LDA-203B Lab Brick® High Resolution Digital Attenuator

1 – 20 GHz Frequency | 63 dB Attenuation Range | 0.5 Step Size | USB/Ethernet Control

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
- USB and Ethernet Interfaces
- 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

- WiFi, WiFi6E, 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 an input level tolerance of 2 Watts and step size as small as 0.1 dB.

The LDA-203B 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-203B Digital Attenuator is a bidirectional, 50 Ohm step attenuator. The LDA-203B provides 63 dB of attenuation control over the frequency range of 1 to 20 GHz with a step size of 0.5 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.

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LDA-203B Specifications

Parameter	*Test Conditions*	*Min*	*Typ*	*Max*
Frequency Range (GHz)		1		20
Impedance (Ω)			50	
Attenuation Range (dB)		63		
Step Size (dB)		0.5		
Insertion Loss (dB)	< 6 GHz		3.5	5
	< 10 GHz		4.5	6.5
	< 20 GHz		8	10
Attenuation Accuracy (dB)	+25 °C		1	
	-30 °C to +70 °C		3	
Switching Speed (ns)			350	
Maximum Input Level (dBm)			20	
Input IP3 (dBm)			50	
VSWR			2.0:1	

Parameter	*Test Conditions/Notes*	
Power Requirements	From the USB connection	+5 VDC 100 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
Operating Modes	Manual Attenuation Control Swept Attenuation – uni/bi directional – one time/repeat Profile	
Mechanical	Size	4.27 x 1.97 x 0.86 inches 108.5 x 50 x 21.8 millimeters
	Weight	0.4 pounds 0.182 kilograms

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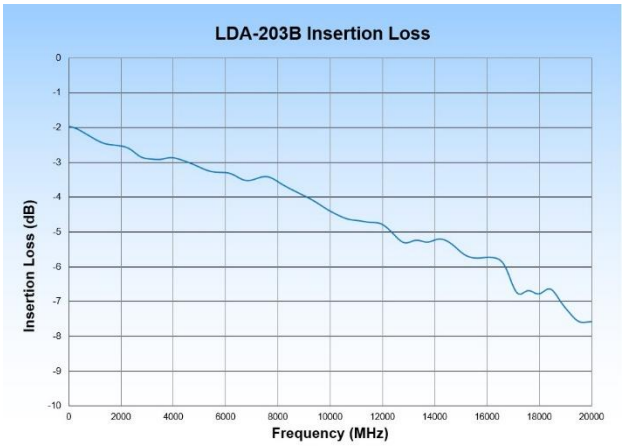
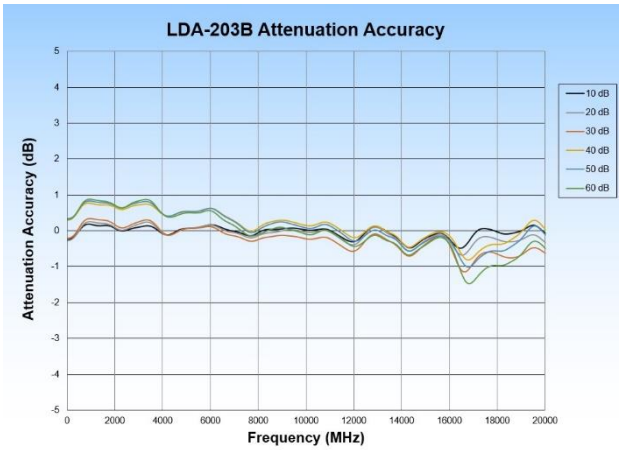
LDA-203B Performance Plots





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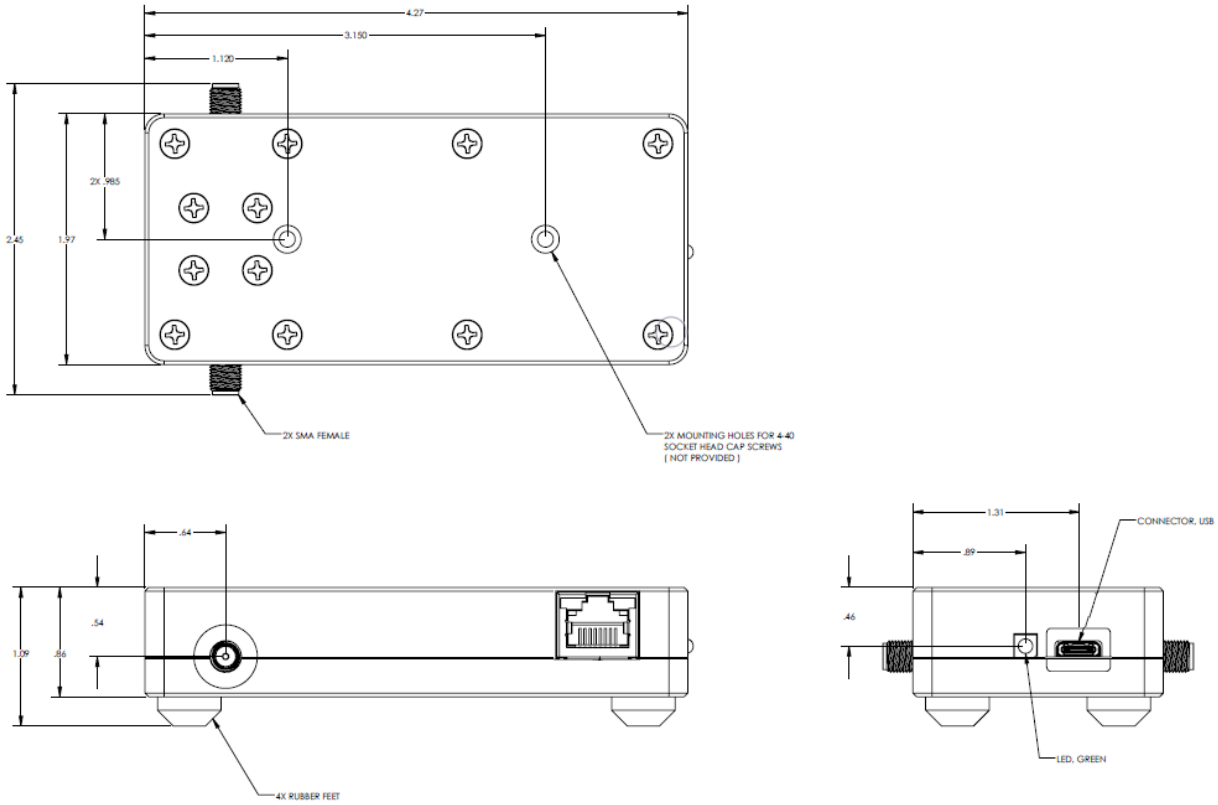
LDA-203B Mechanical Outline



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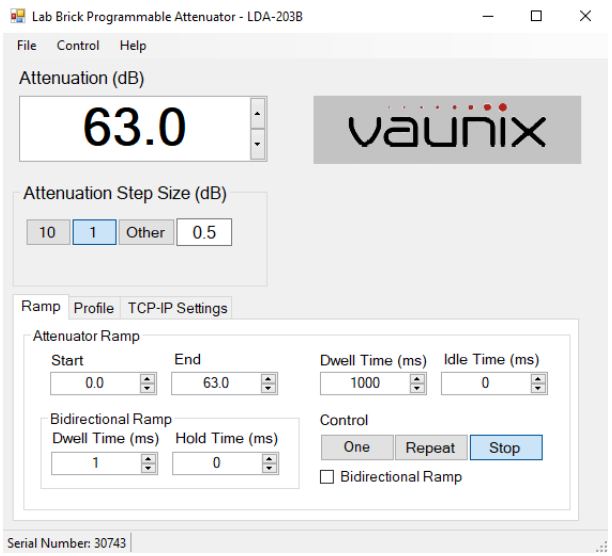
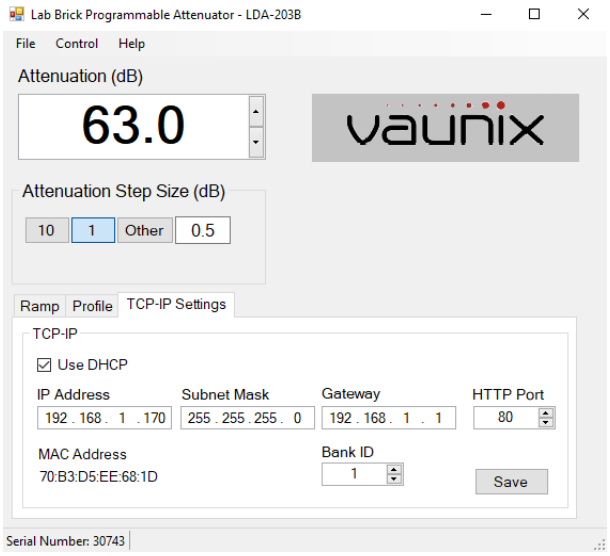
LDA-203B USB Software Interface





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LDA-203B Ethernet Web Interface

RF Status

Channel #:	1	
Frequency(MHz):	1000	[Min-Max(MHz):1000-20000]
Attenuation(dB):	63.0	[Min-Max(dB):0.0-63.0]
RF State:	On	
Active Bank#:	0	

Ramp Configuration

Control State:	Stop
Ramp Mode:	Up
Direction:	Unidirectional
Start:	0.0
End:	63.0
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

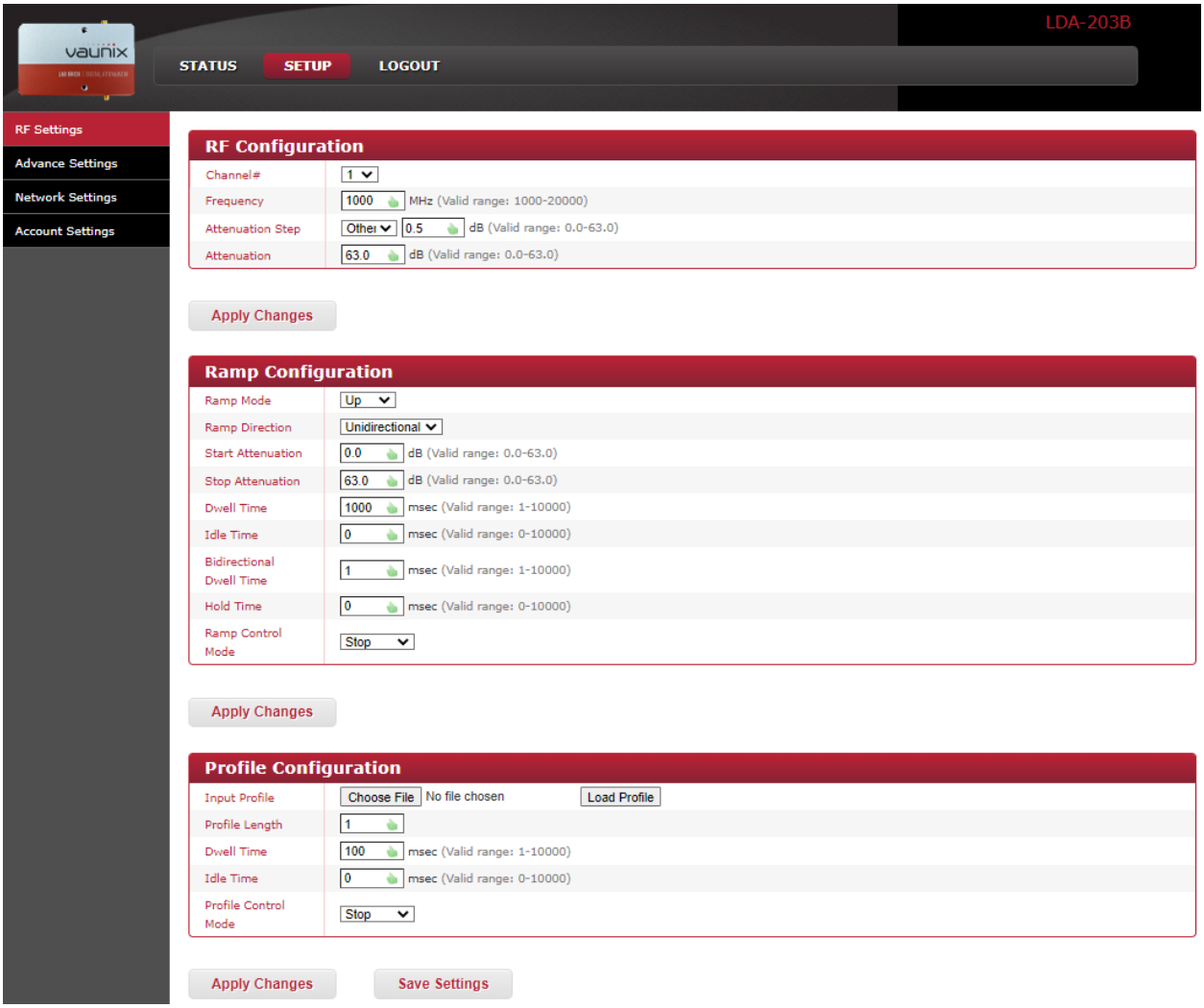
Network Details

Mode:	DHCP
Ip Address:	192.168.1.170
Subnet:	255.255.255.0
Gateway:	192.168.1.1
MAC:	70-b3-d5-ee-68-1d

System Information

Model Number:	LDA-203B
Serial Number:	30743
Version:	1.1.00
Bank ID#:	1

LDA-203B Ethernet Web Interface (cont)



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