Keysight VEE Pro 9.32

Quick Start Guide

KEYSIGHT TECHNOLOGIES

NOTICE: This document contains references to Agilent Technologies. Agilent's former Test and Measurement business has become Keysight Technologies. For more information, go to **www.keysight.com.**

Notices

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Contents

Introduction 2
Installing Keysight IO Libraries 2
Installing Keysight VEE Pro 4
Launching Keysight VEE Pro 8
Instrument Communication Tutorial 9
Virtual Source Tutorial 13
Keysight VEE 9.32 New Features 19
Keysight Connectivity Products 20
Keysight Support, Services, and Assistance 21
Appendix 22

Introduction

Welcome to the Keysight VEE family! Keysight Visual Engineering Environment (VEE) is a powerful visual language environment that dramatically reduces your development time. To get you started quickly on Keysight VEE, we have prepared this guide to show you how to install and use your new software. This guide also contains two tutorials that show you how to communicate with an instrument via the USB interface, and how to generate and display a waveform from a virtual source.

Installing Keysight IO Libraries

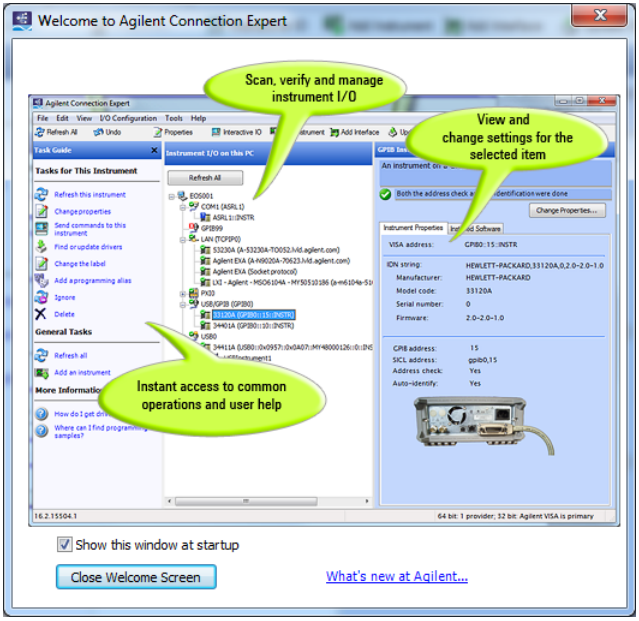
The Keysight IO Libraries Suite software is included when you purchase Keysight VEE. This software enables you to communicate with instruments via serial, USB, GPIB, or LAN interfaces.

You are required to install the Keysight IO Libraries Suite 16.3.16603.3 before installing Keysight VEE if you need to communicate with instruments using Keysight VEE. However, you can choose not to install the Keysight IO Libraries Suite if you do not use instruments.

Follow these simple installation steps:

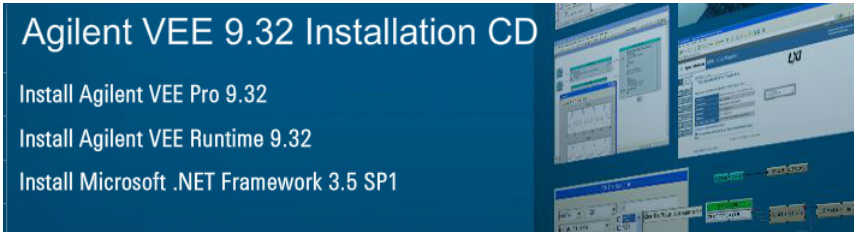
1. Insert *Keysight IO Libraries Suite CD* into the CD-ROM drive.
2. The InstallShield Wizard will guide you through the installation process. Click **Next** to accept the default settings and complete the installation.

3 The Keysight Connection Expert Welcome Screen window will appear. This application configures the instruments that are connected to your PC. You may close this window before proceeding to the next step.

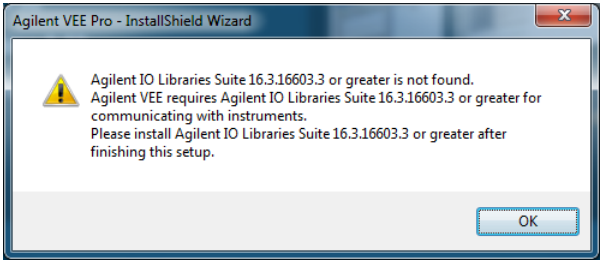


Installing Keysight VEE Pro

1 Insert the *Keysight VEE Installation CD- ROM* and click **Install Keysight VEE Pro 9.32**. The InstallShield Wizard will guide you through the installation process.



2 The InstallShield Wizard will check if Keysight IO Libraries Suite 16.3.16603.3 is installed. If it is not, the following message box will appear.

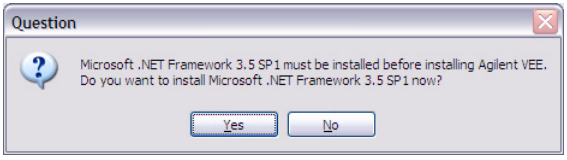


Please note that Keysight IO Libraries Suite 16.3.16603.3 is a prerequisite if you communicate with instruments using Keysight VEE. So, please install Keysight IO Libraries Suite 16.3.16603.3 or higher after finishing this installation.

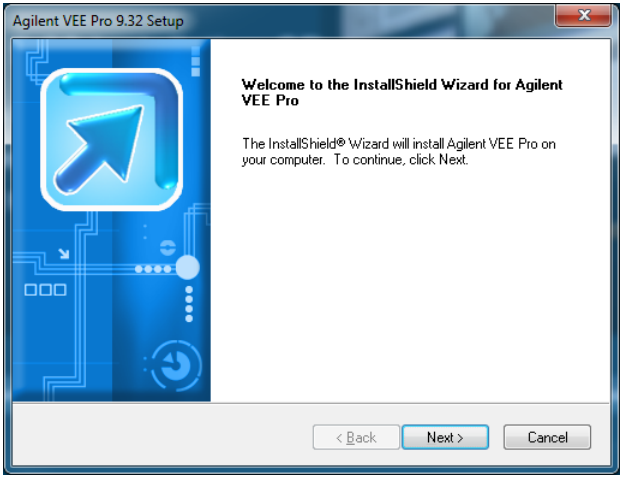
3 Click **OK**, the InstallShield Wizard will check if Microsoft .NET Framework 3.5 SP1 is installed.

4 If Microsoft .NET Framework 3.5 SP1 is not installed, following Question dialog box will appear to ask you to install it. Click **Yes** to install the Microsoft .NET Framework 3.5 SP1 immediately. After the installation, the Keysight VEE installation will continue automatically. Clicking **No** will abort the Keysight VEE installation.

If Microsoft .NET Framework 3.5 SP1 is installed, the InstallShield Wizard will guide you to the next step directly to install your Keysight VEE selection in Step 1.

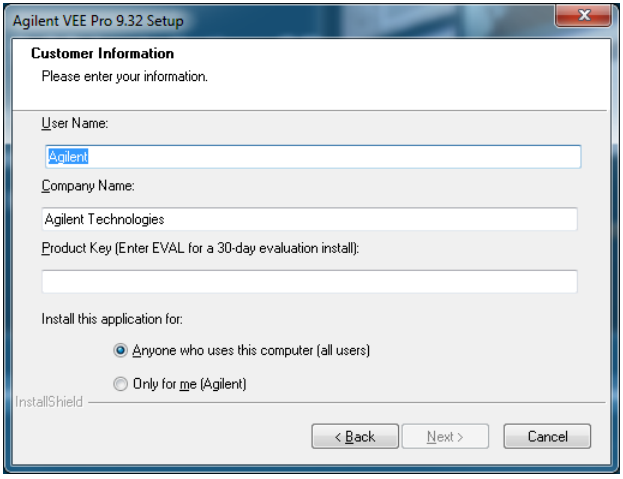


5 Click **Next**, when the following dialog box appears.

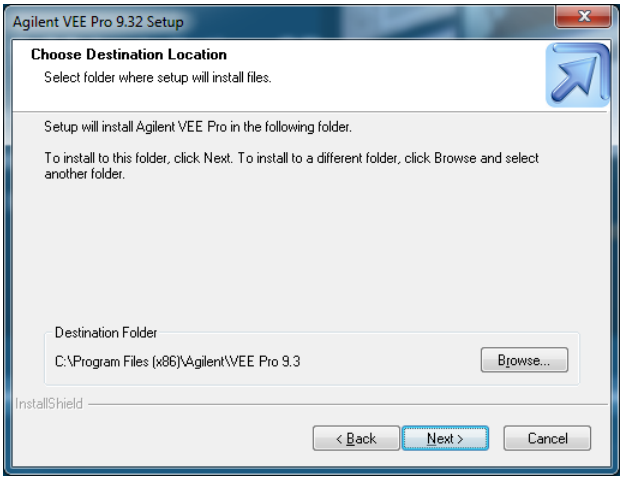


6 Accept the license agreement when the License Agreement dialog box appears, then click **Next**.

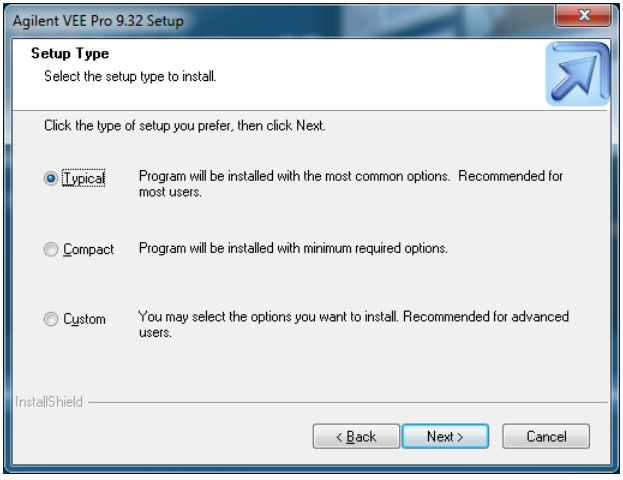
7 Type your name, company name, and product key when the Customer Information dialog box appears, then click **Next**. The product key is contained in the *KeysightVEE Pro Product Key Certificate*.



8 Click **Next** to accept the default settings when the following dialog box appears.

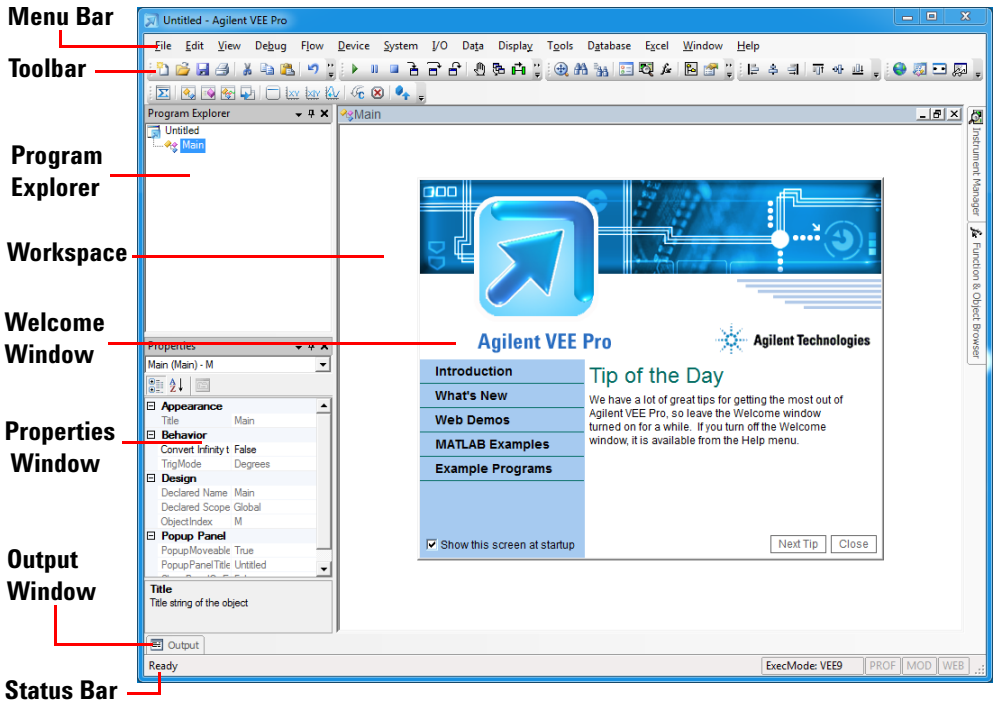


9 Select **Typical Setup** when the Setup Type dialog box appears, then click **Next** to complete the installation.



Launching Keysight VEE Pro

Go to **All Programs > Keysight VEE Pro 9.3 > VEE Pro 9.3** to launch Keysight VEE Pro.



You can access the demos, MATLAB examples as well as sample programs via the Keysight VEE Pro welcome window. You may close the window after exploring it.

You can also open sample programs from the menu bar. To open a sample program, go to **File > Open Example ...**or **Help > Open Example...**.

Instrument Communication Tutorial

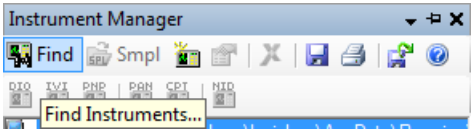
In this tutorial, we will connect to an instrument via the USB interface. Ensure that the Keysight IO Libraries Suite 16.3.16603.3 is installed before proceeding.

If you do not have a USB instrument, the tutorial for a GPIB instrument is similar from Step 3 onwards.

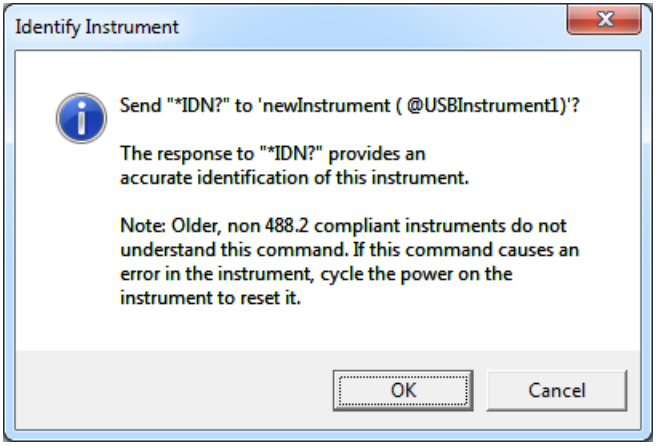
1 Connect to an instrument via any USB port on your PC. Then, turn on the instrument. The Found New Hardware Wizard dialog box will appear. Just step through the wizard by clicking **Next**.

2 Launch Keysight VEE Pro, if you have not. Click the **Instrument Manager** button on the toolbar.

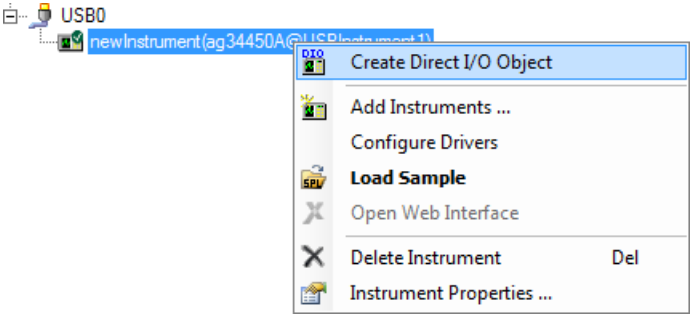
3 The Instrument Manager tool window will appear. Click the **Find Instruments** button to automatically detect all instruments connected to your PC.



4 Click **OK** if the Identify Instrument pop-up dialog box appears. This automatically identifies the instrument on the USB interface. In this example, the Keysight 34450A 5½ Digit Multimeter is present.



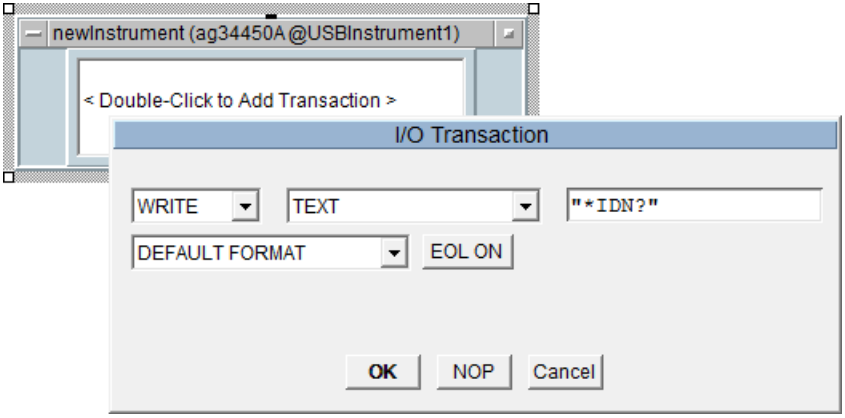
5 Right click newInstrument in the Instrument List panel. Then, choose **Create Direct I/O Object** to place a Direct I/O object for the selected newinstrument on the workspace. This object allows you to send/receive commands to/from your instrument.



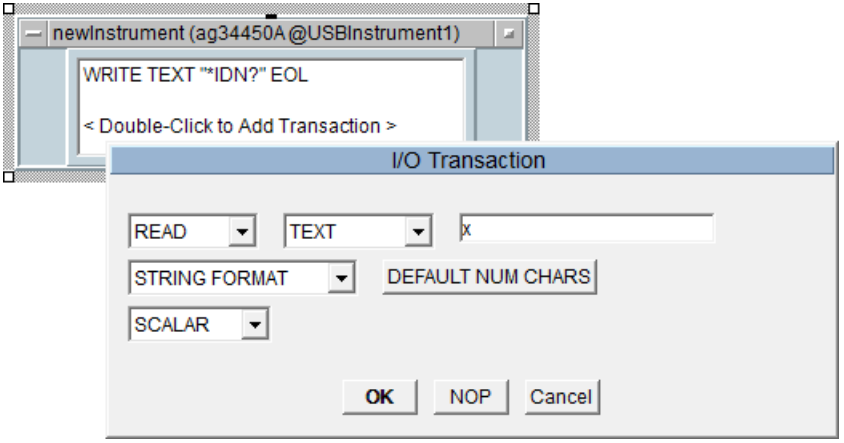
6 Double-click the Direct I/O object blue transaction bar to add a transaction to the Direct I/O object.

7 Type `"*IDN?"` (include the quotation marks) in the I/O Transaction dialog box as shown below. A list of available SCPI commands may appear while you are typing. You can choose one command as desired instead of typing the whole command. Click **OK** to proceed.

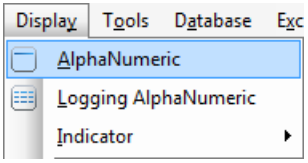
*IDN? is one of standard commands for programmable instruments (**SCPI**) command that queries the instrument for its identification string.



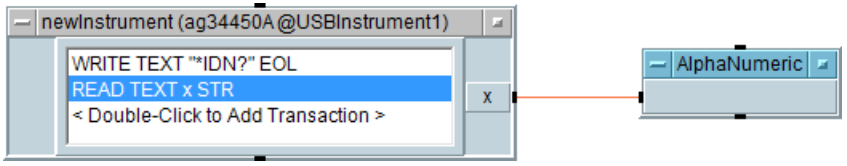
8 After sending the "*IDN?" query to the instrument, you need to read back its response. Double-click the text box of the newInstrument object to add a new transaction. This time, select the transaction to **READ** a **STRING FORMAT** text to an output terminal named x. The output terminal x will be automatically created when you click **OK**.



9 Select **Display > AlphaNumeric** and place an AlphaNumeric object on the workspace to the right of the Direct I/O object.

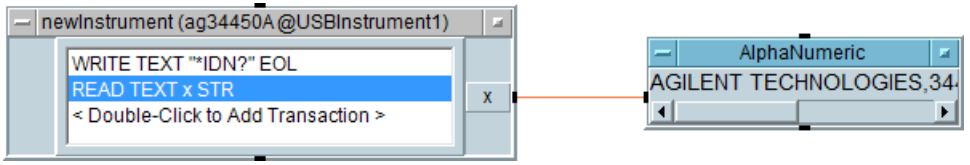


10 You will now connect the Direct I/O object to the AlphaNumeric object. Place the mouse cursor beside the Direct I/O output terminal and a square icon will appear. Left-click and drag a line to the input terminal of the AlphaNumeric object. Left-click again to complete the connection.



11 Run the program by clicking the **Run** button on the toolbar.

12 The AlphaNumeric object will display the identification string output by the instrument as shown below.

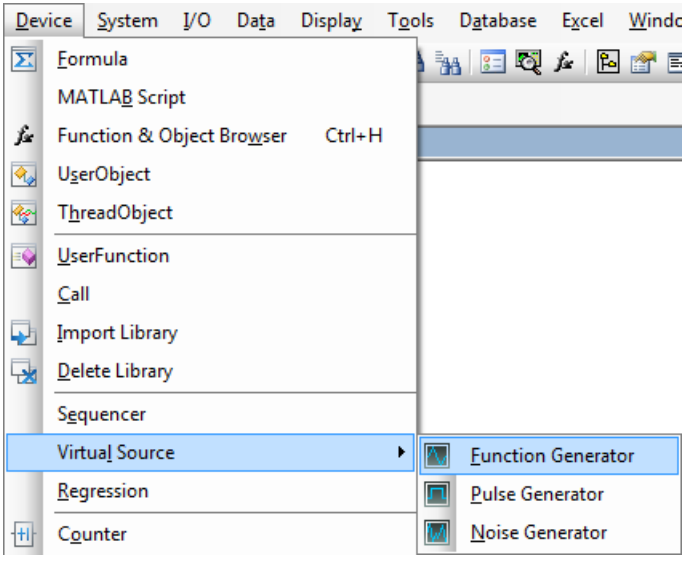


13 To save your VEE code, select **File > Save As** and name the file as *Tutorial 1.vee*.

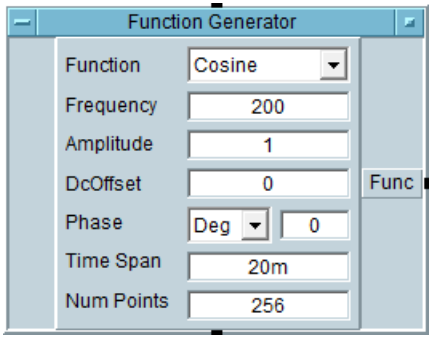
Virtual Source Tutorial

In this tutorial, you will generate and display a waveform from a virtual source. No instrument is needed.

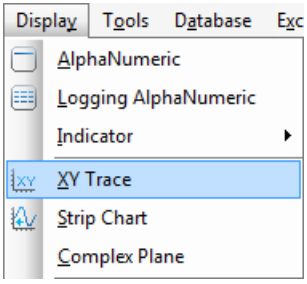
1 If you have an existing program in your Keysight VEE Pro workspace, select **File > New**. Then, select **Device > Virtual Source > Function Generator** and place a function generator object on the workspace.



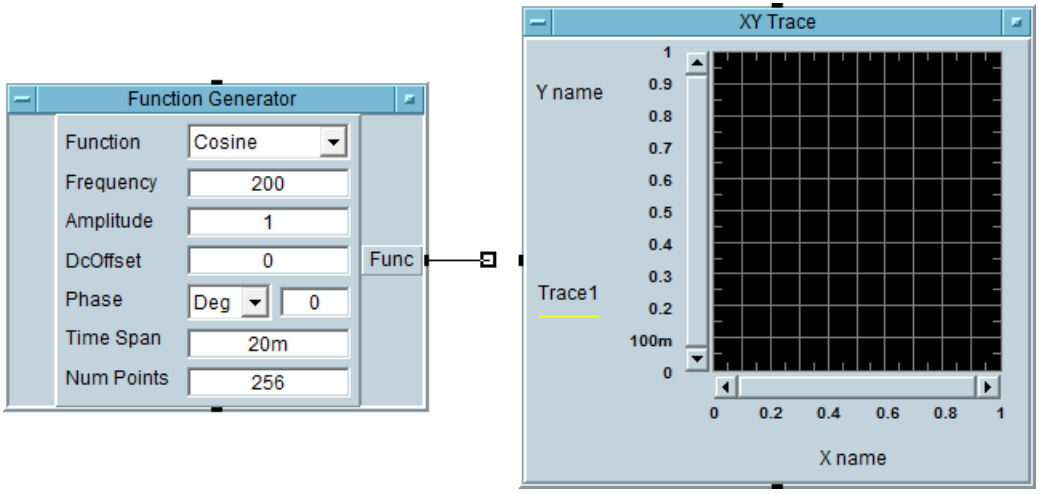
2 By default, the function generator will generate a virtual cosine waveform at a frequency of 200 Hz, and an amplitude of 1.



3 Select **Display > XY Trace** and place an XY Trace object to the right of the function generator.

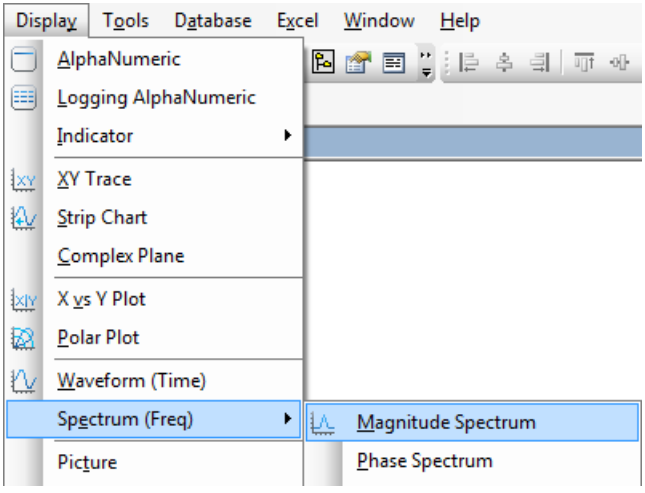


4 Connect the function generator output terminal to the input terminal of the XY trace. Place the mouse cursor beside the function generator output terminal and a square icon will appear. Left-click and drag a line to the input terminal of the XY Trace object. Left-click again to complete the connection.



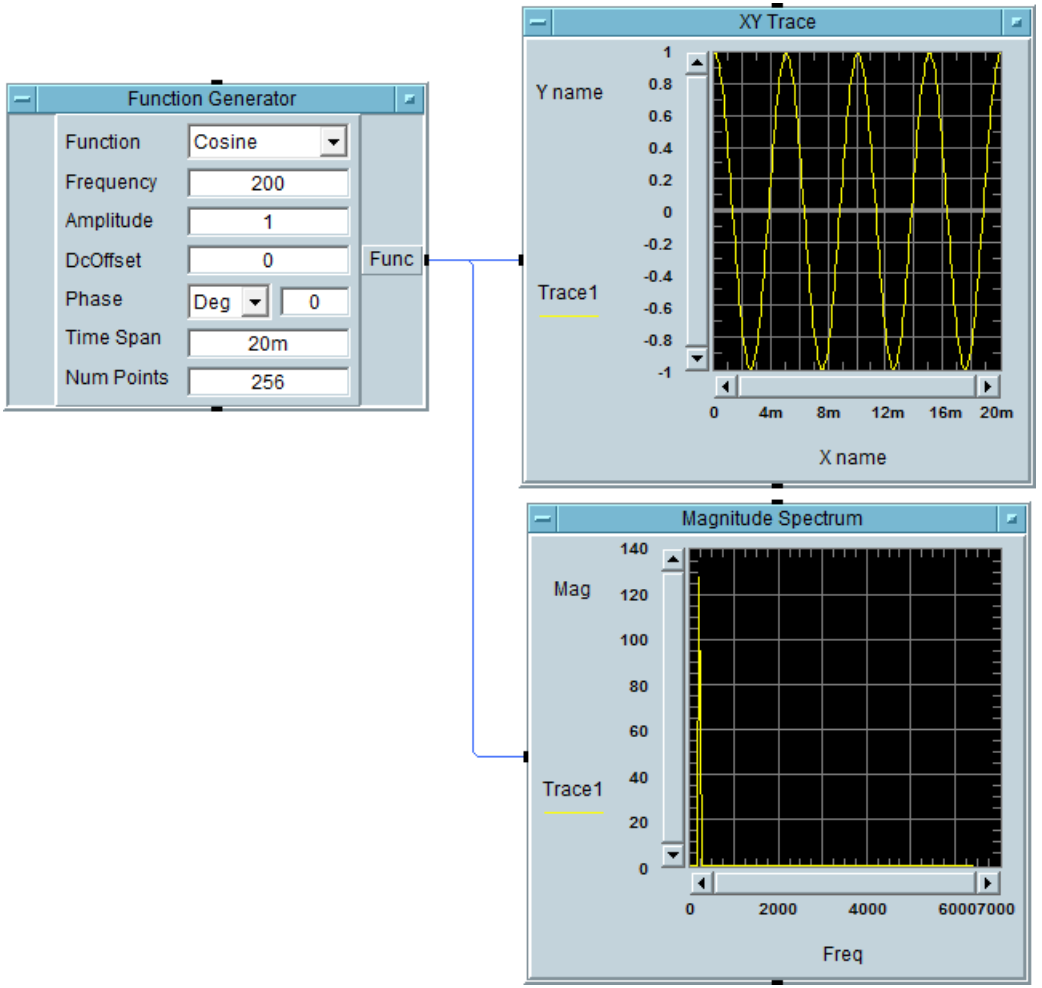
5 Click the **Run** button on the toolbar and you can see the cosine waveform displayed on the XY Trace object.

6 Select **Display > Spectrum (Freq) > Magnitude Spectrum** and place a Magnitude Spectrum object on the workspace below the XY Trace object.

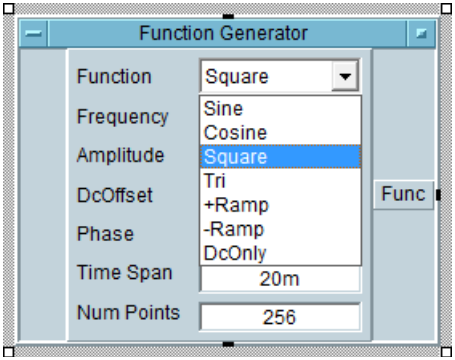


7 Connect a second line from the output of the function generator to the input of the Magnitude Spectrum object using the same left-click and drag method as described in Step 4.

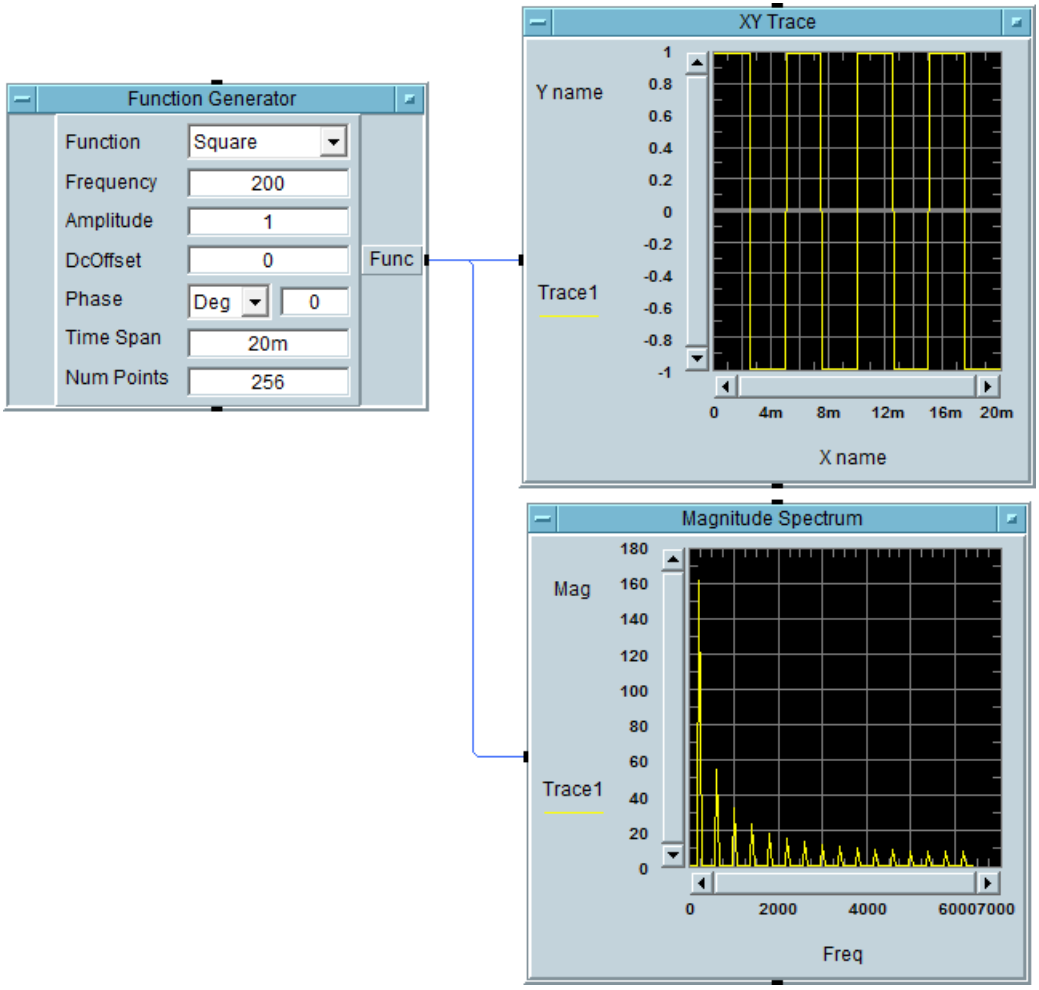
8 Click the **Run** button and observe the magnitude spectrum display. As the waveform is a 200 Hz cosine, the magnitude spectrum displayed will be a vertical line at the frequency of 200 Hz.



9 Change the waveform function on the virtual function generator to a square waveform.



10 Click the **Run** button and observe the difference. Keysight VEE gives you the flexibility to analyze your signal source in multiple graph displays simultaneously.



11 To save your VEE code, select **File > Save As** and name the file as *Tutorial 2.vee*.

Keysight VEE 9.32 New Features

Windows 8 Supportability

Keysight VEE 9.32 supports Windows 8 (Professional and Enterprise with 32-bit and 64-bit supportability). Note that the 64-bit support has a 32-bit application running on WOW64 (Windows-on-Windows 64-bit) emulator.

Microsoft Office Excel 2013 Supportability

Keysight VEE 9.32 (and above) existing built-in Excel menu supports Microsoft Office Excel 2013. However, new features in Microsoft Office Excel 2013 are not supported.

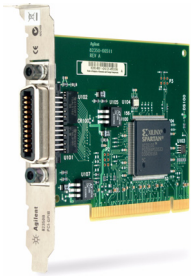
NOTE Keysight also provides Keysight VEE Student and Keysight Education versions for academic users.

Keysight Connectivity Products

E5810B LAN/GPIB/USB Gateway

82357B USB/GPIB Interface

10833X GPIB Cable



82350B PCI GPIB Interface

82351A PCIe GPIB Interface

Keysight provides a complete range of high performance and highly reliable products to connect from your PC to your instruments. These include LAN/GPIB/USB gateway, GPIB cable, and PCI GPIB, PCIe GPIB, and USB/GPIB interfaces. For more information on Keysight connectivity products, visit www.keysight.com/find/gpib.

Keysight Support, Services, and Assistance

With Keysight VEE Pro, you have access to the Keysight worldwide resources for start-up assistance, training classes, and update services. As part of the purchase of any Keysight VEE product you are entitled to receive technical support free of charge. There is no need to register.

Additional consulting services are available from Keysight. There are currently over 30 companies available in North America, Europe, Middle East and Asia to help you develop your Keysight VEE solution.

Sign up for the Keysight VEE forum at http://www.keysight.com/find/veeforum, and get help on using Keysight VEE from experts around the world.

Sign up for Keysight VEE e-learning courses (LearnVEE) at http://www.keysight.com/find/learnvee.

For an interactive help, you may also view Keysight VEE multimedia demos at http://www.keysight.com/find/veedemos.

Appendix

Keysight VEE Pro Help is now available in other languages. To use online help file in other languages, please

1. Download localized online help from www.keysight.com/find/vee.
2. Save downloaded files into the installation directory of Keysight VEE. Generally, it is *C:\Program Files\Keysight\VEE Pro 9.3* (32-bit operating system) or *C:\Program Files (x86)\Keysight\VEE Pro 9.3* (64-bit operating system). Please do not change the name of the downloaded online help files.
3. Open Keysight VEE software.
4. Open the Default Preferences (**File > Default Preferences**). Choose the help file language as you need under the Help tab.
5. Click **OK** to close the Default Preferences dialog box.

www.keysight.com

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Or visit Keysight World Wide Web at:
www.keysight.com/find/assist

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