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**Version 3.13.1 software release notes**

## Contents

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General Information.....	1
Overview .....	1
Driver Support Information .....	2
Supported Communication Interfaces .....	3
Supported Operating Systems.....	3
Installation Requirements .....	3
Version 3.13.1 release notes .....	4
Previous release notes .....	4

## General Information

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This document contains software release information on the KI-488 support software for the Keithley Instruments Model KUSB-488B USB-to-GPIB Interface Adaptor and Models KPCI-488LPA/KPCI-488LP GPIB Interface Boards. See the Keithley Instruments Website (<http://www.tek.com/keithley>) for the latest drivers and documentation.

## Overview

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The Keithley Instruments Models KUSB-488B and KPCI-488LPA/KPCI-488LP support GPIB drivers that support the interfaces for use in Windows®. The drivers are designed to be command compatible with your current applications. The drivers provides both Keithley Instruments command-compatible and National Instruments™/NI command-compatible APIs and software support for program developers using Microsoft™ programming languages like Visual Basic™, Visual C, as well as LabVIEW™ and LabWindows/CVI™ (C for Virtual Instrumentation).

The KI-488 also supports VISA. Refer to the *Keithley Instruments Model KUSB-488B and KPCI-488LPA Reference Manual* (KPCI-488LP-901-01) for complete function and programming information.



## Driver Support Information

		32-bit Windows (2000/XP/Vista/7/8/8.1/10)	64-bit Windows (Vista/7/8/8.1/10)	Notes
<b>Software Driver APIs</b>	CEC-compatible	Yes	No	ieee_32m.dll is 32-bit only
	NI GPIB-32-compatible	Yes	Yes	DLL on 64-bit Windows is named gpib-32.dll
	NI NI4882-compatible	No	No	
<b>Software Driver DLL</b>	CEC-compatible (ieee_32m.dll)	Yes	No	
	NI-compatible (GPIB-32.dll)	Yes	Yes	GPIB drivers are named gpib-32.dll (32- and 64-bit).
	NI-compatible (NI4882.dll)	No	No	
<b>VISA</b>	32-bit NI-VISA	Yes	Yes (WOW64 <sup>1</sup> )	
	32-bit Agilent-VISA	Yes	Yes (WOW64 )	
	64-bit NI-VISA	N/A	Yes	
	64-bit Agilent VISA	N/A	Yes	
<b>LabVIEW 32-bit</b>	NI GPIB VIs	Yes	Yes (WOW64 <sup>1</sup> )	
	Keithley GPIB VIs	Yes	Yes (WOW64 <sup>1</sup> )	
	VISA VIs with NI-VISA	Yes	Yes (WOW64 <sup>1</sup> )	
	VISA VIs with Agilent VISA	Yes	Yes (WOW64 <sup>1</sup> )	
<b>LabVIEW 64-bit</b>	NI GPIB VIs	N/A	No	
	Keithley GPIB VIs	N/A	Yes	
	VISA VIs with NI-VISA	N/A	Yes	
	VISA VIs with Agilent VISA	N/A	Yes	
<b>Agilent I/O Control</b>		Yes	Yes	
<b>32-bit Agilent VEE</b>		Yes	Yes (WOW64 <sup>1</sup> )	

<sup>1</sup> WOW64 works with 64-bit versions of Windows but only as a 32-bit application.

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## Supported Communication Interfaces

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- KUSB-488B IEEE-488.2 USB-to-GPIB Interface Adapter for USB Port
- KPCI-488LPA IEEE-488.2 Interface Board for the PCI Bus
- KPCI-488LP IEEE-488.2 Interface Board for the PCI Bus

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## Supported Operating Systems

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- Windows 10 (32-bit and 64-bit) with secure boot disabled
- Windows 8 (32-bit and 64-bit) with Service Pack 1 or later
- Windows 7 (32-bit and 64-bit) with Service Pack 1 or later
- Windows Vista (32-bit and 64-bit) with Service Pack 2 or later
- Windows XP (32-bit) with Service Pack 3 or later

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## Installation Requirements

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You must install the software before the hardware. See the *Model KUSB-488B USB to GPIB Converter Quick Start Guide* (KUSB-488B-903-01) for full installation instructions.

Please review these requirements before installing the KI-488 driver:

- The KI-488 driver is not compatible with Dynamic Link Libraries (DLLs) from other IEEE interface board suppliers. For proper installation of the KI-488 hardware and software, you must remove any existing GPIB interfaces from your PC and uninstall any installed GPIB drivers. Failure to uninstall any existing GPIB drivers before installing the KI-488 command compatible drivers can cause system problems.
- For LabVIEW and LabWindows/CVI support, Keithley Instruments recommends the installation of the NI command-compatible driver. For LabVIEW programmers, Keithley Instruments supplies a set of LabVIEW GPIB VIs that are optimized for use with the KI-488. You can also install the LabVIEW GPIB virtual instruments (VIs) that are optimized for use with the KUSB-488B.
- For ACS and ACS Basic support, install the Keithley command-compatible driver.
- To use VISA or an application that uses VISA (such as KickStart Instrument Control Software), you can install either the NI command-compatible driver or the Keithley command-compatible driver.
- Silent installation is now supported. The installer must be located in the same directory as the setup program. At the command prompt, enter:

```
installer [/s][/t ki/ni][/a xx][/r 0/1]
```

- The following silent installation command-line options are available:
  - /s: use silent installation
  - /t: (/type): the package to be installed, ki or ni (ki is set by default)
  - /a: (/addr): 0-30 (0 is set by default)
  - /r: (/reboot): 0 - no reboot ; 1 - reboot (no reboot is the default)

## Version 3.13.1 release notes

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### Resolved issues

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<b>Resolution</b>	Revised C# .NET header file to fix "PInvokeStackImbalance was detected" error with .NET Framework 4.0 (or newer).
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### Enhancements

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<b>Enhancement</b>	Added support for 64-bit versions of NI-VISA™ beginning with NI-VISA V17.0. Installs keithley488 passport for 64-bit version of NI-VISA.
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## Previous release notes

### Version 3.13.0 release notes

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#### Resolved issues

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<b>Resolution</b>	Updated the signature for Windows 10 32-bit and 64-bit systems.
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### Version 3.12.2 release notes

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#### Resolved issues

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<b>Resolution</b>	Fixed issues with the Keithley-compatible driver and the KUSB-488B causing the operating system to stop and cause an error message appear on a blue screen in Windows 10 x86 systems.
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## Version 3.12.1 release notes

### Resolved issues

<b>Resolution</b>	Fixed issues with the installer failing in Windows 8.1 for the Keithley- and NI-compatible drivers.
<b>Resolution</b>	For the Keithley-compatible driver, eliminated the 100-character limit of data sent using the TRANSMIT command.
<b>Resolution</b>	For the Keithley-compatible driver, revised the .NET header files to fix calling TArray and RArray, resulting in an AccessViolationException.
<b>Resolution</b>	For the Keithley-compatible driver, fixed issue with the KUSB-488B causing the operating system to stop and cause an error message appear on a blue screen in Windows x64 systems.

## Version 3.08 release notes

### Enhancements

<b>Enhancement</b>	Added the 64-bit version of libraries for the Keithley- and NI-compatible drivers.
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### Resolved issues

<b>Resolution</b>	Fixed issue with the KUSB-488B not responding after the a Keithley- and NI-compatible driver update.
<b>Resolution</b>	For the Keithley- and NI-compatible drivers, fixed issues with the trusted publisher dialog.
<b>Resolution</b>	For the Keithley- and NI-compatible drivers, fixed issue with the old driver version information.
<b>Resolution</b>	For the Keithley- and NI-compatible drivers, fixed the Windows Device Manager icon issue.
<b>Resolution</b>	For the Keithley- and NI-compatible drivers, fixed the GPIB Read of Size Zero issue (in Zero Time with return GPIB status of zero).
<b>Resolution</b>	For the Keithley- and NI-compatible drivers, fixed the command timeout issue on i7 (multi-core) computers.
<b>Resolution</b>	For the Keithley- and NI-compatible drivers, fixed the issue with USB-GPIB on USB 3.0 ports.

## Version 3.06 release notes

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### Resolved issues

<b>Resolution</b>	For the Keithley- and NI-compatible drivers, fixed issue with the KI-488 Diagnostic Tool and a VB6 application both crashing when sending commands to a 2700 DMM and 2400 SourceMeter. New <code>ieee_32m.dll</code> driver for the 64-bit edition of Windows is now included with the software.
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## Version 3.05 release notes

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### Enhancements

<b>Enhancement</b>	For the NI-compatible driver, created a single installer for the both the 32- and 64-bit editions of Windows.
<b>Enhancement</b>	For the NI-compatible driver, modified the content of messagebox to "LabVIEW version is too old: Setup has detected an older version of LabVIEW installed on this system. Please note that versions older than LabVIEW 7.0 are not guaranteed to work with this driver." This dialog will appear in the foreground if the detected LabVIEW version is older than 7.0, and this dialog will not appear if the installer does not detect the presence of LabVIEW on the system.

### Resolved issues

<b>Resolution</b>	For the NI-compatible driver, a new <code>ieee_32m.dll</code> driver for the 64-bit edition of Windows is now included with the software.
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## Version 3.04 release notes

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### Enhancements

<b>Enhancement</b>	For the NI-compatible driver, Windows 7 (32- and 64-bit) as well as the 32-bit edition of LabVIEW 2009 are now supported.
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## Version 3.02 release notes

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### Enhancements

<b>Enhancement</b>	The KI-488 Reference Manual and KUSB-488B Quick Start guide have been added to the software CD.
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## Version 3.01 release notes

### Enhancements

<b>Enhancement</b>	For both the Keithley- and NI-command compatible drivers, improved the performance for GPIB I/O for the KUSB-488B and serial polling for the KUSB-488B and KPCI-488LPA/KPCI-488LP.
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### Resolved issues

<b>Resolution</b>	For both the Keithley- and the NI-compatible driver, fixed the issue with auto serial poll failing for multiple KUSB-488B instruments.
<b>Resolution</b>	For the Keithley-compatible driver, fixed the issue with failing to set the timeout value as 0 for <code>settimeout</code> functions for the KUSB-488B.
<b>Resolution</b>	For the NI-compatible driver, fixed the issue with failing to set the timeout value as 0 for <code>ibtmo</code> functions for the KUSB-488B.

## Version 3.0 release notes

### Enhancements

<b>Enhancement</b>	Both drivers now support the Keithley KUSB-488B and KPCI 488LPA/KPCI-488LP GPIB interface boards.
<b>Enhancement</b>	Both drivers now support silent installations.
<b>Enhancement</b>	Both drivers now offer multi-process support.

## Resolved issues

<b>Resolution</b>	For both the Keithley- and the NI-compatible driver, fixed issues with KPCI-488LPA/KPCI-488LP using <code>ibwait</code> for LACS/TACS (wait for timeout error).
<b>Resolution</b>	For both the Keithley- and the NI-compatible driver, fixed issues with the driver not clearing the master flag when the interface passes control to another controller.
<b>Resolution</b>	For both the Keithley- and the NI-compatible driver, fixed issue with the system not responding when resuming from standby or hibernation states.
<b>Resolution</b>	For both the Keithley- and the NI-compatible driver, fixed issue with missing the second STB if a device sends multiple STBs (and the STB is different than the previous one) while in SPAS.
<b>Resolution</b>	For both the Keithley- and the NI-compatible driver, with the <code>ResetSys</code> function receiving an ECIC (not CIC) error if the interface is not CIC

## Version 2.0 release notes

### Enhancements

<b>Enhancement</b>	Both drivers now support the Keithley KUSB-488B and KPCI 488LPA/KPCI-488LP GPIB interface boards.
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## Version 1.2 release notes

### Enhancements

<b>Enhancement</b>	The driver setup program now supports Windows 2000, XP, and Vista operating systems.
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## Resolved issues

<b>Resolution</b>	For the NI-compatible driver, fixed the issue when a GPIB read following a write caused the instrument to stop responding.
<b>Resolution</b>	For the NI-compatible driver, fixed the issue when <code>ibwait</code> returns when the timeout occurs, but <code>TIMO</code> bit is not set to <code>ibsta</code> (except the timeout is caused by a GPIB I/O) when <code>TIMO</code> is set in the wait mask.
<b>Resolution</b>	For the NI-compatible driver, fixed the issue when <code>ibwrt</code> fails when EOS on write is enabled and the write string contains EOS.
<b>Resolution</b>	For the NI-compatible driver, fixed the issue when the second GPIB I/O waits until timeout instead of blocking the second operation when a GPIB I/O is in progress.
<b>Resolution</b>	For the Keithley-compatible driver, fixed an issue with <code>ieee_inp/ieee_outp</code> not asking permission.

## Version 1.1 release notes

### Resolved issues

<b>Resolution</b>	For the Keithley-compatible driver, eliminated the <code>ieee488_receive/ieee488_Enter</code> EOL character.
<b>Resolution</b>	For the Keithley-compatible driver, corrected the returned data type of polling response to "char" for <code>ieee488_spoll/ieee488_ppoll</code> .
<b>Resolution</b>	For the Keithley-compatible driver, fixed the issue with <code>ieee488_transmit</code> parsing a command error for the command string including space(" ").
<b>Resolution</b>	For the Keithley-compatible driver, corrected the issue to make sure addressing is always performed before a device-level read or write for the CEC driver
<b>Resolution</b>	For the Keithley-compatible driver, created <code>BoardSelect(addr)</code> and <code>Feature(204)</code> functions to detect currently selected board in case of multiple boards in system