

# LPA-103V Lab Brick® Programmable Gain Amplifier

.4 – 10 GHz Frequency | 30 dB Gain Control Range | 0.1 Step Size

## Features/Benefits

- USB/Ethernet Control
- Calibrated vs Frequency for precise gain control
- Powered from POE, USB-PD or external DC supply
- Fixed Gain, Swept Gain or Programmable Gain sequence
- Includes Windows GUI and SDK, Linux SDK, LabVIEW driver, Python examples and more
- Configurable Static IP or DHCP
- Password protected Ethernet interface
- Operate multiple devices directly from a PC or self powered hub



## Applications

- Engineering/Production Test Labs
- Automated Test Equipment (ATE)

The Lab Brick LPA series of programmable gain amplifiers continue the Vaunix tradition of bringing affordability, functionality, reliability and simplicity to the microwave test bench.

The LPA-103V is programmable from either the USB or 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 Ethernet interface also enables the use of Power-over-Ethernet (POE) to simplify cabling.

The LPA-103V Programmable gain amplifier provides calibrated gain control from .5 to 10 GHz with an amazing step size of 0.1 dB and typical accuracy <0.25 dB up to 30 dB of control range. The amplifiers are easily programmable for fixed gain, swept gain ramps and gain sequence programming directly from the included Windows Graphical User Interface (GUI) or WebUI. Alternatively, for users wishing to develop their own interface, Vaunix supplies Windows API DLL files, Linux drivers, LabVIEW drivers, Python examples and much more.

## LPA-103V Specifications

Parameter	Test Conditions	Min	Typ	Max
Frequency Range (GHz)		0.5		10
Impedance ( $\Omega$ )			50	
Gain (dB)	< 1GHz	32.5	34.5	
	<6 GHz	30	32	
	<8 GHz	28	30	
	<10 GHz	26	27.5	
Gain Control Step Size (dB)		0.1		
Gain Control Range (dB)		30	33	
Gain Accuracy (dB)	+25 °C		0.25	1.5
	-30 °C to +70 °C		1	3
Gain Flatness (dB)	over any 100 MHz band		0.25	
Switching Speed ( $\mu$ s)			15	
Maximum Input Level (dBm)	@ maximum gain setting		15	
P1dB (dBm)			31	
Psat (dBm)			33	
Input IP3 (dBm)			43.5	
VSWR			1.5:1	

Parameter	Test Conditions/Notes	
Environmental	Operating Temperature	-30 °C to +55 °C
	Relative Humidity (non-condensing)	<95%
Physical Connections	Power	RJ-45, USB-C, or 2.5mm x 2.1mm
	Control	USB-C/Ethernet
	RF Connectors	SMA – female
	Expansion Bus <sup>1</sup>	10 pin
Power Requirements <sup>2</sup>	Power over Ethernet (PoE) or USB-PD or 2.5mm x 2.1mm	+48VDC nominal - 12 Watts +20VDC nominal - 12 Watts +15VDC nominal - 12 Watts
Operating Modes	Fixed Gain Swept Gain – uni/bi directional – one time/repeat Gain Sequence	
Mechanical <sup>3</sup>	Size	4.0 x 3.0 x 1.0 inches 101.6 x 76.2 x 25.4 millimeters
	Weight	0.3 pounds 136 grams

<sup>1</sup> The expansion bus allows the user to link multiple LPA-103V amplifiers, providing a single point of control to a set of devices. Please contact Vaunix for expansion bus instructions, cable pricing, and availability.

<sup>2</sup> DC power is delivered to the amplifier by either USB-PD, PoE or a +15VDC input. In a situation where multiple power sources are available, the amplifier will auto select with preference to PoE followed by USB-PD and +15VDC.

<sup>3</sup> The size and weight do not include the optional heat sink.

## **LPA-103V Performance Plots**

---

**TBD**

## **LPA-103V Mechanical Outline**

---

**TBD**

## **LPA-103V USB Software Interface**

---

**TBD**

## **LPA-103V Ethernet Web Interface**

---

**TBD**