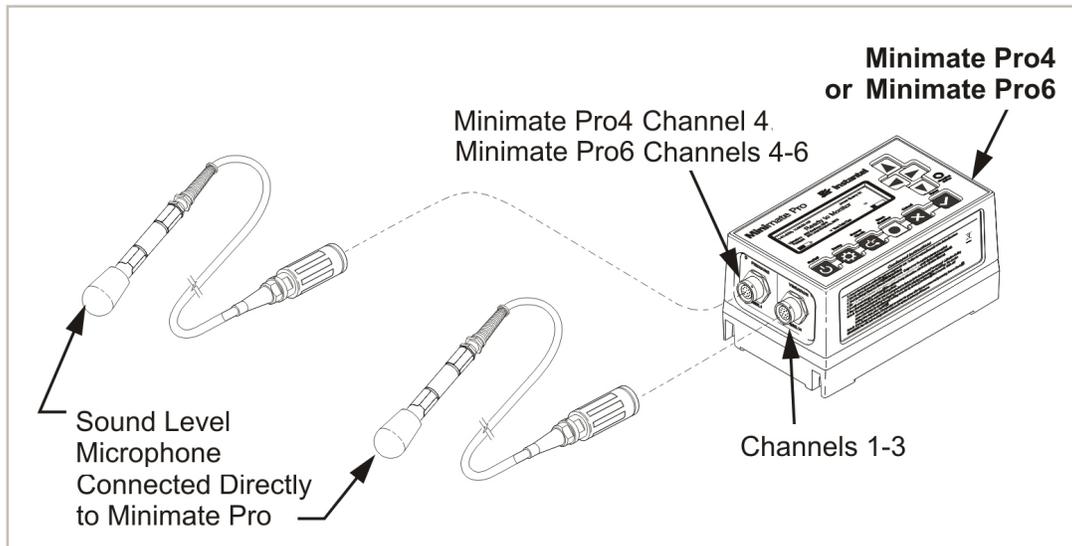
2. Select the **Setup** key.
3. Press the **Down Arrow** key to scroll and highlight the Maintenance menu.
4. Press the **Enter** key.
5. Press the **Down Arrow** key to scroll and highlight **Sound Level Microphone Field Calibration**.
6. Press the **Right Arrow** key to accept the selection.
7. The Calibrate Sound Level Microphone menu appears. This menu displays the following message:
   "The calibration date will be set to:" and shows the current date.
8. Press the **Right Arrow** key to select the **Calibrate** command, or press the **Cancel** key to return to the Maintenance menu.
9. If the **Calibrate** command was selected, a new prompt appears:
   "Connect Sound Level Microphone to Channel 4 – Connect and turn on calibration reference."
10. Follow the instructions in the operator manual of the field calibration device to attach it to the end of the microphone and set the reference to 94 dBA. (Remove the windscreen from the Sound Level Microphone before attaching the calibration device.)
11. Press the **Right Arrow** key to select the **Calibrate** command, or press the **Cancel** key to return to the Maintenance menu.
12. When complete, the Minimate Pro unit will display one of four messages:
      a) If the measured signal is <u>less</u> than 94 dB:
            "Error Calibrating Sound Level Microphone. Calibration reference not detected. Existing Calibration retained."
      b) If the measured signal is <u>greater</u> than 94 dB:
            "Error Calibrating Sound Level Microphone.Calibration reference signal too large. Existing Calibration retained."
      c) If the monitor and field calibration instrument are <u>unable to calibrate</u> the microphone:
            "Unable to calibrate the Sound Level Microphone. Please send Microphone to be serviced."
      d) If the field calibration was <u>successful</u>:
             "Sound Level Microphone Calibration successful. Do you wish to use calibration?"
13. Do one of the following:
        • To save the calibration results, press the **Right Arrow**.
        • To retain the original calibration date, press **Cancel**.
    If the changes are accepted, the information will appear on the Event Report showing the Company Name of the Calibrator in the Field Calibration field. Refer to the THOR software operator manual for more information.

Warranty

Instantel products come with a limited one-year warranty against defects in materials or workmanship unless otherwise stated. The warranty begins on the date of shipment from the Instantel factory to the customer and is subject to certain exclusions and conditions as stated below. 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 under normal use and operating conditions, it will be repaired or replaced at the sole discretion of Instantel free of charge. Components subject to fair wear and tear in regular use, as solely determined by Instantel, are excluded from this coverage. This warranty will not apply if the damage or malfunction occurs due to (i) adjustments, additions, alternations, abuse, misuse or tampering of the instrument; (ii) instrument operation or use contrary to the operating instructions; (iii) power fluctuations; or (iv) any other cause not within the cause or control of Instantel. If inspection by Instantel fails to disclose any defect covered by this limited equipment warranty, the instrument will be repaired or replaced at customer's expense and Instantel's regular service charges will apply. This warranty is non-transferable.

Any shipments returned directly to Instantel must have prior approval, and all packages must display the Return of Material Authorization (RMA) number issued by Instantel. Shipping charges to Instantel's factory will be paid by the customer and return shipment 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 no warranty card is on file at Instantel. Retain this warranty statement and the proof of purchase for your records.

Except for the foregoing limited equipment warranty, Instantel makes no other warranties and hereby disclaims and excludes all other warranties, whether statutory, express or implied, whether arising under law or equity or custom or usage, including any implied warranty of merchantability, fitness for a particular purpose, non-infringement, satisfactory quality, or quiet enjoyment, and any warranty that the product supplied may not be compromised, or that the product will in all cases provide the function for which it is intended.

EC Warning

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

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