Agilent
U2751A USB Modular Switch Matrix

Data Sheet

Agilent Technologies

Features and capabilities

- **32 two-wire crosspoints in 4x8 configuration**

- **Minimal crosstalk at up to 45 MHz**

- **Bandwidth of 45 MHz without the terminal block**

- **Relay cycle counter**

- **Flexible connection configurations—capable of multiple closed channels simultaneously**

- **Hi-Speed USB 2.0 (480 Mbps)**

- **Bundled software—Agilent Measurement Manager (AMM)**

- **Command logger function**

- **Wide range of Application Development Environments (ADEs) compatibility**

- **Standalone and modular**

- **SCPI and IVI-COM supported**

- **USBTMC 488.2 standards**

Agilent U2751A USB Modular Switch Matrix

The Agilent U2751A USB modular switch matrix offers a high-quality, low-cost switching solution for automated testing. It has 32 two-wire cross points organized in a four rows by eight columns (4x8) configuration enabling connection with any combination of rows and columns, including multiple channels at the same time. It also features a relay cycle counter.

Affordable, reliable, and flexible switching solution

- Minimal crosstalk at up to 45 MHz for more accurate measurements

- Bandwidth of 45 MHz without terminal block allows you to perform high bandwidth measurements with minimum insertion loss

- Work in comfort and convenience with the bundled AMM software on your PC with quick and easy installation

- Flexible standalone or modular capability enables you to have lower startup cost

- SCPI and IVI-COM supported and a wide range of ADEs compatibility minimize your work time and increase software options

- Easy-to-use AMM software that includes the command logger function that helps you easily convert SCPI commands into snippets of VEE, VB, C++, and C# code

Flexible connection with minimal crosstalk

The U2751A offers you the most flexible connection path between your device under test (DUT) and your test equipment, allowing different instruments to be connected to multiple points on your DUT at the same time. In addition to this flexible connection path, the U2751A has minimal crosstalk that allows you to have more accurate measurements with wider range of test applications.

Quick and easy to begin with

The USB 2.0 interface provides easy connectivity and setup that allows automatic detection of the U2751A. With quick and easy USB connectivity, the U2751A is simple enough for R&D application but robust and versatile enough for electronic functional test applications. The USBTMC 488.2 standard makes the U2751A compatible with any system that comes with USB ports.

Supports SCPI and IVI-COM, compatible with wide range of ADEs

With the offered IVI-COM driver, you are able to program the U2751A with any popular ADE that is available in the market, while allowing you to pick the programming language that you are most familiar with. The compatibility of U2751A with a wide range of ADEs minimizes the time required to set up your devices in different software environments, as they can be programmed directly using SCPI commands.

The following list contains some of the popular development environments that the U2751A is compatible with:
• Agilent VEE and Agilent T&M Toolkit
• Microsoft® Visual Studio® .NET™, C/C++ and Visual Basic®
• LabVIEW®
• MATLAB®

Flexible standalone or modular capability

The U2751A is uniquely designed to function flexibly as a standalone or a modular unit. You can easily reduce your startup cost by simply using it as standalone unit. On the other hand, you can use the U2751A as a modular unit to expand your application system by slotting in various units into the Agilent U2781A USB modular instrument chassis.

Easy-to-use bundled software and command logger function

The AMM application software provides you a quick and easy way to instruct the matrix to make or break any of the 32 row-column intersections over the USB interface without requiring any programming work. Simplifying this further is the command logger function offered in the AMM that allows you to capture configuration commands and easily convert them to snippets of VEE code. Other supported languages are VB, C++, and C#.
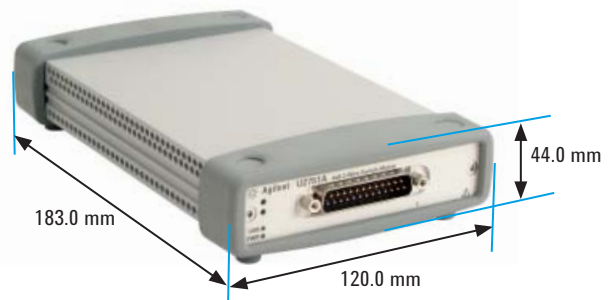
Product Outlook and Dimensions

Front View

Rear View

Dimensions

183.0 mm

44.0 mm

120.0 mm

Agilent U2922A 32-Channel Terminal Block

The U2922A terminal block is an optional accessory to be used with the U2751A. The U2922A, which weighs approximately 100 g with screw-type terminals, offers you a convenient and simple way of making connection to the switch matrix for prototyping applications or an actual system deployment. It allows the user to configure a wide variety of routing options and matrix topologies.

Standalone

Modular

System Requirements

PROCESSOR
1.6 GHz Pentium® IV or higher

OPERATING SYSTEM
• Windows® XP Professional or Home Edition (Service Pack 1 or later), or
• Windows 2000 Professional (Service Pack 4 or later)

BROWSER
Microsoft Internet Explorer 5.01 or higher

AVAILABLE RAM
512 MB or higher recommended

HARD DISK SPACE
1 GB

VIDEO
Super VGA 800×600 (1024×768 recommended)

PREREQUISITES
• Agilent IO Libraries Suite 14.2 or higher (version 15.0[1] recommended),
• Agilent T&M Toolkit Runtime version 2.1[2],
• Agilent T&M Toolkit Redistributable Package 2.1 patch[2],
• Microsoft .NET Framework version 1.1 and 2.0[2]

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1 Available on Agilent Automation-Ready CD.
2 Bundled with Agilent Measurement Manager software installer.

Product Characteristics

REMOTE INTERFACE
• Hi-Speed USB 2.0
• USBTMC 488.2 Class device

POWER CONSUMPTION
• +12 VDC, 2 A maximum
• Installation Category II

OPERATING ENVIRONMENT
• Operating temperature from 0 °C to +50 °C
• Relative humidity at 20% to 85% RH (non-condensing)
• Altitude up to 2000 meters
• Pollution degree 2
• For indoor use only

STORAGE COMPLIANCE
–20 °C to 70 °C

SAFETY COMPLIANCE
Certified with:
• IEC 61010-1:2001/EN61010-1:2001 (2nd Edition)
• Canada: CAN/CSA-C22.2 No. 61010-1-04
• USA: ANSI/UL 61010-1:2004

EMC COMPLIANCE
• IEC 61326-2002/EN61326: 1997+A1:1998+A2:2001+A3:2003
• Canada: ICES-001: 2004
• Australia/New Zealand: AS/NZS CISPR11: 2004

SHOCK AND VIBRATION
Tested to IEC/EN 60068-2

I/O Connector
DSUB 25 male

DIMENSIONS (W x D x H)
• 117.0 × 180.0 × 41.0 mm (with bumpers)
• 105.0 × 175.0 × 25.0 mm (without bumpers)

WEIGHT
• 480 g (with bumpers)
• 428 g (without bumpers)

WARRANTY
One year

Product Specifications

	U2751A	
	Without U2922A Terminal Block	**With U2922A Terminal Block**
Channels/configuration	4×8, 2-wire	
Switch type	Armature latching	
Input Characteristics (per channel)		

Max working voltage[1]
    Standalone
    Modular (Used with U2781A)
	42 VDC/35 Vrms
	180 VDC/180 Vrms	

Max transient voltage	300 Vrms	

Max current
    Switch current
    Carry current
	2 A
	2 A	

Power (W, VA)[2]	60 W, 62.5 VA	
Volt-Hertz limit	10^8	
General Specification		
Thermal emf (differential)	<3 µV	
Initial closed channel resistance	<1.5 Ω	
DC isolation (ch-ch, ch-earth)	>10 GΩ	
AC Characteristics		
Bandwidth[3]	45 MHz	30 MHz

Insertion loss
    100 kHz
    1 MHz
    10 MHz
    45 MHz
	0.2 dB
	0.3 dB
	<2 dB
	<3 dB
		0.2 dB
		0.3 dB
		<2 dB
		<4.5 dB

Capacitance
    HI-LO
    LO-Earth
	55 pF
	35 pF
		85 pF
		45 pF

Crosstalk at terminal block (ch-ch)[3]
    300 kHz
    1 MHz
    20 MHz
    45 MHz
	−70 dB
	−60 dB
	−35 dB
	−30 dB	

General Characteristics		
Relay life, typical **No load** **10 V, 100 mA** **Related load**	100 M 10 M 100 k	
Open/close time	4 ms/4 ms	

1 DC or AC rms, channel-to-channel or channel-to-earth.
2 Limited to 6 W channel resistance power loss per module.
3 50 Ω source, 50 Ω load, differential measurements verified with a 4-port network analyzer (Sdd21).