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\*\*\*\* Read Me First \*\*\*\*  
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Version 2.1.0.0  
August 1st, 2011

## Introducing the Keithley IVI Driver for the 3706 Switch Measure Unit

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This instrument driver provides access to the functionality of the Keithley 37XX through a COM server which also complies with the IVI specifications. This driver also presents an IVI-C driver via the Ke37xx.dll. This driver works in any development environment which supports COM programming including Microsoft® Visual Basic, Microsoft Visual C++, Microsoft .NET, Agilent VEE Pro, National Instruments LabVIEW, and others.

## Supported Instruments

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### Frame:

- 3706
- 3706-S
- 3706-NFP
- 3706-SNFP
- 3706A
- 3706A-S
- 3706A-NFP
- 3706A-SNFP

### Cards:

- 3720
- 3721
- 3722
- 3723
- 3724
- 3730
- 3731
- 3732
- 3740
- 3750

## Installation

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**System Requirements:** The driver installation will check for the following requirements. If not found, the installer will either abort, warn, or install the required component as appropriate.

### Supported Operating Systems:

- Windows 2000
- Windows XP
- Windows Vista
- Windows 7

## Shared Components

Before this driver can be installed, your computer must already have the IVI Shared Components installed.

Minimal IVI Version: 2.0.0

The IVI Shared Components installer is available from:  
<http://www.ivifoundation.org/Downloads/SharedComponents.htm>

#### VISA-COM

Any compliant implementation is acceptable. Typically, VISA-COM is installed with VISA and other I/O library modules.

#### Additional Setup

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##### .NET Framework

The .NET Framework itself is not required by this driver. If you plan to use the driver with .NET, Service Pack 2 is required.

The .NET Framework requires an interop assembly for a COM server. A Primary Interop Assembly, along with an XML file for IntelliSense is installed with the driver. The driver's PIA, along with IVI PIAs are installed, by default, in:  
<drive>:\Program Files\IVI Foundation\IVI\Bin\Primary Interop Assemblies

The PIA is also installed into the Global Assembly Cache (GAC) if you have the .NET Framework installed.

#### Start Menu Shortcuts

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A shortcut to the driver help file is added to the Start Menu, Programs, IVI, Ke37XX group. It contains "Getting Started" information on using the driver in a variety of programming environments as well as documentation on IVI and instrument specific methods and properties.

You will also see shortcuts to the Readme file and any programming examples for this driver.

#### Help File

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The help file (Ke37XX.chm) is located in the directory:  
<drive>:\Program Files\IVI\Drivers\Ke37XX

#### MSI Installer

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The installation package for the driver is distributed as an MSI 2.0 file. You can install the driver by double-clicking on the file. This operation actually runs:  
msiexec /i Ke37XX.msi

You can run msiexec from a command prompt and utilize its many command line options. There are no public properties which can be

set from the command line.

## Uninstall

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This driver can be uninstalled like any other software from the Control Panel using "Add or Remove Programs".

To uninstall the IVI Shared Components you must use the IVI Cleanup Utility available from the IVI Foundation at:  
<http://www.ivifoundation.org/>

Note: All IVI-COM drivers require the IVI Shared Components to function. To completely remove IVI components from your computer, uninstall all drivers then run the IVI Cleanup Utility. This utility does not remove any IVI drivers.

## Simulation Mode

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As per the IVI stipulation the driver supports simulation mode. A driver setup string is passed in when calling the initialize method in the IVI-COM driver or the Ke37xx\_InitWithOptions function in the IVI-C driver. To run the driver in simulation mode you need to pass in the Model and what card is in a particular slot. E.g.

```
"QueryInstrStatus=true, Simulate=true, DriverSetup= Model=Model  
3706,slot1=3721,  
slot2=3722-2W, slot3=3732-Quad 4x28 Reed Matrix, slot4=3732-Quad 4x28 Reed  
Matrix-1W"
```

The wire mode is optional.

For the 3732 card the matrix configuration must be passed in as shown in these examples:

```
"slot3=3732-Quad 4x28 Reed Matrix", "slot3=3732-Quad 4x112 Reed Matrix"
```

## Revision History

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Version	Date	Notes
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0.1.0.0	Apr 04, 2007	Internal release
0.2.0.0	Jun 07, 2007	Internal release
0.3.0.0	Jun 18, 2007	Internal release
0.4.0.0	Jun 26, 2007	Internal release
1.0.0.0	Jul 11, 2007	Release candidate 1
1.0.1.0	Sep 10, 2007	Bug fixes
1.0.2.0	Sep 14, 2007	Bug fixes
1.0.3.0	Apr 23, 2008	Updated installer to add registry entries to make driver visible to other Keithley software components
1.0.4.0	Oct 06, 2008	Updated installer to add IviDmm entry to Software Module published API
		Changed Initialize behavior so that unrecognized cards to not generate an error
1.1.0.0	May 01, 2009	Added support for the following cards: 3724, 3731 and 3750. 2 new examples per language for the 3750 card.

1.2.0.0 Apr 01, 2010 Added support for the 3732 card and added an example that uses matrix cards.

2.0.0.0 Jun 01, 2011 Added support for 3706A  
 Several buffer reading methods were switching instrument to binary mode but not switching it back to ascii when done.  
 Several IviLxiSync methods and properties at used TCP or UDP syntax not working correctly.

2.1.0.0 Aug 01, 2011 Added standard LXI(SPCI) events to IviLxiSync.Events Source property

#### Support

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 To report bugs or provide feedback on this driver go to the Keithley forums at:

<http://forums.Keithley.com>

#### IVI Compliance

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 (The following information is required by IVI 3.1 section 5.21.)

IVI-COM/IVI-C IviSwtch/IviDmm Specific Instrument Driver

IVI Instrument Class: IVI-4.6\_Swtch\_v3.0

IVI Instrument Class: IVI-4.2\_DMM\_v3.0

IviLxiSync: IVI-3.15\_v1.0

Group Capabilities:	Supported:
IviSwtchBase	yes
IviSwtchScanner	yes
IviSwtchSoftwareTrigger	yes
IviDmmBase	yes (IVI-COM only)
IviDmmACMeasurement	yes (IVI-COM only)
IviDmmFrequencyMeasurement	yes (IVI-COM only)
IviDmmTemperatureMeasurement	yes (IVI-COM only)
IviDmmThermocouple	yes (IVI-COM only)
IviDmmResistanceTemperatureDevice	yes (IVI-COM only)
IviDmmThermistor	yes (IVI-COM only)
IviDmmMultiPoint	yes (IVI-COM only)
IviDmmTriggerSlope	yes (IVI-COM only)
IviDmmSoftwareTrigger	yes (IVI-COM only)
IviDmmDeviceInfo	yes (IVI-COM only)
IviDmmAutoRangeValue	yes (IVI-COM only)
IviDmmAutoZero	yes (IVI-COM only)
IviDmmPowerLineFrequency	yes (IVI-COM only)
IviLxiSyncBase	yes
IviLxiSyncCustomArmSource	no
IviLxiSyncCustomTriggerSource	no
IviLxiSyncTriggerAlarm	yes
IviLxiSyncArmAlarm	yes
IviLxiSyncCustomTriggerAlarm	no
IviLxiSyncCustomArmAlarm	no
IviLxiSyncEvent	yes
IviLxiSyncCustomEvent	no
IviLxiSyncEventLog	yes
IviLxiSyncSyncTime	yes

Optional Features: This driver does not support Interchangeability Checking, State Caching, or Coercion Recording.

Driver Identification:

(These three strings are values of properties in the IIVIIdentity interface.)

Vendor: Keithley Instruments.

Description: 37XX Switch Measure Unit.

Revision: 2.1

Component Identifier: Keithley37XX.Keithley37XX

(The component identifier can be used to create an instance of the COM server.)

Hardware: This driver supports instruments manufactured by Keithley.

The supported model numbers are:

3706

3706-S

3706-NFP

3706-SNFP

3706A

3706A-S

3706A-NFP

3706A-SNFP

This driver supports communicating with the instrument using either GPIB, or LAN (VXI-11 or Raw sockets). Raw socket communication uses port 5025.

Software: See the section on installation in this document for information on what other software is required by this driver.