Agilent
82357B USB/GPIB Interface for Windows®

Data Sheet

Agilent Technologies

Features

- **Fast and easy connection to GPIB instruments**
- **Uses standard USB interface**
- **Interface with up to 14 GPIB instruments**
- **IEEE-488 compatible**
- **Transfers over 1.15 MB/s with large block transfers**
- **Uses industry standard software**
- **Parallel polling capability**

Best for

- **Easiest GPIB connectivity**
- **Notebook computer GPIB connections**

The Fastest and Easiest Connection

Gain ultimate speed and efficiency by connecting your PC or laptop to your test and measurement instruments. The Agilent 82357B USB/GPIB interface provides instant connections, enabling a direct connection from the USB port on your PC to GPIB instruments.

USB (Universal Serial Bus) is built into most of today's desktop and laptop computers, offering fast and easy plug-and-play connection and auto configuration. Furthermore, the 82357B USB/GPIB interface makes connectivity easier as there are no switches to set, and no PC cards to install.

Getting connected has never been easier with the 82357B USB/GPIB interface, thanks to automatic configuration and the use of industry standards. Your applications will be up and running in an instant.

Totally Transparent, Fully Compatible

The USB/GPIB Interface software allows transparent communication between a PC and one or more GPIB instruments. The included VISA (Virtual Instrument Software Architecture) software provides GPIB emulation so that your existing GPIB programs work immediately, without modification. You also do not need to learn a new programming paradigm.

USB support is standard in Windows 2000/XP/Vista. These operating systems support the automatic plug-and-play configurations, thus it is easy to install, configure, and use the USB devices. Standard plug-and-play devices, like the 82357B are automatically detected as soon as they are connected to the computer's USB port. With the 82357B USB/GPIB interface and its convenient plug-and-play feature, you just plug and go. It is also hot pluggable, making it easy to connect and disconnect without having to shut down the computer. No external power supplies are necessary.

Full Assurance for Interoperability

The USB/GPIB interface ships with the Agilent IO Libraries Suite that includes VISA and SICL. VISA enables interoperability among different instrument and software vendors. The IO Libraries Suite also provides robust instrument control and works with the software development environment of your choice.

Standard GPIB functionality is provided by implementing the IEEE 488.1 and IEEE 488.2 specifications. These specifications provide defined mechanical and electrical characteristics, and a basic set of instrument commands and common data formats.

The use of industry standards gives you the assurance and confidence that your programs will work with multiple hardware and software vendors, and migrate to new standards in the future.

Standard Computer IO

In the past, RS-232 and GPIB have been the primary interfaces used for connecting instruments to PCs in test and measurement applications. Although RS-232 offers a low-cost solution, its lower baud rate and connection limitations are cumbersome and too slow for many of today's measurement needs. GPIB has provided a high-performance, cost-effective, and also reliable solution for more than 25 years. Today, however, computers have fewer available IO slots, leaving engineers with little options but to use more expensive solutions such as industrial PCs.

With USB and LAN functionality built into most of today's PCs, standard computer IO has evolved into a solution that is acceptable for the automation and control of test and measurement instruments.

Early USB devices that were initially developed for connecting PCs to peripherals such as keyboards, mouse and so forth offered little bandwidth. Today, USB offers bandwidths of up to 12 Mbits/s for USB 1.1 and 480 Mbits/s for USB 2.0. The 82357B USB/GPIB interface runs on USB 2.0.

The 82357B USB/GPIB interface uses a thin, flexible, high-quality USB cable that is USB 1.1 and 2.0 compliant. This cable is shielded and specified to 1,500 insertions, ensuring a durable connection and reliable data transfer.

The 82357B supports transfer rates of more than 1.15 MB/s with large block transfers. The performance is better than typical GPIB cards for block sizes over 32KB. Small block transfers are limited by the USB implementation and the overhead associated with setting up the transfer. However,

since instrument setup time can dominate the overall test time, this impact may be minimal. If a small block transfer performance is critical, then you may consider using the Agilent 82350A PCI GPIB interface.

Establishing the Connection

You may connect directly to one instrument with no additional GPIB cables required for the 82357B USB/GPIB interface.

To connect multiple instruments, you must use a daisy chain or star configuration for your GPIB instruments that use standard GPIB cables. Once the instruments are connected, connect the USB/GPIB interface as the last connection on one of the instruments. One 82357B USB/GPIB interface supports up to 14 GPIB instruments. Multiple 82357B USB/GPIB interfaces can be connected to improve system performance.

Another additional significant feature is the parallel polling capability of the 82357B USB/GPIB interface. This feature allows you to easily check up to eight individual devices at once, corresponding to the number of data lines on the GPIB.

Software Included

The VISA standard is a system-level industry standard supported by a multi-vendor foundation for instrument software. It offers an easy-to-use set of IO control functions and provides a migration path to new standards such as IVI (Interchangeable Virtual Instruments). IVI is a new driver standard developed by instrument and software vendors to define software standards for instrument interchangeability. This new standard is layered on Agilent VISA and offers interchangeability and high performance.

The Interactive IO software is also included and it provides a utility for sending commands and queries to an instrument to help view the response returned by the instrument.

Take a Look for Yourself

To see the 82357B USB/GPIB interface in action, check out the demo at www.agilent.com/find/82357.

For more information on Agilent IO products, visit www.agilent.com/find/io.

ORDERING INFORMATION	
Interface	82357B USB/GPIB Interface for Windows
Options	Option 0B1—Add Paper Manual Set
Accessories	None

NOTE:
If possible, you should always use the current version of the Agilent IOLibraries Suite. This version supports the newest interfaces and operating systems, and has the most advanced features. The Agilent 82357B USB/GPIB Interface is supported for PCs with Windows 2000 or Windows XP Professional or Windows Vista operating systems only. However, the Agilent 82357A is supported for PCs with Windows 98 SE or Windows ME. you may need an earlier version of the IO Libraries Suite to support an older interface or operating system. For example, Agilent IO Libraries Suite 14.0 is required for Windows 98 SE or Windows ME. If you need an earlier version of Agilent IO Libraries, go to
http://www.agilent.com/find/iolib to locate the version you need.

Product Specifications

GENERAL REQUIREMENTS	
Minimum system requirements (pre-requisites for Agilent IO Libraries version 15.0 also)	Windows 2000 SP4/XP SP2 (or later) • 450 MHz Pentium II or higher (800 MHz is recommended) • 128 MB RAM (256 MB or greater is recommended) • 280 MB free disk space, 1 GB is recommended for Microsoft .NET Framework 2.0 and 65 MB for Agilent IO Libraries Suite • Video: Super VGA (800x600) 256 colors or more • Browser: Microsoft Internet Explorer 5.01 or greater Windows Vista (Business, Ultimate, Enterprise) • 1 GHz 32-bit (x86) • 512 MB RAM (1 GB recommended) • 280 MB free disk space, 1 GB is recommended for Microsoft .NET Framework 2.0 and 65 MB for Agilent IO Libraries Suite • Video: Support for DirectX 9 graphics with 128 MB graphics memory recommended (Super VGA graphics is supported) • Browser: Microsoft Internet 7 or greater • USB port (OS and Microsoft .NET Framework may require more resources)
Supported Standards	• Support USB 2.0 high speed and full speed • Standard USB endpoints supported • IEEE-488.1 and IEEE-488.2 compatible • SICL and VISA 2.2
Programming Language	• SCPI command • IVI-COM • Web controller
SUPPORTED LANGUAGES AND APPLICATIONS	
Applications (with IntuiLink)	• Microsoft Excel 97 and 2000 • Microsoft Word 97 and 2000 • Check the Web for latest supported applications
Software development applications	• Visual Basic 6.0 • Visual C++ 6.0 • Visual Studio .NET • Agilent VEE 6.0 or greater • BASIC for Windows • LabVIEW 6.0 or greater
GENERAL CHARACTERISTICS	
Power	USB bus-powered device, +5 V, 500 mA (max), 200 mA (typ)
GPIB transfer rate	1.15 MB/s or better
Connectors	Standard 24-pin IEEE-488, Standard USB A
USB Hubs	Self-powered hubs
Parallel polling	A single parallel poll can check up to 8 individual devices at once, corresponding to the number of data lines on the GPIB.
Dimensions	105 mm (L) x 64 mm (W) x 30 mm (H) (includes connectors)
Weight	215 g
Cable	2.5 m, shielded, connector rated for 1500 insertions
LED Indicators	Ready, Access, Fail
Warranty	1 year
Maximum connections	Maximum 4 converters can be connected to the PC
Instrument connection	14 instruments—daisy chain via GPIB
Configuration	Plug-and-play

ENVIRONMENTAL SPECIFICATIONS	
Operating environment	0 °C to 55 °C
Storage environment	–40 °C to +70 °C
Operating humidity	Up to 90% at 40 °C non-condensing
Storage humidity	Up to 90% at 65 °C non condensing

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