Quick Start Guide (OPTIMA users)

Note: These instructions do not cover the physical mounting of the force plate to the floor. For more information on this consult pages 10 to 22 of the force plate manual.

Step 1: Locate the AMTI USB drive. It contains manuals and software for your force transducer.

Step 2: Locate all the necessary cables for your system and connect them as shown on page 2 of this guide

Step 3: Install the OPTIMA drivers found in the folder *'Optima-Gen5 Drivers'* using the instructions on page 3 of this guide.

Step 4: Install Netforce by double clicking setup.exe in the NetForce folder (see page 4). This is **required** even if you plan to use a third-party system for data collection.

Step 5: Open Netforce and run through the setup helper - instructions on Page 4 of this guide.

Step 6: Configure the system with settings relevant to your research. For common settings see page 5 of this guide. More detailed information on the process can be found in the technical note *Gen 5 Setup and Optimization* found on your USB drive

Step 7: View the real-time stream in NetForce to ensure you are properly connected. Instructions can be found on page 6 of this document. If you are unable to connect consult the product manuals.

Congratulations your Force Plate is now installed!

You can now collect data through NetForce
Digital integration is also possible with a number of third party applications including 3D motion capture systems

For more detailed information consult our full-length manuals.

3/2/2017

1. USB Flash Drive

This drive contains all necessary manuals, along with required software (Netforce, drivers, and other purchased software). Also contained is a backup of the force plate's calibration information which will automatically load from the force plate during the installation process.

2. Force plate setup

Required Components:

Force Plate (or transducer)

Amplifier (Optima)

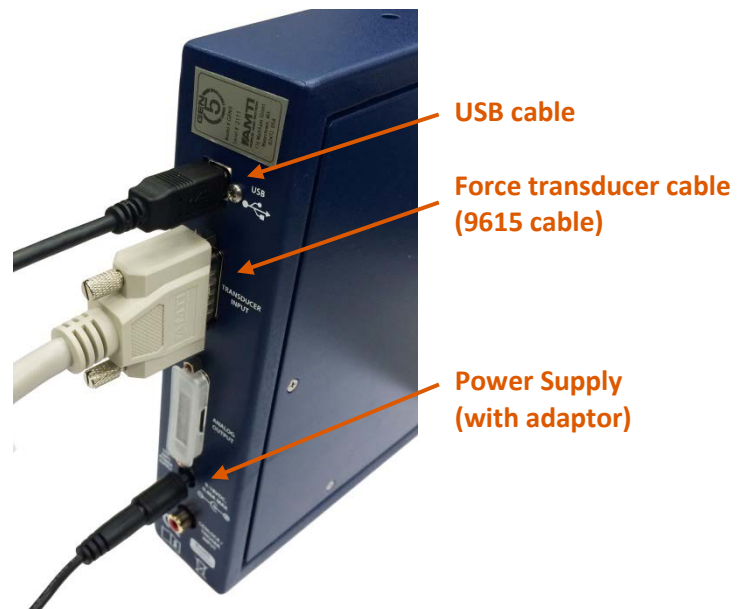Power supply

Force transducer to amplifier cable (9615 cable)

USB cable

Connections:

a. Connect the 9615 cable from the force transducer to the amplifier.
b. With the power switch set to off, plug the power supply into the amplifier, then into a socket
c. Plug the USB cable from the amplifier to the computer (if you have more than one amplifier plug them all into a powered USB hub, then into your computer).

Force transducer cable (9615 cable)

USB cable

Force transducer cable (9615 cable)

Power Supply (with adaptor)

3. Driver Installation

These are brief instructions for driver installation on a Windows 7 computer. For more detailed instructions see page 17 of the *Gen 5 user manual*.

    a. Make sure the amplifier and force transducer are connected and the amplifier is powered on.
    b. In the control panel search for the the **'Device Manager'** and click on it.
    c. Locate the OPTIMA device (HPS-SC). It will likely be listed under **'Other devices'** and have a yellow warning on its logo.
    d. Right click the OPTIMA device and select **'Update Driver Software …'**

Right click on the HPS-SC device with the yellow, triangular warning sign and select 'Update Driver Software …'
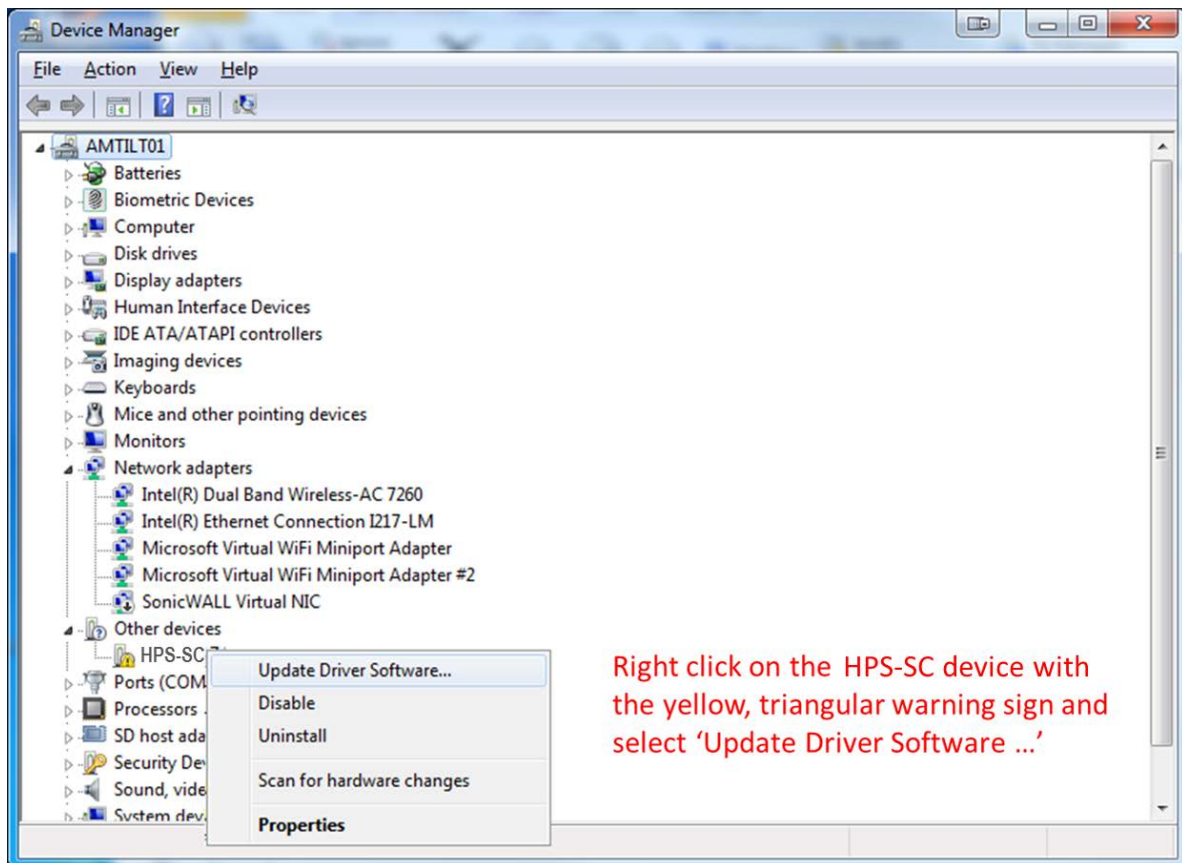
    e. Select '**Browse my computer for driver software'.**
    f. Click '**Browse'** and navigate to the folder containing the driver files. Make sure to select the appropriate 32-bit or 64-bit version for your operating system and then click **'OK'**.
        i. To determine which operating system you have click **'Computer'** under the Windows **'Start'** menu, then right click and select **'Properties'**.
    g. Click **'OK'** and then click '**Next'**
    h. The drivers should install.
    i. If you have trouble, please consult the OPTIMA manual or windows support.

For more detailed instructions on the driver installation see page 17 of the *Optima Signal Conditioner User Manual*.

3/2/2017

4. NetForce Installation

Even if you plan to integrate your force transducer with a third party system such as a motion capture system you must install NetForce. NetForce will allow you to perform the initial configuration of your Gen 5 amplifier so that you have the correct settings when integrating with other systems.

Double click the **Setup.exe** to install the software. Click through the installation wizard. If you receive a warning regarding a newer version of C++ simply close this window and continue on to opening NetForce.

5. NetForce Setup

a. Right click the NetForce icon and select **'Run as administrator'** to open NetForce.
b. The first time you open NetForce it will automatically take you through an initial setup. If this does not open automatically access it by clicking '**Setup**', then '**Setup Helper**,' and '**Yes**'.
c. The first window will ask if you wish to continue with the setup, click '**Yes**'
d. Next select the configuration that matches your hardware, in this case highlight **'Optima \ Gen 5 (using USB 2.0)**' and click '**OK**'
e. The **'AMTI System Configuration'** window will open. It should auto-populate the list of **'Installed Amplifier'** and **'Associated Platform'** with your amplifier model and serial number as well as the force plate's serial number. Part of these lists may be covered by another window, **'Optima Installation'** which should also open (see figure below).
- If the lists do not automatically populate check your amplifier power and connections and click **'Find Amplifiers'**. If you are still having difficulty consult the Gen 5 manual.
- If the lists populate but the **'Optima Installation'** window does not appear, click the **'Optima'** button in the bottom left of the **'AMTI System Configuration'** window.
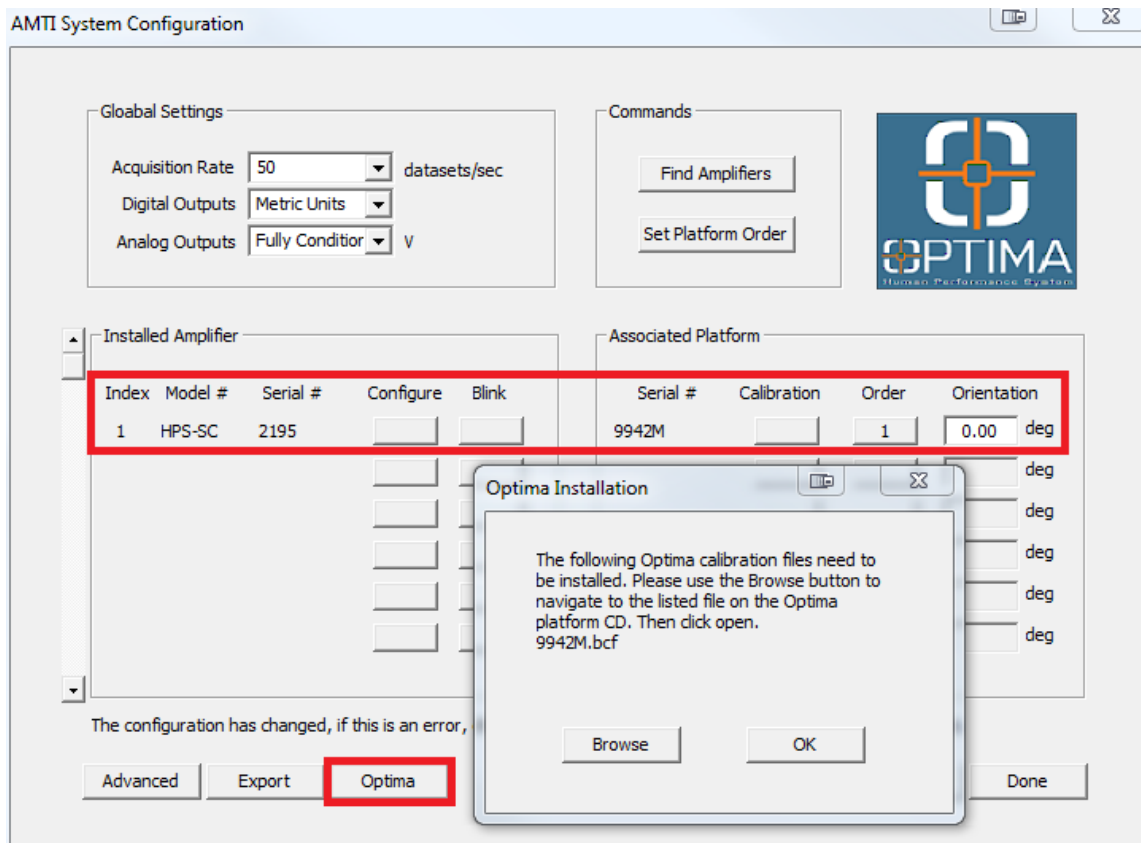
f. In the future you can access the *'AMTI System Configuration'* window by clicking '*Setup'*, then '*Hardware Installation'*, then *'Modify'*

g. Click the *'Browse'* button on the *'Optima Installation'* window which will open a pop-up window allowing you to browse for your force plate's calibration file.
- If you have more than one force plate system it can be easier to only plug in/power on one at a time during this process.

h. On your USB key, navigate to the *'Calibration'* folder and locate the calibration file matching the force plate's serial number
- <u>**IMPORTANT:**</u> If there is a '-#' (i.e. -1, -2, -3, etc.) delete this portion of the filename so that only the serial number remains: XXXXX.bcf.

i. Click on the bcf file with the correct serial number and click *'Open'*, then click *'OK'* on the *'Optima Installation'* window.

j. Click *'Apply'* and then be sure to click *'Save'*.

k. Repeat for all the plates you have, then turn on all force plates and click *'Find Amplifiers'*.

l. Under '*Global Settings'*, and *'Digital Outputs'*, select English or metric units.

m. Under '*Global Settings'*, and *'Analog Outputs'* select *'Fully Conditioned'*.
- If you are using the Optima's digital output only (for example you are collecting through NetForce, or integrating digitally with a third party system) this setting is irrelevant.
- If you plan to use the analog output from the Optima, choose *'Fully Conditioned'*
- You can always change this setting later. Consult the Technical note **Gen 5 Setup and Optimization** for more details on what these modes represent.

n. Click *'Apply'* and then be sure to click *'Save'*. Then click '*Done'*

o. In the next window select the location where data collected through NetForce should be saved. Navigate to an appropriate folder or select the folder *'Data'* under *'AMTINetForce'* and click *'Open'*, then '*Open'*.

p. Click *'OK'* for the location of the default directory.

q. Click '*OK*' to complete the setup and close the program.

r. To check to make sure the calibration files have been properly installed reopen NetForce, select *'Setup'* then *'Hardware Installation'*, and click on *'Modify'*. In the *'AMTI System Configuration'* window click on the button under the *'Calibration'* column for each force plate. This will open the *'Platform Calibration'* window. Under 'Optima Platform Status' it should read '*Optima platform 9924M is installed and ready*'.

s. If you encounter and error make sure all of the steps in this section have been followed carefully, particularly step **a** and the important note in step **h**.

You can find more detailed information about setting up and running NetForce in the *NetForce User Manual.*

6. Gen 5 Amplifier Configuration

In order to properly configure your force plate you must select *Excitation Voltages* and A*mplifier Gains* that are relevant to the measurements you intend to make. You can choose different values for each channel. If you plate to use the analog output you will also need to set the *Analog Sensitivities*. For information on how to do this consult the Technical note *Gen 5 Setup and Optimization*

Excitation Voltage:
To achieve the best signal to noise ratio you want the Gen 5 to output the largest possible excitation voltage. This will normally be 10 volts.

Amplifier Gain:
To achieve the best system resolution, apply the largest gain setting available where the Gen 5 measurement range is greater than the expected application range.

3/2/2017

Typical Settings:

<u>**NOTE:**</u> The settings in the table below are simply guidelines and may not be suitable for your particular study set. These can be used as a starting point but you should verify their appropriateness under your conditions and ensure that none of the channels are saturating.

Activity	Platform Vertical Capacity (lbs)	Excitation Setting	Gain Setting
Adults walking	1000	10 V	1000
	2000	10 V	2000
Children walking	1000	10 V	2000
	2000	10 V	4000
Running	1000	10 V	500
	2000	10 V	1000

How to Set the Gain and Excitation:

a. In NetForce under the *'Setup'* menu select *'Hardware Installation'*, then click *'Modify'.* If there are no force plates listed under '*Current Installation'* return to **Step 5**)

b. For the force plate and amplifier of interest click on the button listed under *'Configure'* in the list of *'Installed Amplifiers'*

c. In the *'Amplifier Configuration SN: XXXX'* window set the *'Excitation'* and *'Gain'* to appropriate values for each channel (use the table above and the instruction at the beginning of this section as a guide).

d. Click *'Apply'*, then *'OK'*

e. Click *'Save'* in the next window.

7. View the Real-time Data Stream

a. Open NetForce (your force plate should already be installed from **Step 5**)

b. At the bottom left of each graph set the *'Amp ID'* to the force plate number for which you wish to view the data (This should be 1 or greater; no data will appear if it is set to 0).

c. Under the *'Startup'* menu select *'Hardware Zero'*. The Auto Zero light on the amplifier should flash.

d. Under the *'Settings'* menu select *'Acquisition Settings'* and ensure that the *'Mode'* at the bottom right of the window is set to *'Recurring'*

e. At the bottom right of the graph window the *'Units'* or '*Setup'* button will allow you to set the units, line color and scaling on the graph.

f. You can adjust which channels are displayed by toggling the channel buttons to the left of the graph window on or off.

g. Click the *'Center'* then *'Space'* button in the bottom right of each graph window to ensure all displayed channels are visible in the window.

h. The position of the curve can be changed by dragging the triangle that is to the left of the y-axis.

i. Click *'Start'* at the bottom right of the graph window and you should see the data begin to stream.

j. For more details on the features available through NetForce refer to the ***NetForce User Manual.***