

Agilent Protocol Analyzer and Jammer for USB

Quick Start Guide



Agilent Technologies

Notices

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This manual provides these notices.

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.

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Safety Summary

Safety Symbols on Instruments

Safety Symbol	Description
	Indicates warning or caution. If you see this symbol on a product, you must refer to the manuals for specific Warning or Caution information to avoid personal injury or damage to the product.
	Frame or chassis ground terminal. Typically connects to the equipment's metal frame.
	Indicates hazardous voltages and potential for electrical shock.
	Indicates that antistatic precautions should be taken.
	Indicates hot surface. Please do not touch.
	Indicates laser radiation turned on.
	CSA is the Canadian certification mark to demonstrate compliance with the Safety requirements.
	The C-tick mark is a registered trademark of the Spectrum Management Agency of Australia. This signifies compliance with the Australia EMC Framework regulations under the terms of the Radio Communication Act of 1992.
	CE compliance marking to the EU Safety and EMC Directives. ISM GRP-1A classification according to the international EMC standard. ICES/NMB-001 compliance marking to the Canadian EMC standard.

General Safety Precautions

The following general safety precautions must be observed during all phases of operation of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument.

Agilent Technologies Inc. assumes no liability for the customer's failure to comply with these requirements.

Before operation, review the instrument and manual for safety markings and instructions. You must follow these to ensure safe operation and to maintain the instrument in safe condition.

General

This product is a Safety Class 1 instrument (provided with a protective earth terminal). The protective features of this product may be impaired if it is used in a manner not specified in the operation instructions.

All Light Emitting Diodes (LEDs) used in this product are Class 1 LEDs as per IEC 60825-1.

**Environment
Conditions**

This instrument is intended for indoor use in an installation category II, pollution degree 2 environment. It is designed to operate at a maximum relative humidity of 95% and at altitudes of up to 2000 meters.

Refer to the specifications tables for the ac mains voltage requirements and ambient operating temperature range.

**Before Applying
Power**

Verify that all safety precautions are taken. The power cable inlet of the instrument serves as a device to disconnect from the mains in case of hazard. The instrument must be positioned so that the operator can easily access the power cable inlet. When the instrument is rack mounted the rack must be provided with an easily accessible mains switch.

**Ground the
Instrument**

To minimize shock hazard, the instrument chassis and cover must be connected to an electrical protective earth ground. The instrument must be connected to the ac power mains through a grounded power cable, with the ground wire firmly connected to an electrical ground (safety ground) at the power outlet. Any interruption of the protective (grounding) conductor or disconnection of the protective earth terminal will cause a potential shock hazard that could result in personal injury.

**Do Not Operate in
an Explosive
Atmosphere**



Do not operate the instrument in the presence of flammable gases or fumes.

**Do Not Remove
the Instrument
Cover**

Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made only by qualified personnel.

Instruments that appear damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel.

**Environmental
Information**

 	<p>This product complies with the WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/ electronic product in domestic household waste.</p> <p><i>Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as a "Monitoring and Control instrumentation" product.</i></p> <p>Do not dispose in domestic household waste.</p> <p>To return unwanted products, contact your local Agilent office, or see www.agilent.com/environment/product/ for more information.</p>
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1 Getting Started

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This Quick Start Guide provides information to assist you with performing basic operations on Agilent U4611 USB 3.0/2.0 Protocol Analyzer and Agilent U4612 USB 3.0 Protocol Jammer.

Step 1: Installing the Software

1 Download the Agilent Protocol Tester software available for U4611 USB Analyzer and U4612 USB Jammer from the Agilent Web site at:
www.agilent.com/find/usb-protocol.

2 Once the application software install package is downloaded, double-click the Setup_ProtocolTester.exe.


The installation of the needed drivers and other utilities for the use of the U4611 USB Analyzer or U4612 USB Jammer hardware should begin.

- Microsoft Visual C++ Runtime (if needed)
- WinDriver from Jungo (if needed)
- Java Runtime Environment (if needed)

3 Depending on the method used to connect the host PC to U4611 USB Analyzer or U4612 USB Jammer hardware, you may need to reboot the host PC.



Step 2A: Using Gigabit Ethernet

- 1 Power-on and attach the U4611 USB Analyzer or U4612 USB Jammer hardware to company network or a GbE switch.
- 2 Access the Agilent Protocol Tester software.
- 3 Choose the U4611 USB Analyzer or U4612 USB Jammer hardware you wish to connect to.
 - a If the selected hardware is detected as "In Use" shown with a lock symbol, click  to determine who is currently using the hardware.
 - b Click **OK**.

You should now be able to set up your U4611 USB Analyzer or U4612 USB Jammer for use.

Step 2B: Configuring Ethernet

When using a direct connection or a switch that does not support DHCP, you may need to change your TCP/IP setting in Windows to connect to the Agilent Protocol Analyzer and Jammer for USB hardware.

- 1 Open the **Network Connections** and right-click **Local Area Connection** and then click **Properties**.
- 2 Click **TCP/IP** and then click the **Properties** button.'
- 3 Specify IP address as 10.0.0.1 and subnet mask as 255.0.0.0 and then click **OK**.

You should now be able to connect to the U4611 USB Analyzer or U4612 USB Jammer.

When you need to set up a static IP:

- 1 Use the method described above to connect to U4611 USB Analyzer or U4612 USB Jammer hardware.
- 2 Right-click the U4611 USB Analyzer or U4612 USB Jammer and select **Modify Static IP**.
- 3 Specify the desired static IP address and click **OK**.

NOTE

To check the current IP address of U4611A/B or U4612A, press and hold the trigger button for 3 seconds and then release it. The IP address will be displayed one digit at a time on the 7 segment LED.


Step 2C: Using PCI Express

For using PCI Express x4 adapter card with desktop or server PC

- 1 Install PCI Express x4 adapter into the host PC.
- 2 Connect a PCIe cable from the host PC to the U4611 USB Analyzer or U4612 USB Jammer.
- 3 Power down the host PC before powering up the U4611 USB Analyzer or U4612 USB Jammer hardware.
- 4 Power on the U4611 USB Analyzer or U4612 USB Jammer hardware. Power on the host PC.

NOTE

This is for proper Windows Kernel initialization.


- 5 Open the Agilent Protocol Tester software.
- 6 Choose the U4611 USB Analyzer or U4612 USB Jammer hardware you wish to connect to.
- 7 If the selected hardware is detected as "In Use" shown with a lock symbol, click  to determine who is currently using the U4611 USB Analyzer or U4612 USB Jammer hardware.
- 8 Click **OK**.

For using PCI ExpressCard adapter with laptop

- 1 Verify that the laptop has an ExpressCard port, as it is not compatible with CardBus or PCMCIA.
- 2 Install ExpressCard adapter into ExpressCard slot in the laptop.
- 3 Connect a PCIe cable from the host laptop to the U4611 USB Analyzer or U4612 USB Jammer hardware.
- 4 Power down the host laptop before powering up the U4611 USB Analyzer or U4612 USB Jammer hardware.
- 5 Power on the U4611 USB Analyzer or U4612 USB Jammer hardware. Then power on the host laptop.

NOTE

This is for proper Windows Kernel initialization.

- 6 Open the Agilent Protocol Tester software.
- 7 Choose the U4611 USB Analyzer or U4612 USB Jammer hardware you wish to connect to.
- 8 If the selected hardware is detected as "In Use" shown with a lock symbol, click  to determine who is currently using the hardware.
- 9 Click **OK**.

Step 3: Connecting Your U4611 USB Analyzer in a Test Setup

Depending on the model of the U4611 USB Analyzer hardware that you purchased, there are a variety of different test scenarios and cabling needed to monitor traffic. Below are some diagrams of typical test setups.

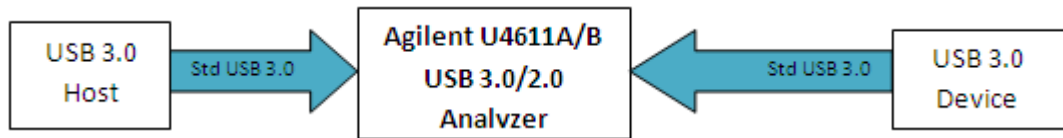


Figure 1 U4611 USB Analyzer Setup Diagram

If you want your USB 3.0 device to come up as a USB 2.0 device, plug the included USB 2.0 extender cable into the device side.

Step 4: Setting Up U4611 USB Analyzer for Recording a Trace

The U4611 USB Analyzer settings menu is used to determine the type of recording method, trigger position in the buffer, buffer size, and speed of the ports. The U4611 USB Analyzer supports the following three different methods for Stop Mode:

- **Manual Stop** - This will cause the U4611 USB Analyzer to continually record traffic until either the Stop button is clicked or the Manual Trigger button on U4611 USB Analyzer is pressed.
- **Stop when full** - This will cause the U4611 USB Analyzer to record traffic until the specified buffer size is full.
- **Trigger** - This allows specification of an event or a series of events.

The **Trigger Position** slider is only used when the Trigger mode is specified and allows the user to determine how much traffic is captured before and after the trigger event.

Buffer size is used to specify how large of a trace is desired.

Step 5: Setting Up Filters

Filter settings are used to filter out specified patterns while capturing traffic and maximizing the buffer usage.

To set a filter, select the checkbox of the type of data that you want to capture and deselect the checkboxes of the type of data that you do not want to capture. For example, to filter out USB 2.0 SOFs, NAKs, CSPLITs, NYETs, Bus States and USB 3.0 Pings/ ITPs, and SKPs, use the settings displayed in the following screen.



Figure 2 Filter settings

Step 6: Setting Up a Trigger

If **Trigger** is selected in the Analyzer Settings page, the Trigger button should be available to click. If the button is greyed out, it means that Trigger is not selected as the **Stop Mode** option.

For setting up a basic trigger, navigate to the desired trigger event and click and drag it to the sequencer pane. Make sure **Trigger** is selected in the **Then** listbox. Note the option to

change any of the specified fields to match a specific event. The example below shows a trigger event on a UAS Command IU. In this example, you can expand the + sign displayed with the UAS Command IU to edit individual field values to narrow down the Command IU matches.

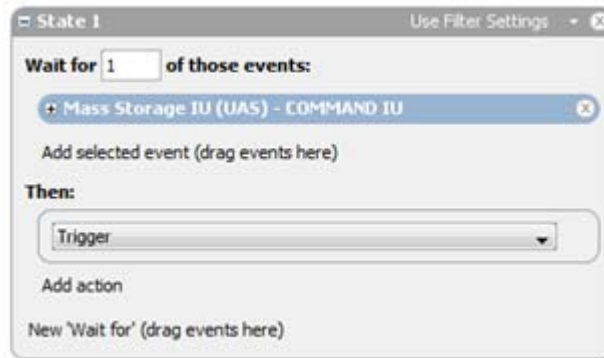


Figure 3 Trigger example

You can add additional events to the state for an **OR** and new states for an **AND**. In the following example, the U4611 USB Analyzer is looking for a UAS Command IU followed by a UAS Sense IU.



Figure 4 Trigger example

In this example, note the 'Then' action in State 1 as 'Branch to State 2'. In State 2, a UAs - Sense IU is specified to cause the trigger.

There are other options and actions that can be used to create more thorough triggers and live counters. For more information, refer to the Agilent Protocol Analyzer and Jammer for USB User's Manual that gets installed with the Agilent Protocol Tester software.

After you have configured the U4611 USB Analyzer settings, filters, and triggers, click the



button to start the data capture using U4611 USB Analyzer.

Step 7: Monitoring the Status

After stating the capture, you can monitor its status by clicking the



All capture related information is shown in the Status page.



Figure 5 Status page

The LEDs displayed in the Status page replicate those found in the front of the U4611 USB Analyzer hardware, allowing for easy monitoring of Link status.

The pie charts (see Figure 5 above) show the status of the buffer and pre/post data (if specified). This example displays how much data was captured before and after the trigger point.








If the desired amount of data is captured and the U4611 USB Analyzer is still running, click the



button. After either clicking the Stop Capture button or if the Analyzer has finished filling up the buffer, it will automatically upload and display the trace.


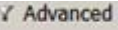
Step 8: Viewing the Trace

There are several different viewing options for a trace. The following is a list of these viewing options.

-  - **Protocol View** shows the precise timing relationship between each DWORD in the trace.
-  - **Transaction View** shows each fully populated command in the order it was initiated.
-  - **Spreadsheet View** shows extensive decoding of link commands, protocol packets, commands, ACKs etc. in time-ordered occurrence.
-  - **Histogram** shows a high-level time based graphical representation of user specified events.
-  - **Frame Details** shows selected frame in the format used by USB specifications.
-  - **Data Viewer** shows the selected Data Frame payload in several different formats.
-  - **Statistics** shows performance and other link/command related measurements.

Each of the above listed button corresponds to a different view of the traffic and multiple views can be shown and manipulated at the same time. Double-click on any event in any of the views and it will sync the rest of the views with the event.

You can also search and/or hide/show events in the trace using the different buttons below.

-  - **Quick Search** allows the user to type the desired search term.
- **Advanced Search** provides a way to search for sequences of events, either within a frame, or across multiple frames and events.
- **Quick Hide** bar allows for quick hiding of selected primitives and link events.
-  - **Advanced Filter** provides a way to show or hide detected addresses or sequences of events.

Advanced Options

Further information on both the U4611 USB Analyzer and U4612 USB Jammer hardware and software is available in the Online help and User guide in the Doc folder in the program directory where the Protocol Tester software is installed. You can also access the online help by clicking Help and choosing the appropriate option from the Protocol Tester software. For help with the more advanced features, please read the manuals. If your question is not answered, feel free to contact Technical Support. Support is available through Agilent's website: www.agilent.com/find/contactus.

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