BROCHURE

RF and Microwave Test Accessories

KEYSIGHT TECHNOLOGIES

Choose High-Quality for Every Connection...

Choose from over 200 accessories that support up to 67 GHz, from small adapters to immense system amplifiers

Keysight Technologies, Inc. test accessories eliminates the weak links in your measurement system

- Accurate and repeatable results
- Reduce cost of test
- Superior RF performance to optimize test equipment performance
- Unmatched quality and reliability to minimize measurement uncertainty

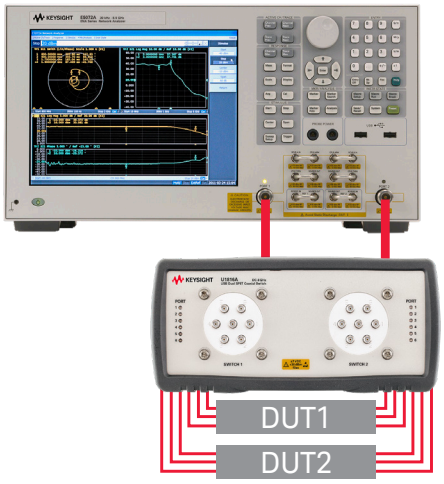
Keysight U1816A/C USB Coaxial Switch Dual SP6T, DC to 18 GHz/26.5 GHz

www.keysight.com/find/USBSwitch

The Keysight U1816C is a switch matrix that consists of two single-pole-six-throw (SP6T) switches. It allows switching of multiple signal paths without physically changing the connections. This allows multiple tests to be performed with the same setup, eliminating the need for frequent connects and disconnects. An entire testing process can be automated, increasing the throughput in high-volume production environments.

Key feature	Ready-to-use switch matrix with USB-Controlled. Soft Front Panel (SFP) is provided for ease of switch controlling	Dual SP6T switches with SMA connector for connection to instrument / DUT ports	0.03dB IL repeatability	5 million cycles operating life (typ. 10 million cycles)
Benefit	Provide fast and easy setup and control	Extends instrument's ports and increase througput	Ensure measurement accuracy and improves signal integrity	Reduces cost of test and ensures reliability of the test system life expectancy

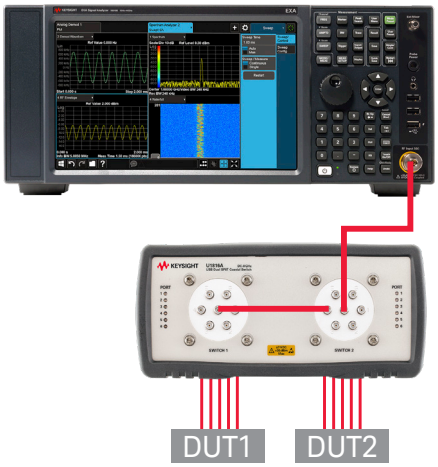
Typical applications



With network analyzer

Measure multiple DUTs with 1 instrument setup for frequency (antenna) or time domain (coaxial cable) application.

Typical Applications (Continued)



With spectrum analyzer

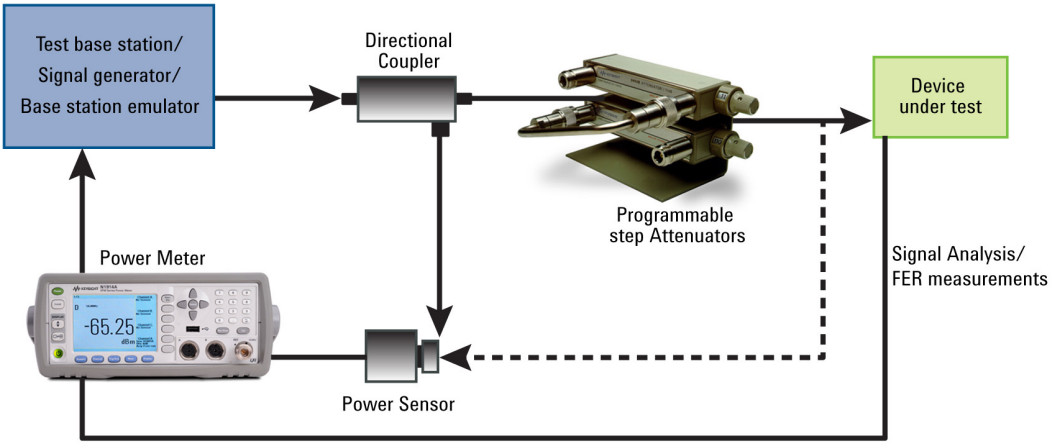
Extend system test port count for wireless module with multiple antenna ports for different radio technologies.

Mobile module supports multiple radio technologies, example:

- 5 GHz/2.4 GHz, 1x1 or 2x2 stream
- BLE
- 3G/4G, Primary and Diversity
- NFC

High Frequency RF and Microwave Accessories for Microwave Link Applications

Microwave link is a commonly used method for point-to-point communications systems providing a broad frequency range for large information transmission with a high degree of flexibility. Keysight offers a series of high frequency accessories that helps you with microwave link applications. An example of a microwave link application is a receiver sensitivity test as shown on the right. The receiver sensitivity test is used to measure a receiver's performance where it must be able to decode data bits with a specified bit error rate at different input power levels. Step attenuators are used to eliminate the power level non-linearity and accuracy issue from the source and also en



High Frequency Microwave Test Accessories

Product family		Model number	Frequency
Switches	SP4T/6T	87104/6D	40 GHz
	Transfer DPDT	87222D	40 GHz
	Transfer DPDT	87222E	50 GHz
	SPDT	8765D	40 GHz
	SP4T/5T/6T	8767/8/9M	50 GHz
	SPDT	85331B	50 GHz
	SP4T	85332B	50 GHz
Attenuators	11 dB, 1 dB steps	84904L	40 GHz
	90 dB, 10 dB steps	84906L	40 GHz
	70 dB, 10 dB steps	84907L	40 GHz
	11 dB, 1 dB steps	84904M	50 GHz
	60 dB, 10 dB steps	84905M	50 GHz
	65 dB, 5 dB steps	84908M	50 GHz
	Fixed 3/6/10/20/30/40 dB	8490D	50 GHz
	Fixed 3/6/10/20/30/40 dB	8490G	67 GHz
Amplifiers	2 GHz to 50 GHz	83050A	50 GHz
	45 MHz to 50 GHz	83051A	50 GHz
Pre-amplifier	2 GHz to 50 GHz	U7227/8F	50 GHz
DC Blocks	50 kHz to 50 GHz	N9398F	50 GHz
	700 kHz to 50 GHz	N9399F	50 GHz
	700 kHz to 67 GHz	N9398G	67 GHz
Directional Couplers	1 to 40 GHz	87301D	40 GHz
	10 to 46 GHz	87301B	46 GHz
	10 to 50 GHz	87301C	50 GHz
	2 to 50 GHz	87301E	50 GHz
Detectors	10 MHz to 50 GHz	8474E	50 GHz
	26.5 GHz to 40 GHz	R422C	40 GHz
Power Dividers	DC to 50 GHz	11636C	50 GHz
Power Splitter	DC to 50 GHz	11667C	50 GHz
Power Limiters	10 MHz to 50 GHz	N9355F	50 GHz
Adapters	1.85 mm	N5520A/B/C	67 GHz
	2.4 mm to 2.4 mm	11900A/B/C	50 GHz
	2.4 mm to 2.92 mm	11904A/B/C/D	40 GHz
	1.0 mm to 2.4 mm	11922A/B/C/D	50 GHz
	1.0 mm to 1.85 mm	11921E/F/G/H	67 GHz
	1.0 mm	11920A/B/C	110 GHz
Terminations	2.4 mm (male)/(female)	85138A/B	50 GHz

Keysight RF and Microwave Amplifiers Key Features

- Broadband performance up to 50 GHz optimizes the operating range of your test systems
- Excellent noise figure and high gain significantly reduce overall test system noise figure
- High output power boosts available power for measurements

Pre-amplifier

System amplifiers

System amplifier

Product Specifications

Model	Frequency range (GHz)	Noise figure (dB) (typical)	Output power at P_{sat} (dBm)	Output power at P_{1dB} (dBm)	Gain (dB) (min)	VSWR	Isolation (dB)	Bias (nom)	RF connectors (input/ output)	Recommended power supply
Pre-amplifiers										
87405B	0.01 to 4 GHz	3.5 at 4 GHz	8 at 4 GHz	8 at 4 GHz	22	1.9	40	+15 V at 105 mA	Type N (m.f)	87422A
U7227A [4]	0.01 to 4 GHz	5.5 at 100 MHz 5 at 4 GHz	Refer data sheet	Refer data sheet	10 to 100 MHz: 16 100 MHz to 4 GHz: > 0.5F + 17	1.81	Refer datasheet	'USB + 5 Vdc at 360 mA	3.5 mm (m)	Do not require power supply. USB powered
87405C	0.1 to 18 GHz	3.5 at 4 GHz 3.8 at 18 GHz	17 at 18 GHz	15 at 4 GHz 14 at 18 GHz	25	1.92	50	+15 V at 140 mA –15 V at 3 mA	Type N (m.f)	87422A
U7227C [4]	0.1 to 26.5 GHz	6 at 4 GHz 5 at 6 GHz 4 at 18 GHz 5 at 26.5 GHz	Refer data sheet	Refer data sheet	100 MHz to 26.5 GHz: 16.1 + 0.26F	2.07	Refer datasheet	'USB + 5 Vdc at 400 mA	3.5 mm (m)	Do not require power supply. USB powered
N4985A -S30 [1]	0.00001 to 30 GHz	5 at 2 to 30 GHz	22 at 26 GHz	N/A	30 at 26 GHz	1.92	N/A	AC power supply included	2.92 mm (f)	Included
U7227F [4]	2 to 50 GHz	510 at 4 GHz 8 at 40 GHz 9 at 44 GHz 10 at 50 GHz	Refer data sheet	Refer data sheet	2 to 50 GHz: 16.5 + 0.23F	2.27	Refer datasheet	'USB + 5 Vdc at 460 mA	2.4 mm (m)	Do not require power supply. USB powered
N4985A -S50 [2]	0.00001 to 50 GHz	5 at 2 to 30 GHz 6 at 20 to 40 GHz	17 at 50 GHz	N/A	27 at 45 GHz	2.32	N/A	AC power supply included	2.4 mm (f)	Included
System amplifiers										
87415A	2 to 8 GHz	13 at 8 GHz	26 at 8 GHz	23 at 8 GHz	25	3	60	+12 V at 900 mA	SMA (f)	87421A
83006A	0.01 to 26.5 GHz	13 at 0.1 GHz 8 at 18 GHz 13 at 26.5 GHz	18 at 10 GHz 16 at 20 GHz 14 at 26.5 GHz	13 at 20 GHz 10 at 26.5 GHz	20	3.2	65	+12 V at 450 mA –12 V at 50 mA	3.5 mm (f)	87421A or 87422A
83017A [3]	0.5 to 26.5 GHz	8 at 20 GHz 13 at 26.5 GHz	20 at 20 GHz 15 at 26.5 GHz	18 at 20 GHz 13 at 26.5 GHz	25	2.6	65	+12 V at 700 mA –12 V at 50 mA	3.5 mm (f)	87421A or 87422A
83018A [3]	2 to 26.5 GHz	10 at 20 GHz 13 at 26.5 GHz	24 at 20 GHz 21 at 26.5 GHz	22 at 20 GHz 17 at 26.5 GHz	27 dB at 20 GHz 23 dB at 26.5 GHz	2.2	55	+12 V at 2 A –12 V at 50 mA	3.5 mm (f)	87421A or 87422A
83020A [3]	2 to 26.5 GHz	10 at 20 GHz 13 at 26.5 GHz	30 at 20 GHz 25 at 26.5 GHz	27 at 20 GHz 23 at 26.5 GHz	30 dB at 20 GHz 27 dB at 26.5 GHz	2.2	55	+15 V at 3.2 A –15 V at 50 mA	3.5 mm (f)	87422A
N4985A -P15	0.01 to 50 GHz	12 at 50 GHz	25 at 26.5 GHz 20 at 50 GHz	23 at 26.5 GHz 17 at 50 GHz	22 at 50 GHz	3.01	50	AC power supply included	2.4 mm (f)	Included
83050A	2 to 50 GHz	6 at 26.5 GHz 10 at 50 GHz	20 at 40 GHz 17 at 50 GHz	15 at 40 GHz 13 at 50 GHz	21	2.1	50	+12 V at 830 mA –12 V at 50 mA	2.4 mm (f)	87421A or 87422A

1. Option OA3 is available for optical application tuning.
2. Option OA5 is available for optical application tuning.
3. 83017A, 83018A and 83020A include internal directional detectors with BNC (f), DC connectors for external leveling applications.
4. U7227/8A/C/F designed to provide positive gain slope for gain compensation when used with X-series Signal Analyzers. It provide automatic gain correction value with temperature compensation and transfer of calibration data (noise figure and S-parameters) through USB plug and play features for improved noise figure measurement.

Product Specifications (Continued)

Model	Frequency range (GHz)	Noise figure (dB) (typical)	Output power at P_{sat} (dBm)	Output power at P_{1dB} (dBm)	Gain (dB) (min)	VSWR	Isolation (dB)	Bias (nom)	RF connectors (input/ output)	Recommended power supply
System amplifiers (Continued)										
N4985A -P25	2 to 50 GHz	12 at 50 GHz	25 at 26.5 GHz 20 at 50 GHz	23 at 26.5 GHz 17 at 50 GHz	22 at 50 GHz	3.01	50	AC power supply included	2.4 mm (f)	Included
83051A	0.045 to 50 GHz	12 at 2 GHz 6 at 26.5 GHz 10 at 50 GHz	12 at 45 GHz 10 at 50 GHz	8 at 45 GHz 6 at 50 GHz	23	2.2	50	+12 V at 425 mA –12 V at 50 mA	2.4 mm (f)	87421A or 87422A

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