Aemulus

AM400e

Installation Guide

Version 1.5, 07-2013

Table of Contents

Section 1: Introduction

This guide explains how to install and configure AM4ooe PXI modules. More detailed information about the module, how to operate it and how it works, is given in the relevant user manual.

Section 2: System Requirements

Prior to any installation or configuration, ensure that the following system requirements are met:

Processor	Intel dual-core Core 2 Duo 1.5GHz or better
Memory	512 MB RAM
Display	1024 x 768 resolution
Free Recommended Hard Disk Space	1 GB
Operating Systems	Windows XP Professional Service Pack 2 Windows 7 Professional x86 and x64

Table 1: Development Computer Requirements

Note:

1. National Instruments NI-VISA 4.6.1 or later is required.
2. You must have administrator access to install the software.

Section 3: Installation Process

3.1 General

In its default mode, the supplied PXI module software installer automatically installs the following software drivers and instrument component:

- **Module Drivers**
  - AM430e
  - AM471e
  - AM450e
- **32-bit and 64-bit Instrument Software Components**
  - Aemulus.Hardware.SMU.PXI.dll (.NET, Core Library)
  - AM471e.dll (C++ Library Interface, Core Library)
  - AM430e.dll (C++ Library Interface, Core Library)
  - AM450e.dll (C++ Library Interface, Core Library)
  - AemDCPwr.dll (C++ Library Interface, Core Library)
  - Aemulus.Hardware.SMU.dll (.NET, Wrapper Library)
- **Soft Front Panel**
  - AM400e Soft Front Panel
- **32-bit and 64-bit Supporting Software Components**
  - Microsoft Visual C++ 2005 Redistributable
  - Microsoft Visual C++ 2008 Redistributable
  - .NET Framework 2.0
- **Example projects**

3.2 Order of Installation

1. Install the software.
2. Install the hardware.
3. Verify module operation.

3.2.1 Install the Software

Steps:

1. Follow the installer prompts to install the software drivers and instrument component.

2. Default installation location:

    a. Instrument software components: C:\Aemulus\common\bin
    C:\Aemulus\common\bin\x64
    b. Soft front panel: C:\Aemulus\Tools
    c. Documentation: C:\Aemulus\Doc\DC
    d. Sample projects: C:\Aemulus\Samples\DC

3. When prompted to install Microsoft Visual C++ Redistributable package, click "Yes" to continue.

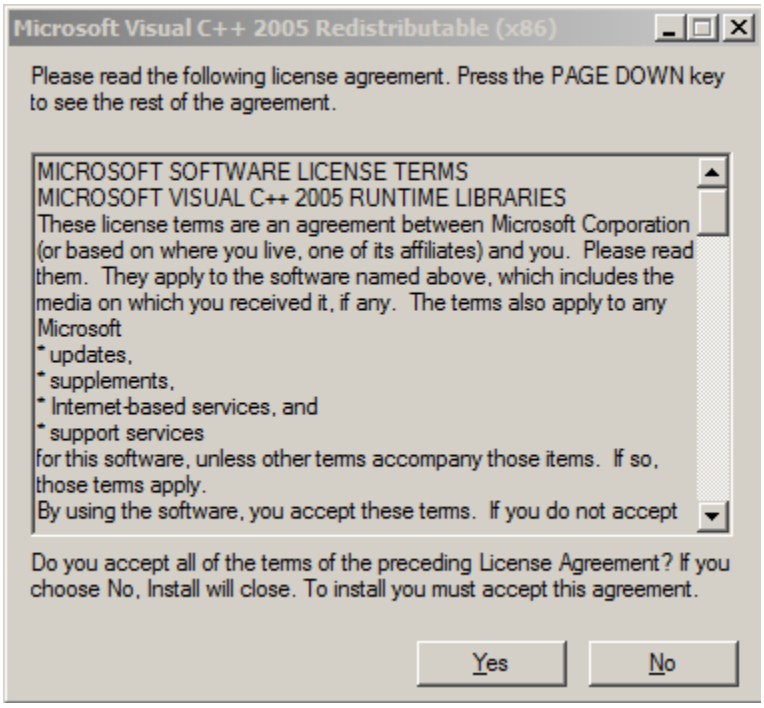

Figure 1: Installing VC++ Redistributable

4. If your computer is already installed with the Redistributable package, the following message about maintenance of Redistributable will appear. Click "Cancel" and confirm the cancellation to proceed.

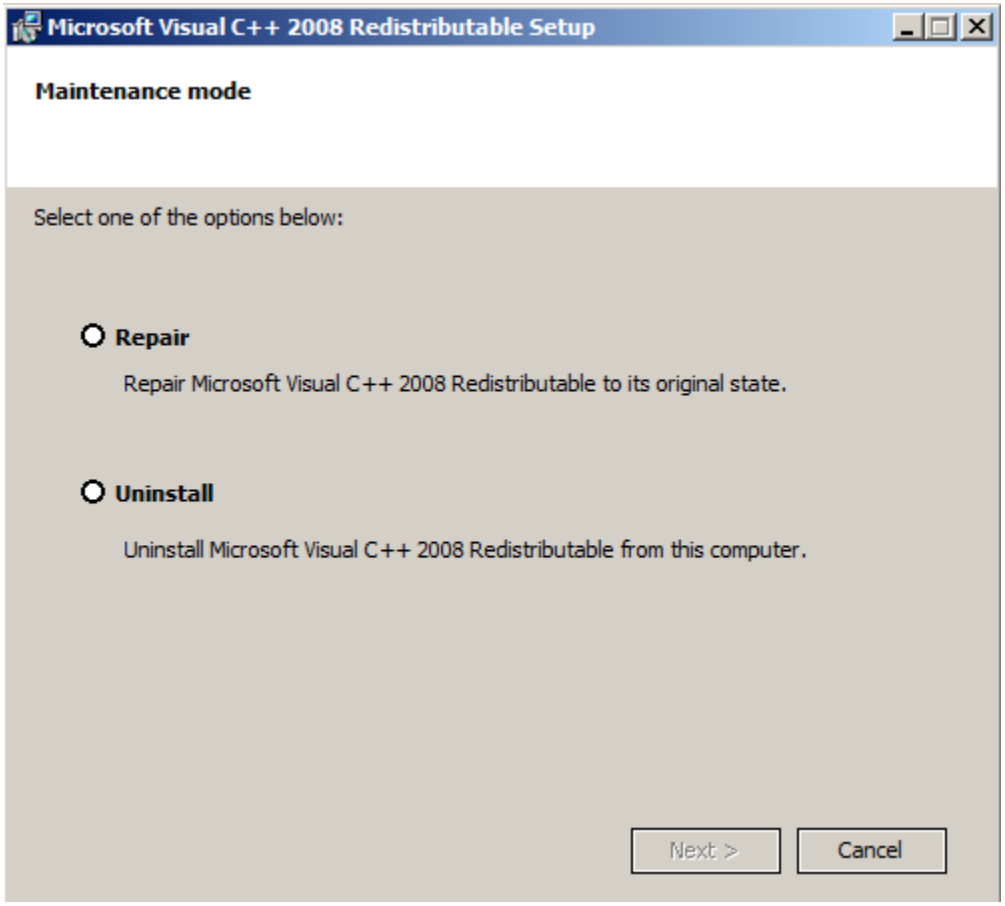

Figure 2: VC++ Redistributable Maintenance

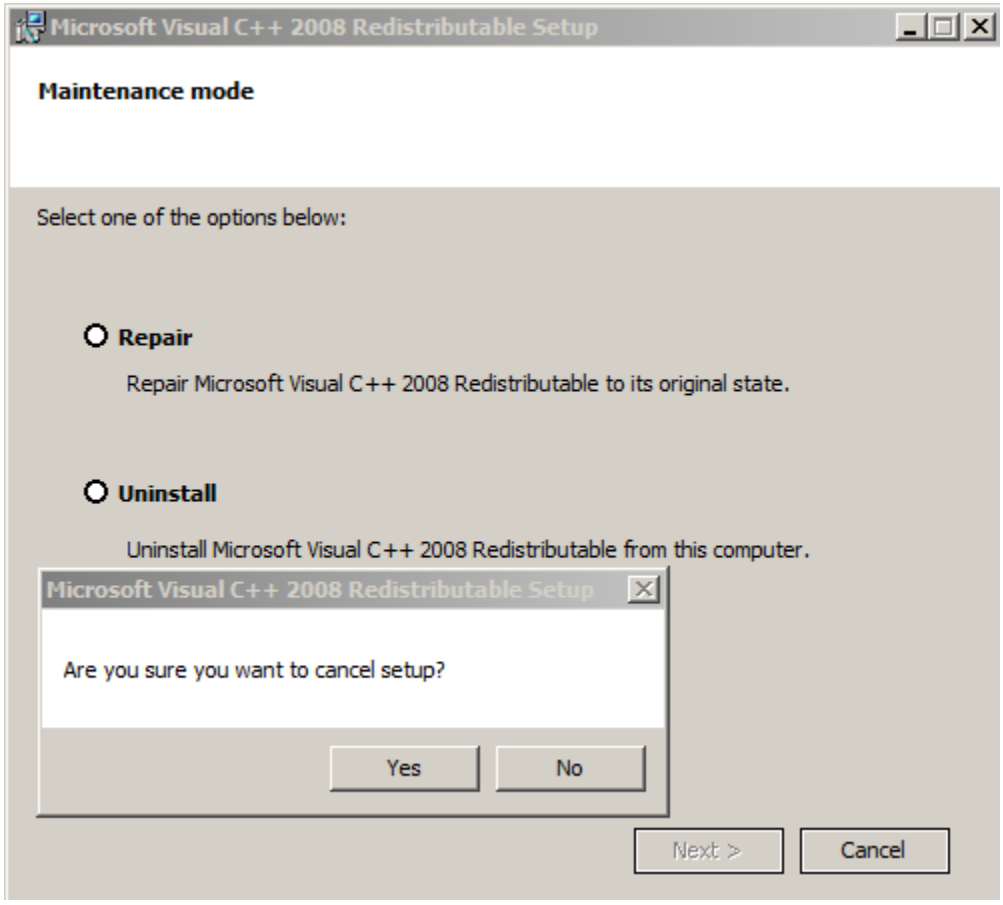

Figure 3: Canceling Redistributable Maintenance

5. During PXI/PXIe module driver installation, if you are warned by Windows that the publisher of the driver software cannot be verified, continue the installation by clicking "**Install this driver software anyway**".

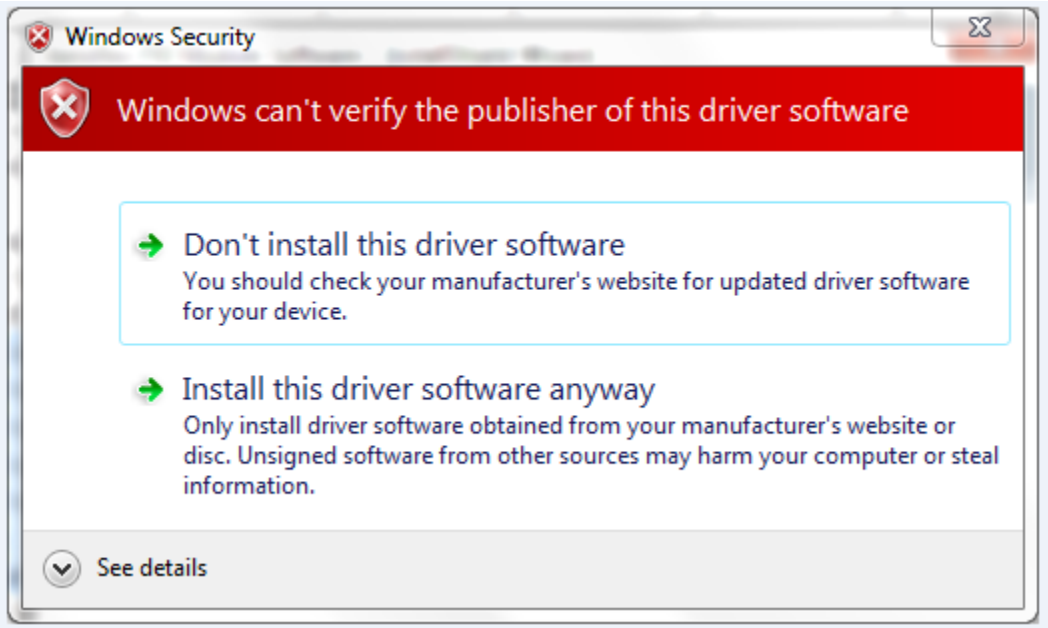

Figure 4: Windows Security Warning

6. After installation has completed, power down the host PC followed by the chassis if using a remote controller.

3.2.2 Install the Hardware

Notes:

1. The module can be used in a chassis with a PXIe, or PXIh (hybrid) chassis peripheral slot.

2. The module does not support "hot-swap" capabilities (changing modules while power is applied to the chassis). Before installing a module into the chassis, the chassis must be powered off and unplugged to prevent damage to the module.

Steps:

1. Power down the chassis.

2. Turn the ejector handle on the module to point downwards.

3. Slide the module carefully into its slot by pressing on the ejector handle.

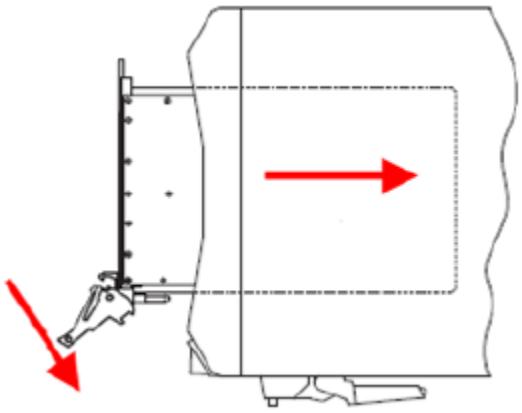

Figure 5: Installing Module into Chassis

4. Power up the chassis.

5. Power up the host PC.

3.2.3 Verify Module Operation

Checking for Installed Modules in Microsoft Windows Device Manager

Upon successful installation, the module will appear as "NI-VISA PXI Devices" in Device Manager.

Device Manager allows users to view and control the hardware attached to the host computer. When the module is not working, the offending hardware is highlighted for the user to deal with.

Restart your PC or embedded controller if the module does not appear on Device Manager.

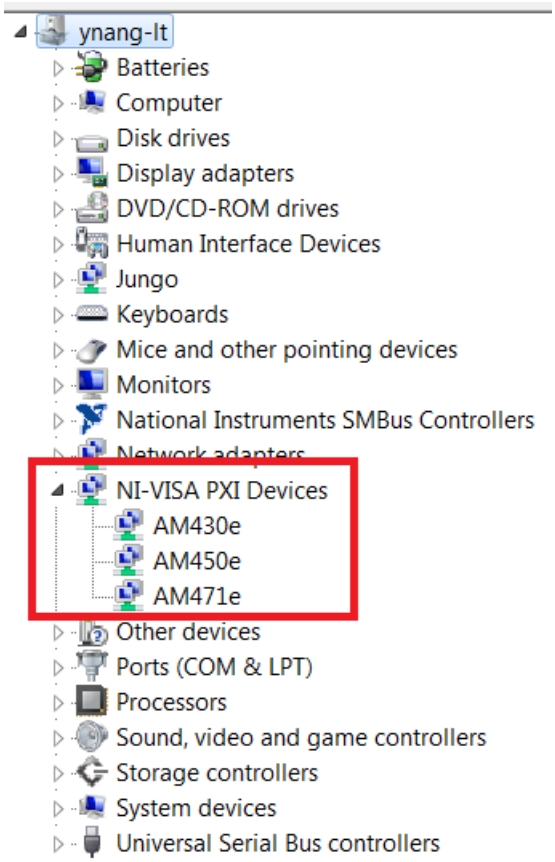

Figure 6: Looking for "NI-VISA PXI Device" in Device Manager

Checking for Installed Modules in NI MAX (Measurement & Automation Explorer)

NI MAX is a program that can be used to manage hardware modules running on NI-VISA. MAX comes packaged with National Instruments drivers NI-VISA.

Upon successful installation, the module will be able to be detected by MAX. Users can extract information related to the module such as PXIe address, slot number of where the module is slotted into, status of the device, manufacturer as well as model number.

Restart your PC or embedded controller if the module does not appear on NI MAX.

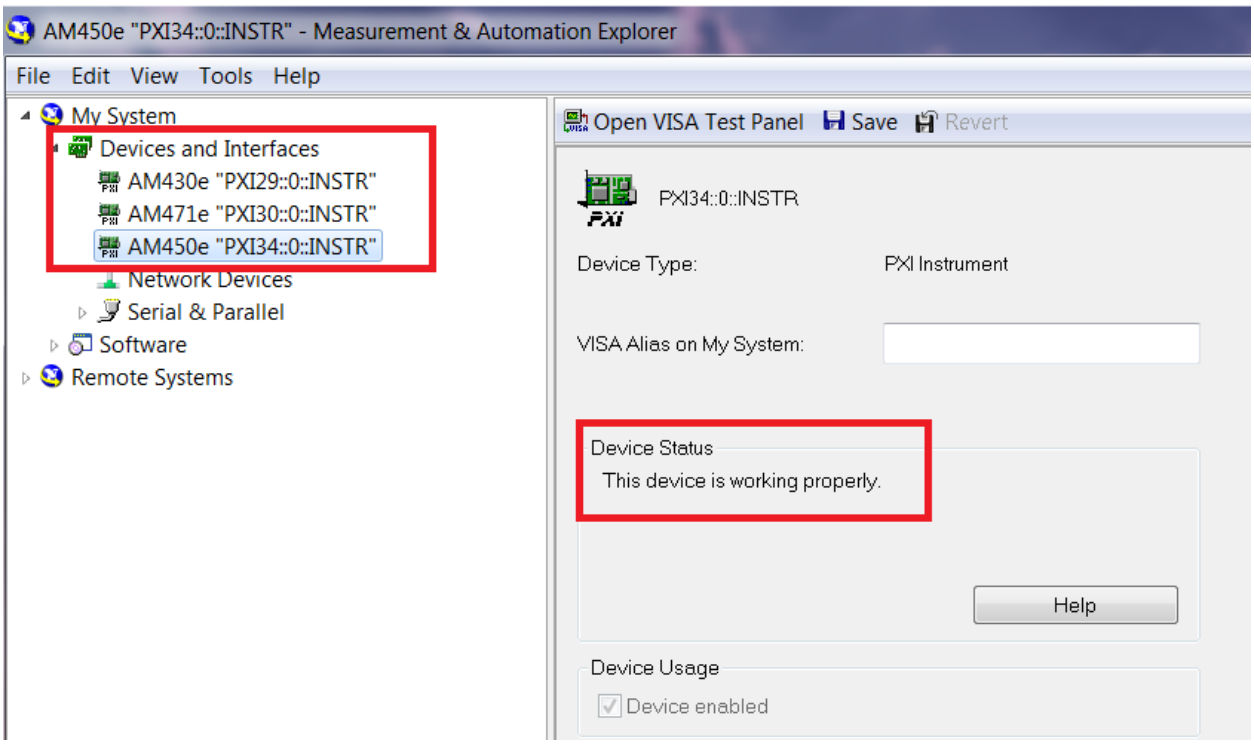

Figure 7: NI MAX Showing Detected Modules in a PXIe Chassis

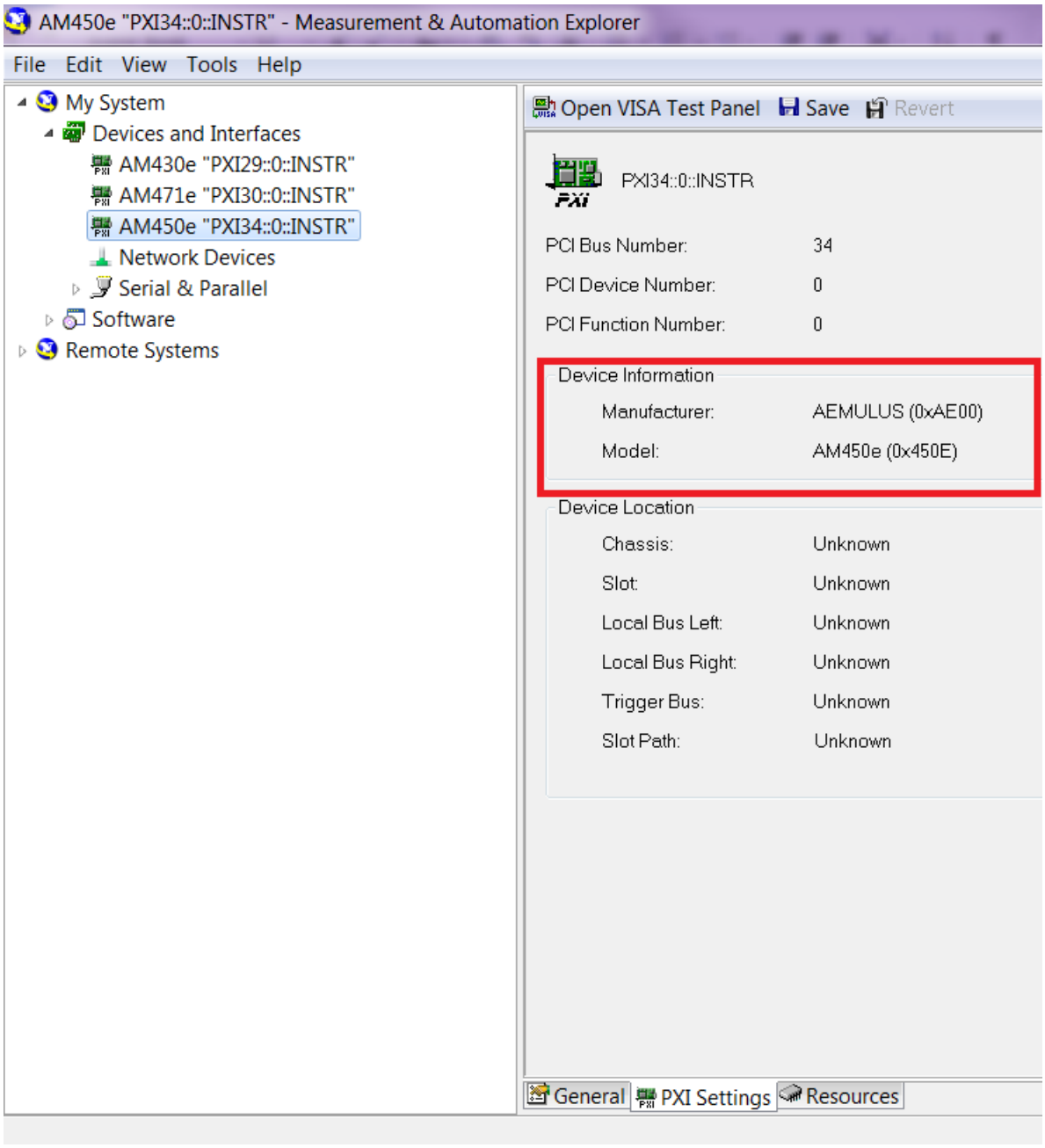

Figure 8: NI MAX Showing Manufacturer and Model of the PXIe Module

Running Soft Front Panel

To verify that the module is working properly, you can set the module to drive a voltage by following steps below, and then use a multi-meter to confirm the correct value is obtained at the output connector of the module.

Quick steps to configure the module:

1. Select PXIe address of the module from the drop-down list.
2. Press "Initialize".
3. Set desired operation. In the example below, an AM430e SMU module is set to drive 0.9V.
4. Press "Start" to execute the commands. The button will become "Stop".
5. Press "Stop" to turn off the channel.
6. Press "Un-Initialize" to turn off the whole module.

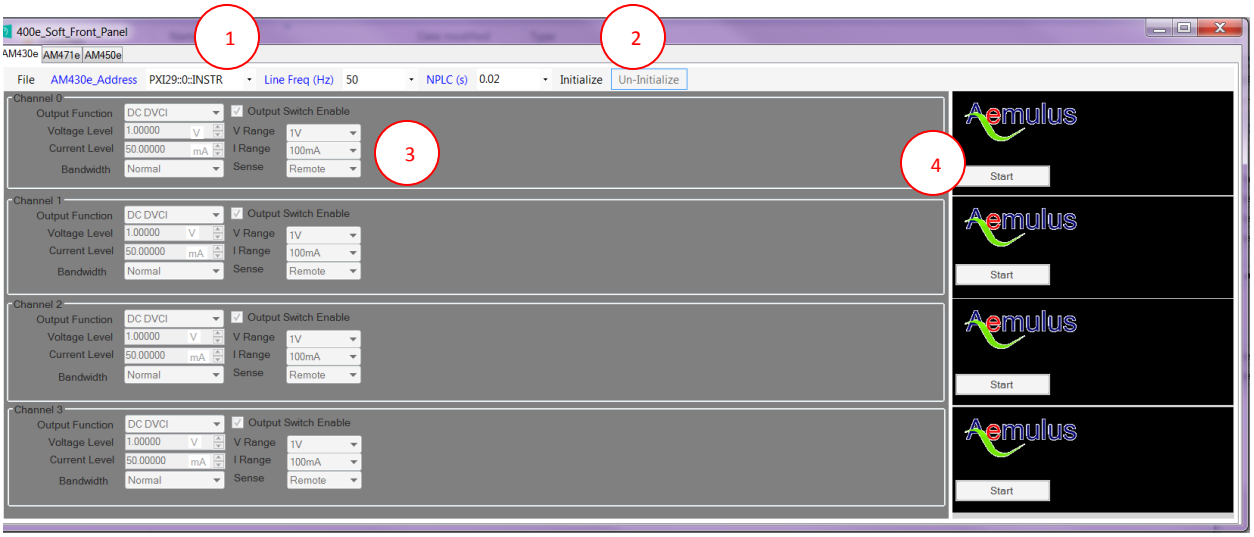

Figure 9: AM400e SFP

Section 4: Example Projects

Example projects are created based on Microsoft Visual Studio 2005. Projects are upgradeable to version 2008 and 2012, by recompiling the projects.

Refer to AppsNotes - Aemulus PXI PXIe Instrument Software Library.pdf to understand the software library options.

Section 5: Revision History

1.0	DEC 2012	INITIAL RELEASE
1.3	MAR 2013	ADDED WRAPPER LIBRARY INSTALLATION
1.4	MAY 2013	ADDED C++ AND C# SAMPLE PROGRAMS
1.5	JULY 2013	ADDED CORE LIBRARY INSTALLATION

Section 6: Contact Us

To obtain service, warranty or technical assistance, please contact Aemulus.

Aemulus Corporation Sdn. Bhd.
Krystal Point, B-2-04, B-2-05, B-2-06 & B-2-07
303, Jalan Sultan Azlan Shah,
11900 Penang, Malaysia
Tel: +604 6446399
Fax: +604 6466799

Web: www.aemulus.com
Email: enquiry@aemulus.com

Product specifications and descriptions in this document are subject to change without prior notice.