

# LDA-608V-4 Lab Brick® High Resolution Digital Attenuator

200 – 8000 MHz Frequency | 60 dB Attenuation Range | 4 Channels | 0.1 Step Size

## Features/Benefits

- USB and Ethernet Control Interfaces
- Reliable and Repeatable solid state digital attenuation
- Includes Windows GUI and SDK, macOS GUI and SDK, Linux SDK, LabVIEW driver, Python examples and more
- Configurable Static IP or DHCP
- Password protected Ethernet interface
- Programmable attenuation ramp and fading profiles
- Operate multiple devices directly from a PC or self powered hub
- Easily portable USB powered device

## Applications

- Wi-Fi, Wi-Fi 6E, 3G, 4G, 5G, LTE, 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-608V-4 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-608V-4 Digital Attenuator is a highly accurate, bidirectional, 50 Ohm step attenuator with 4 independently controlled attenuator paths. The LDA-608V-4 provides calibrated attenuation from 200 to 8000 MHz with an amazing step size of 0.1 dB and typical accuracy <0.25 dB over 60 dB of control range. The attenuators are easily programmable for fixed attenuation, swept attenuation ramps and fading profiles directly from the included Windows or macOS Graphical User Interface (GUI). Alternatively, for users wishing to develop their own interface, Vaunix supplies LabVIEW drivers, Windows API DLL files, macOS DYLIB files, Linux drivers, Python examples, and more.

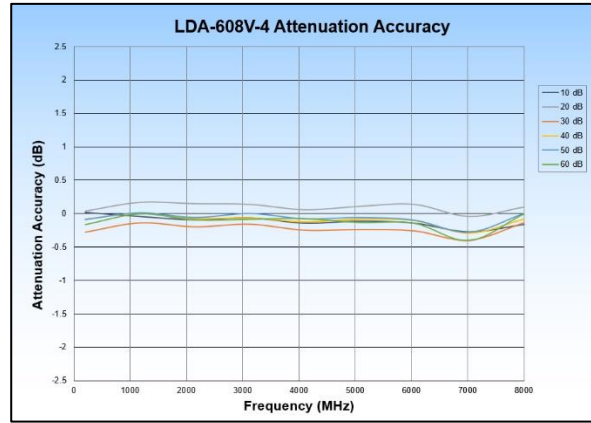
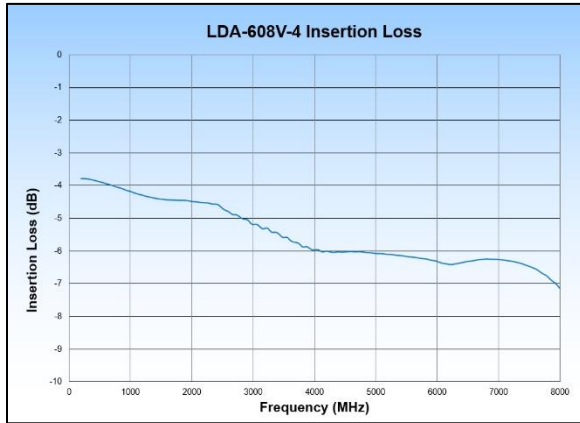
## LDA-608V-4 Specifications

Parameter	Test Conditions	Min	Typ	Max
Frequency Range (MHz)		200		8000
Impedance ( $\Omega$ )			50	
Channels			4	
Attenuation Range (dB)		60		
Step Size (dB)		0.1		
Insertion Loss (dB)	< 2 GHz		4.75	5.25
	< 4 GHz		6	6.75
	< 8 GHz		7.25	8
Attenuation Accuracy (dB)	+25 °C		0.25	1.5
	-30 °C to +70 °C		1	3
Switching Speed ( $\mu$ s)			15	
Maximum Input Level (dBm)			23	
Input IP3 (dBm)		38	45	
VSWR			1.5:1	

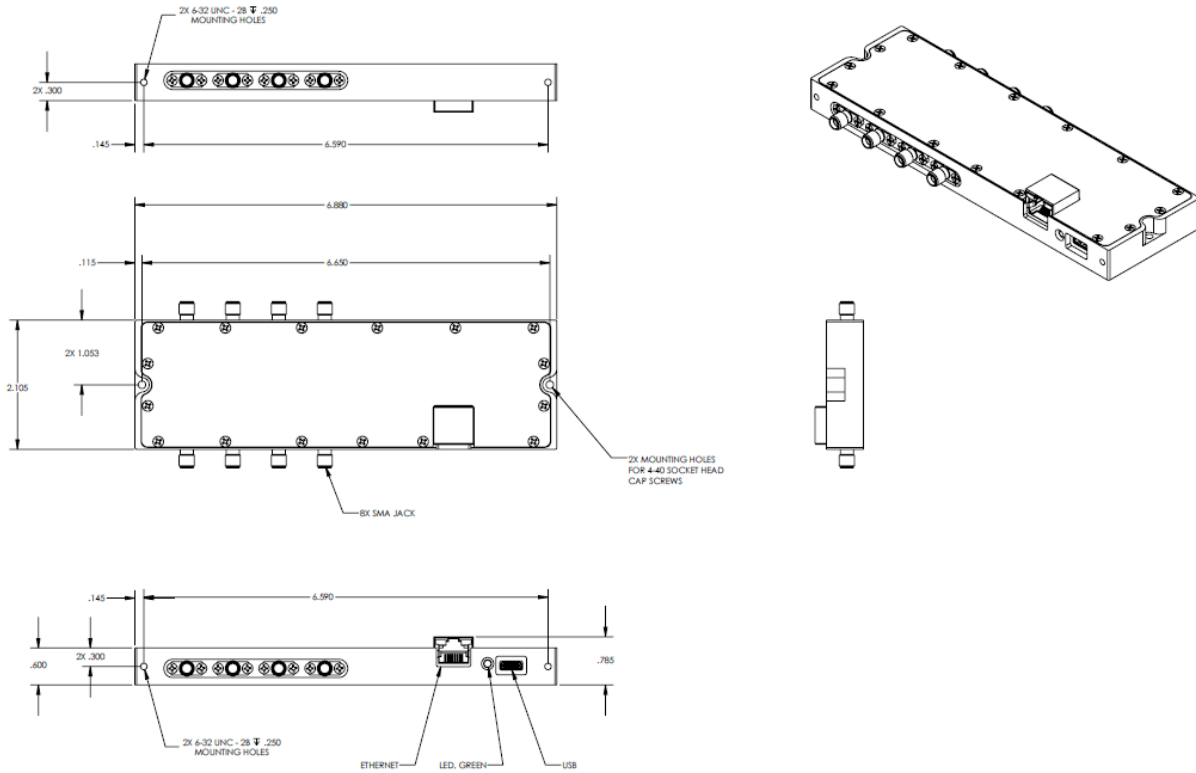
Parameter	Test Conditions/Notes	
Power Requirements	From the USB connection	+5 VDC 75 mA
Environmental	Operating Temperature	-30 °C to +70 °C
	Relative Humidity (non-condensing)	<95%
Physical Connections	Power	USB Type C – female
	Control	USB/Ethernet
	RF Connectors	SMA – female
	Expansion Bus <sup>1</sup>	10 pin
Operating Modes	Manual Attenuation Control Swept Attenuation – uni/bi directional – one time/repeat Profile	
Mechanical	Size	6.88 x 2.105 x 0.785 inches 174.8 x 53.5 x 19.9 millimeters
	Weight	0.4 pounds 0.182 kilograms

<sup>1</sup>The expansion bus allows the user to link multiple LDA-608V-4 attenuators, providing a single point of power and control to a set of devices. Please contact Vaunix for expansion buss instructions, cable pricing, and availability.

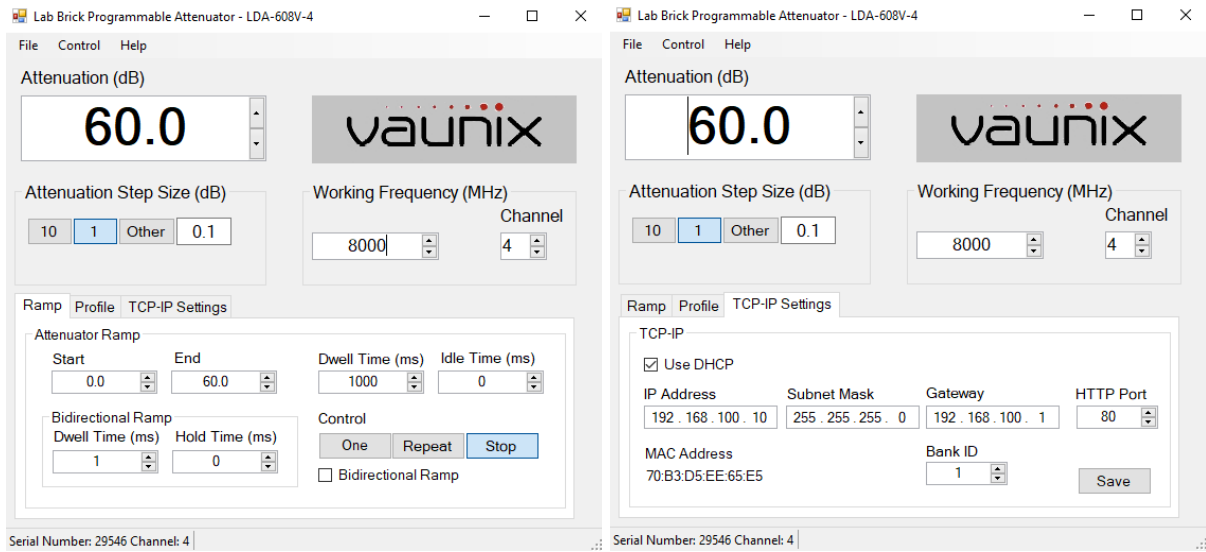
## LDA-608V-4 Performance Plots




## LDA-608V-4 Mechanical Outline



# LDA-608V-4 USB Software Interface



# LDA-608V-4 Ethernet Web Interface



STATUS
SETUP
LOGOUT

LDA-608V-4


RF Status	
Channel #:	1
Frequency(MHz):	200 [Min-Max(MHz):200-8000]
Attenuation(dB):	60.0 [Min-Max(dB):0.0-60.0]
RF State:	On
Active Bank#:	0

Ramp Configuration	
Control State:	Stop
Ramp Mode:	Up
Direction:	Unidirectional
Start:	0.0
End:	60.0
Dwell Time(ms):	1000
Idle Time(ms):	0
Bidirectional Dwell Time:	1
Hold Time:	0

Profile Configuration	
Control State:	Stop
Profile Length:	1
Dwell Time(ms):	100
Idle Time(ms):	0

Network Details	
Mode:	DHCP
Ip Address:	192.168.1.173
Subnet:	255.255.255.0
Gateway:	192.168.1.1
MAC:	70-b3-d5-ee-65-e5

System Information	
Model Number:	LDA-608V-4
Serial Number:	29546
Version:	1.0.0
Bank ID#:	1



STATUS
SETUP
LOGOUT

LDA-608V-4

- RF Settings
- Advance Settings
- Network Settings
- Account Settings

Save Config

### Global Configuration

Frequency	8000 MHz (Valid range: 200-8000)	Set All
Attenuation	60.0 dB (Valid range: 0.0-60.0)	Set All
Ramp Control	<input type="button" value="Once"/> <input type="button" value="Repeat"/> <input type="button" value="Pause"/> <input type="button" value="Stop"/>	<input checked="" type="radio"/> All <input type="radio"/> Selected

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	Select
1	Set	60.0	1.0	0.0	80.0	1000	0	Stop	1	0	<input type="checkbox"/>	<input type="checkbox"/>
2	Set	0.0	1.0	0.0	80.0	1000	0	Stop	1	0	<input type="checkbox"/>	<input type="checkbox"/>
3	Set	0.0	1.0	0.0	80.0	1000	0	Stop	1	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Set	60.0	1.0	0.0	80.0	1000	0	Stop	1	0	<input type="checkbox"/>	<input type="checkbox"/>