Agilent U2700A Series USB Modular Instruments

Easily arrange and rearrange your tests

- Flexibility with standalone/ modular capability
- Simple setup with USB 2.0 and bundled software
- Easy to use and program with AMiMM software and IVI drivers
- Portable and compact

- Agilent U2781A USB Modular Instrument Chassis
- Agilent U2701A/U2702A USB Modular Oscilloscope
- Agilent U2761A USB Modular Function Generator
- Agilent U2722A USB Modular Source Measure Unit
- Agilent U2751A USB Modular Switch Matrix

Agilent Technologies

Electronics Troubleshooting

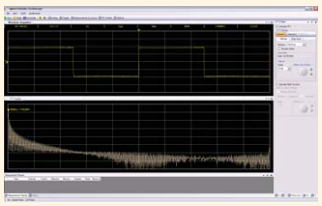
Agilent U2701A (100 MHz) and U2702A (200 MHz) USB Modular Oscilloscopes

For circuit board troubleshooting including:

- Power-up sequence
- In-rush current
- Rise-time, settling-time and fall-time
- Peak, max and min voltage
- Duty cycle, Pulse width
- Basic spectrum analysis
- Other DC measurements
- Phase of stepper motor

Benefits:

- Up to 1 GSa/s high sampling rate enables viewing of signals down to the smallest detail for accurate measurement analysis.
- Up to 32 megapoints large memory captures detailed signals over long periods of time, reducing time spent in finding glitches.
- Fast Fourier Transform (FFT) and waveform math functions enables easy waveform calculation and analysis.



Perform FFT function with scope

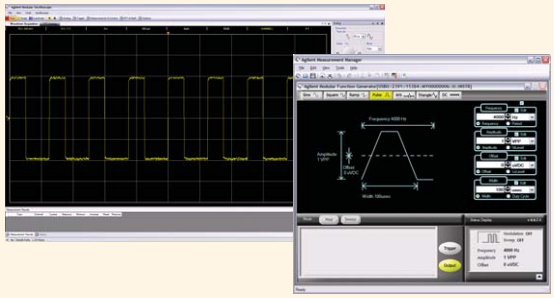
Recommended Accessories:

N2862A	: 10:1 150 MHz passive probe, 1.2 m (for U2701A)
N2863A	: 10:1 300 MHz passive probe, 1.2 m (for U2702A)
U2921A-100	: BNC cable
U2921A-101	: USB secure cable, 2 m
10070C	: 1:1 20 MHz passive probe

passive probe

Agilent U2761A USB Modular Function Generator (20 MHz)

Generates sine, square, triangular, pulse, ramp, exponential, AM, FM, PM, ASK, FSK, PSK signals for electronics testing and troubleshooting

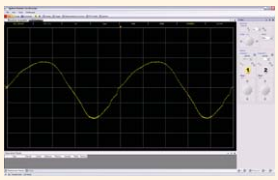


Generate pulse with scope and function generator

Benefits:

- Direct Digital Synthesis (DDS) waveform generator provides stable and precise stimulus source to devices-under-test (DUTs).
- Pulse generation capability generates pulse signals to be used as stimulus for digital signal processing.
- Arbitrary Waveform Editor customizes waveforms, reducing time spent to generate desired waveforms.
- Internal modulation capability simplifies test setup to generate modulated signals for digital communications.

Generate modulated signals internally with scope and function generator



Customize waveform with Arbitrary Waveform Editor

Recommended Accessories:

U2921A-100	: BNC cable
U2921A-101	: USB secure cable, 2 m

Electronics Functional Test

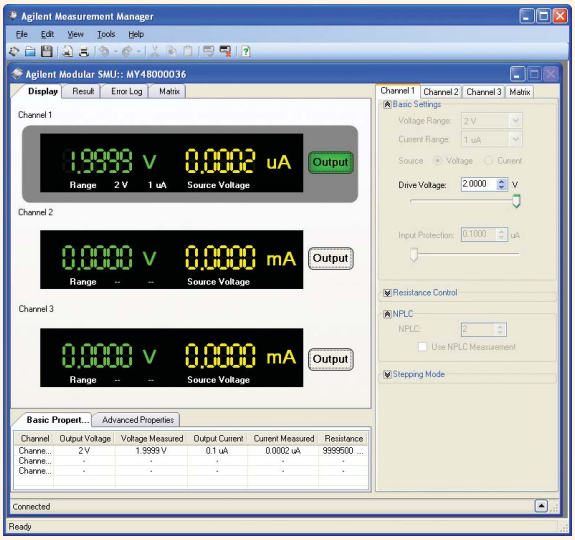
Agilent U2722A USB Modular Source Measure Unit (3-channel)

For parametric tests including:

- Connectivity
- Test point measurement
- Leakage current
- Current and voltage source/measure
- Resistance measurement

Benefits:

- Four-quadrant source measure operation of ±20 V/ ±120 mA per channel enables optimized testing with just one instrument.
- High resolution of 100 pA at 1 µA allows better measurement sensitivity down to picoampere range.
- Accuracy of 0.075%+75 nA at 100 µA range provides highly precise results for low current applications.



High resolution for accurate measurements

Recommended Accessories:

U2921A-101 : USB secure cable, 2 m

Agilent U2751A USB Modular Switch Matrix (32-channel, 4x8 2-wire)

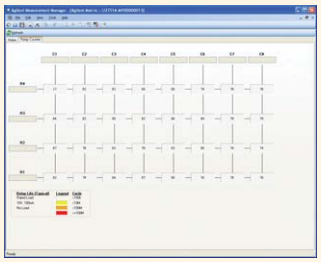
For use with test and measurement instruments to enable additional test points for functional test

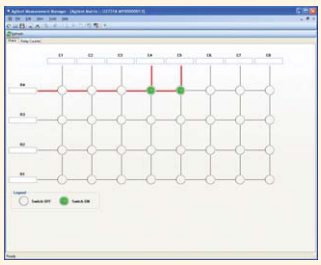
Benefits:

- Minimal crosstalk below –30 dB@45 MHz reduces signal distortion.
- 45 MHz bandwidth allows high-bandwidth measurements with minimum insertion loss of 4.5 dB*.
- Capability to test up to four DUTs enables more tests in less time, saving manufacturing space and costs.

** Tested with U2922A-201 terminal block*

Achieve minimal crosstalk of less than –30 dB@45 MHz.
Measured with 4-port Agilent E5071B Performance Network Analyzer





Test up to four DUTs with switch matrix

Recommended Accessories:

U2922A- 201 : Terminal block
U2921A- 101 : USB secure cable, 2 m

Specifications

U2701A & U2702A USB Modular Oscilloscopes

	U2701A	U2702A
Bandwidth	100 MHz	200 MHz
Channel	2 + external trigger	
Real Time Sample Rate		
2 Channels Interleaved	1 GSa/s	
Each Channel	500 MSa/s	
Standard Memory Depth		
2 Channels Interleaved	32 Mpts	
Each Channel	16 Mpts	
Veritical Resolutions	8 bits	
Vertical Range	2 mV/div to 5 V/div (1 MOhms)	
Dynamic range	± 4 div	
Horizontal range	1 ns/div to 50 s/div	
Noise peak-to-peak	3 mV	
Averaging	1-999	
EXT trigger pulse width	> 2.5 ns	
Trigger Level Sensitivity	For ± 1.25 V range setting: DC to 100 MHz: 100 µV > 100 MHz: 200 µV For ± 2.5 V range setting: DC to 100 MHz: 250 µV > 100 MHz: 500 µV	
FFT points	1250 points (for 500 ns and above)	
FFT noise floor	-50 to -90 dB depending on averaging	
Size (with / without rubber bumper)	117.00 mm X 180.00 mm X 41.00 mm / 105.00 mm X 175.00 mm X 25.00 mm	
Weight (with / without rubber bumper)	534 g / 482 g	

U2761A USB Modular Function Generator

	U2761A				
Channel	1 + external trigger in/out +10 MHz reference				
Arbitrary	14-bit, 50 MSa/s, 64 K arbitrary waveform				
Amplitude Range	Into 50 ohm load		40 mVpp to 5 Vpp		
	Into Open Circuit		80 mVpp to 10 Vpp		
Waveform	Sine	Square	Ramp/Triangle	Pulse	Arbitrary
Frequency range	1 µHz to 20 MHz	1 µHz to 20 MHz	1 µHz to 200 kHz	500 µHz to 5 MHz	1 µHz to 200 kHz
Sine					
Amplitude flatness (relative to 1 kHz)	<100 kHz		0.2 dB		
	100 kHz to 1 MHz		0.35 dB		
	1 MHz to 20 MHz		0.7 dB		
Square					
Rise/fall time	<18 ns, 10 to 90% terminated load (50 Ohm)				
Overshoot	2%				
Ramp, Triangle					
Linearity	<0.2 % of peak output				
Pulse					
Pulse witdh (period ≤ 10 s)	40 ns minimum, 10 ns resolution				
Overshoot	<3%				
Arbitrary					
Memory depth	64 kSa				
Amplitude resolution	14 bits/ sample (include sign)				
Sampling rate	50 MSa/s				
Minimum rise/fall time	35 ns, typical				
External frequency reference					
Input amplitude level	500 mVpp to 5 Vpp				
Size (with / without rubber bumper)	117.00 mm X 180.00 mm X 41.00 mm / 105.00 mm X 175.00 mm X 25.00 mm				
Weight (with / without rubber bumper)	528 g / 476 g				

U2751A USB Modular Switch Matrix

	U2751A			
Channels / configurations	4x8, 2-wire			
Switch type	Armature latching			
Input characteristics (per channel)	**Standalone**		**Modular (Used with U2781A)**	
Max working voltage[1]	42 V DC / 35 Vrms		180 V DC / 180 Vrms	
Max transient voltage	300 Vrms			
Max current				
Switch current	2A			
Carry current	2A			
Power (W,VA)[2]	60 W, 62.5 VA			
Volt-Hertz limit	10^8			
AC characteristics	**Without Terminal Block**		**With Terminal Block**	
Bandwidth[3]	45 MHz		30 MHz	
Insertion Loss				
	100 kHz	**1 MHz**	**10 MHz**	**45 MHz**
With Terminal Block	0.2 dB	0.3 dB	<2 dB	<4.5 dB
Without Terminal Block	0.2 dB	0.3 dB	<2 dB	<3 dB
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	100 M			
10 V, 100 mA	10 M			
Related load	100 K			
Open/close time	4 ms/4 ms			
Size (with / without rubber bumper)	117.00 mm X 180.00 mm X 41.00 mm / 105.00 mm X 175.00 mm X 25.00 mm			
Weight (with / without rubber bumper)	480 g / 428 g			

[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 4-port network analyzer (Sdd21)

U2722A USB Modular Source Measure Unit

	U2722A		
Number of channels	3		
Output ratings (at 0°C to 50°C)			
Voltage	-20 V to +20 V		
Current	-120 mA to 120 mA		
Performance specification	**Range**	**Accuracy**	**Resolution**
Voltage Programming / Readback 12 months (at 25°C ± 3°C), ±(% of output + offset)	Range ± 2 V	0.075% + 1.5 mV	0.1 mV
	Range ± 20 V	0.05% + 10 mV	1 mV
Current Programming / Readback 12 months (at 25°C ± 3°C), ±(% of output + offset)	Range ± 1 uA	0.085% + 0.85 nA	100 pA
	Range ± 10 uA	0.085% + 8.5 nA	1 nA
	Range ± 100 uA	0.075% + 75 nA	10 nA
	Range ± 1 mA	0.075% + 750 nA	100 nA
	Range ± 10 mA	0.075% + 7.5 uA	1 uA
	Range ± 120 mA	0.1% + 100 uA	20 uA
Rise / Fall time			
Current range	For resistive measurement		For short circuit meaurement
± 1 µA	170 ms		38 ms
± 10 µA	18 ms		6 ms
± 100 µA	6 ms		2 ms
± 1 mA	1 ms		1 ms
± 10 mA	1 ms		1 ms
± 120 mA	1 ms		1 ms
Size (with / without rubber bumper)	117.00 mm X 180.00 mm X 66.00 mm / 105.00 mm X 175.00 mm X 50.00 mm		
Weight (with / without rubber bumper)	700 g / 650 g		

Remote Interface: USB 2.0 Hi Speed (USBTMC 488.2 class device)

Safety compliance:

Certified with: IEC61010-1:2001/EN61010-1:2001(2nd edition)

Canada : CAN/CSA-C22.2 No. 61010-1-04

USA : ANSI/UL 61010-1:2004

more information www.agilent.com/find/usbmodular

view online demo www.agilent.com/find/usbmodular_demo

get quick quote www.agilent.com/find/quotation

Product specifications and appearance subject to change without notice

March 25, 2008
5989-8326EN

Agilent Technologies