LDA-802Q 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 GUI, Windows and Linux SDK, LabVIEW driver

- 4 Independently controlled channels

- Single shot or repeating programmable attenuation ramps

- Fading profiles programmable from GUI or SDK

- Easily portable USB powered device

- USB or Ethernet Control

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

Applications

- Wi-Fi 6E, Wi-Fi, 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-Q 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.
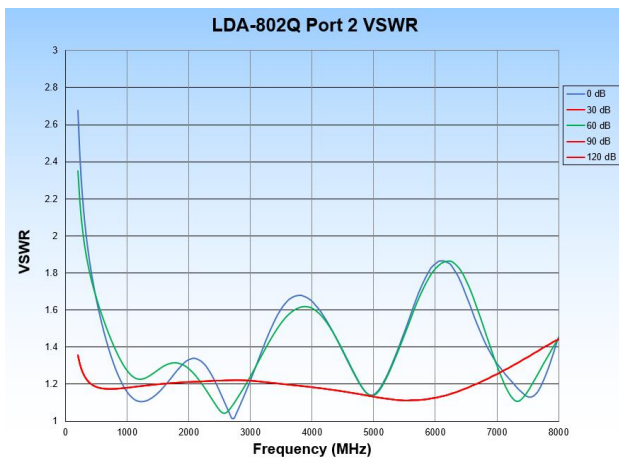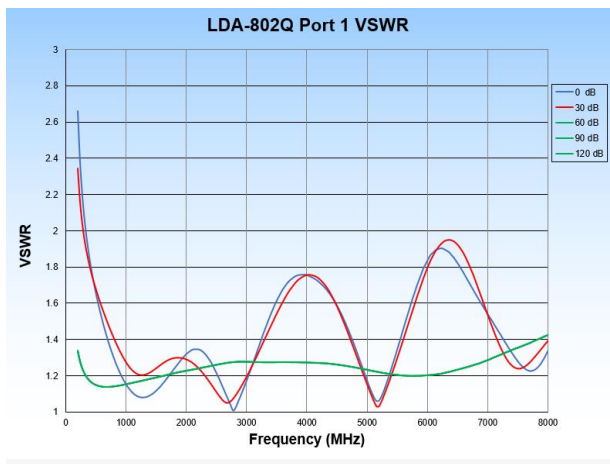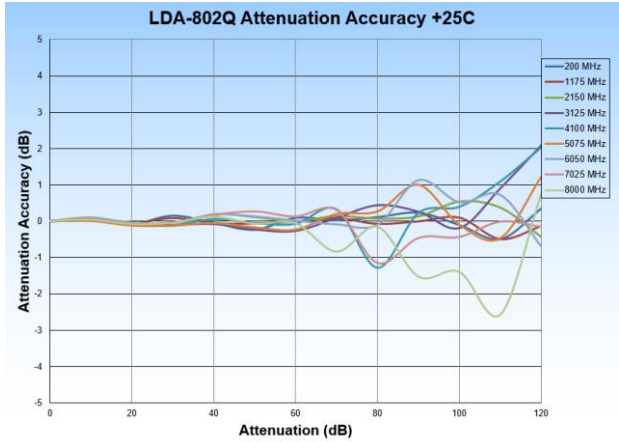
The LDA-802Q Digital Attenuator is a high dynamic range, 4-channel, bidirectional, 50 Ohm step attenuator. The LDA-802Q provides 120 dB of attenuation control range from 200 to 8000 MHz with a step size of 0.1 dB. The attenuators are easily programmable for fixed attenuation, swept attenuation ramps and fading profiles directly from the included Graphical User Interface (GUI). Alternatively, for users wishing to develop their own interface, Vaunix supplies LabVIEW drivers, Windows API DLL files, Linux drivers, Python examples and much more.
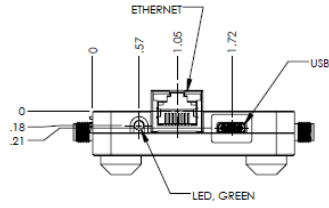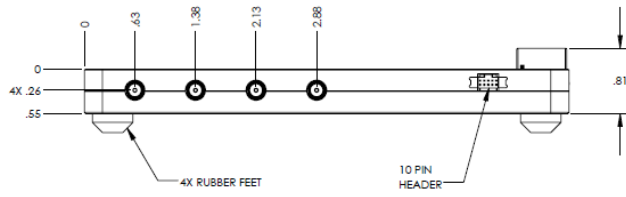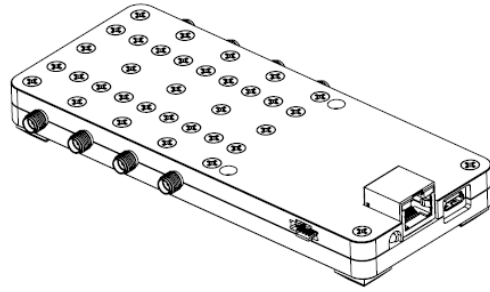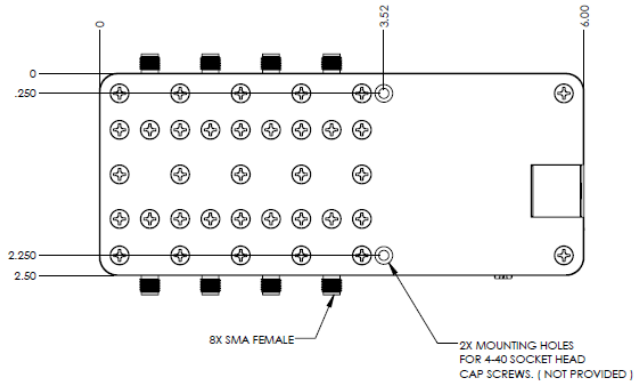
LDA-802Q Specifications

Parameter	Test Conditions	Min	Typ	Max
Frequency Range (MHz)		200		8000
Impedance (Ω)			50	
Channels			4	
Attenuation Range (dB)		120		
Step Size (dB)		0.1		
Insertion Loss (dB)	< 2 GHz		5.5	6.5
	< 4 GHz		6.5	8
	< 8 GHz		8.5	10
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	4.5
Switching Speed (µs)			2	
Maximum Input Level (dBm)	Avg/Peak		25/30	
Input IP3 (dBm)		38	45	
VSWR			1.5:1	

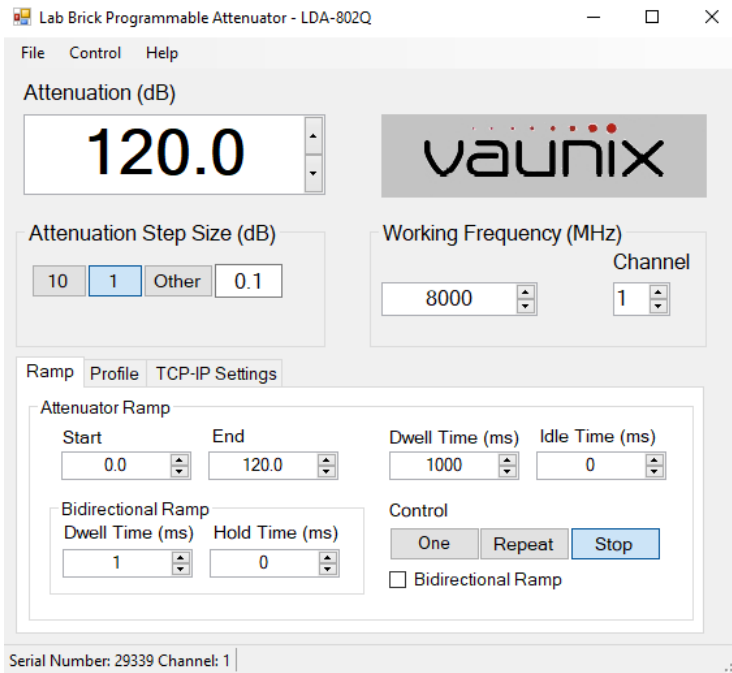| Parameter	Test Conditions/Notes	
Power Requirements	From the USB connection	+5 VDC 80 mA
Environmental	Operating Temperature	-30 °C to +70 °C
	Relative Humidity (non-condensing)	<95%
Physical Connections	Power	USB Type C
	Control	USB/Ethernet
	RF Connectors	SMA – female
Operating Modes	Manual Attenuation Control Swept Attenuation – uni/bi directional – one time/repeat Profile - 1000 configurable attenuation states	
Mechanical	Size	6.0 x 2.5 x 0.55 inches 152.4 x 63.5 x 14 millimeters
	Weight	0.5 pounds 227 grams

LDA-802Q Performance Plots

LDA-802Q Insertion Loss

LDA-802Q Attenuation Accuracy +25C

LDA-802Q Port 1 VSWR

LDA-802Q Port 2 VSWR

LDA-802Q Mechanical Outline

8X SMA FEMALE

2X MOUNTING HOLES
FOR 4-40 SOCKET HEAD
CAP SCREWS. (NOT PROVIDED)

4X RUBBER FEET

10 PIN
HEADER

ETHERNET

USB

LED, GREEN

LDA-802Q Software Interface

Windows GUI

Web UI