Instruction Sheet Uniaxial / Triaxial Accelerometer Adapters

Instantel provides two types of adapter cables to connect accelerometers with Minimate Pro4[™] and Minimate Pro6[™] monitoring units.

With the Uniaxial Accelerometer Adapter Cable you can connect one of the three supported accelerometers (0.5 g, 50 g and 500 g) directly to a Minimate Pro4/Minimate Pro6 monitoring unit. If additional Uniaxial Accelerometer Adapters are required, connect them using a Minimate Pro4/Minimate Pro6 Splitter Box. These configurations provide complete flexibility when installing the individual accelerometer sensors.



With the Triaxial Accelerometer Adapter Cable you can connect up

to three of the supported accelerometers (0.5 g, 50 g and 500 g) to the Minimate Pro4/Pro6 unit, in either a triaxial or uniaxial configuration.

Available Accelerometers

0.5 g Accelerometer (Low Level)

Instantel

The 0.5 g accelerometer measures low level accelerations (0.5 Hz to 500 Hz ±3dB, with minimum trigger levels 0.00032 g) for sensitive monitoring applications including computer rooms, integrated circuit manufacturing, optical balances, and electron microscopes.

50 g and 500 g Accelerometer (High Frequency)

The 50 g and 500 g accelerometers measure high frequency accelerations (1 Hz to 3 kHz) with minimum trigger levels 0.032 g for the 50 g accelerometer and 0.256 g for the 500 g accelerometer.

Please contact your Instantel Dealer Representative for additional applications that can be monitored using accelerometers.

Tools and Materials Required

WARNING: The 0.5 g Accelerometer is a fragile sensor. To maintain the warranty, handle the accelerometer with care. For storage and shipping purposes, always use the supplied case and packing materials. Do not drop.

Installation

There are five variations to install accelerometers, follow the appropriate procedure for your configuration:

- **A.** Installing a Single Accelerometer in a Uniaxial Configuration.
- B. Installing Multiple Accelerometers in a Uniaxial Configuration Using Uniaxial Accelerometer Adapter Cables.
- C. Installing Accelerometers in a Uniaxial Configuration Using a Triaxial Accelerometer Adapter Cable.
- D. Installing Accelerometers Using a Triaxial Accelerometer Adapter Cable and Triaxial Accelerometer Mounting Block. (Procedure for 50 g and 500 g Accelerometers)
- E. Installing Accelerometers Using a Triaxial Accelerometer Adapter Cable and Triaxial Accelerometer Mounting Block. (Procedure for 0.5 g Accelerometers)
- Note: If longer cables are required, Instantel recommends extending the shielded coaxial cable between the the Instantel accelerometer adapter and the Minimate Pro4/Minimate Pro6 units.
 30 m (100 ft) Extension Cable P/N: 720A3301 or
 75 m (250 ft) Extension Cable P/N: 720A3302

A. Installing a Single Accelerometer in a Uniaxial Configuration

Refer to Page 4, Section A for a graphical depiction of the proper installation.

- 1. Install the accelerometer to measure in the axis of interest.
- 2. Connect either the:
 - 0.5 g Accelerometer to the Cable for 0.5 g Accelerometers (P/N: R6-2-J5A-6, included with P/N: 714A7101). or
 - 50 g & 500 g Accelerometers to the Cable for 50 g & 500 g Accelerometers (P/N: 002C10, included with P/N: 720A6401, 720A6301).
- 3. Connect the Accelerometer Cable to the Uniaxial Accelerometer Adapter Cable (P/N: 720A4901).
- 4. Connect the Uniaxial Accelerometer Adapter Cable to the Minimate Pro.
- 5. Proceed to the THOR Software Setup procedure on Page 5.

Results will appear on channel 1 or 4 depending on the connector that was selected.

B. Installing Multiple Accelerometers using Uniaxial Accelerometer Adapter Cables

Refer to Page 4, Section B for a graphical depiction of the proper installation.

- 1. Install an accelerometer to measure in the axis of interest.
- 2. Connect the:
 - 0.5 g Accelerometer to the Cable for 0.5 g Accelerometers (P/N: R6-2-J5A-6, included with P/N: 714A7101). or
 - 50 g & 500 g Accelerometers to the Cable for 50 g & 500 g Accelerometers (P/N: 002C10, included with P/N: 720A6401, 720A6301).
- 3. Connect the Cable for 0.5 g Accelerometers or Cable for 50 g & 500 g Accelerometers to the Uniaxial Accelerometer Adapter Cable (P/N: 720A4901).
- 4. Repeat Steps 1-3 for each accelerometer.
- 5. Connect the Uniaxial Accelerometer Adapter Cables to the Splitter Box (P/N: 720A5501).
- 6. Connect the Splitter Box to the Minimate Pro Unit Channels 1-3 connector (if using two Splitter Boxes with a Minimate Pro6 unit, connect the second Splitter Box to the Channels 4-6 connector.)
- 7. Proceed to the THOR Software Setup procedure on Page 5.

Results will appear on channels 1, 2 and 3 or 4, 5 and 6 depending on the connector that was selected.

C. Installing Accelerometers in a Uniaxial Configuration Using a Triaxial Accelerometer Adapter Cable

Refer to Page 4, Section C for a graphical depiction of the proper installation.

You can use a **Triaxial Accelerometer Adapter Cable** (P/N: 720A5201) to create a uniaxial configuration. Using this procedure, you can install a single accelerometer or multiple accelerometers.

- 1. Install an accelerometer to measure in the axis of interest.
- 2. Connect the accelerometer to one of the following cables:
 - 0.5 g Accelerometer to the Cable for 0.5 g Accelerometers (P/N: R6-2-J5A-6, included with P/N: 714A7101).
 or
 - 50 g & 500 g Accelerometers to the Cable for 50 g & 500 g Accelerometers (P/N: 002C10, included with P/N: 720A6401, 720A6301).
- 3. Connect the accelerometer cable to the Triaxial Accelerometer Adapter Cable (P/N: 720A5201).
- 4. Repeat Steps 1-3 for each accelerometer.
- 5. Connect the Triaxial Accelerometer Adapter Cable to the Minimate Pro unit.
- 6. Proceed to the THOR Software Setup procedure on Page 5.

D. Installing Accelerometers Using a Triaxial Accelerometer Adapter Cable and Triaxial Accelerometer Mounting Block. (Procedure for 50 g & 500 g Accelerometers)

Refer to Page 4, Section D for a graphical depiction of the proper installation.

- 1. Connect the accelerometers to the **Triaxial Accelerometer Mounting Block** (P/N: 080B11). Align the accelerometers, one each, to the transverse (Tran), vertical (Vert), and longitudinal (Long) axes.
- 2. Attach the Triaxial Accelerometer Mounting Block securely at the point of interest.
- 3. Connect each 50 g or 500 g Accelerometer to a **Cable For 50 g & 500 g Accelerometers** (P/N: 002C10, included with P/N: 720A6401, 720A6301).
- 4. Connect each accelerometer cable to the Triaxial Accelerometer Adapter Cable (P/N: 720A5201).
- 5. Connect the **Triaxial Accelerometer Adapter Cable** to the Minimate Pro.
- 6. Proceed to the THOR Software Setup procedure on Page 5.

E. Installing Accelerometers Using a Triaxial Accelerometer Adapter Cable and Triaxial Accelerometer Mounting Block. (Procedure for 0.5 g Accelerometers)

Refer to Page 4, Section E for a graphical depiction of the proper installation.

- 1. Connect the accelerometers to the **Triaxial Accelerometer Mounting Block** (P/N: 400-000289-000). Align the accelerometers, one each, to the transverse (Tran), vertical (Vert), and longitudinal (Long) axes.
- 2. Attach the Triaxial Accelerometer Mounting Block securely at the point of interest.
- 3. Connect each 0.5 g Accelerometer to a **Cable For 0.5 g Accelerometers** (P/N: R6-2-J5A-6, included with P/N: 714A7101).
- 4. Connect each accelerometer cable to the Triaxial Accelerometer Adapter Cable (P/N: 720A5201).
- 5. Connect the Triaxial Accelerometer Adapter Cable to the Minimate Pro.
- 6. Proceed to the THOR Software Setup procedure on Page 5.

Specifications

Specification/Sensor	0.5 g Accelerometer (Low Level)	50 g Accelerometer (High Frequency)	500 g Accelerometer (High Frequency)
Amplitude Range	0.5 g	50 g	500 g
Frequency Range	0.5 Hz to 500 Hz (±3dB)	1 Hz to 3 kHz	1 Hz to 3 kHz
Nominal Sensitivity	6.4451998 V/g	0.064452 V/g	0.0064452 V/g
Resolution	0.0000155 g	0.00155 g	0.0155 g
Minimum Trigger Levels	0.00032 g	0.032 g	0.256 g
Recommended Sample Rate	2,048 S/s	16,384 S/s or greater	16,384 S/s or greater
Natural Frequency	815 Hz	≥ 22 kHz	≥ 38 kHz
Cable Length	1.8 m (6 ft) Accelerometer Cable (P/N: R6-2-J5A-6)	3 m (10 ft) Accelerometer Cable (P/N: 002C10)	3 m (10 ft) Accelerometer Cable (P/N: 002C10)
Maximum Amplitude	< 10 g peak	+/- 10,000 g peak	+/- 10,000 g peak
Mounting Thread	3/8 - 16 tapped hole	10-32 UNF-2B	10-32 UNF-2B
Optional	Triaxial Accelerometer Mounting Block (P/N: 400-000289-000)	Triaxial Accelerometer Mounting Block (P/N: 080B11)	Triaxial Accelerometer Mounting Block (P/N: 080B11)



Minimate Pro4/Pro6 Monitoring Units Uniaxial & Triaxial Adaptor Configurations

Identifying the Sensitivity of Accelerometers

IMPORTANT NOTE

When setting up the Minimate Pro monitoring unit, use the **nominal sensitivity** of the individual accelerometer. This is a calculated sensitivity value, it is not the same sensitivity value that appears on the accelerometer manufacturer's calibration report, provided with the sensor.

Instantel accelerometers must use the nominal sensivity found in the Specifications table on page 3. For third-party accelerometers refer to the accelerometer's calibration certificate for the actual sensitivity of the accelerometer and multiply the actual sensitivity by **0.64451998**.

THOR Software Setup

Once you have connected the accelerometer(s) to the Minimate Pro unit and identified the sensitivity of your accelerometer, you must setup the Minimate Pro unit using THOR Advanced software.

- 1. 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, then Setup Type: Advanced.
- 5. Set the sample rate (see specificaitons table on page 3).
- 6. Under Active Channels, add the necessary channels by clicking on the Add Channel button.
- 7. Under Sensor Type select "Other".
- 8. Fill in the sensitivity of the Accelerometer along with its respective units.
- (Repeat for all Accelerometers to be connected.)
- 9. Click on **OK** to save the Setup File.
- 10. Select the Minimate Pro unit and click Send to Unit(s) to send the configuration file to the unit.

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Minimate Pro Monitoring Unit Setup

Accelerometers require several seconds to stabilize after powering up. To accomodate this, a Sensor Settling Time parameter must be configured on the Minimate Pro unit. To do this:

- 1. Press the **Setup** key.
- 2. Press the Down Arrow key until View/Edit Setup File and press the Checkmark key.

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		▼View Data Files	-	

3. Press the **Down Arrow** key until **Sensor Settling Time**.

Edit	Current Setup
Channels 4-6:	Tran1, Vert1, Long1
Sample Rate:	65536
Trigger Level:	View/Edit
Record Time:	Fixed Time / 3 sec
Sensor Settling Time:	6 seconds
► Next/Pr	ev ▶Edit ✓ Save ≭Cancel

- 4. Press the **Right Arrow** to enter the menu.
- 5. Adjust the **Settling Time** from 0 to 180 seconds using the arrow keys, then press the **Checkmark** key to validate.
- 6. Press the **Checkmark** key 2x to save the settings to the Setup File.

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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