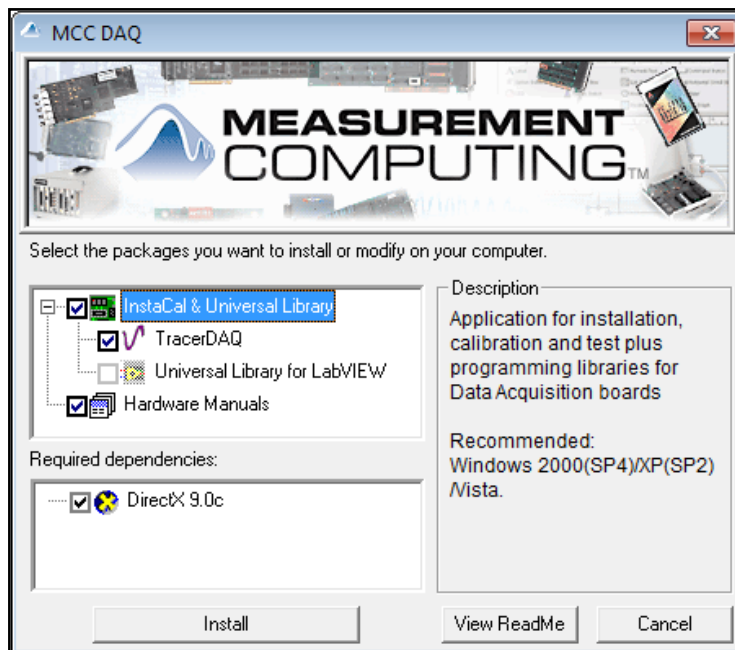


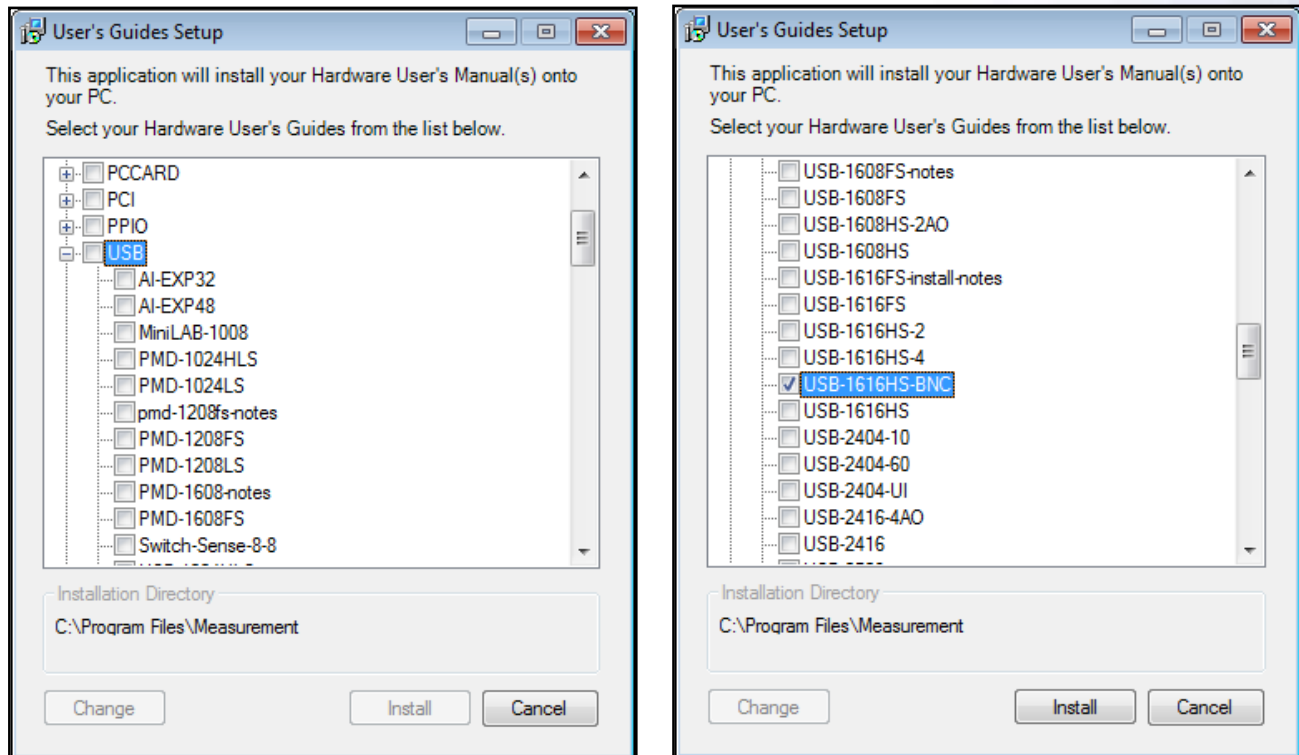
The MotionMonitor xGen Hardware Guide: Measurement Computing USB Device Configuration

The USB device must be configured before use in The MotionMonitor. Configuration is accomplished using Measurement Computing's configuration software, Inscal.exe. For purposes of demonstration, this guide will walk through the installation and setup for a USB-1616HS-BNC device. However, the same general steps should apply for any Measurement Computing A/D device.

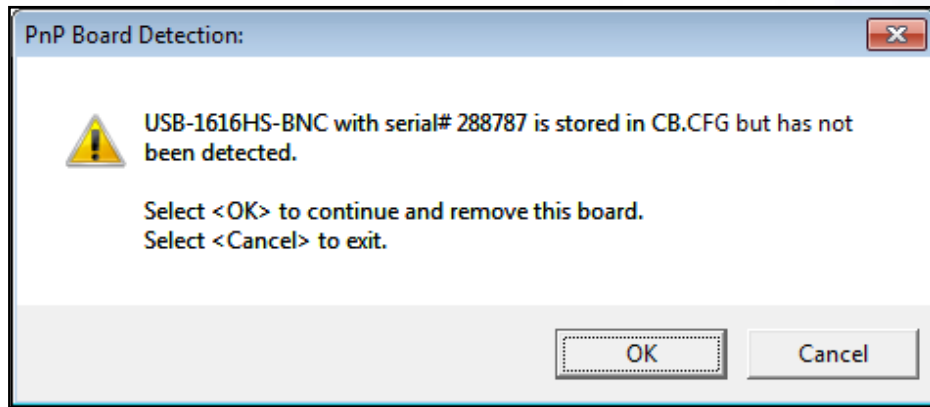
1. First, the Measurement Computing Software needs to be installed. This can be accomplished by running the installation executable from the Measurement Computing CD.
2. Next, you will be prompted to select the packages you want to install. The default selections should be installed, as seen in the following image. Click Install.



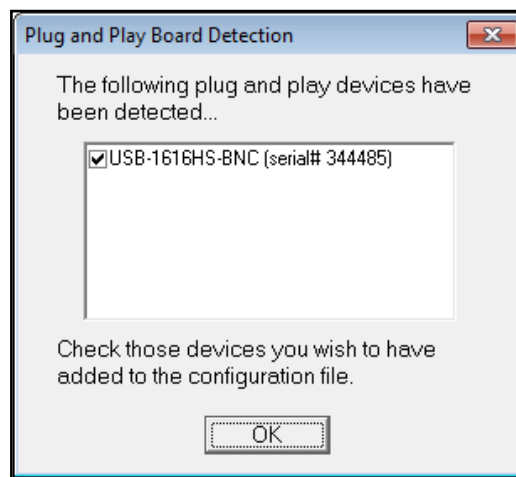
3. Click Next through all of the installation prompts. There should be no modifications made for the destination folder or the program features to be installed. When prompted, click Install.
4. Select Finish after completing the installation of InstaCal and the Measurement Computing Universal Library for Windows.
5. Next, TracerDAQ will install, click Next to proceed. Accept the license agreement and click Next to proceed. You may be prompted to enter a user name and organization name for the computer. Be certain to select the install for everyone who uses this computer option, not just the current user. Then, click Next and Install to install the software.
6. Select Finish after completing the installation of the TracerDAQ software.
7. Then, the User's Guide Setup window should open, allowing you to select the User's Guide for your A/D board. Expand the USB option and check the option for USB-1616HS-BNC. Then, Install the Hardware User's Guide.



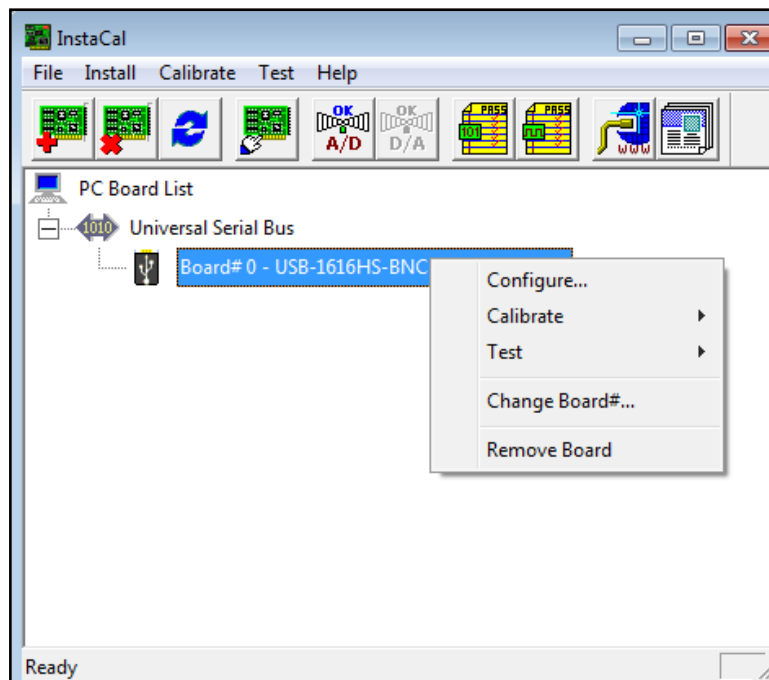
8. Finally, a window for the installation of DirectX will open. Accept the agreement and select Next until the software installation begins.
9. Select Finish after the installation for DirectX is completed.
10. Your computer must then be restarted for the configuration changes to take effect.
11. After restarting your computer, connect the power and USB cables to the A/D device and also connect the USB cable to the computer. It is important that the A/D device is **NOT** connected to the computer before the installation of InstaCal is completed.
12. If using Vista, Windows 7 or Windows 10 the device may install on its own. Otherwise, a Found New Hardware Wizard will open. Select No not at this time. Then select Install the software from specific location and click Next. Direct the Wizard to the Measurement Computing CD in the CD Drive and click OK. Then, click Finish.
13. The Found New Hardware Wizard will open again, and prompt you to go though the same steps as above to complete the device configuration.
14. The USB A/D device is now ready to be used on this USB port. Note: This driver installation process must be completed the first time the device is connected to a new USB port. Each USB port the A/D device will be connected to should have this process completed. After completing the New Hardware Wizard process for a USB port, you should not have to repeat the process for that same USB port again.
15. Before using the A/D device in The MotionMonitor, it will need to be configured in InstaCal. From the Start menu, go to All Programs and select Measurement Computing and then InstaCal. You may see a message similar to the following message. Click OK.



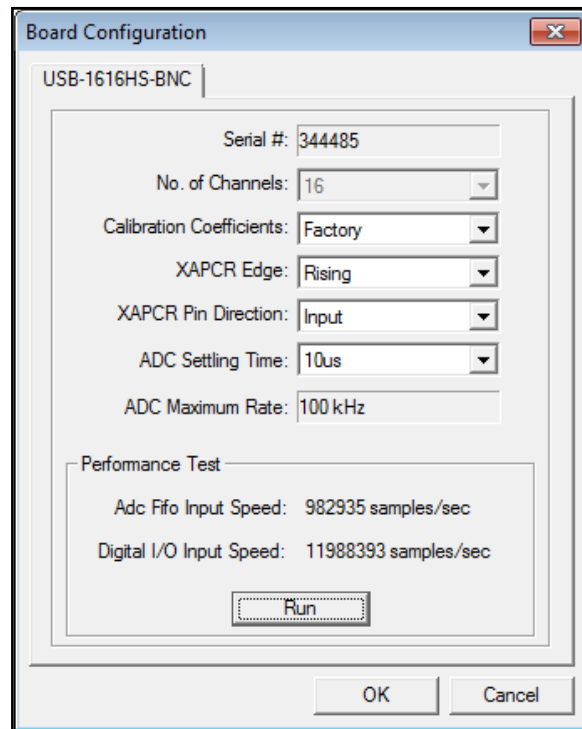
16. The Plug and Play Board Detection will notify you of any boards connected to the computer. Click OK.



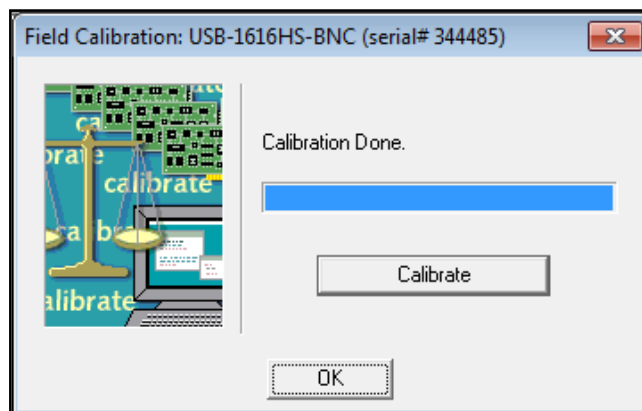
17. Right clicking on the board will give you the following options. The board number here is what will be referenced as the Board index in The MotionMonitor.



18. Select Configure and configure the board as seen in the image below. Run the performance test by clicking Run. Values similar in magnitude to those shown in the image below should be reported. Click OK.

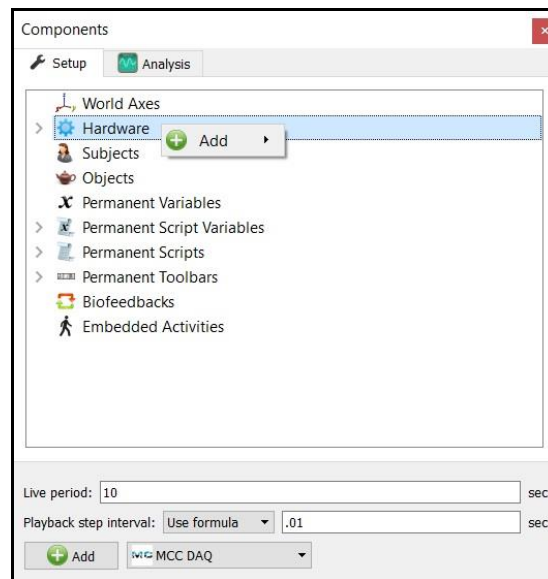


19. Right click on the board and select calibrate and then A/D. Click the calibration button and wait for the calibration process to complete. When completed, click OK.

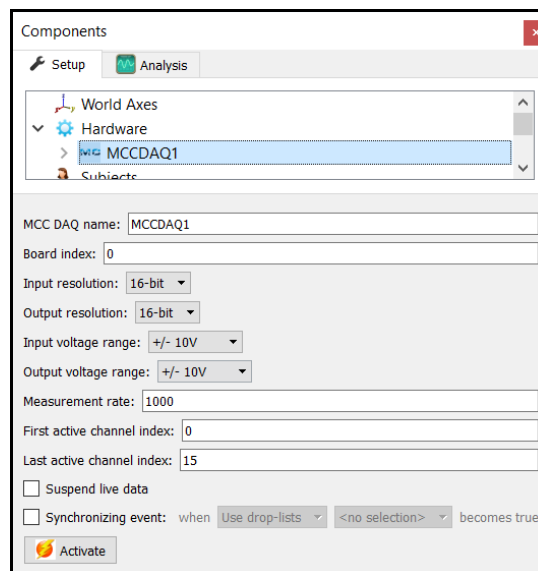


20. Then, right click on the board and select Test Analog. Connect a known voltage source, such as an event marker, EMG channel or Forceplate channel to channel 0 on the A/D board and confirm that the scan reports the proper voltage and that the signal looks appropriate.

21. Start The MotionMonitor and go to the Hardware node in the Setup Components window. Add a MCC DAQ device from the Add button in the parameters panel at the bottom of the Components window or by right clicking the Hardware node and adding the device through the cascading drop list.



22. Click on the MCCDAQ1 device to bring up the MCCDAQ1 parameters panel. The settings within The MotionMonitor need to be set such that they conform to the A/D settings configured in InstaCal. The Board index should match what was set in InstaCal. The Input and Output resolutions should be set to 16bits for this A/D device but can vary from model to model.



The Input and Output voltage ranges can be set depending on the data being captured but note that some boards do not support all voltage ranges. Bipolar devices would typically be ± 1 , ± 2 , ± 5 , ± 1 , ± 2 , ± 5 or ± 10 volts. One should set the voltage range consistent with the input device to ensure maximum resolution and to avoid “clipping” of the signal. For example, many forceplate and EMG systems are specified as ± 5 Volts.

This device has 16 channels. Under normal conditions the first and last channels should be set to 0 and 15, respectively.