

Using Mini-Circuits' PTE (Portable Test Equipment) with LabVIEW Frequently Asked Questions (FAQs)

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1. What control options are supported by Mini-Circuits' PTE in LabVIEW?

Mini-Circuits' test equipment products can be easily controlled from LabVIEW via their USB or Ethernet connections. Ethernet connections make use of LabVIEW's built in HTTP Client Vis whereas USB connections require Mini-Circuits' ActiveX or .NET DLL files.

2. Should I use the ActiveX or .NET DLL to Control Mini-Circuits PTE from LabVIEW via USB?

If you are using LabVIEW 2009 or later then we would recommend use of the .NET DLL since this does not need to be registered in the Windows operating system, it can just be placed in the project folder and referred to from within LabVIEW as a .NET class library. Earlier versions of LabVIEW may not support .NET components so the ActiveX DLL should be used. The functionality exposed by the 2 DLLs is the same so either can be chosen from that point of view.

3. How do I install the ActiveX DLL file for USB control?

1. The ActiveX DLL should be placed in the Windows system folder as below:
 - For 32-bit operating systems: `C:\Windows\System32\`
 - For 64-bit operating systems: `C:\Windows\SysWOW64\`
2. Run the Command Prompt in elevated mode by right-clicking on it and selecting "Run as administrator."

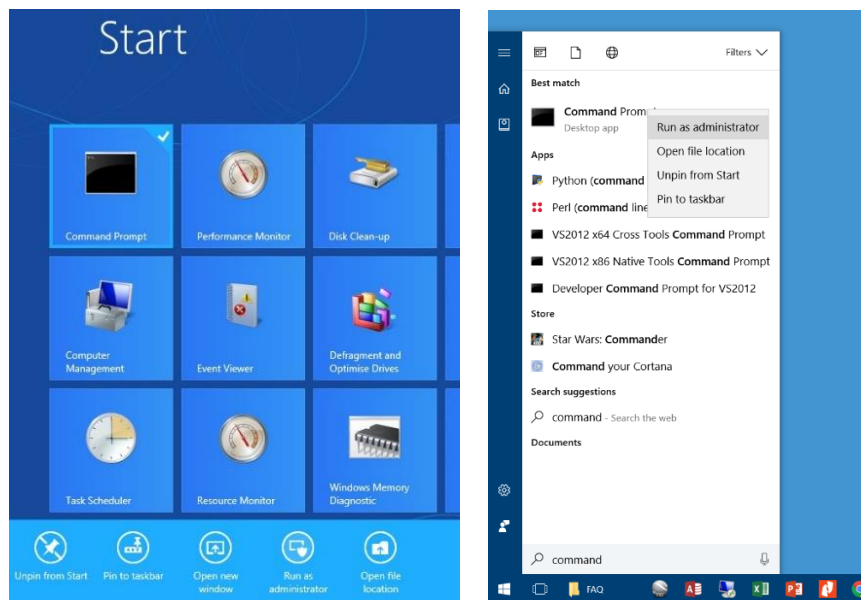
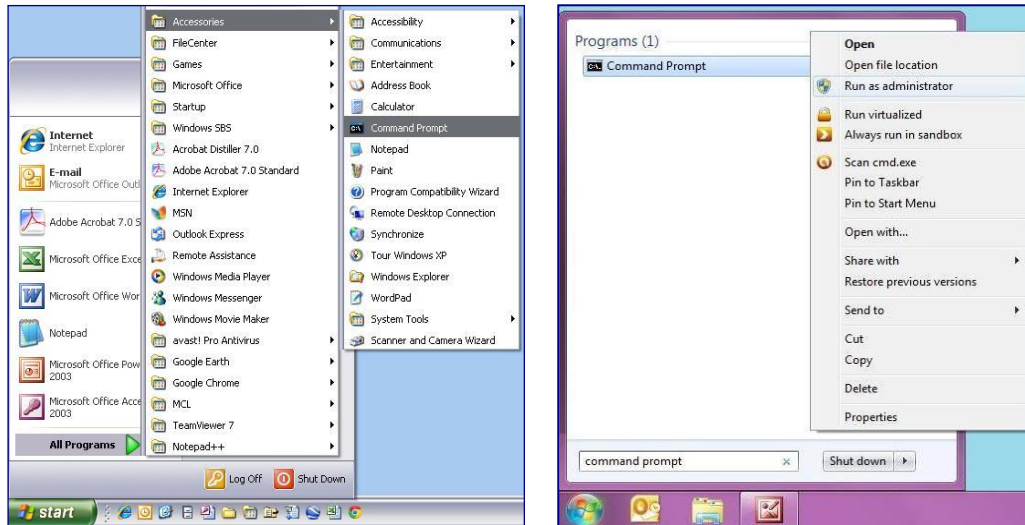


Figure 1 - Opening the Command Prompt in elevated mode (clockwise from top left, Windows XP, 7, 8 & 10)

3. Use regsvr32 to register the DLL in the command prompt:
 - For 32-bit operating systems type `regsvr32 dll_filename.dll`
 - For 64-bit operating systems type:
 - a. `cd \windows\syswow64` (to move to the correct directory)
 - b. `regsvr32 dll_filename.dll` (to register the DLL)

4. How do I install the .NET DLL for USB control?

The .NET DLL file just needs to be copied to the project directory of the LabVIEW VI, it does not need to be registered.

5. How do I set the frequency compensation factor for power sensor measurements?

The majority of Mini-Circuit's PTE functions are achieved through "Invoke Nodes" when using the ActiveX DLL in LabVIEW. Since the compensation frequency of the power sensor is defined as a global property in the DLL, rather than a function, an "Invoke Property" block is needed to set it.

1. Select a new Property Node from the Connectivity >> ActiveX palette

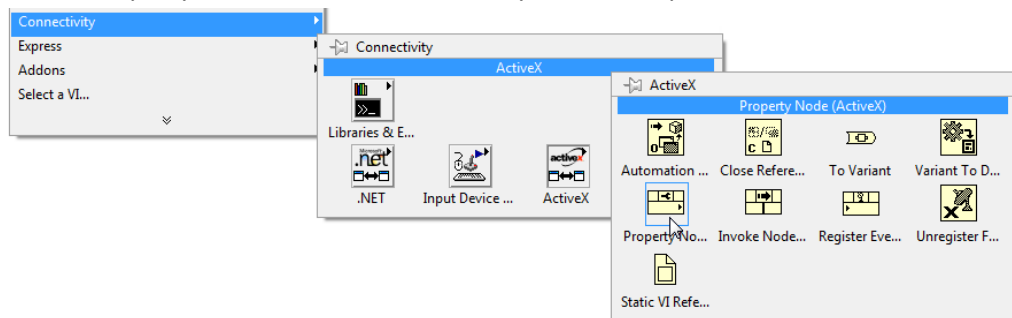


Figure 2 - Creating an Invoke Property

2. Place the property node on the block diagram, right-click on it and go to "Select Property" > "Freq"
3. LabView defaults the Property Node to "read" so right-click it a second time and select "Change To Write" to allow the property to be edited
4. Create a constant at the input of the Invoke Property to hold the frequency value to be set

6. How can I control Mini-Circuits PTE over a network using LabVIEW?

Mini-Circuits' PTE products support HTTP Get/Post commands for communicating over an Ethernet network. LabVIEW has built in support for this with an HTTP Get VI in the Data Communication >> Protocols >> HTTP Client palette. Place the HTTP Get object on the block diagram and pass it a string constant made up of the PTE device's IP address and the command to send, for example 192.168.9.67/:MN? to return the model name of a device with IP address 192.168.9.67. An indicator can be added the HTTP Get block to output the response from the PTE device.

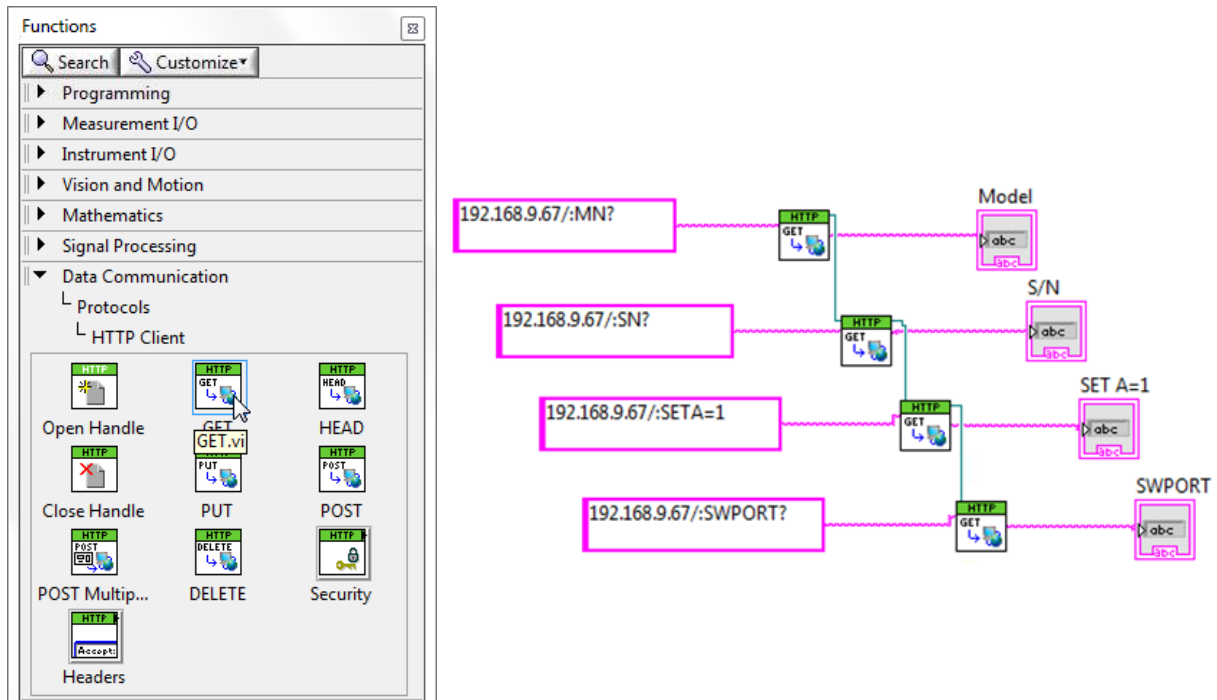


Figure 3 - LabVIEW's HTTP Client palette and an example of 4 commands for communication with Mini-Circuits' switches:

- 192.168.9.67/:MN? (return the model name for the switch box with IP address 192.168.9.67)
- 192.168.9.67/:SN? (return the serial number for the switch box with IP address 192.168.9.67)
- 192.168.9.67/:SETA=1 (set switch A to state 1 in the switch box with IP address 192.168.9.67)
- 192.168.9.67/:SWPORT? (return the switch state of the switch box with IP address 192.168.9.67)

7. How do I resolve error number -3005 when selecting the DLL object?

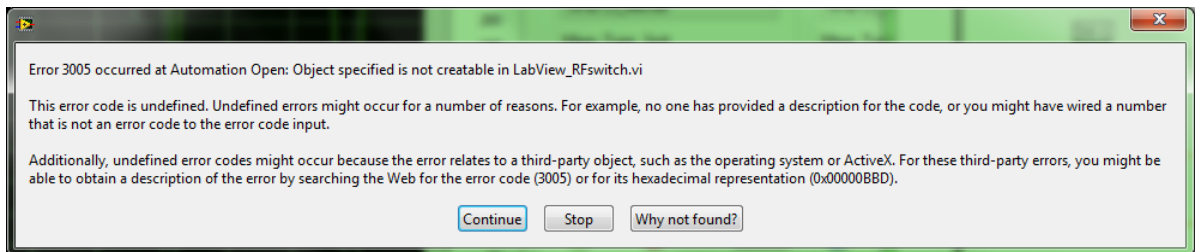


Figure 4 - Error message for error number -3005

This error occurs when setting up the Automation Refnum node on the block diagram and attempting to select an object type from the DLL which is not creatable. To solve this issue, check the the "Show Creatable Objects Only" options in the "Select Object from Type Library" dialog to remove the non-creatable objects; look for the USB control object that relates to your Mini-Circuits test product.

8. How do I resolve error number -2147221164 when running my program?

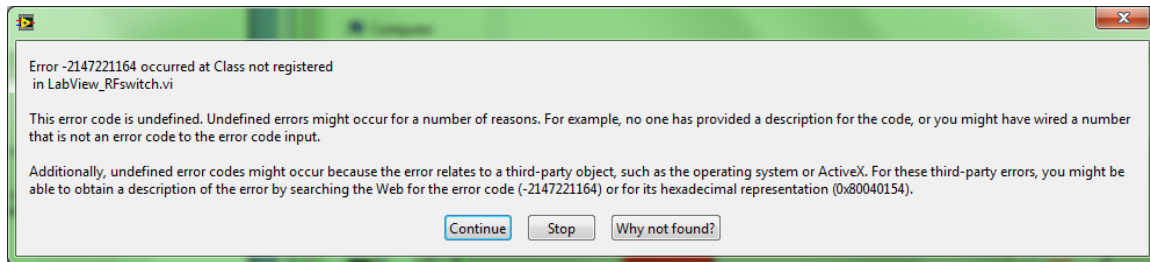


Figure 5 - Error message for error number -2147221164

This error occurs when the ActiveX DLL was used but not registered with the Windows operating system. Instructions on how to register your ActiveX DLL can be found in the relevant product programming manual on the Mini-Circuits website:

http://www.minicircuits.com/support/software_download.html

9. How do I resolve error number -2147221231 when running my program?

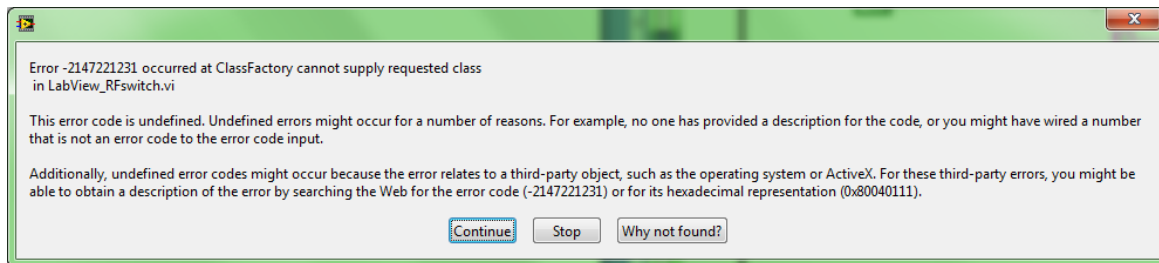


Figure 6 - Error message for error number -2147221231

The most common cause of this error encountered with Mini-Circuits' test systems is an issue with the program locating the correct version of the DLL. This can be an issue if the LabVIEW VI was created with a newer version of the DLL than is installed on the PC that needs to run the VI. The steps to solve this problem are as follows:

- a. Open the block diagram in LabVIEW (accessible by pressing Ctrl+E).
- b. Find the "Automation Refnum" control on the block diagram, right click it and go to the "Select ActiveX Class" option.
- c. Select "Browse..." and locate the correct DLL.

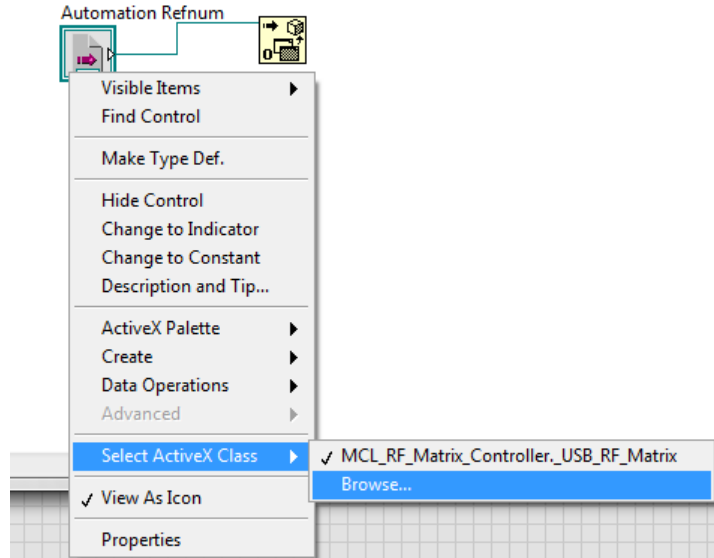


Figure 7 - Browsing for the correct DLL to use in the Automation Refnum object

- d. Check the “Show Creatable Objects Only” option when the "Select Object from Type Library" dialog opens to leave only 1 or 2 options (depending on the product).
- e. Select the USB control object relating to the Mini-Circuits' test product that you are trying to control.

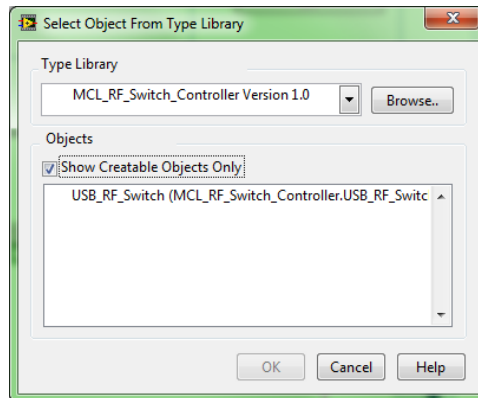


Figure 8: The Select Object from Type Library dialog with "Show creatable objects only" checked

- f. This should have refreshed the connection to the DLL but it may now be necessary to re-select each of the DLL methods in the LabVIEW Invoke Node blocks.

10. How do I resolve the error "An error occurred trying to load the assembly"?

Windows sometimes blocks system files that are downloaded from the Internet, allowing them to be installed but not accessed. To check this, find the .NET DLL on your PC, right-click on it and select Properties.

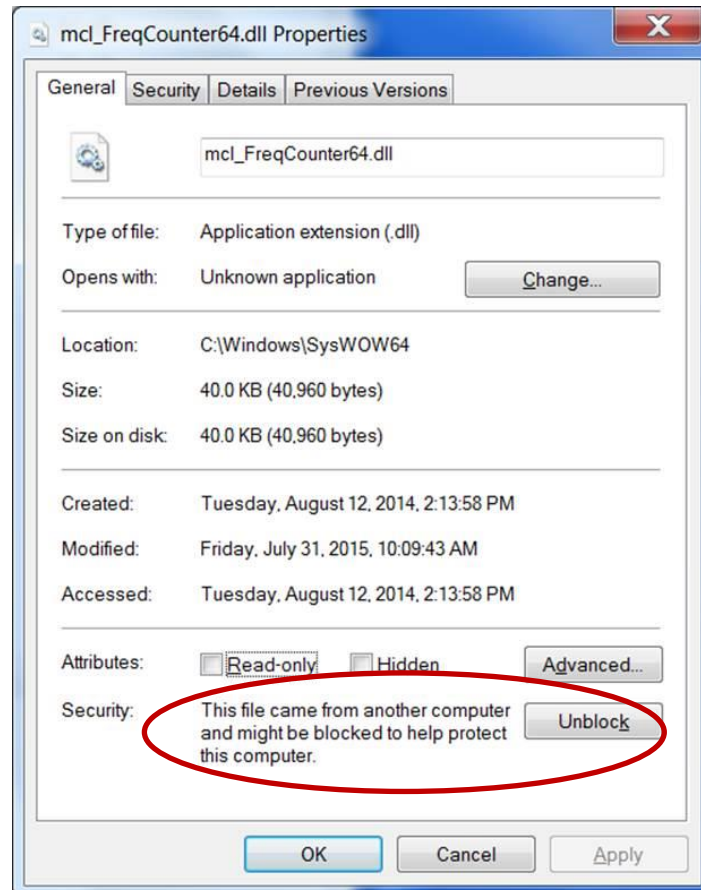


Figure 9 - DLL Properties dialog indicating the file has been blocked

If the security warning appears at the bottom, stating "This file came from another computer and might be blocked to help protect the computer." click the Unblock button to allow the DLL to operate.

Another reason this occurs is when using LabVIEW 2013. LabVIEW 2013 uses the .NET 4.0 Framework by default. It will also automatically upgrade earlier versions of the .NET Framework to a later version. This causes security issues that can be solved by following the instructions provided by National Instruments here:

<https://knowledge.ni.com/KnowledgeArticleDetails?id=kA00Z000000P8XnSAK>