Advanced OEM Solutions

Quick Start Guide

OEM-PA/OEM-MC/FMC

Version 1.1

REVISION HISTORY

Date	Version	Description
2013/08/22	1.0	Document Creation
2013/10/16		Added several new screenshots due to new software release.
2014/11/10		Included Hardware Setup.
2014/12/08		Removed '7. Wizard interface'
2014/12/10		Added Sub-Title; Updated §2
2014/12/11		Deleted '§2. Documentation'; General Edit
2017/02/17	1.1	Network "Speed & Duplex changed "Auto Negotiation" Added info about USB 3.0 option

CONTENTS

1. Getting Started

To install the AOS software package, a system must meet the following requirements:

- Operating System: (Recommended) Windows7
- Memory: (Recommended) Minimum 4GB RAM
- Processor: (Recommended) Intel i5 2nd Gen and above or equivalent
- .NET framework 4.0 – If unavailable, it will be installed with AOS software
- Development Tool: (Recommended) Visual Studio 2010

The software installation guide is provided in the *Software_Intoduction.pdf* document which provides step-by-step instructions.

Before we get started, we need to locate our software installation file. Depending on your computer's settings, the file could be on your desktop, downloads, or at another specified location. If all files are downloaded to your download's folder, navigate to the following directory:

Start Menu > Computer > C: Drive > Users > (YourUserName) > Downloads

Or

Your specific Download Directory

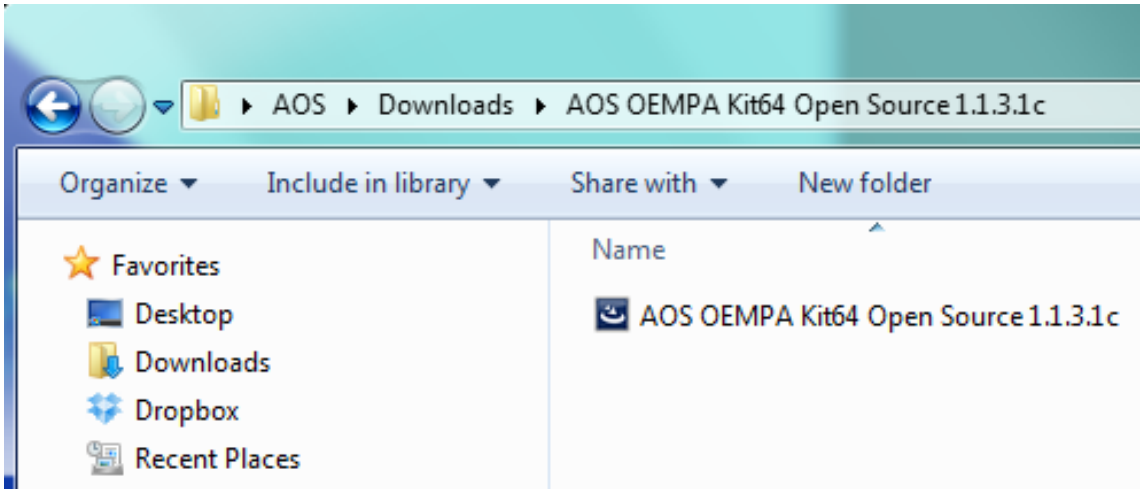

Figure 1.1: AOS OEMPA Open Source Kit 1.1.3.1c installation icon.

Once you've located the install file, double click it and proceed through the installation process. During the installation process, you may be prompted for administrative privileges or where

you would like to your installation directory. We recommend the default settings. Depending on your operating system, you may be prompted for User Account Control access. Click yes and proceed.

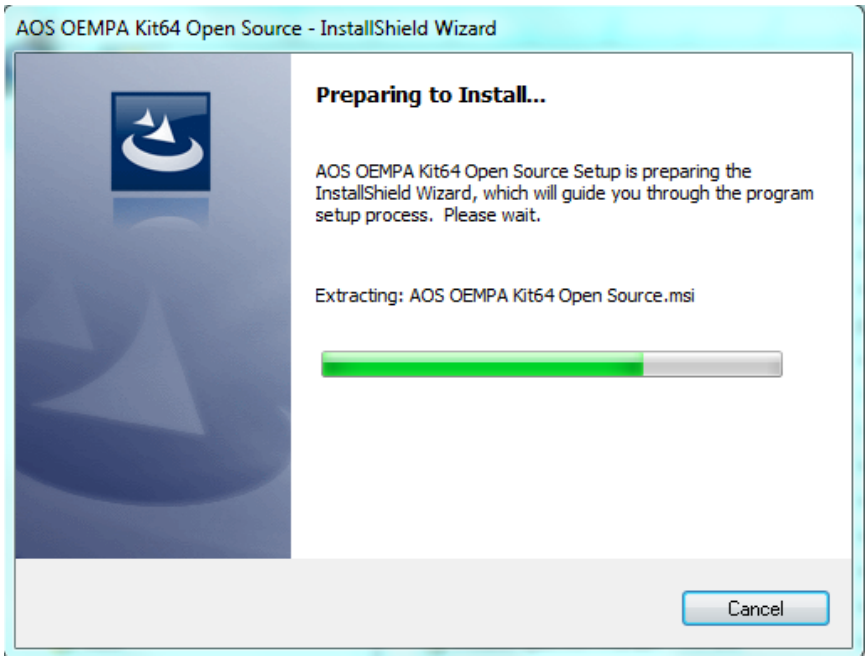

Figure 1.2: Preparing installation window.

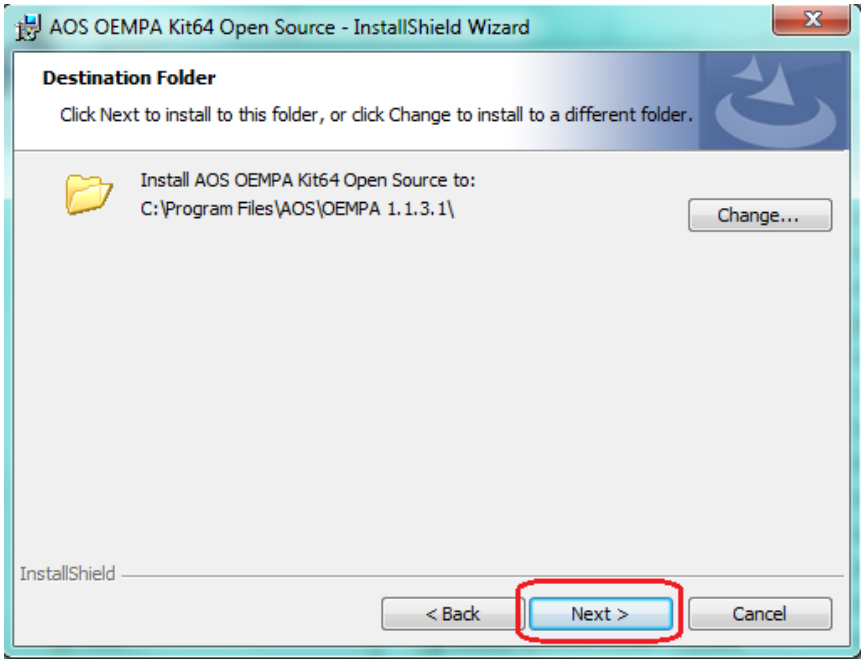

Figure 1.3: Destination Folder Selection Window

We recommend default installation directory by clicking “Next”.

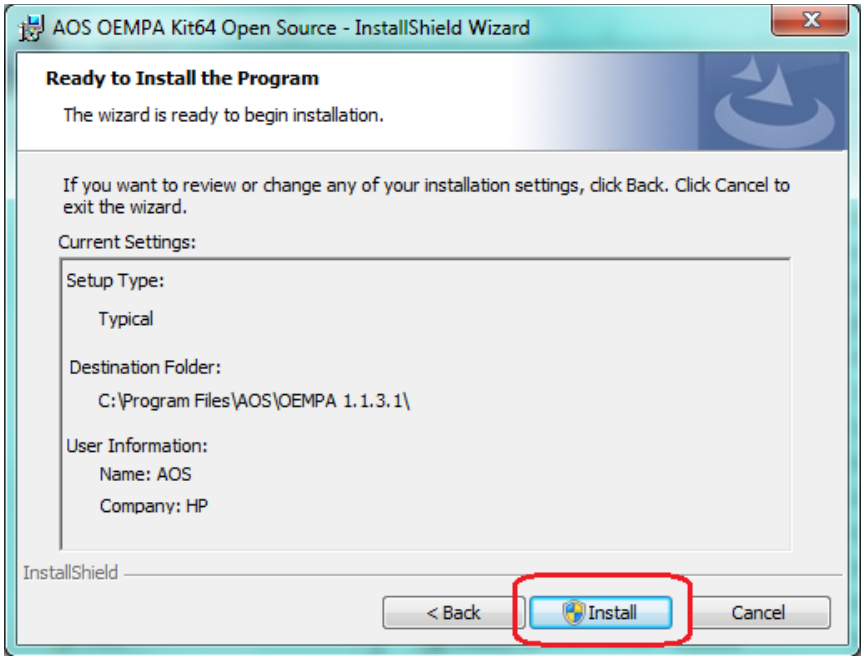

Figure 1.4: Installation Process Window

Click “Install”.

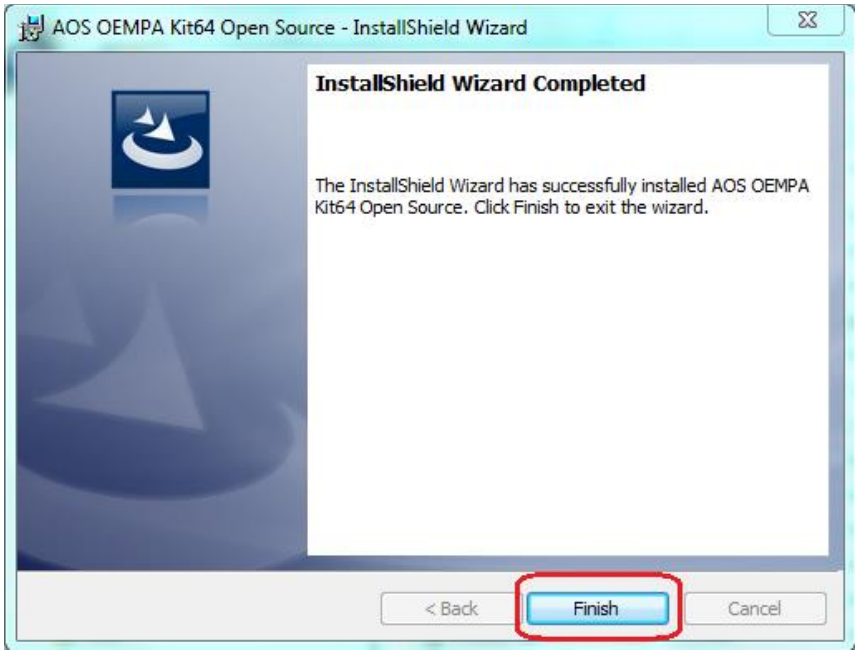

Figure 1.5: Installation Complete Window

Finish the installation process by clicking “Finish”.

Once the installation has completed, it's time to learn more about OEM-PA, documentation, and how to get started.

All right, let's begin!

2. Hardware Installation

The following sequences of steps are required to be followed for setting up the OEM-PA/MC units:

1. Connect a suitable 24V Power Supply to the DC input of the OEM-PA/MC Unit. Refer to the *Power Supply* section of *Hardware_Introduction.pdf* to determine the correct power supply requirements for different variants of OEM-PA/OEM-MC units.
   The fan shown below will start running once the supply is connected.

Figure 2.1 Back of OEM-PA

2. Connect the Ethernet cable to the unit. Ensure the other end is connected to a Computer/Laptop running AOS Software.

Figure 2.2 Front of OEM-PA

3. Connect the Digital IOs through the DB15 receptacle shown above (if applicable).

4. Connect the Phased Array probe to the OEM-PA unit or transducers to OEM-MC unit through the SMB connectors.

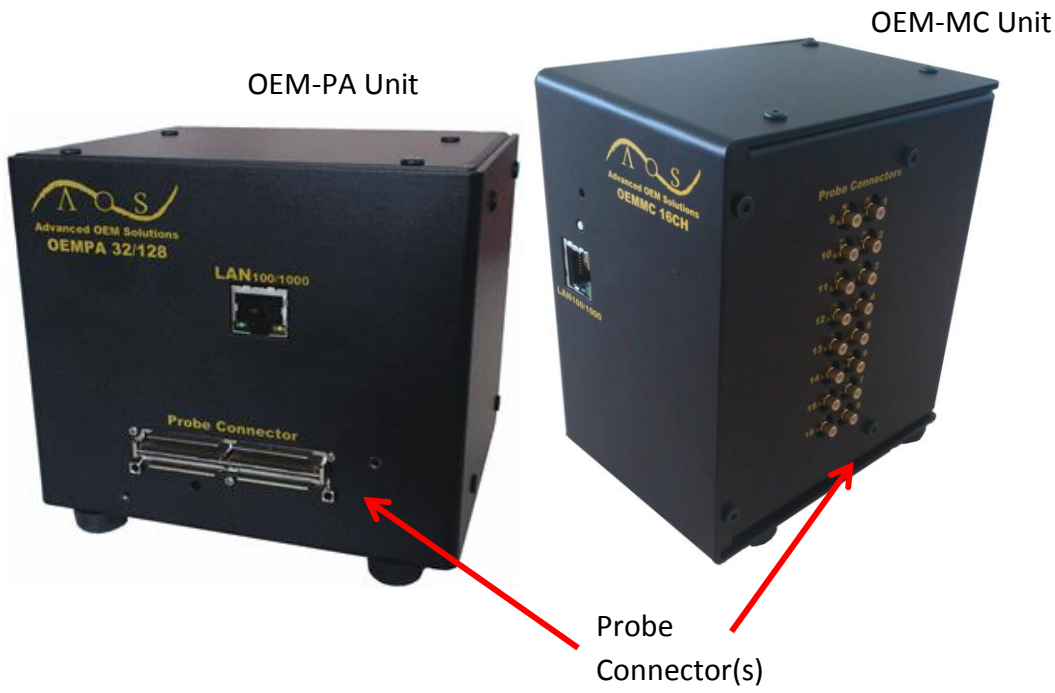

Figure 2.3 OEM-PA/MC probe connections

3. Network Card & PC Settings

If you haven't already established an IP address for your network connection, please do so now by navigating to your Windows Control Panel and locating your network adapter by opening Network and Sharing Center and clicking change adapter settings. Alternately, you can enter "View Network Connections" in the Start Menu search bar. Once the network adapter is selected, right click and select "properties". Then select "Internet Protocol Version 4 (TCP/IPv4)" and select properties as shown in Figure 3.1.

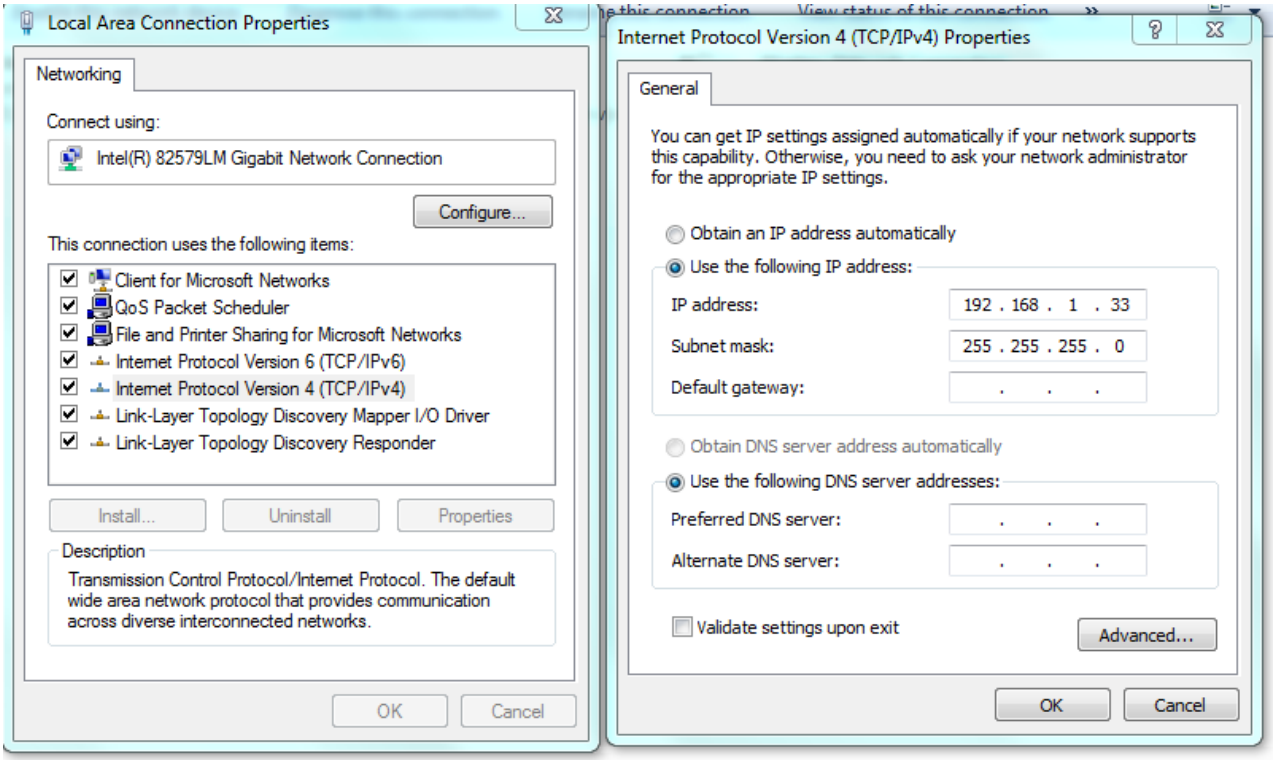

Figure 3.1: IP Configuration Properties

Inside this new menu, be sure to issue an IP address to ensure functionality between the instrument and computer. The instrument's IP address is 192.168.1.11, so for the last number choose something besides "11". In our example, we selected "33". In this demonstration our computer's IP address is 192.168.1.33.

3.1 Adapter Configuration

Next, we need to ensure your network adapter is transmitting the correct data options to ensure OEM-PA/OEM-MC is receiving at 100BT standard or at our Gigabit Option Upgrade.

Select your network adapter and navigate to the properties dialogue box as shown in Figure 3.2.

Click on “Configure” after selecting “Internet Protocol Version 4” as below:

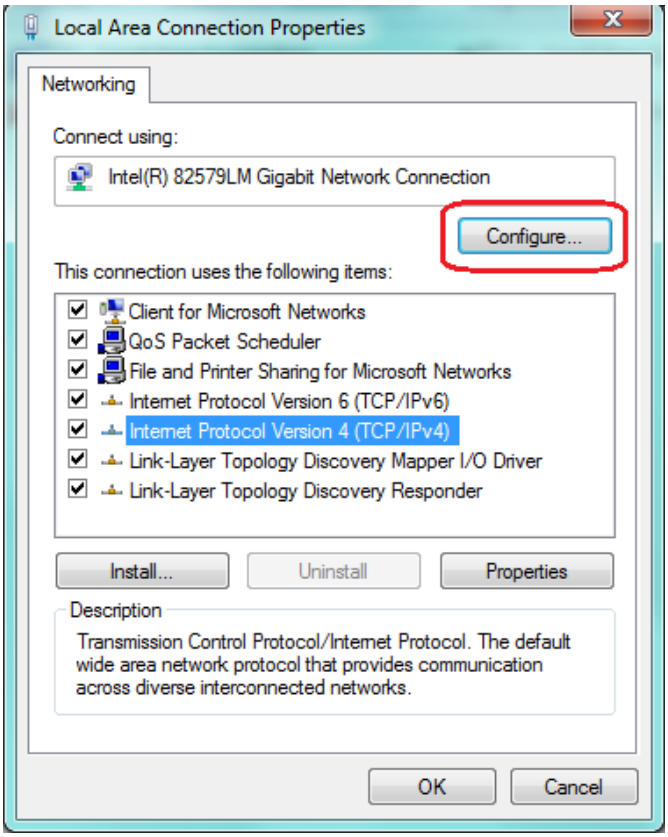

Figure 3.2: LAN Properties

Your adapter's network connection properties will be displayed as shown in Figure 3.3.

Click the “Link Speed” tab (or “Advanced” tab if a “Link Speed does not exist) and locate “Speed & Duplex” inside the property window. Make sure it is set to “Auto Negotiation”.

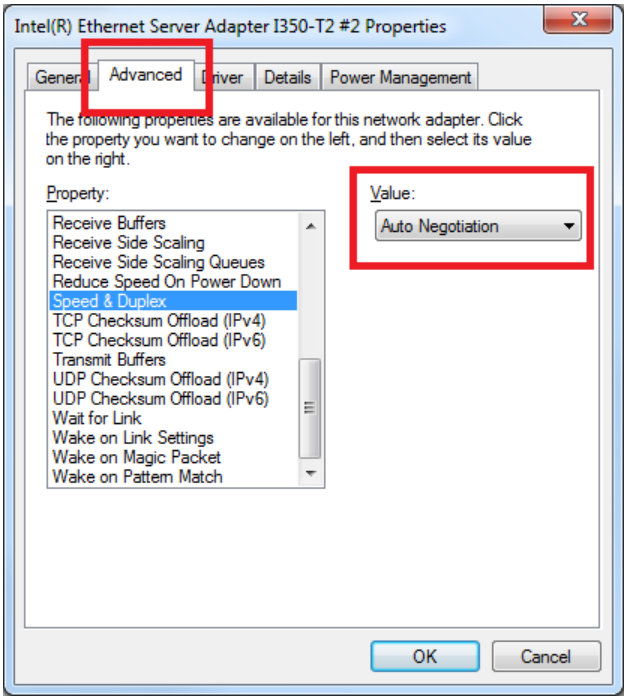

Figure 3.3: Network Adapter properties.

Click ok and close the properties window and make sure the network adapter is connected at the correct speed by right clicking on it and selecting “Status”. It should say “100 Mbps” for a 100 BT device and “1.0 Gbps” for a device with the Gigabit option. If the Speed does not match the options for your device, please contact AOS.

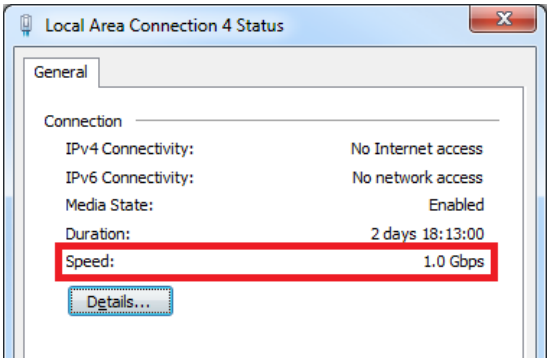

Figure 3.4 Network status for device with Gigabit option.

Note: Older versions of the SW may require explicitly selecting “100 Mbps Full Duplex” or “1.0 Gbps Full Duplex” from the “Speed & Duplex” drop down list, depending on the device’s speed option.

3.1.1 GIGABIT Option

If you have purchased the Gigabit upgrade, please ensure your Jumbo Packet is set correctly. Go back into the network adapter's properties. Under the "Advanced" tab, find the "Jumbo Packet" property and select "9014 Bytes". (It should be disabled for 100BT devices.)

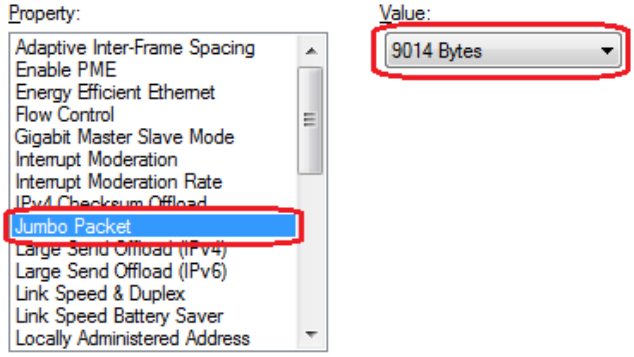

Figure 3.5: Jumbo Packet setting for GIGABIT Option

Then, click "OK" to save your settings.

3.2 Network Switch

When you use a network switch with an OEM-PA/OEM-MC unit configured in Gigabit mode, please make sure the switch supports Gigabit Ethernet and jumbo packets. We also recommend using a CAT 6 network cable when operating in Gigabit mode.

4. USB 3.0 Setup*

**The following section only applies to devices that have the USB 3.0 option for high speed data throughput. It may be skipped if it is not relevant to your device.*

4.1 Driver Installation

Prior to connecting the device to the PC, you must install the USB 3.0 driver (Opal Kelly FrontPanel USB Driver) provided by AOS. After opening the installer, click "Next" and then "I Agree" on the license agreement screen.

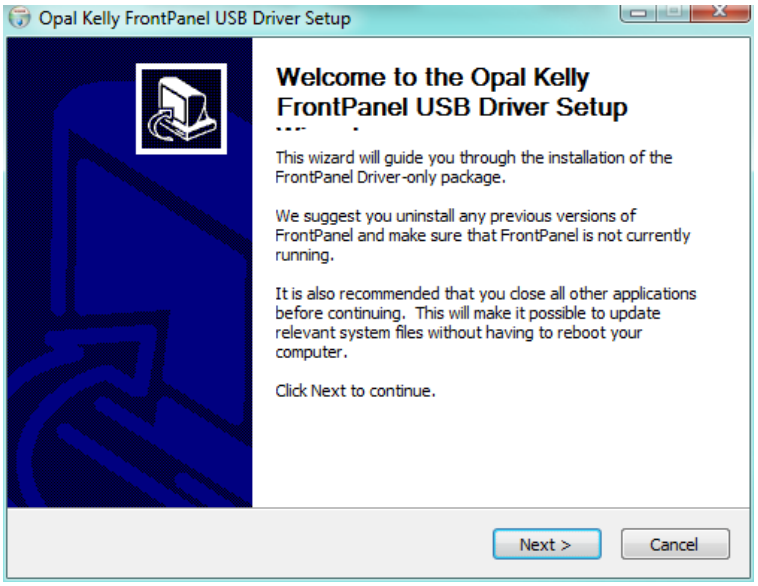

Figure 4.1 USB 3.0 Driver installation.

After connecting the device to a USB 3.0 port on your PC, the Windows should automatically configure the device. To ensure, it is working correctly go to *Start Menu > Devices and Printers* and check for "XEM6310-LX150" under the "Unspecified" group. If it appears it means the driver has been successfully installed.

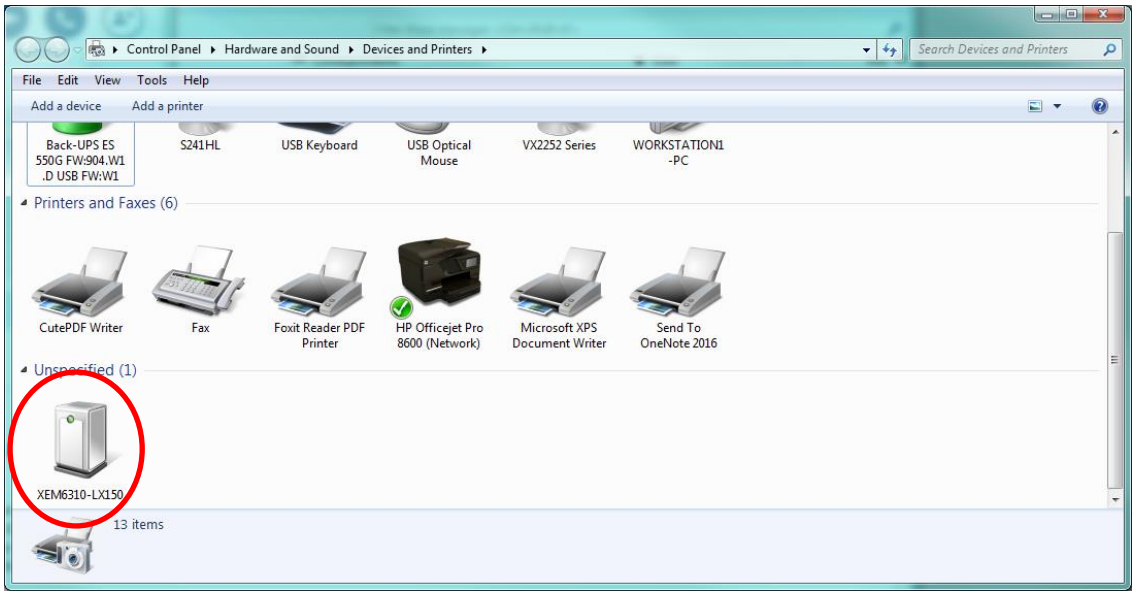

Figure 4.2 OEM-PA appearing as a USB device in Windows

4.2 Ethernet and USB 3.0

Note that devices with the USB 3.0 option must also maintain a connection via Ethernet. The device will not connect or function if the network connection is not present. It is possible to use a device with the USB 3.0 option in Ethernet mode if there is no USB connection between the device and the PC, but there will be a warning message when establishing a HW connection. (See section 5.1.1.)

5. System Start-up

After Installation, AOS software can be accessed from the Windows start menu. Navigate to the AOS folder as demonstrated below:

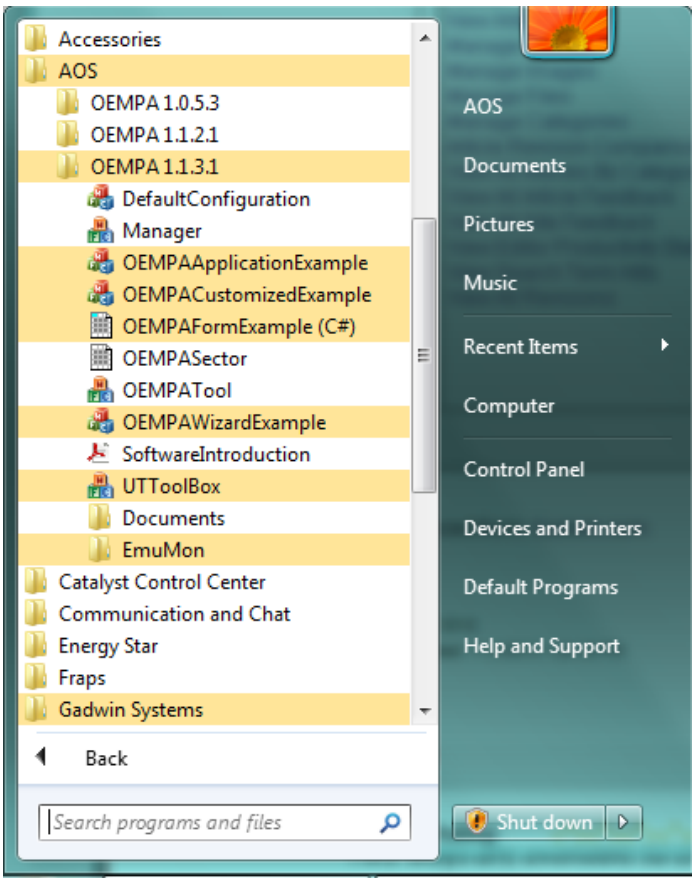

Figure 5.1: Start Menu Options

Default installation should be (Start Menu > All Programs > AOS) on Windows 7.

Refer to paragraph 5.1 for the connection to OEM-PA/OEM-MC devices.

5.1 Connect to OEM-PA/OEM-MC Hardware

To begin, click on 'OEMPATool' under AOS drop down menu to start up the program.

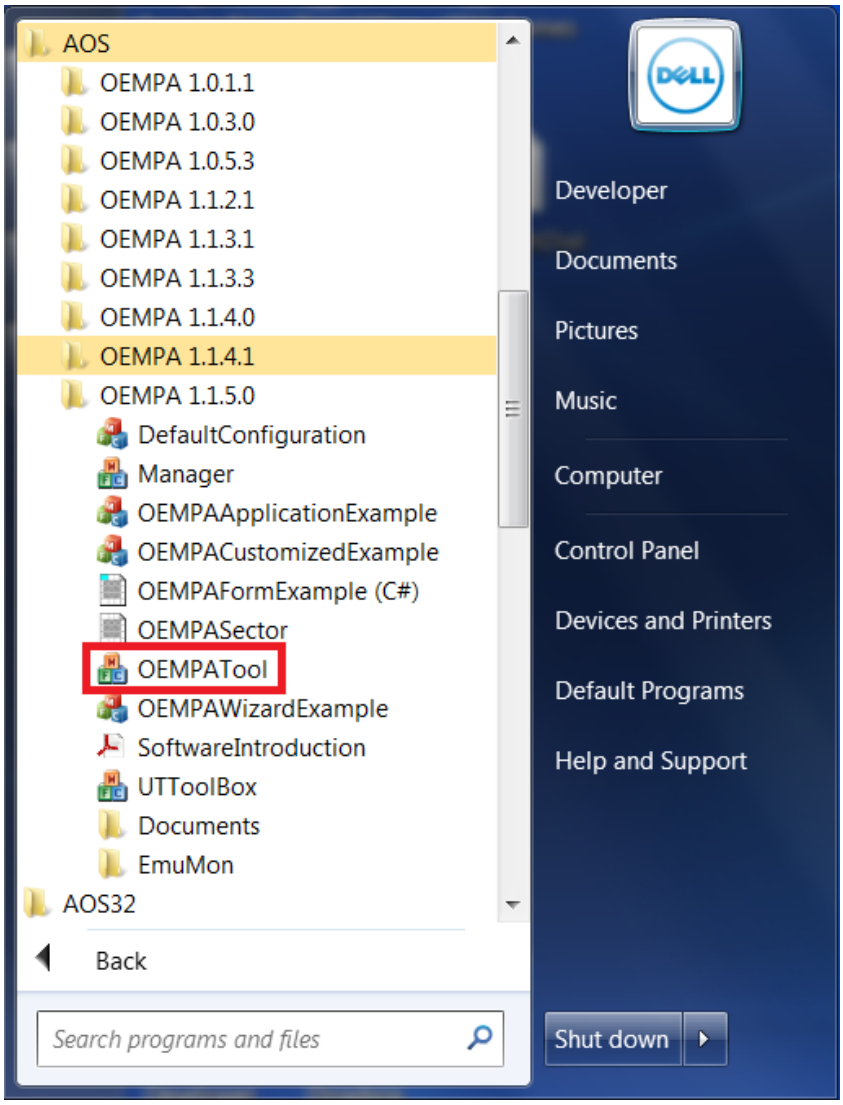

Figure 5.2: OEMPATool shortcut in Windows Start Menu

Once started, your screen should appear as:

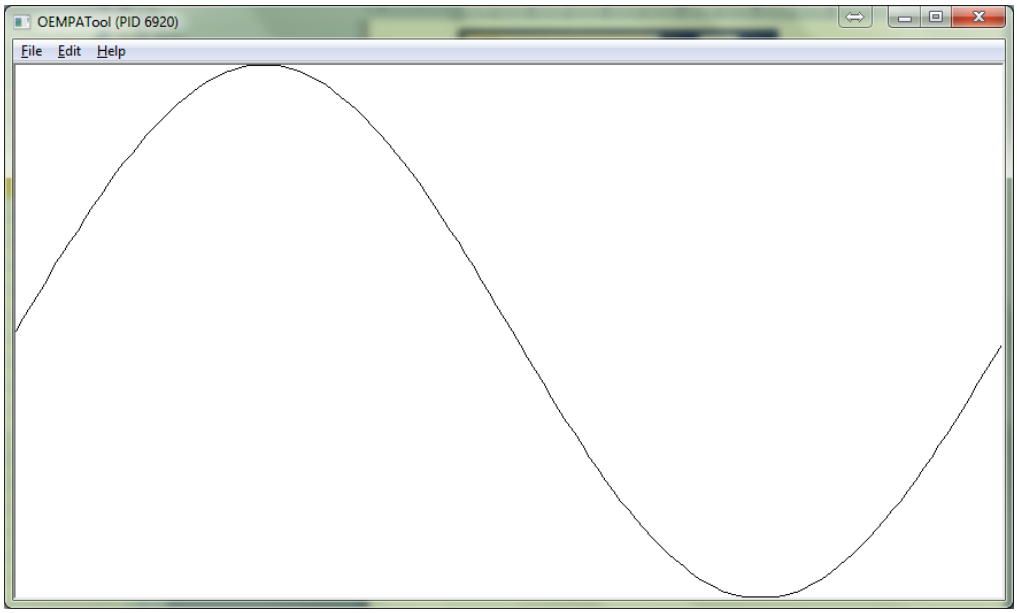

Figure 5.3: OEMPATool Start Window

Click on 'Edit' in the Menu Bar.

Open 'HW Dialog' from the drop-down menu as shown below:

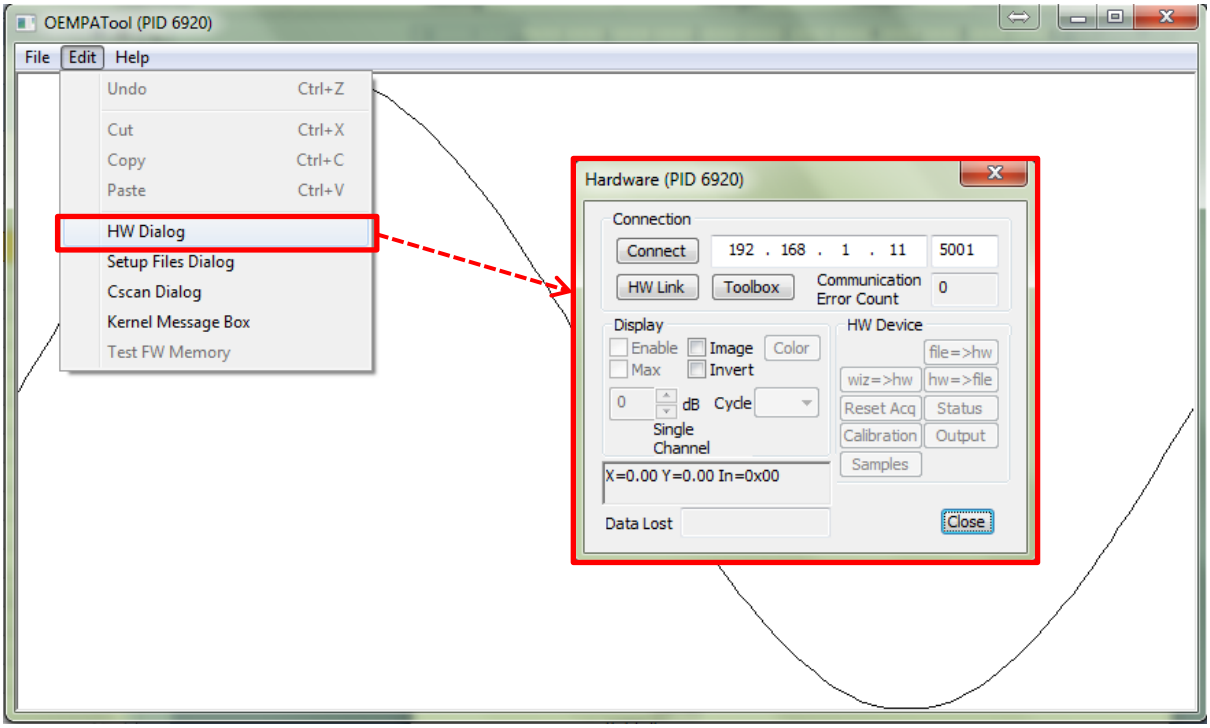

Figure 5.4 Opening Hardware Dialog Box in OEMPATool

5.1.1 Establish HW Connection

Now that we've successfully initialized the network connection with the instrument, we need to actually connect to the system in order for data to be transmitted from your OEM-PA/OEM-MC device to your computer.

Click on 'Connect' and certain button features become enabled after establishing a successful connection as shown below:

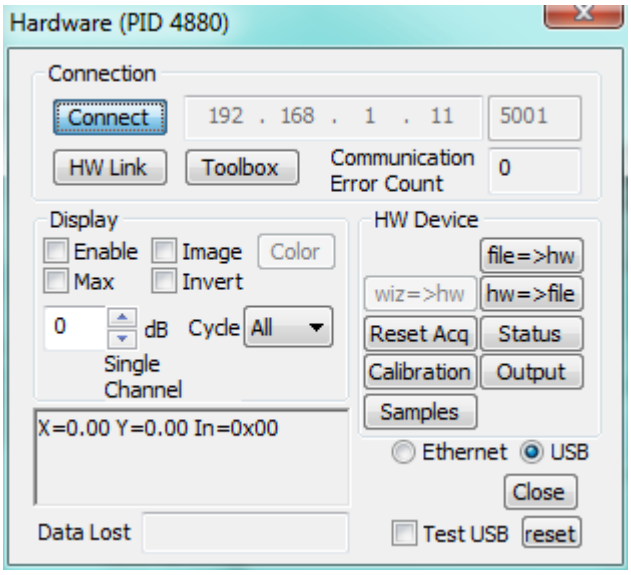

Figure 5.5: Hardware Dialog Box after connection

Now, the hardware is ready.

The "Ethernet" and "USB" radio buttons will only appear if you have a USB 3.0 enabled device. They allow you to choose which connection will be used for data transfer.

The desired configuration files and settings can be imported and used for data acquisition. Further information on creating OEM-PA setup files can be found in *Software_Introduction.pdf* and *Software_API_Utilities.pdf*.

6. Source Code

All source code is available at the following directories:

OEMPA Tool:
C:\ProgramData\AOS\OEMPA [version]\Sources\OEMPATool

OEMPA Sector:
C:\ProgramData\AOS\OEMPA [version]\Sources\OEMPASector

For all other example SW apps:
C:\ProgramData\AOS\OEMPA [version]\Sources\UTKernel