



2021 Product Guide

vaunix

Get set up and running fast with Lab Bricks™.

Lab Bricks are the portable, low-cost, easily programmable RF/microwave test instruments you've been looking for. They're available in a variety of performance levels and bandwidths and come ready-to-go. They'll allow you to set up and conduct a number of wireless network and microwave tests fast, and without the high cost and learning curve of more costly benchtop ATE equipment.

Easy-to-use Software

Lab Bricks are driver-less USB HID compatible devices that you can operate from our intuitive Windows GUI, Ethernet web page, or by using our library of Windows™ and Linux™ APIs that support Python™, C#, C++, MATLAB™, Java™, LabVIEW™ and many other programming styles.

Review our variety of off-the-shelf solutions, and then visit our website to download data sheets and place your orders. Most models ship in 1 week or less.

Order now at:

www.vaunix.com



Among our standard Lab Bricks you'll find our unique WiFi-6E compatible 1, 4, 8, 12 and 16 port attenuators with 90 or 120 dB control range.



Ideal Lab Brick Applications

Engineering/Production Test Labs
MIMO and SIMO Testing
WiFi-6 and WiFi-6E Testing
Wireless Mesh Network Testing
Wireless Fading Simulation
Handover Testing
5G Wireless Research and Development
3G and 4G Wireless Simulation
Automated Test Equipment (ATE)
Portable LO Source
Phased Array Antenna Systems
Phase Modulation
Signal Cancellation
Beamforming



Our Lab Brick line is growing. New models offer higher and wider bands and increased control capabilities.

Digital Attenuators

Models from 10 MHz to 20 GHz starting at \$375

LDA series Lab Brick RF and Microwave Programmable Digital Attenuators include 50 Ohm and 75 Ohm bi-directional RF step attenuators with calibrated operation up to 20 GHz. These low cost, portable, hand-held wireless test devices are ideal for engineering and production test laboratories, field testing, and integration into high speed automatic-test-equipment (ATE) systems.

Features

- Powered and controlled through the USB connection
- Ethernet control on select models
- Programmable fixed or swept attenuation ramps
- Comprehensive Windows and Linux support libraries compatible with most software development environments

Visit vaunix.com/digital-attenuators



Signal Generators

Models from 0.5 MHz to 40 GHz starting at \$1,499

LSG, LMS and BLX Series Lab Brick RF and Microwave Programmable Digital Signal Generators offer high output levels and excellent spectral purity through 40 GHz. They can be operated in both continuous-wave (CW) and swept-frequency modes. These low cost, portable, hand-held wireless test devices are ideal for engineering and production test laboratories, field testing, and integration into high speed ATE systems.

Features

- Selectable internal/external 10 MHz reference
- Programmable frequency stepping
- Phase-continuous frequency sweep (LFM)
- High-speed internal and external pulse modulation
- Chirp modulation
- Comprehensive Windows and Linux support libraries for Python, C#, C++, MATLAB, etc.

Visit vaunix.com/digital-rf-signal-generators



RF Switches

SPDT, SP4T and SP8T models starting at \$399

LSW Series Lab Brick RF and Microwave Programmable Switches offer high isolation, solid-state switching for wireless testing in single pole double throw (SPDT), single pole four throw (SP4T), and single pole eight throw (SP8T) configurations. These low-cost, portable units are powered and controlled via a USB port connection to any PC or powered hub.

Features

- 10 Watt power handling capability
- Manual, internal and external switch control capability
- Comprehensive Windows and Linux support libraries compatible with most software development environments

Visit vaunix.com/digital-rf-switches



Phase Shifters

Models from 2 GHz to 12 GHz starting at \$755

Lab Brick LPS Series RF and Microwave Programmable Digital Phase Shifters provide excellent phase accuracy while offering one-degree phase resolution. These low cost, portable, wireless test devices are ideal for engineering and production test laboratories, field testing, and integration into high speed ATE systems.

Features

- 360° phase control in 1° increments
- Phase profile upload capability
- Calibrated performance for optimal accuracy
- Comprehensive Windows and Linux support libraries compatible with most software development environments

Visit vaunix.com/digital-phase-shifters



Digital Attenuators

Model	Frequency (MHz)	Impedance (Ohm)	Ports	Attenuation Range (dB)	Step Size (dB)	Max Input (dBm)	Insertion Loss (dB)	Attenuation Accuracy (Typ.) (dB)	Switching Speed (Typ.)	Control
LDA-102	10 - 1000	50	1	63	0.5	+22	6	1	70 ns	USB
LDA-102E	10 - 1000	50	1	120	0.5	+30	4.5	1.5	4 us	USB
LDA-102-75F	10 - 1000	75	1	95	0.5	+30	5	1	1.5 us	USB
LDA-302P-H	10 - 3000	50	1	31.5	0.5	+33	5	1	2 us	USB
LDA-302P-1	10 - 3000	50	1	63	1	+33	5	1	2 us	USB
LDA-302P-2	10 - 3000	50	1	90	2	+33	5	1	2 us	USB
LDA-602	10 - 6000	50	1	63	0.5	+22	8	1	70 ns	USB
LDA-602E	400 - 6000	50	1	120	0.5	+30	6.5	1.5	4 us	USB
LDA-602EH	200 - 6000	50	1	120	0.1	+28	6.5	0.5	15 us	USB
LDA-602Q	200 - 6000	50	4	120	0.1	+28	6.5	0.5	15 us	USB
LDA-906V	200 - 6000	50	1	90	0.1	+28	5	0.25	15 us	USB
LDA-906V-8	200 - 6000	50	8	90	0.1	+28	5	0.25	15 us	USB
LDA-908V	200 - 8000	50	1	90	0.1	+23	8.5	0.25	15 us	USB/ETH
LDA-908V-4	200 - 8000	50	4	90	0.1	+23	8.5	0.25	15 us	USB/ETH
LDA-908V-8	200 - 8000	50	8	90	0.1	+23	8.5	0.25	15 us	USB/ETH
LDA-802EH	200 - 8000	50	1	120	0.1	+25/30	6.5	0.6	2 us	USB/ETH
LDA-802Q	200 - 8000	50	4	120	0.1	+25/30	6.5	0.6	2 us	USB/ETH
LDA-802-8	200 - 8000	50	8	120	0.1	+25/30	6.5	0.6	2 us	USB/ETH
LDA-802-12	200 - 8000	50	12	120	0.1	+25/30	6.5	0.6	2 us	USB/ETH
LDA-802-16	200 - 8000	50	16	120	0.1	+25/30	6.5	0.6	2 us	USB/ETH
LDA-133	10 - 13000	50	1	63	0.5	+22	8	1.5	50 ns	USB
LDA-5018V	50 - 18000	50	1	50	0.1	+23	10	1	2 us	USB

Our new 200 MHz to 8 GHz Attenuator families offer high resolution and superior accuracy.

The 50-Ohm LDA-908 and LDA-802 series attenuators provide calibrated attenuation across the frequency band of 200 MHz to 8 GHz with an impressive step size of 0.1 dB and typical accuracy of < 0.25 dB over the full 90 or 120 dB control range. Capable of bi-directional fixed attenuation or swept attenuation ramps, the attenuators are ideal for WiFi-6E and 5G fading simulation, and other mesh network, MIMO and SIMO wireless network tests that require continuous, uninterrupted attenuation control.

WiFi-6E Ready!



Signal Generators

Model	Frequency (MHz)	Phase Noise 10/100 kHz offset (dBc/Hz)	Frequency Resolution	Frequency Switching (ms)	Output Power Range (dBm)	Spurious (Typ.) (dBc)	Harmonics (Typ.) (dBc)	Freq. Sweep
LSG-121	20 - 120	-105/-125	100 kHz	10	+10 to -45	-80	-15	Stepped
LSG-121-20	20 - 120	-105/-125	100 kHz	10	+20 to -35	-80	-15	Stepped
LSG-251	50 - 250	-105/-125	100 kHz	10	+10 to -45	-80	-15	Stepped
LSG-251-20	50 - 250	-105/-125	100 kHz	10	+20 to -35	-80	-15	Stepped
LSG-451	70 - 450	-105/-125	100 kHz	10	+10 to -45	-80	-15	Stepped
LSG-451-20	70 - 450	-105/-125	100 kHz	10	+20 to -35	-80	-15	Stepped
LSG-152	250 - 1500	-95/-115	100 kHz	10	+10 to -45	-80	-15	Stepped
LSG-152-20	250 - 1500	-95/-115	100 kHz	10	+20 to -35	-80	-15	Stepped
LSG-222	500 - 2200	-90/-110	100 kHz	10	+10 to -45	-80	-15	Stepped
LSG-222-20	500 - 2200	-90/-110	100 kHz	10	+20 to -35	-80	-15	Stepped
LSG-402	1000 - 4000	-85/-105	100 kHz	10	+10 to -45	-80	-15	Stepped
LSG-602	1500 - 6000	-75/-95	100 kHz	10	+10 to -45	-80	-15	Stepped
LMS-271D	0.5 - 270	-98/-105	100 Hz	0.1	+10 to -40	-80	-20	Linear
LMS-451D	70 - 450	-97/-103	100 Hz	0.1	+10 to -45	-80	-20	Linear
LMS-451D-13	70 - 450	-97/-103	100 Hz	0.1	+13 to -42	-80	-20	Linear
LMS-451D-20	70 - 450	-97/-103	100 Hz	0.1	+20 to -35	-80	-20	Linear
LMS-152D	250 - 1500	-95/-101	100 Hz	0.1	+10 to -45	-80	-20	Linear
LMS-152D-13	250 - 1500	-95/-101	100 Hz	0.1	+13 to -42	-80	-20	Linear
LMS-152D-20	250 - 1500	-95/-101	100 Hz	0.1	+20 to -35	-80	-20	Linear
LMS-232D	500 - 2300	-98/-105	100 Hz	0.1	+10 to -40	-80	-20	Linear
LMS-322D	600 - 3200	-90/-97	100 Hz	0.1	+10 to -45	-80	-20	Linear
LMS-402D	1000 - 4000	-98/-105	100 Hz	0.1	+10 to -40	-80	-20	Linear
LMS-402D-13	1000 - 4000	-95/-105	100 Hz	0.1	+13 to -42	-80	-20	Linear
LMS-602D	1500 - 6000	-85/-94	100 Hz	0.1	+10 to -40	-80	-20	Linear
LMS-802	4000 - 8000	-81/-89	100 Hz	0.1	+10 to -40	-80	-20	Linear
LMS-802DX	2000 - 8000	-85/-93	100 Hz	0.1	+10 to -70	-80	-40	Linear
LMS-103	5000 - 10000	-81/-89	100 Hz	0.1	+10 to -40	-80	-20	Linear
LMS-123	8000 - 12000	-77/-86	100 Hz	0.1	+10 to -40	-80	-20	Linear
LMS-163	8000 - 16000	-75/-83	100 Hz	0.1	+10 to -30	-80	-20	Linear
LMS-183DX	6000 - 18000	-75/-83	100 Hz	0.1	+10 to -70	-80	-40	Linear
LMS-183CX	6000 - 18000	-82/-82	100 Hz	0.02	+10 to -70	-55	-35	Linear/Chirp
LMS-203	10000 - 20000	-75/-83	100 Hz	0.1	+10 to -30	-80	-20	Linear
BLX-403*	500 - 40000	-80/-90	100 Hz	5	+10 to -35	-70	-35	Stepped

**Pre-release models. Contact factory for current availability.
 Customized higher power options of all models are available.
 Optional frequency sweep trigger and pulse modulation available on all LMS and BLX models.*

RF Switches

Model	Description	Impedance (Ohm)	Insertion Loss (Typ.) (dB)	Isolation (Typ.) (dB)	Max Input Power (dBm)	Switching Speed (Max.) (nS)	Control Internal	Control External
LSW-102PDT-75F	SPDT, terminated	75	3.5	65	+40	300	USB	TTL
LSW-102P4T-75F	SP4T, terminated	75	3.5	60	+40	300	USB	TTL
LSW-602PDT	SPDT, terminated	50	3.5	65	+40	300	USB	TTL
LSW-602P4T	SP4T, terminated	50	3.5	60	+40	300	USB	TTL
LSW-802PDT	SPDT, terminated	50	3.0	80	+27	50	USB/ETH	-
LSW-802P4T	SP4T, terminated	50	3.5	80	+27	50	USB/ETH	-
LSW-802P8T	SP8T, terminated	50	4.5	80	+27	50	USB/ETH	-

Phase Shifters

Model	Frequency (GHz)	Phase Adjustment Range	Phase Adjustment Resolution	Phase Adjustment Accuracy (Typ.)	Programmable Phase Profiles	Response Time (μ s)	Insertion Loss (Typ.) (dB)
LPS-202	1 - 2	360°	1°	$\pm 2.5^\circ$	User Defined	10	5
LPS-402	2 - 4	360°	1°	$\pm 2.5^\circ$	User Defined	10	5
LPS-802	4 - 8	360°	1°	$\pm 2.5^\circ$	User Defined	10	6
LPS-123	8 - 12	360°	1°	$\pm 2.5^\circ$	User Defined	10	6

Power Dividers

Model	Frequency (MHz)	Ports	RF Connector	Package
LPD-752-2	700 - 7250	1:2	SMA	Single
LPD-752-4	700 - 7250	1:4	SMA	Single
LPD-752-4-2	700 - 7250	2x 1:4	SMA	Dual
LPD-752-8	700 - 7250	1:8	SMA	Single
LPD-752-16	700 - 7250	1:16	SMA	Single
LPD-752-16-2Q	700 - 7250	2x 1:16	SMA	Dual-1 RU

USB Hubs

Model	Number of Ports	Compatibility	Vbus Regulation	Load Current Monitor	Current Measurement Accuracy	Over Current Protection	Operational Temperature	Power
LPH-204B	4	USB 2.0 and 1.1	4.85 to 5.15 VDC (up to 1 amp per port)	Yes	± 10 mA max.	Yes (1 amp)	-30°C to +55°C	12V - 24W AC/DC wall adapter

Handover Test Systems: Matrix Attenuators

Model	Configuration	Inputs	Outputs	Attenuation Paths	Size
VMA-64x4-8110	64x4	64	4	64	3 RU
VMA-64x8-8110	64x8	64	8	64	3 RU
VMA-Q8X8	8x8	8	8	64	3 RU
VMA-Q24X8SE	24x8	24	8	192	6 RU
VMA-Q64X8SE	64x8	64	8	512	15 RU
VMA-Q64X16SE	64x16	64	16	512	15 RU

Handover Test Systems: Mesh Network Attenuators

Model	Ports	Attenuation Paths	Size
VMN-7250-4	4	6	1 RU
VMN-7250-9	9	36	2 RU

Custom ATE Equipment and Wireless Testing Systems

- Portable Lab Bricks tuned in specific bands (wide or narrow) up to 40 GHz
- Enhanced signal generators configured to linearly sweep through a range of frequencies while offering low noise, fast switching, fine frequency resolution, phase-continuous frequency sweep (LFM), and high-speed internal or external pulse modulation
- Enhanced attenuators with ultra-fine step sizes and integrated into multi-channel racks as an attenuator matrix or complete wireless handover test system
- Multi-channel frequency synthesizers with multiple ports
- RF/microwave active signal splitter/digital attenuator modules for space and cost savings
- Various input/output and programmable interface connector options

