

BROCHURE

# USB Modular Instruments

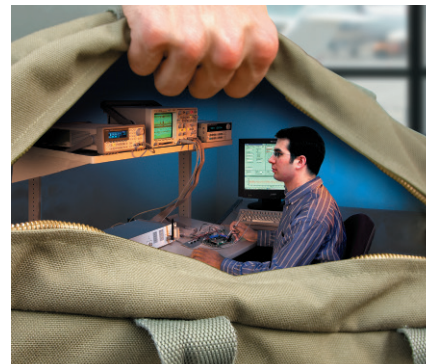


# Introduction

## Put a Bench in Your Bag

The next time you're called out to solve tough problems in electronic products or processes, leave the bulky transit cases behind. With Keysight Technologies, Inc.'s USB modular instrument (MI) family, you can easily carry powerful test gear in your bag along with your laptop PC.

Our line of MIs includes two oscilloscopes, a DMM, a function generator with arbitrary waveform capability, a source/measure unit and a 4x8 switch matrix. All provide USB 2.0 connectivity (with USBTMC-USB488) standard and plug-and-play simplicity for easy use on the go or on the bench.



Get more out of your modular instruments at  
[www.keysight.com/find/usbTECHoffer](http://www.keysight.com/find/usbTECHoffer)

## Designing Excellence

Keysight U2700A series USB Modular Instruments won Design News' Golden Mousetrap Award in the 2009 Best Products Category. Design News' Awards Program highlights engineering innovation and product design creativity, and honors the best designs of the past year.



Keysight U2723A USB Source Measure Unit won the 20th Annual Electronic Design, Strategy, News (EDN) Innovation Award in the DC and Low-Frequency Test category. The EDN Innovation Awards recognizes engineering professionals and ground-breaking product designs in innovation and creativity, choosing its winners through a jury of peers.



# USB Modular Instruments: Put a Bench in Your Bag

## USB MI, U2701A/02A Oscilloscopes

### Waveform measurement and analysis

#### U2701A/U2702A USB modular two-channel oscilloscopes

These USB scopes are available with bandwidths of either 100 MHz (U2701A) or 200 MHz (U2702A). Both provide 500 MSa/s sampling and 16 Mpts of memory per channel (1 GSa/s and 32 Mpts with two channels interleaved) to help you gain better insight into signal details. Advanced analysis capabilities built into the KMM scope software include waveform math and FFT with windowing. Other advanced features include:

- Normal, averaging and peak-detect acquisition modes
- Advanced triggering including edge, pulse width and line-selectable video
- Manual, auto and tracking cursors with  $\Delta T$ ,  $\Delta V$  and frequency measurements
- Over 25 measurement and math functions
- 1,024-point FFT with Hanning, Hamming, Blackman-Harris, Rectangular and Flat Top windowing functions
- Dual-screen display with FFT function and keyboard shortcut keys (with KMM software)



With the included IVI-COM drivers, these scopes are compatible with popular development environments including Keysight VEE, Microsoft Visual Studio .NET, C/C++ and Visual Basic 6, the Microsoft .NET Framework and LabVIEW.

Their small size makes these scopes ideal for standalone bench use as well as integration into system solutions with the U2781A chassis. Hi-Speed USB 2.0 compatibility makes connection to a PC quick and easy.

#### Dimensions (W x D x H)

117.00 x 180.00 x 41.00 mm with rubber bumpers  
(4.61 x 7.09 x 1.61 inches)

105.00 x 175.00 x 25.00 mm without bumpers  
(4.13 x 6.89 x 0.98 inches)

### Accessories

Each scope includes an AC/DC adapter, a USB Standard-A to Mini-B interface cable and a passive probe (N2862A with U2701A; N2863A with U2702A). The table presents optional items that may be useful to you.

Item	Model number
1:1 20 MHz passive probe	10070C
10:1 150 MHz passive probe, 1.2 m (for U2701A)	N2862A
10:1 300 MHz passive probe, 1.2 m (for U2702A)	N2863A
Six-slot USB MI chassis	U2781A
BNC cable	U2921A-100
USB secure cable, 2 m	U2921A-101



N2862A, 10:1 150 MHz passive probe, 1.2 m (for U2701A)



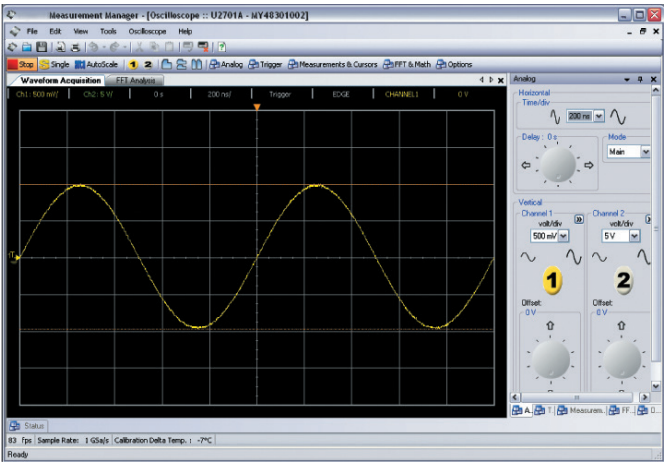
10070C, 1:1 20 MHz passive probe

For complete specifications of U2701A/U2702A, please download the data sheet from [www.keysight.com/find/usbscope](http://www.keysight.com/find/usbscope).

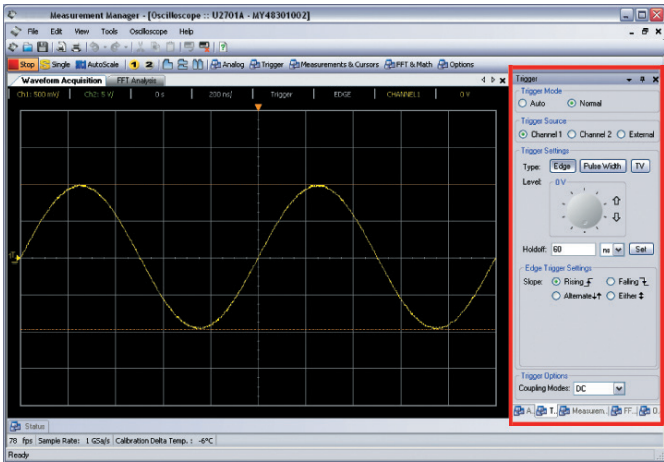


# USB Modular Instruments: Put a Bench in Your Bag

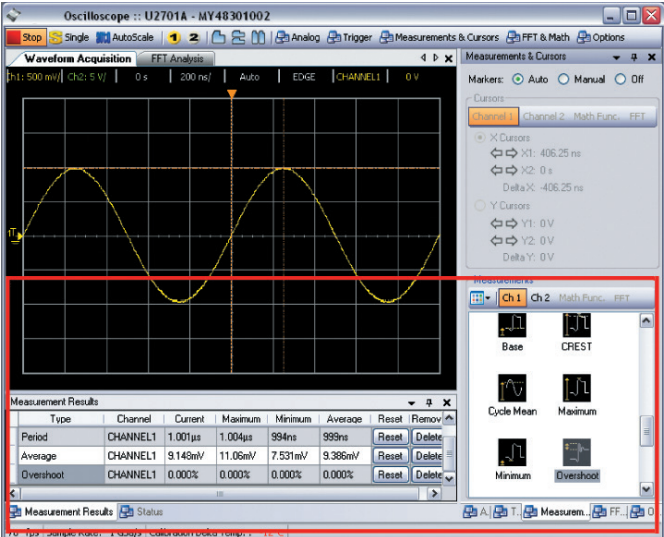
## USB MI, U2701A/02A Oscilloscopes



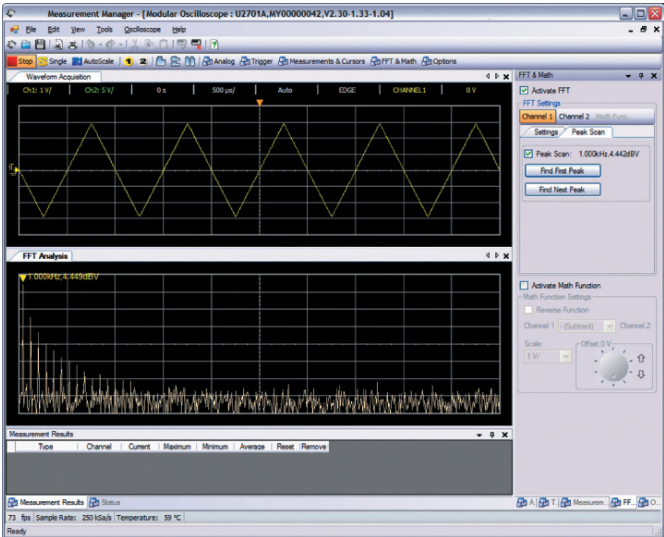
Measure waveforms quickly and easily with the instrument-like KMM interface.



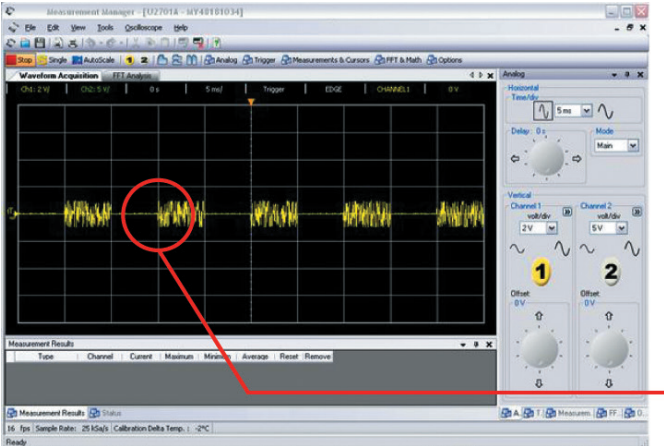
Capture waveforms with capabilities such as edge, pulse width and TV triggering.



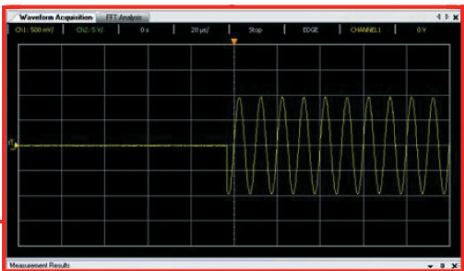
Simplify waveform analysis with automatic measurements such as rise time and duty cycle, and the measurement results panel.



Explore frequency domain characteristics of measured waveforms using FFT analysis (with five windowing functions) and search for peak values of the FFT.



Capture signal details effectively with deep memory.



# USB Modular Instruments: Put a Bench in Your Bag

## USB MI, U2741A DMM

### Fundamental measurements with 5½ digits

#### U2741A USB modular digital multimeter

The U2741A USB DMM provides a broad range of essential features and 10 measurement functions: DC voltage and DC current; true-RMS AC voltage and AC current; two- and four-wire resistance; frequency; diode test; continuity; and temperature.



- Make fast measurements with up to 100 readings/second
- Measure up to 300 Vdc with 5½ digits resolution
- Utilize wide measurement ranges: 100 mVdc to 300 Vdc and 10 mA to 2 A
- Dual display mode allows viewing of second measurement (temperature or frequency)
- Integrated data logging capability
- Bundled KMM software is made even easier with keyboard shortcut keys

With the included IVI-COM drivers, this DMM is compatible with a variety of popular development environments. The U2741A is ready to be programmed directly using SCPI commands, and the included Command Logger and Code Converter tools simplify programming tasks.

Its small size makes this DMM ideal for standalone use on the bench as well as integration into system solutions. Flexible chassis triggering (master/slave/star/none) enables effective multi-DMM systems.

#### Dimensions (W x D x H)

117.00 x 180.00 x 41.00 mm with rubber bumpers  
(4.61 x 7.09 x 1.61 inches)  
105.00 x 175.00 x 25.00 mm without bumpers  
(4.13 x 6.89 x 0.98 inches)

### Accessories

The DMM includes an AC/DC adapter, a USB Standard-A to Mini-B interface cable, test leads and an L-mount kit (for use in the U2781A chassis). The table summarizes additional items that may be useful to you.

Item	Model number
Test lead set	34138A
Temperature thermistor probe	E2308A
Six-slot USB MI chassis	U2781A
USB secure cable, 2 m	U2921A-101

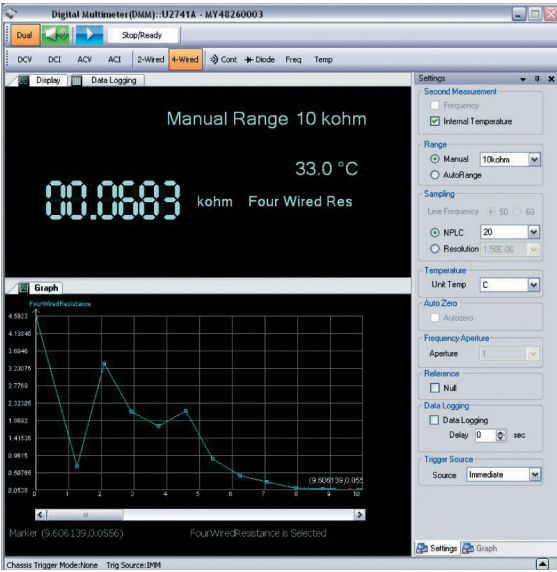


34138A, test lead set.

For complete specifications of U2741A, please download the data sheet from [www.keysight.com/find/U2741A](http://www.keysight.com/find/U2741A).

USB modular instruments: Put a bench in your bag

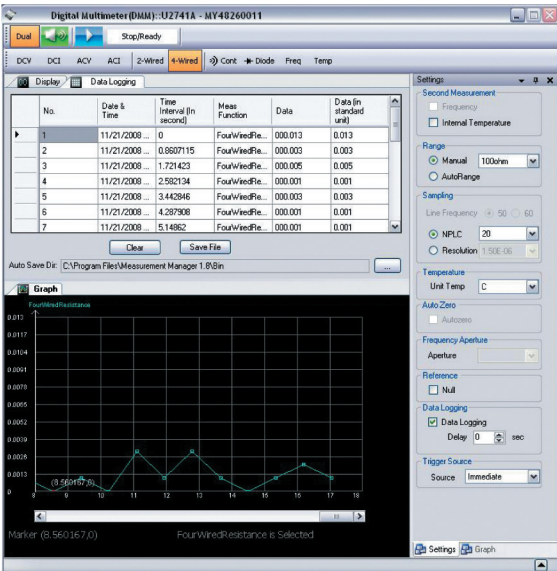
USB MI, U2741A DMM



View voltage along with time using the “dual display” mode.



Simplify multitasking, or easily view multiple screens at once, with KMM's “compact” mode.



Perform data logging for capture and analysis of long-term events.

# USB Modular Instruments: Put a Bench in Your Bag

## USB MI, U2761A Function Generator

### Basic signals and arbitrary waveforms

#### U2761A USB modular one-channel function generator

The U2761A USB function generator offers eleven standard signals as well as arbitrary waveforms. It relies on direct digital synthesis (DDS) to create stable, accurate output of low-distortion sine waves. The U2761A also provides square waves with fast rise and fall times up to 20 MHz and linear ramps up to 200 kHz. For simulation of real-world signals, use the waveform editor to create arbitrary waveforms with 14-bit resolution up to 200 kHz.



Internal modulation eliminates the need for a separate modulation source. Linear and logarithmic sweeps are also built in, with sweep rates from 1 ms to 500 s.

With the included IVI-COM drivers, this instrument is compatible with popular development environments. Hi-Speed USB 2.0 compatibility makes connection to a PC quick and easy.

#### Dimensions (W x D x H)

117.00 x 180.00 x 41.00 mm with rubber bumpers  
(4.61 x 7.09 x 1.61 inches)

105.00 x 175.00 x 25.00 mm without bumpers  
(4.13 x 6.89 x 0.98 inches)

- 10 mVpp to 10 Vpp amplitude range
- Pulse generation with variable period, pulse width and amplitude
- Ramp, triangle, noise and DC waveforms
- AM, FM, PM, ASK, FSK, PSK signals
- 64 Kpt, 50 MSa/s arbitrary waveforms are customizable through the waveform editor
- Optional arbitrary waveform generation upgrade (2 MHz)

### Accessories

The function generator includes an AC/DC adapter, a USB Standard-A to Mini-B interface cable and an L-mount kit (for use in the U2781A chassis). The table presents three more items that may be useful.

Item	Model number
Six-slot USB MI chassis	U2781A
BNC cable	U2921A-100
USB secure cable, 2 m	U2921A-101
Arbitrary waveform generation upgrade to 2 MHz	U2010A
Arbitrary waveform generation upgrade bundle purchase with U2761A	U2010A-1FP



U2921A-100, BNC cable.



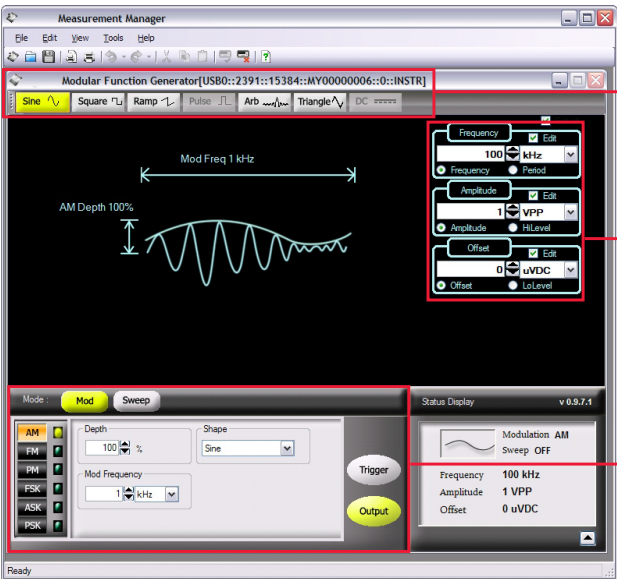
U2921A-101, USB secure cable, 2 m.

For complete specifications of U2761A, please download the data sheet from [www.keysight.com/find/U2761A](http://www.keysight.com/find/U2761A).



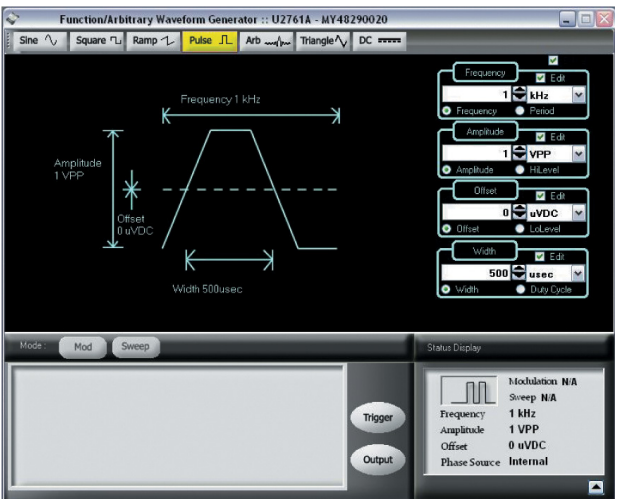
# USB Modular Instruments: Put a Bench in Your Bag

## USB MI, U2761A Function Generator

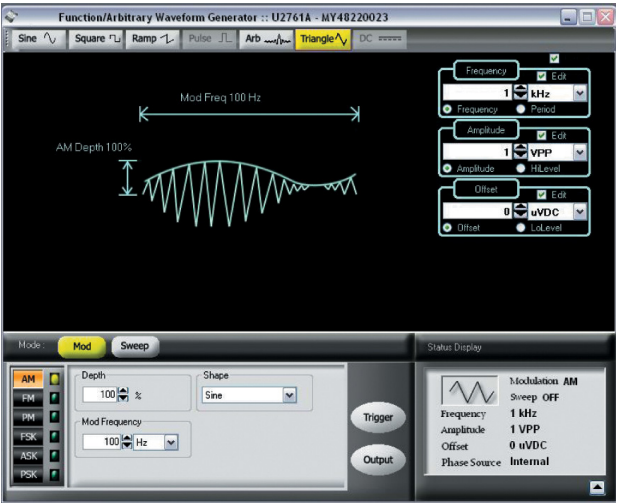


Quickly set up a variety of waveforms through the familiar KMM interface.

Visualize modulated waveforms as you define their parameters.



Generate pulses with variable period, width and amplitude.



Utilize the 11 standard signals as well as arbitrary waveforms.



Define or draw your required arbitrary waveform using the waveform editor.

# USB Modular Instruments: Put a Bench in Your Bag

## USB MI, U2722A/U2723A Source Measure Unit

### Voltage and current programming and readback

#### U2722A/U2723A USB modular source measure unit

The three-channel U2722A and its enhanced version, the U2723A are more than just power supplies – each delivers  $\pm 20\text{ V}$  and  $\pm 120\text{ mA}$  per channel with fast response time. The U2722A/U2723A also provides voltage and current programming/readback with high-accuracy measurement capabilities. The U2722A/U2723A is also capable of four-quadrant operation, acting as a current source and current sink (load) across its  $\pm 20\text{ V}$  output range. Its measurement capabilities provide 0.1% accuracy and 100 pA sensitivity.



- Four-quadrant operation ( $\pm 20\text{ V}$ ,  $\pm 120\text{ mA}$ )
- 100 pA measurement sensitivity with 16-bit resolution
- 0.1% basic accuracy
- Embedded test script (able to support three channels with coherent source and measurement capabilities) (for U2723A)
- IV Curve application support in the Keysight Measurement Manager software (for U2723A)
- Faster rise/fall time (for U2723A)
- Supports SCPI and IVI-COM

Each of the three channels may be configured separately or in a matrix—in series or parallel. These versatile SMUs allows you to perform sweep and measurement with just a single device without extra configurations.

### Fixture and upgraded software for semiconductor testing

The U2941A parametric test fixture enables testing of pin-through-hole semiconductor components with the U2722A/U2723A. The included Parametric Measurement Manager software supports the U2751A switch matrix when used with the U2722A/U2723A. A purchasable upgraded software, U2942A Parametric Measurement Manager Pro, analyzes discrete semiconductor and plots the results in an IV curve. See page 21 for more information on the U2942A software.

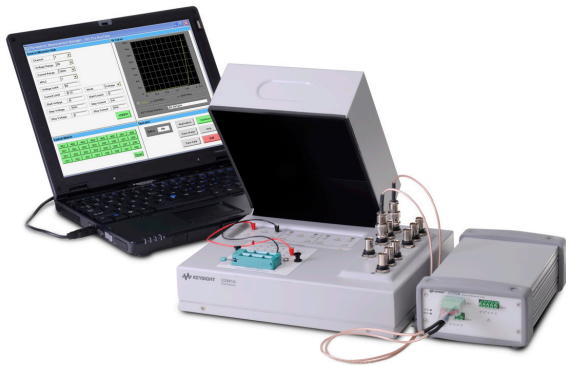
### Dimensions (W x D x H)

- 117.00 x 180.00 x 66.00 mm with rubber bumpers (4.61 x 7.09 x 2.60 inches)
- 105.00 x 175.00 x 50.00 mm without bumpers (4.13 x 6.89 x 1.97 inches)

### Accessories

The SMU includes an AC/DC adapter, a USB Standard-A to Mini-B interface cable, plug-in connectors and cable casing, and an L-mount kit (for use in the U2781A chassis). The table presents three more items that may be useful.

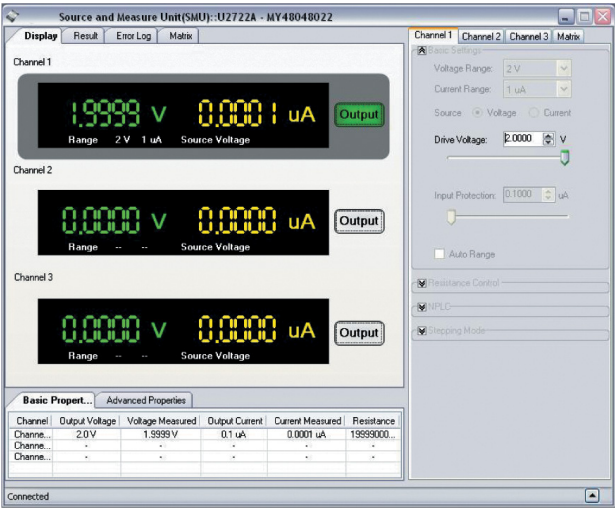
Item	Model number
Parametric test fixture	U2941A
Six-slot USB MI chassis	U2781A
USB secure cable, 2 m	U2921A-101



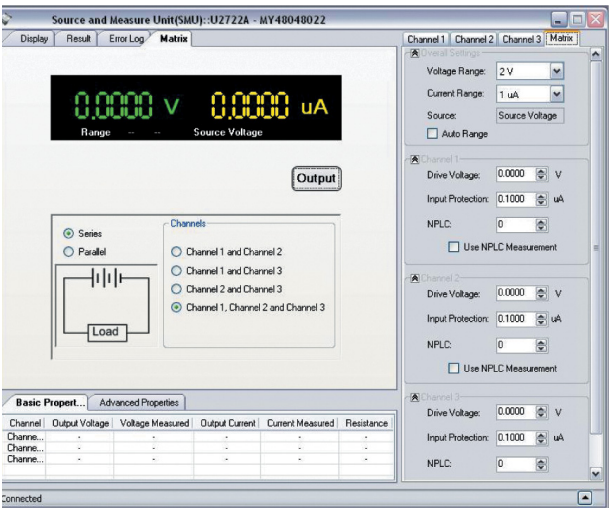
For complete specifications of the source measure units and the parametric test fixture, please download the data sheets from [www.keysight.com/find/U2723A](http://www.keysight.com/find/U2723A) and [www.keysight.com/find/U2941A](http://www.keysight.com/find/U2941A) respectively.

# USB Modular Instruments: Put a Bench in Your Bag

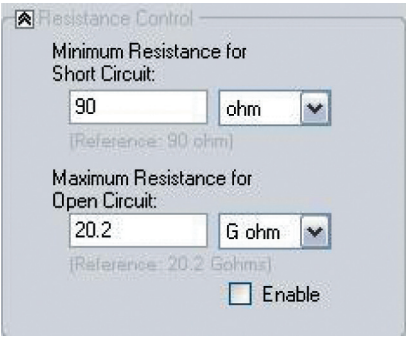
## USB MI, U2722A/U2723A Source Measure Unit



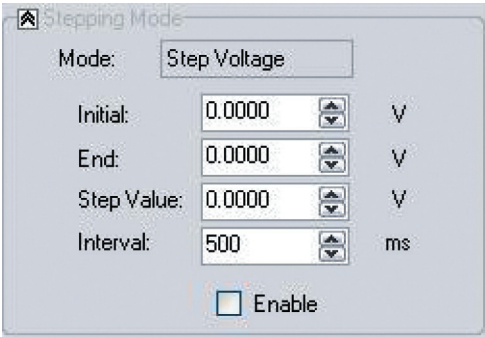
Configure all three channels separately to source or measure voltage or current.



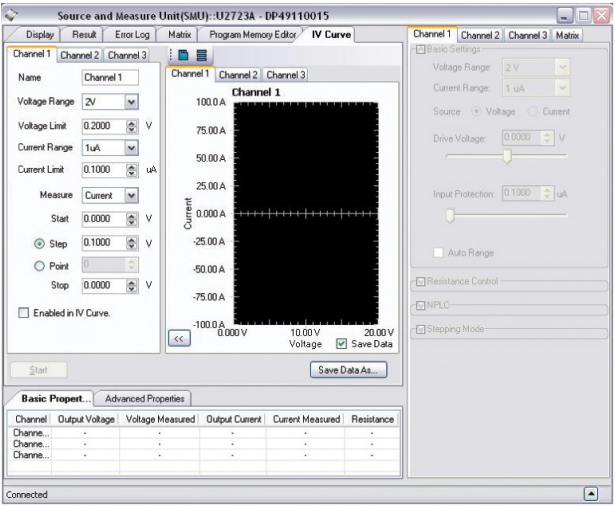
Combine channels for serial or parallel output.



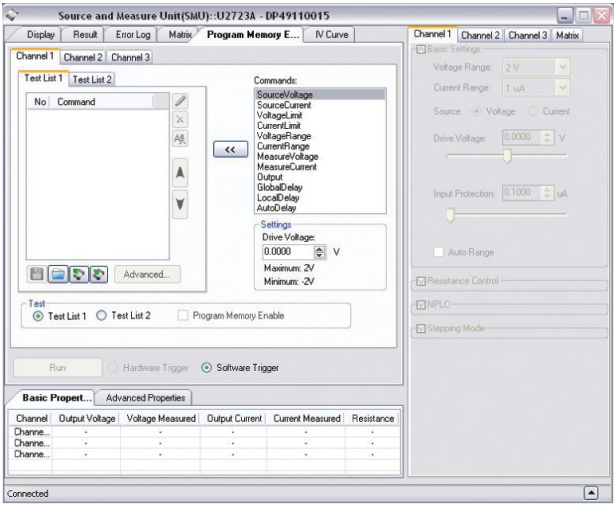
Perform short- and open-circuit testing through the resistance control capability.



Use the stepping mode to control U2722A/U2723A outputs (or measurements) as a function of time.



View the IV curve graph with just a click of a button (for U2723A).



Pre-define test configurations or duplicate tests easily with embedded test scripts (for U2723A).

# USB Modular Instruments: Put a Bench in Your Bag

## USB MI, U2751A Switch Matrix

### Switching for test automation

#### U2751A USB modular switch matrix

The U2751A is a high-quality, low-cost switching solution for complex testing. It has 32 two-wire crosspoints in a 4x8 configuration, enabling connection with any combination of rows and columns—including multiple channels at the same time. Other key features are 45-MHz bandwidth (without terminal block), a relay cycle counter, and a command-logger function.



- 32 two-wire crosspoints in a flexible 4x8 configuration
- Minimal crosstalk and insertion loss to 45 MHz
- Convenient user interface allows connections at the click of a mouse
- SCPI and IVI-COM supported

The KMM interface lets you make connections by simply using your mouse to click on crosspoints. The U2751A's flexible configuration enables testing of multiple DUTs as well as allowing different instruments to be connected to multiple points on a DUT at the same time.

#### 32-channel terminal block

The U2922A terminal block is an optional accessory to the U2751A. The U2922A, which has screw-type terminals, provides a simple, convenient way to use the switch matrix for prototyping or final system deployment. It allows you to implement a wide variety of routing configurations and matrix topologies.

#### Dimensions (W x D x H)

117.00 x 180.00 x 41.00 mm with rubber bumpers  
(4.61 x 7.09 x 1.61 inches)  
105.00 x 175.00 x 25.00 mm without bumpers  
(4.13 x 6.89 x 0.98 inches)

#### Accessories

The switch matrix includes an AC/DC adapter, a USB Standard-A to Mini-B interface cable, plug-in connectors and cable casing, and an L-mount kit (for use in the U2781A chassis). The table presents three more items that may be useful.

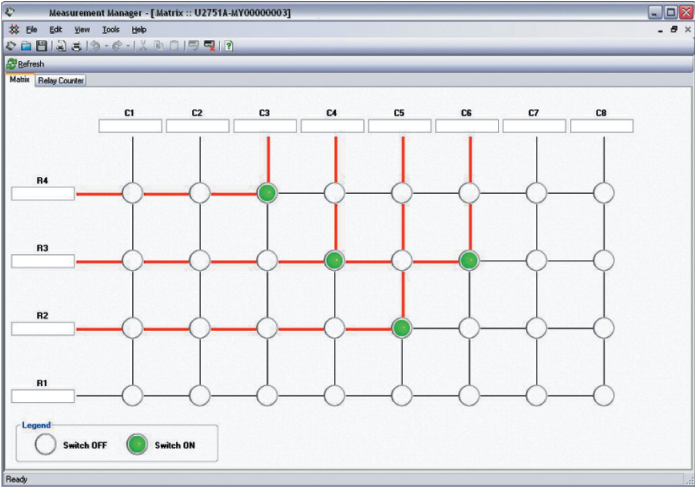
Item	Model number
32-channel terminal block	U2922A
Six-slot USB MI chassis	U2781A
USB secure cable, 2 m	U2921A-101

For complete specifications of U2751A, please download the data sheet from [www.keysight.com/find/U2751A](http://www.keysight.com/find/U2751A).

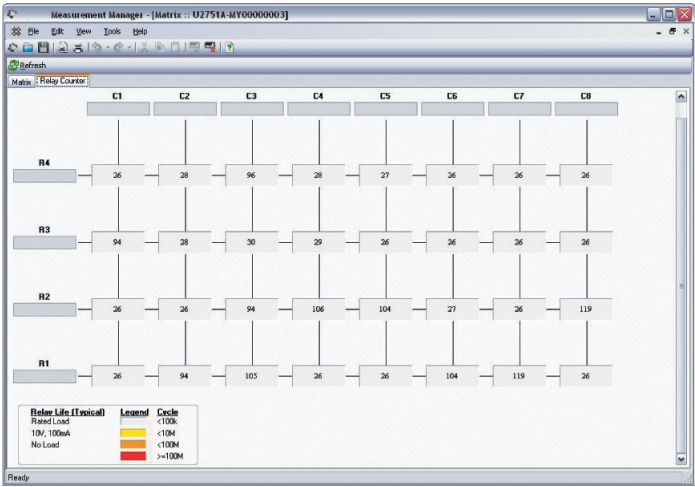


# USB Modular Instruments: Put a Bench in Your Bag

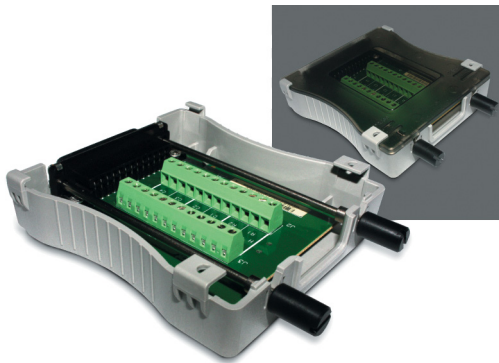
## USB MI, U2751A Switch Matrix



Create instrument connections by simply clicking at the crosspoints within the visual KMM interface.



Use the built-in relay counter to monitor relay lifetime and performance.



Implement a variety of test topologies with the U2922A terminal block.



# On the Bench and on the Go

## U2781A Chassis

### On the bench: Integration made easy

#### U2781A USB modular product chassis

The U2781A is a six-slot chassis for Keysight USB modular instruments and data acquisition devices. It offers the convenience of one AC-power connection and a single USB link. Modules are hot-swappable and the auto-detection feature reduces setup time and effort. This 4U-high chassis also provides simultaneous synchronization between modules and enables SSI/star-trigger bus synchronization with an external trigger source.



#### Dimensions (W x D x H)

270.00 x 271.20 x 197.00 mm  
(10.63 x 10.68 x 7.76 inches)

- Six USB module slots
- System Synchronous Interface (SSI)
- Star trigger and trigger-in/trigger-out signals
- Internal and external 10 MHz reference clock
- SCPI and IVI-COM compatibility

The U2781A modular chassis allows expansion up to 384 channels when slotted with the U2300A Series DAQ devices, providing a high-density data acquisition solution. The optional rackmount kit simplifies integration into a test system. The chassis' master/slave triggering capabilities also enable synchronization among various modules. This is possible even across modules with different functions (except for the switch matrix).

Its compact size saves space on the bench or in a rack. Hi-Speed USB 2.0 compatibility makes connection to a PC quick and easy.

#### Accessories

The modular instrument chassis includes a USB extension cable. The table presents another accessory that may be useful.

Item	Model number
Rackmount kit	U2905A



U2905A, Rackmount Kit for U2700A Series USB DAQ Modular Instrument Chassis.

For complete specifications of U2781A, please download the data sheet from [www.keysight.com/find/usbmodular](http://www.keysight.com/find/usbmodular).

## On the Bench and on the Go E5813A

### On the bench: Connectivity expansions

#### E5813A networked 5-port USB hub

The E5813A networked 5-port USB hub uses LAN technology to end the five-meter USB cabling distance limitation, allowing USB devices to be connected anywhere on a Local Area Networked (LAN). With access to remote devices, you can collect data, perform measurements or monitor the progress of your tests.



- Connect up to five instruments
- Interface with GPIB, RS-232 and SUB devices
- Maximum data transfer rate of 12 Mbps per port
- Extended USB connectivity beyond 5 meters
- USB 1.1, USB 2.0 and 10BASE-T/100BASE-TX compatible

## On the Bench and on the Go Essential Accessories

### On the go: Essential accessories

When you're on the road, a few essential "survival kit" items may reduce weight and eliminate hassles. You should be able to find these at electronics stores (and some music stores) that carry computer accessories and power adapters.

**USB hub:** Most laptop PCs have just two USB ports, and many people use one for a wireless mouse. To connect more than one USB modular instrument, you'll need a multiport USB 2.0 hub and an extra USB cable to connect the hub to your PC. Also, be sure that the hub is compatible with Windows XP Pro or Home (SP1 or later), or Windows 2000 Pro (SP4 or later).

**Multiport AC/DC adapter:** Each USB modular instrument is powered by a 12 V, 2 A AC/DC adapter (12 V, 3 A for USB modular source/measure unit). To lighten the load on your shoulder, you may want to carry a Y-splitter or a multiport AC/DC adapter. The key specs for a suitable multiport adapter are 12 V/5 A for two USB MIs and 12 V/8 A, for up to four USB MIs. The DC connectors must be 9 mm long with a 5.5 mm outside diameter and 2.5 mm inside diameter.



# Keysight USB Modular Data Acquisition Modules

## USB Modular Data Acquisition Modules

The USB data acquisition (DAQ) family gives you the choice and flexibility to create solutions that evolve and expand according to your changing measurement needs. You can quickly and easily acquire, measure, and analyze data from electrical, mechanical, physical, and acoustical phenomena.

The DAQ series includes multifunction measurement modules, simultaneous-sampling measurement modules, two types of digital input/output (DIO) devices, and a thermocouple input.

A quick reference to the Keysight USB DAQ family

Features	U2300A Series multifunction DAQ devices	U2500A Series simultaneous sampling DAQ devices	U2600A Series isolated DIO devices	U2802A thermocouple input device <sup>2</sup>
Number of models	7	3	3	1
<b>Analog input</b>				
Channels/module, max	64	4	–	31
Sampling rate, max	Up to 3 MSa/s (single channel) Up to 1 MSa/s <sup>1</sup>	Up to 2 MSa/s/chn	–	Up to 500 kSa/s
Resolution	Up to 16-bit	Up to 16-bit	–	Up to 16-bit
Input voltage, max	10 V	10 V	–	10 V
Simultaneous sampling	–	▪	–	–
On-board memory	8 MSa	8 MSa	–	–
Thermocouple signal conditioning	–	–	–	▪
<b>Analog output</b>				
Channels/module, max	2	2	–	2
Update rate, max	1 MSa/s	1 MSa/s	–	1 MSa/s
Resolution	Up to 16-bit	12-bit	–	12-bit
Output voltage, max	10 V	10 V	–	10 V
<b>Digital I/O</b>				
Channels/module, max	24	24	64	–
Input levels, max	5 V	5 V	24 V	–
Output levels, max	5 V	5 V	35 V	–
<b>Counter</b>				
Channels	2	2	–	–
Max count	(2 <sup>31</sup> –1) bits	(2 <sup>31</sup> –1) bits	–	–
<b>Software and drivers</b>				
Keysight Measurement Manager	▪	▪	▪	▪
IVI-COM	▪	▪	▪	▪
Keysight VEE	▪	▪	▪	▪
Compatibility with U2781A	▪	▪	▪	–
Synchronization between modules	▪	▪	▪	–

1. Aggregate sampling rate.

2. Works with U2355A and U2356A models.

For more information on the Keysight USB data acquisition family, go to [www.keysight.com/find/usbdac](http://www.keysight.com/find/usbdac).

# Software and Related Literature

## Keysight Measurement Manager

### A familiar interface

#### Keysight Measurement Manager

The Keysight Measurement Manager (KMM) software is an application data viewer designed to help you perform quick configuration and measurement acquisition. Through individual windows on your PC screen, the KMM software provides a user-friendly front-panel interface for Keysight’s USB modular products. KMM helps you perform quick configuration and measurement acquisition as well as flexible analysis of measured data. This software also includes two special features – the **command logger** and **code converter** capabilities to further ease your programming tasks.



#### Command Logger

The Command Logger function allows users to log SCPI or IVI-COM command sequences used to control your Keysight USB modular product. The function also captures the time each command is executed. Review the configuration commands at your own pace, or convert the commands to other programming languages with the KMM’s Code Converter.

Command Logger

FileControl

StartStopSaveClear Display

Filter Options: No Filter

Date	Time	Device	Type	Command	Remarks
<input checked="" type="checkbox"/> Friday, March 21...	4:37:54 PM	USB0:2391:437...	Scpi	ACQ:SRAT 10000	Set the sampling rate of analog input.
<input checked="" type="checkbox"/> Friday, March 21...	4:37:54 PM	USB0:2391:437...	Scpi	WAV:POIN 10000	Set the number of acquisition points for AI continuous acquisition.
<input checked="" type="checkbox"/> Friday, March 21...	4:38:08 PM	USB0:2391:437...	Scpi	WAV:POIN 10000	Set the number of acquisition points for AI continuous acquisition.
<input checked="" type="checkbox"/> Friday, March 21...	4:38:08 PM	USB0:2391:437...	Scpi	ROUT:SCAN (@101,102,103)	Set the acquisition sequence specified in the channel list.
<input checked="" type="checkbox"/> Friday, March 21...	4:38:08 PM	USB0:2391:437...	Scpi	RUN	Start the continuous data acquisition.
<input checked="" type="checkbox"/> Friday, March 21...	4:38:09 PM	USB0:2391:437...	Scpi	STOP	Stop the asynchronous analog input operation.

Check All

Uncheck All

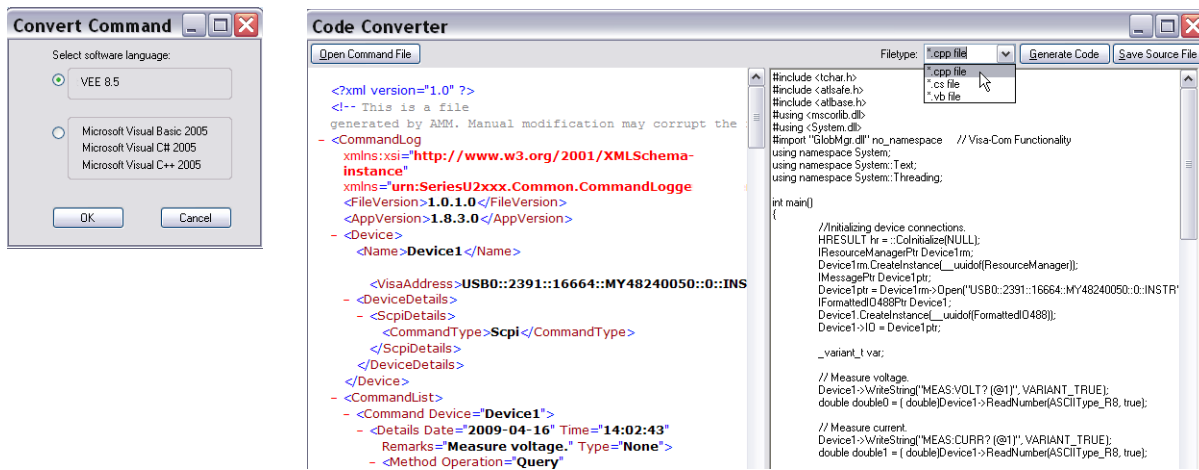


## Software and related literature

### Keysight Measurement Manager

#### Code converter

KMM Code Converter comes with two converters: the Keysight VEE Code Converter, and the Microsoft C#/C++/VB Code Converter, allowing you to convert logged SCPI/IVI-COM commands to snippets of VEE Pro, Visual Basic, C++ and C# codes. You can now convert SCPI commands without needing advanced programming skills, helping you program with ease and allowing you to integrate your programs seamlessly for automated tests.



For more information, please see [www.keysight.com/find/KMM](http://www.keysight.com/find/KMM).

# Software and Related Literature

## Keysight VEE Pro and VEE Express

Refine your design—sooner

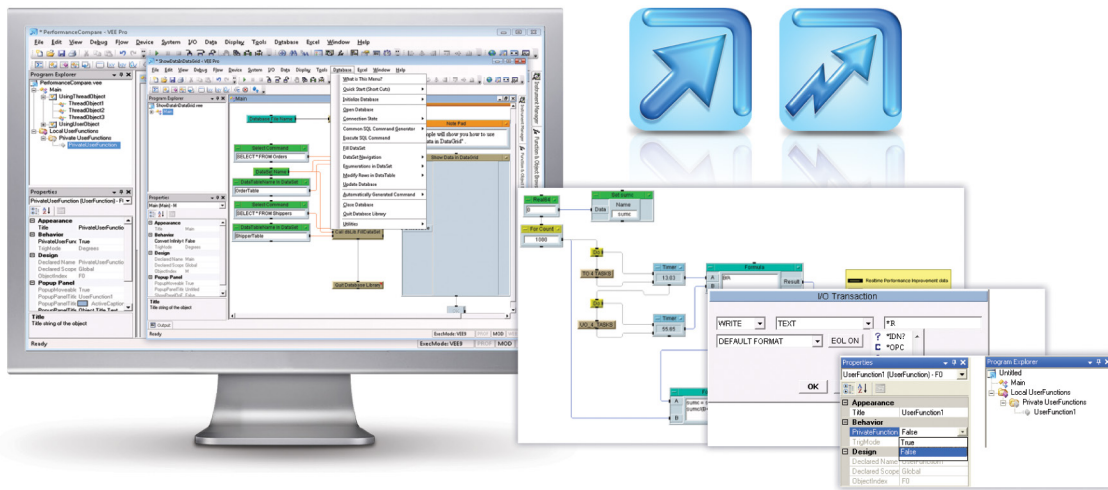
### Keysight VEE Pro and VEE Express

Keysight VEE Pro is an award winning graphical language environment that provides a quick path to measurement and analysis. Designed for easy expansion, flexibility and compatibility with the latest industry standards, Keysight VEE allows seamless operation with hardware and software from Keysight and other manufacturers.

Keysight VEE Pro lets you focus on your measurements rather than spending time on programming and connections. It keeps programming simple with a clean, clear development screen. Utilizing a familiar task-oriented flowchart look-and-feel, VEE Pro is quick and easy to learn so you can make measurements right away.

Keysight VEE Pro does even more to ensure productivity with other applications and languages by including embedded MATLAB functionality. With these capabilities, you can quickly gain new insights through advanced signal processing, mathematical analysis and data visualization.

Over the past 15 years, Keysight VEE Pro has helped thousands of scientists and engineers make better measurements—faster! Experience for yourself how Keysight VEE Pro simplifies test development by trying it free for 30 days. You can download the evaluation software or request a CD at [www.keysight.com/find/vee](http://www.keysight.com/find/vee).



# U2942A Parametric Measurement Manager Pro Software

## Keysight PMM PRO

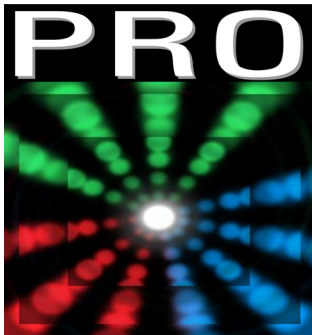
### Measure and analyze with ease

Keysight Parametric Measurement Manager Pro (PMM Pro) is a VEE-based software designed to perform basic semiconductor testing. The software specializes in the analysis of discrete semiconductor devices such as diodes, bipolar junction transistors and field effect transistors.

Designed for use with the Keysight U2722A/U2723A USB source measure unit and the U2941A parametric test fixture, Keysight PMM Pro controls the instruments to take parametric measurements such as voltage or current. The software then plots, displays and logs the results in an IV curve.

Keysight PMM Pro allows users to carry out measurements and display results without the need for prior programming experience. The software operates through an intuitive user-interface that is easy to understand and configure, and includes test sequence automation to further ease your task.

The U2722P and the U2723P Parametric Measurement Solution bundle consists of a Keysight USB source measure unit hardware and the U2942A PMM Pro. The U2722P and U2723P is available only in Europe and Asia (excluding Japan).



### Features

- Uses an intuitive GUI that is easy to configure and simplifies testing
- Comes with predefined test profiles for diode, bipolar junction transistors and field effect transistors, removing the need for programming experience
- Allows users to define and configure test profiles
- Automates test sequencing for parametric analysis
- Plots, displays and logs parametric measurements in an IV curve
- Includes built-in math functions such as addition, subtraction and division for quick analysis of results



Figure 1. Intuitive GUI that features both pre-defined and user-defined test profile.

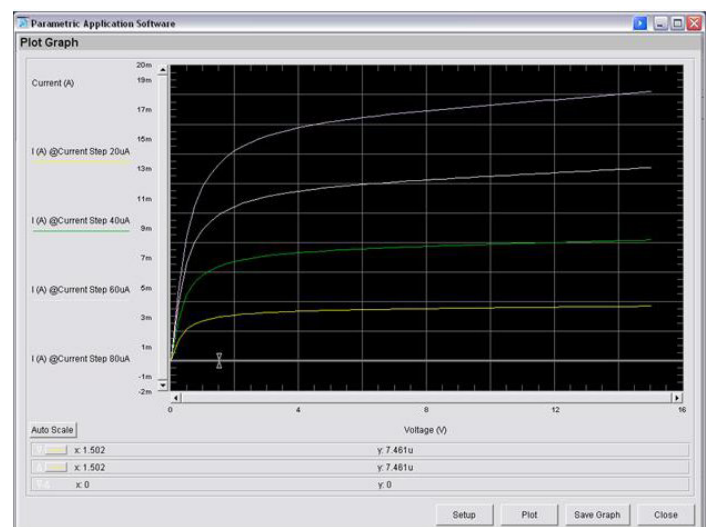


Figure 2. Plots, displays and logs parametric measurements in an IV curve.

## Related Literature

A variety of MI-related application notes can be downloaded from [www.keysight.com](http://www.keysight.com).

Publication title	Pub number
<i>DVD Player Manufacturing Test Using Keysight Modular Instruments</i> , Application Note	5989-9566EN
<i>Testing Battery Chargers with the U2722A USB Modular Source Measure Unit</i> , Application Note	5989-8547EN
<i>The Memory Depth of a USB Modular Oscilloscope</i> , Application Note	5990-4280EN
<i>Using the Keysight U2701A USB Oscilloscope with the Raman Spectrometer Laser System</i> , Case Study	5990-3693EN
<i>Discovering New Techniques of Creating, Editing, and Transferring Arbitrary Waveforms with the Keysight U2761A Function/Arbitrary Waveform Generator</i> , Application Note	5990-4570EN

## Get the most from your modular products

Find out how to maximize the use of your Keysight USB modular products by visiting the USB Modular Instruments technical offer!

Included in this technical offer are useful tips and tricks, application notes and case studies to help you use your USB modular product efficiently. The offer also includes programming examples in VEE, LabVIEW and MATLAB. For those who can't get enough of their USB modular product, fun collectibles such as wallpapers and product videos are available.

Register now at [www.keysight.com/find/usbTECHoffer](http://www.keysight.com/find/usbTECHoffer)  
to gain full access to the technical offer.

## Ordering Information

Model number	Item
U2701A	USB modular oscilloscope, 100 MHz
U2702A	USB modular oscilloscope, 200 MHz
U2741A	USB modular digital multimeter, 5.5 digit
U2751A	USB modular switch matrix
U2761A	USB modular function generator, 20 MHz
U2722A	USB modular source measure unit, 3-channel, 4-quadrant
U2723A	USB modular source measure unit, 3-channel, 4-quadrant, with embedded test scripts
U2941A	Parametric test fixture
U2942A	Parametric Measurement Manager Pro software

## Solution bundles

Model number	Item
U2722P <sup>1</sup>	U2722A USB modular source measure unit and U2942A PMM Pro software bundle
U2723P <sup>1</sup>	U2723A USB modular source measure unit and U2942A PMM Pro software bundle

1. Only available in Europe and Asia (excluding Japan).

Learn more at: [www.keysight.com](http://www.keysight.com)

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: [www.keysight.com/find/contactus](http://www.keysight.com/find/contactus)

