LDA-802-12 Lab Brick® High Resolution Digital Attenuator

200 – 8000 MHz Frequency | 120 dB Attenuation Range | 0.1 Step Size

Features/Benefits

- Reliable and Repeatable solid state digital attenuation

- Includes Windows GUI and SDK, macOS GUI and SDK, Linux SDK, LabVIEW driver, Python examples and more

- Single shot or repeating programmable attenuation ramps

- Fading profiles programmable from GUI or SDK

- USB and Ethernet Control

- Configurable Static IP or DHCP

- Password protected Ethernet Interface

- Sized to fit into a single rack unit for ATE applications

Applications

- WiFi, WiFi6E, 3G, 4G, 5G, LTE, DVB, Microwave Radio Fading Simulators

- Engineering/Production Test Labs

- Automated Test Equipment (ATE)

The Lab Brick LDA series of Digital Attenuators bring affordability, functionality, reliability and simplicity to the microwave test bench. The LDA products range from 6 MHz to 40 GHz with input level tolerance to 2 Watts and step size as small as 0.1 dB.

The LDA-802-12 offers both USB and Ethernet interfaces. The USB port uses a native HID interface to avoid the difficulties inherent in using older serial or IEEE-488 interfaces implemented over USB. As a result, Lab Brick users can get to work faster without having to install kernel level drivers, and Lab Brick devices can be easily used on any system that supports USB HID devices, including low cost embedded computers using Linux or similar operating systems. The Ethernet interface is configurable for Static IP or DHCP with the ability to assign the HTTP port for extra security.

The LDA-802-12 Digital Attenuator is a rack mounted 12-channel high dynamic range, bidirectional, 50 Ohm step attenuator. The LDA-802-12 provides 120 dB of attenuation control range from 200 to 8000 MHz with a step size of 0.1 dB. The attenuators are easily programmable for fixed attenuation, swept attenuation ramps and fading profiles directly from the included Graphical User Interface (GUI).). Alternatively, Vaunix supplies LabVIEW drivers, Windows API DLL files, macOS DYLIB files, Linux drivers, Python examples, and more for users wishing to develop their own interface.
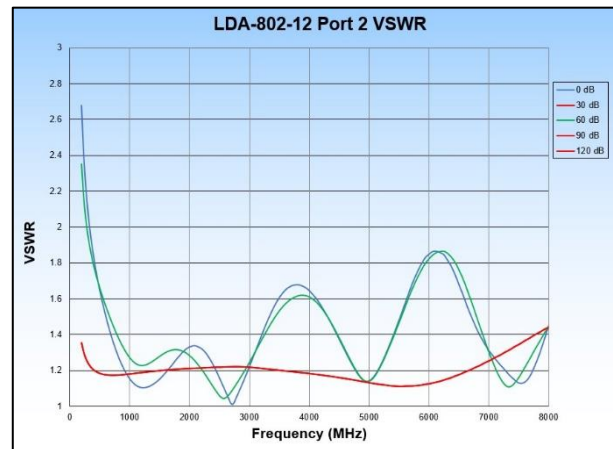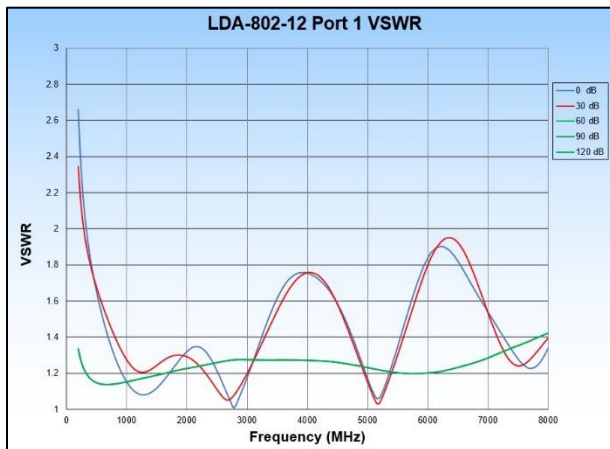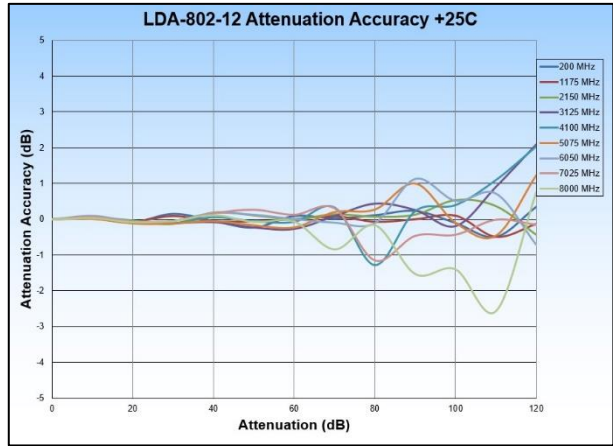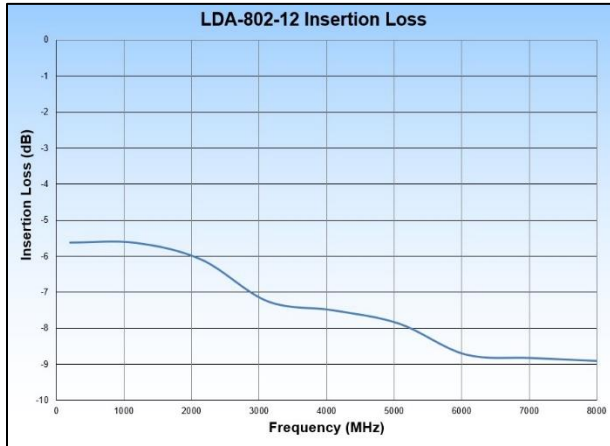
LDA-802-12 Specifications

Parameter	Test Conditions	Min	Typ	Max
Frequency Range (MHz)		200		8000
Impedance (Ω)			50	
Channels			12	
Attenuation Range (dB)		110	120	
Step Size (dB)		0.1		
Insertion Loss (dB)	< 2 GHz		5.5	7
	< 4 GHz		7	9
	< 8 GHz		9	11
Attenuation Accuracy (dB)	<30 dB		0.2	1
	<60 dB		0.4	1.5
	<90 dB		0.6	2.5
	<110 dB		1	3
	<120 dB		2	7
Switching Speed (µs)			2	
Maximum Input Level (dBm)	Average/Peak		25/30	
Input IP3 (dBm)		38	45	
VSWR			1.5:1	

| Parameter	Test Conditions/Notes	
Power Requirements	From the USB connection	+5 VDC 200 mA
Environmental	Operating Temperature	-30 °C to +70 °C
	Relative Humidity (non-condensing)	<95%
Physical Connections	Power and Control	USB Type C – female
	Control	USB Type C or Ethernet
	RF Connectors	SMA – female
Operating Modes	Manual Attenuation Control Swept Attenuation – uni/bi directional – one time/repeat User Defined Profile up to 1000 Attenuation States	
Mechanical	Size (1RU)	17 x 13 x 1.73 inches 431.8 x 330.2 x 43.9 millimeters
	Weight	5.5 lbs 2.5 kg

LDA-802-12 Performance Plots

LDA-802-12 Insertion Loss

LDA-802-12 Attenuation Accuracy +25C

LDA-802-12 Port 1 VSWR

LDA-802-12 Port 2 VSWR

LDA-802-12 Mechanical Outline
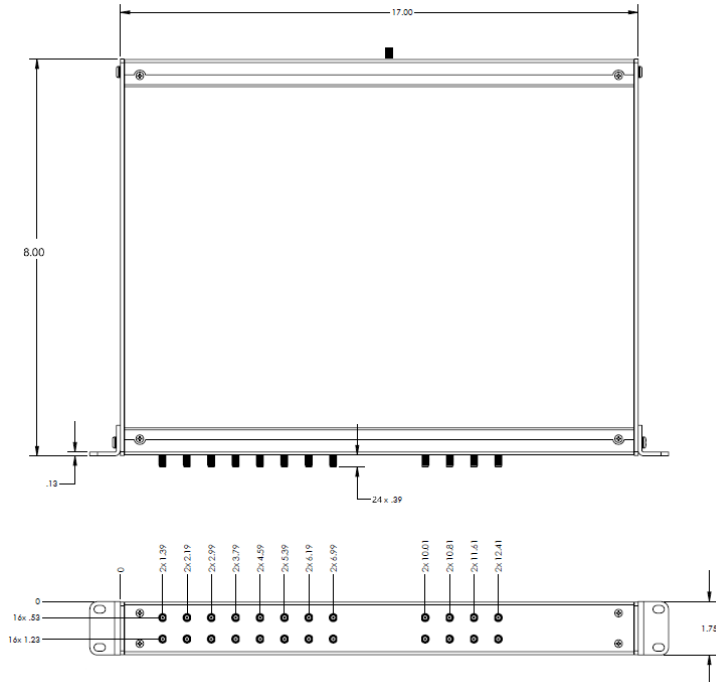
LDA-802-12 Software Interface

Windows GUI
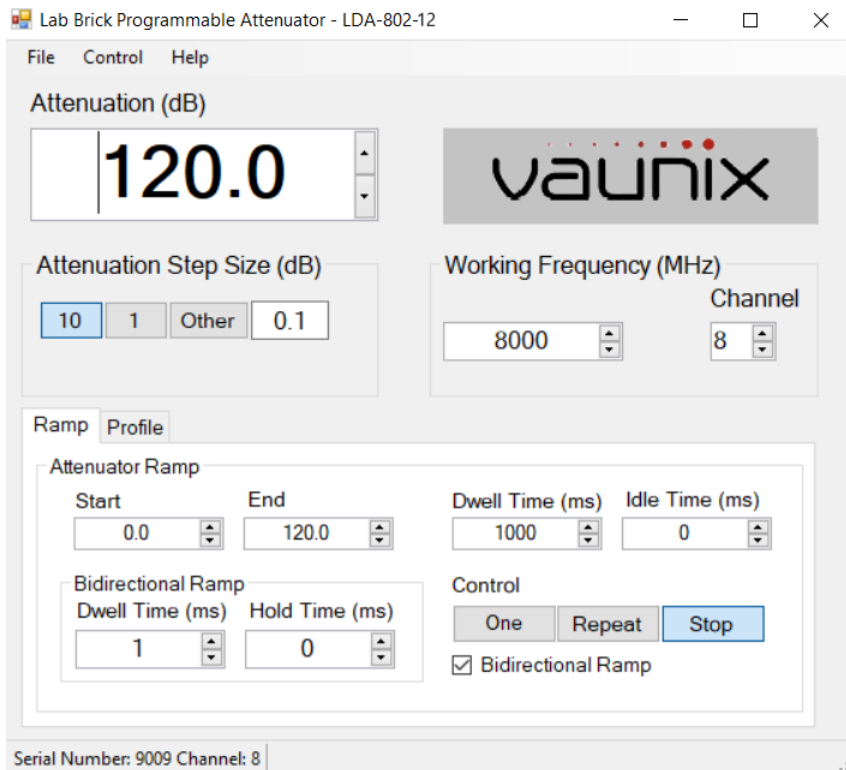
Ethernet GUI

vaunix   STATUS   SETUP   LOGOUT   LDA-802-12

RF Settings
Advance Settings
Network Settings
Account Settings

Save Config

Global Configuration

Frequency	200 ▲ MHz (Valid range: 200-8000)	Set All
Attenuation	0.0 ▲ dB (Valid range: 0.0-120.0)	Set All

Read Config   **Apply Changes**   ☐ Auto-Refresh

Attenuation Settings

Chnl#	Action	Atten. (dB)	Step Size(dB)	Ramp Start(dB)	Ramp End(dB)	Dwell Time(ms)	Idle Time(ms)	Ramp Mode	Bi-Dwell Time(ms)	Bi-Hold Time(ms)	Bi-Ramp
1	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
2	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
3	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
4	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
5	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
6	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
7	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
8	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
9	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
10	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
11	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐
12	Set	0.0	1.0	0.0	120.0	1000	0	Stop ▾	1	0	☐