

USB / Ethernet Absorptive Digital Control Attenuator 8GHz-18GHz



Note: Photo is for illustration purposes only.
Please refer to outline drawing.

Features

- Wide Band Operation 8-18GHz
- USB Controlled and Powered
- 0.5dB LSB Steps to 127.5dB

Product Description

RFDAT0812G8AUSB is a USB / Ethernet Absorptive digital control attenuator with a frequency range of 8 to 18GHz.

The maximum power input of this attenuation is 25dBm. The insertion loss is 11dB with a typical attenuation range of 127.5dB.

The working temperature of this product is between - 40°C and + 85°C.

Typical Applications

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

Electrical Specifications, TA = +25°C

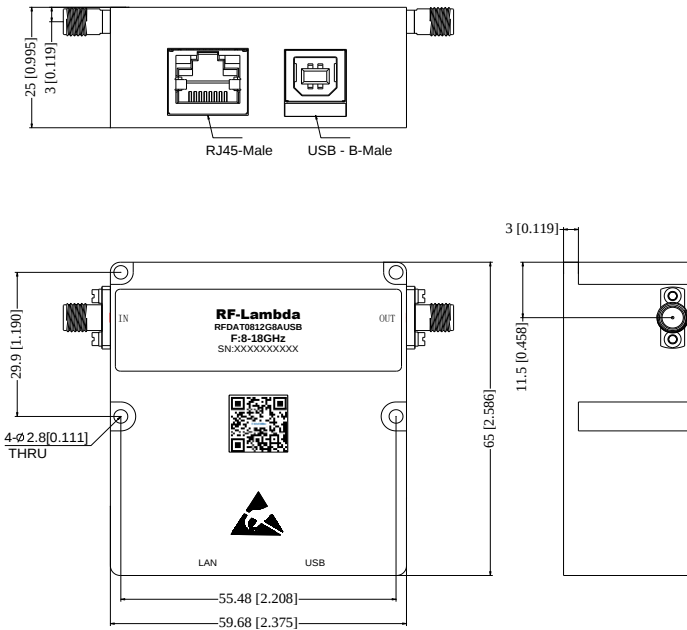
Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		8~12			12~18		GHz
Attenuation Range		127.5			127.5		dB
Attenuation Flatness: (Referenced to Insertion Loss)		±3.0			±5.0		dB
Control Bits			8				Bit
Control Step size		0.5			0.5		dB
Insertion Loss		11			15		dB
Insertion Loss Temperature Coefficient		0.01			0.01		dB/ °C
Input VSWR (All Atten. States)		1.7			1.7		:1
Output VSWR (All Atten. States)		1.7			1.7		:1
Input 0.1 dB Compression Point (P0.1dB)		23			23		dBm
RF Input Power		25			25		dBm
Input IP3		43			43		dBm
Power Supply			USB(+5.0V)				
Bias Current			300 Max.				mA
Weight			/ Max.				lbs.
Impedance			50				Ohms
Input / Output Connectors			SMA-Female (Input) – SMA-Female (Output)				
Control Interface			USB2.0 & Ethernet(IPv4) (Control Cable Included)				
Package			Epoxy Sealed (Standard)				
			Hermetically Sealed (Optional)				

Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40°C to +85°C (Case Temperature)
Storage Temperature	-50°C to +105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
*Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours
Shock	1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction).
Altitude	Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)	MIL-STD-883 (For Hermetically Sealed Units)

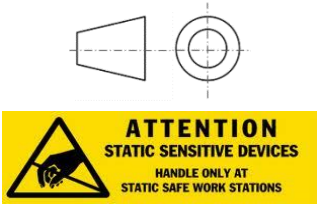
*For vibration testing details please see additional information section.

Outline Drawing



Notes:

- 1. Package Material: Aluminum
- 2. Finish: Nickel Plated
- 3. All dimensions are in millimeters [inches].
- 4. Housing Tolerances ± 0.2 [0.008] unless otherwise specified.
- 5. Standard torque wrench must be used to secure RF connectors.



Packing List

ID	Description	QTY
1	Fig a. USB/Ethernet Control RF Attenuator	1
2	Fig b. USB2.0 Cable (5 feet / 1.5 meter)	1
3	Fig c. Network Cable (6 feet / 2 meter)	1



Fig b.



Fig c.

Control Content Description

Format Requirement	USB (virtual serial port) Configuration	LAN Interface	Range of Parameters
a.All commands must end with a semicolon. b.All commands are case insensitive. c.Comma is used to separate multiple parameters in commands. d.All commands are suitable for USB(virtual serial port) and LAN interface.	Baud Rate :115200 Data bits : 8 Parity : None Stop bits : 1 Flow Type :None	IP address and Port. Default:192.168.1.225:5100; use 'USB Control panel.exe ' to update.	x(Step): 1~2^n ,n is control bits.

Command Specification

ID	Order	Description	Return	Example
1	*IDN?;	Query product information	Product PN ,SN, Manufacturer ,version	*IDN?;
2	Reset;	Reset the product	/	Reset;
3	AT:ATT x;	Set attenuation step	Attenuation value	AT:ATT 2; Return : 2*step size
4	AT:ATT?;	Query current attenuation value	Attenuation step, attenuation value	AT:ATT? Return :2, 2*step size
5	AT:ATTS?	Query attenuation step size	Attenuation step size	AT:ATTS? Return : step size

Error Code Query

ID	Return	Description
1	E1	Missing semicolon
2	E2	Incorrect command
3	E3	Missing space character
4	E4	Out of range parameters

USB Control Panel

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Select Device

Digital Control Switch ☐

Digital Control Attenuator ☒

Digital Control Phase Shifter ☐

Control Interface

USB ☒ 1

ETHERNET ☐

Please select a COM port COM60 2

Connect Device 3

The device number is: 20040700161

Device IP: 192.168.1.235:5100

Note

1. Please refer to the product manual for power supply.

2. Please refer to the product manual to configure the port.

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USB Control Panel

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Control Bits 6 Attenuation Step(dB) 1

Select the Attenuation Value(dB) 63

OFF

Device Name: Digital Control Attenuator

Part Number: RFDAT0102G6AUSB

Serial Number: 20032600365

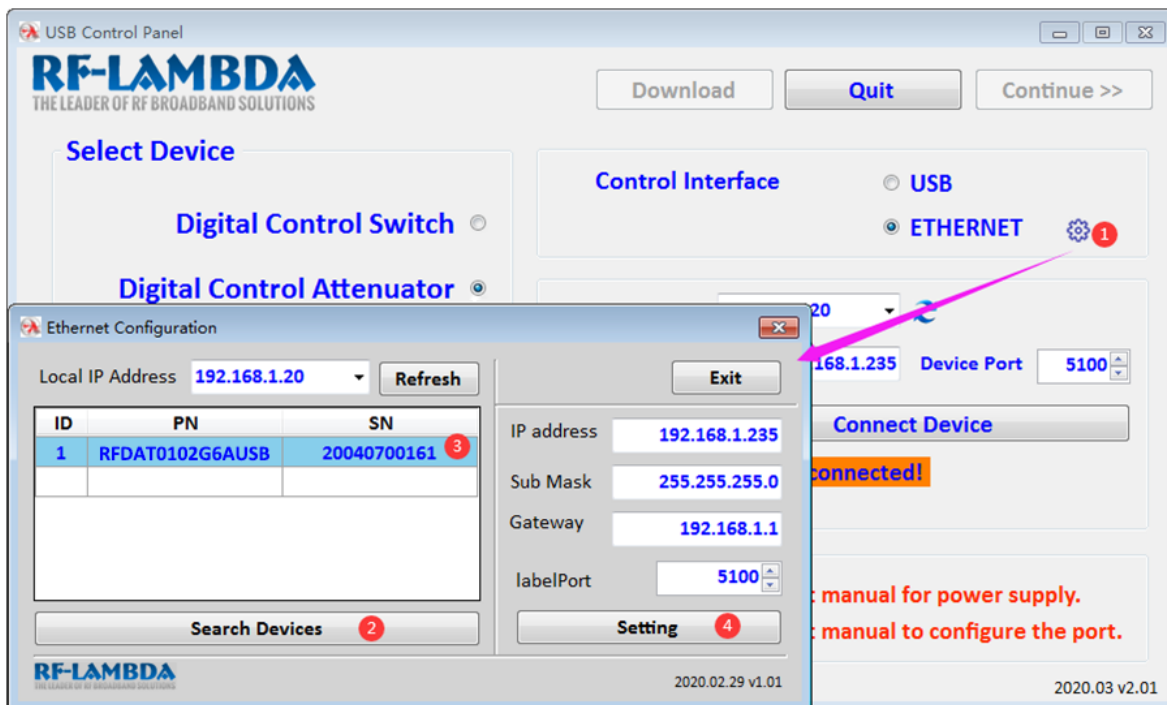
Control Model: USB

Control Port: COM6

Send String AT:ATT 63;

Recevie String 63.000

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Additional Information

Documentation	Webpage
ESD Policy	https://rflambda.com/pdf/rflambda_esd_control.pdf
Connector Torque Specifications	https://www.rflambda.com/pdf/Torque_Specifications.pdf
Random Vibration Test Standard	https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Ordering Information

Part Number	Modification	Description
RFDAT0812G8AUSB	Connectors SMA-Female	8GHz-18GHz Digital Control Attenuator

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