

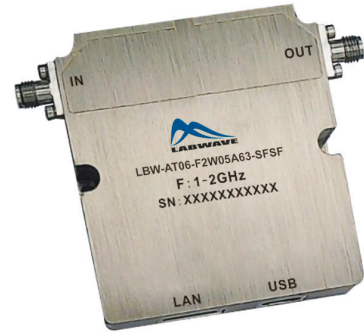


P/N:LBW-AT06-F2W05A63-SFSF

USB/Ethernet поглощающий аттенюатор
с цифровым управлением 1 - 2 ГГц

Характеристики:

- Широкий рабочий диапазон 1 - 2 ГГц
- Управление и питание через USB/Ethernet
- Ослабление до 63 дБ с шагом 1 дБ



Parameters	Min.	Typ.	Max.	Units
Frequency Range		1-2		GHz
Attenuation Range		63		dB
Insertion Loss		2.0	2.5	dB
Insertion Loss Temperature Coefficient		0.01		dB/ °C
Attenuation Flatness: (Referenced to Insertion Loss)		±2		dB
Control Bits		6		Bit
Control Step Size		1		dB
Input VSWR (All Atten. States)		1.4	1.5	: 1
Output VSWR (All Atten. States)		1.4	1.5	: 1
Input 0.1 dB Compression Point (P0.1dB)		25		dBm
RF Input Power			27	dBm
Input IP3		45		dBm
Bias Current		300Typ.		mA
Power Supply		USB(+5.0V)		
Control Interface		USB2.0 & Ethernet(IPv4) (Control Cable Included)		
Weight		9.6 Max.		Ounces
Impedance		50		Ohms
Input / Output Connectors		SMA-Female (Input) – SMA-Female (Output)		
Material		Aluminum		
Finish		Nickel		
Package		Epoxy Sealed (Standard)		
		Hermetically Sealed (Optional)		

USB/Ethernet поглощающий аттенуатор с цифровым управлением 1 - 2 ГГц

Ordering Information

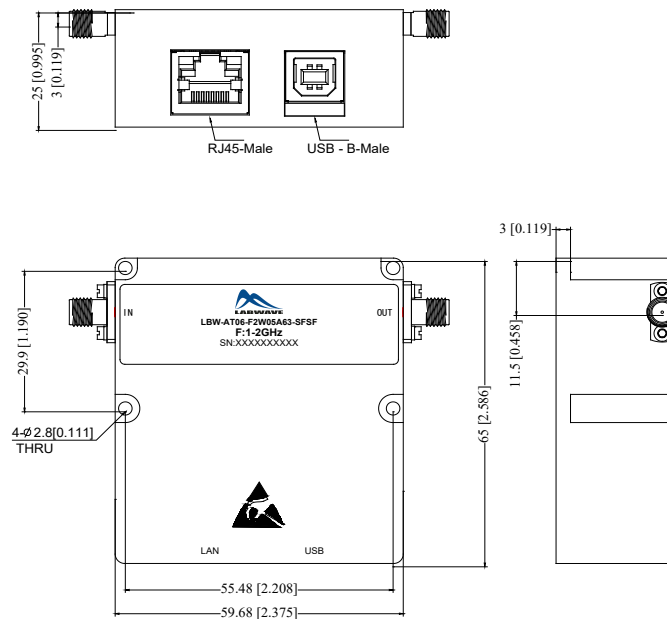
Part No.	Description
LBW-AT06-F2W05A63-SFSF	1-2GHz USB / Ethernet Digital Control Attenuator

Environmental Specifications

Operational Temperature	-40°C~+85°C
Storage Temperature	-50°C~+105°C
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Shock	20G for 11msec half sine wave, 3 axis both directions

Outline Drawing:

All Dimensions in mm (inches)
Housing Tolerances ± 0.2 (0.008)



ID	Packing List	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



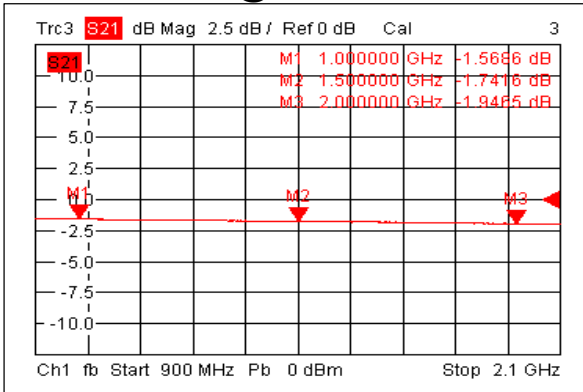
Fig b.



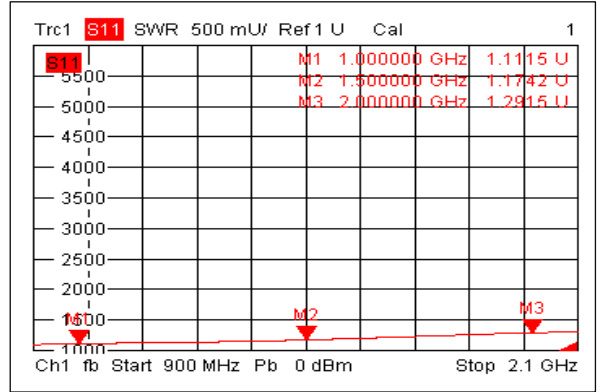
Fig c.

USB/Ethernet поглощающий аттенюатор с цифровым управлением 1 - 2 ГГц

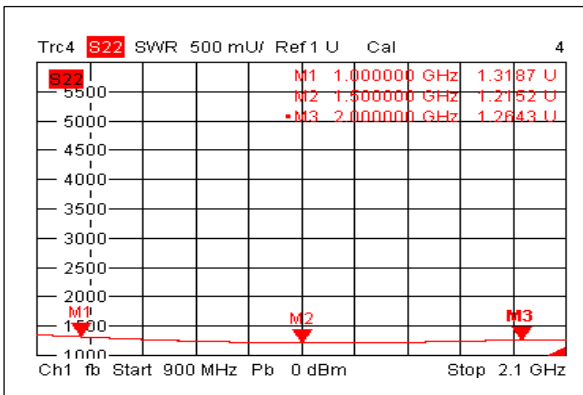
Insertion Loss @+25°C



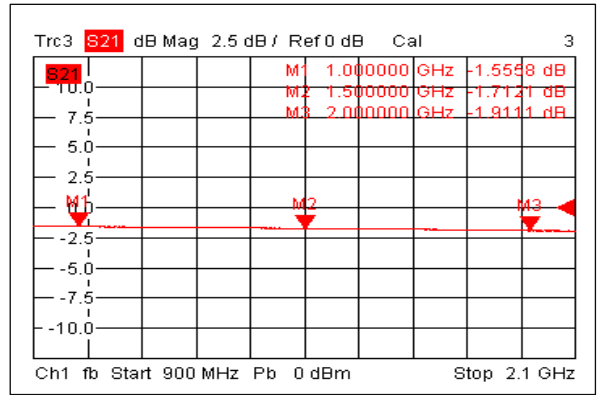
Input VSWR @+25°C



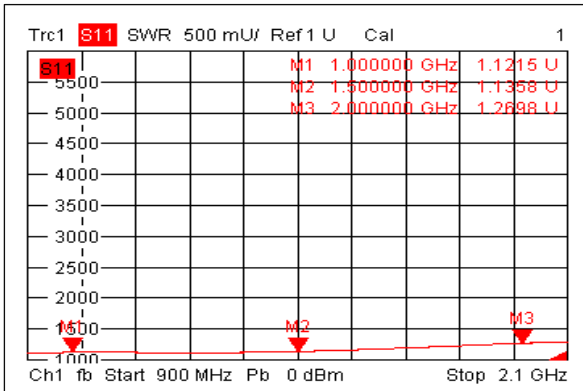
Output VSWR @+25°C



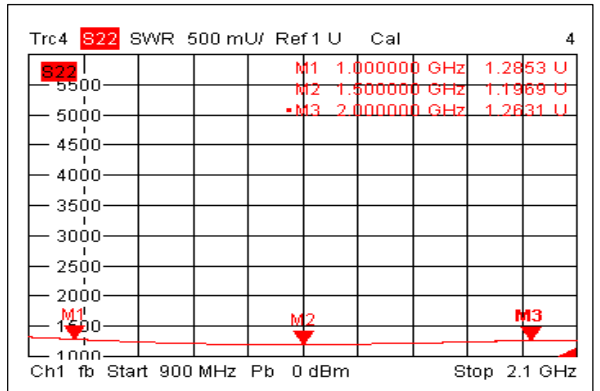
Insertion Loss @-40°C



Input VSWR @-40°C

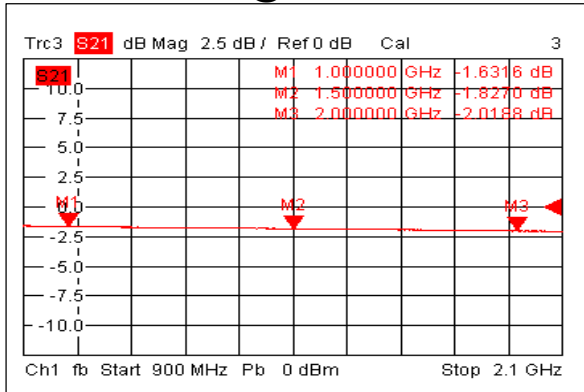


Output VSWR @-40°C

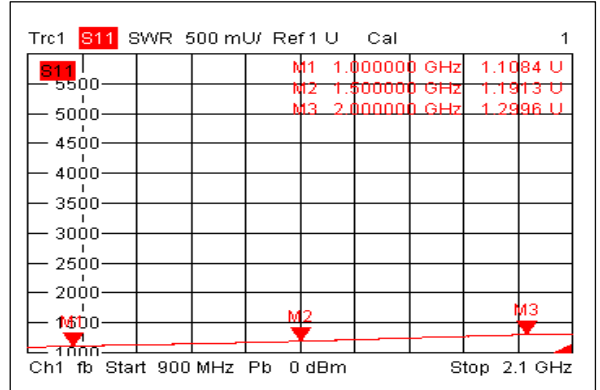


USB/Ethernet поглощающий аттенюатор с цифровым управлением 1 - 2 ГГц

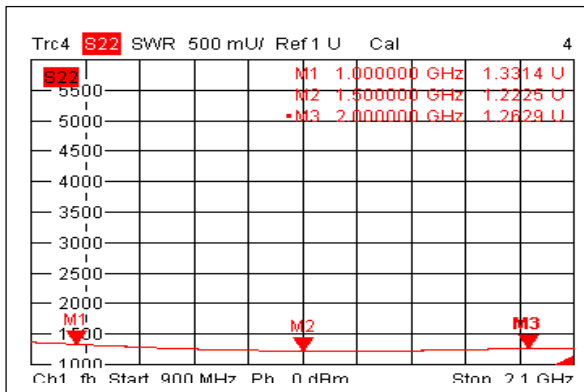
Insertion Loss @+85°C



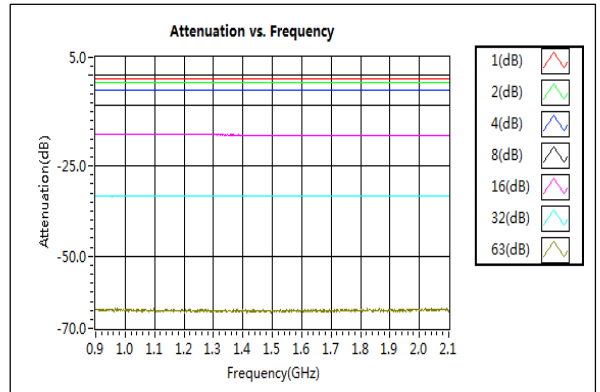
Input VSWR @+85°C



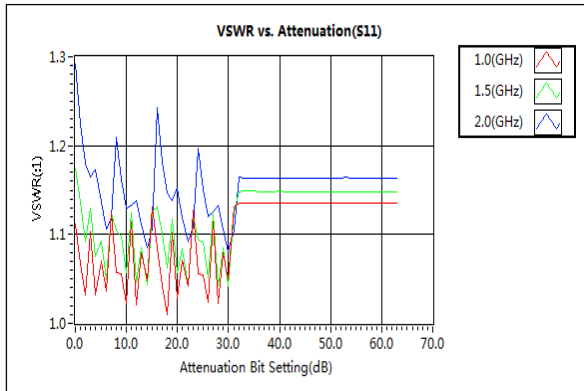
Output VSWR @+85°C



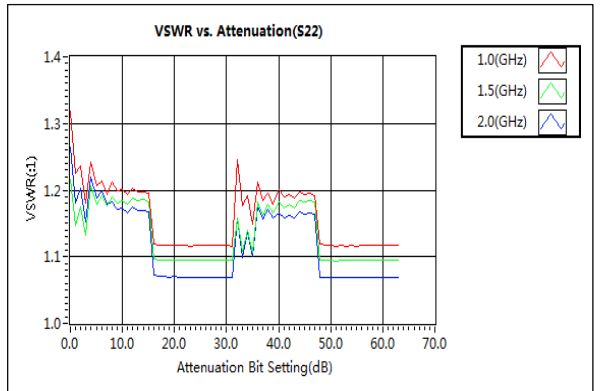
Attenuation vs. Frequency



VSWR vs. Attenuation (S11)

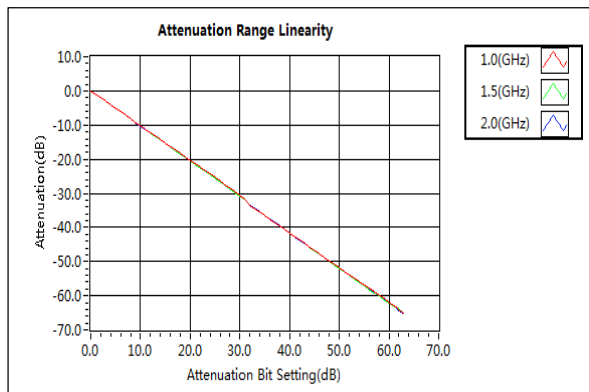


VSWR vs. Attenuation (S22)

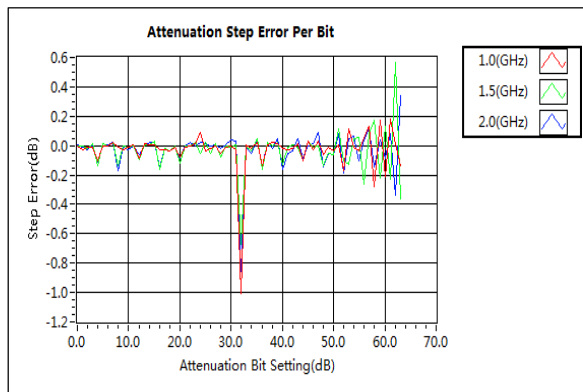


USB/Ethernet поглощающий аттенюатор с цифровым управлением 1 - 2 ГГц

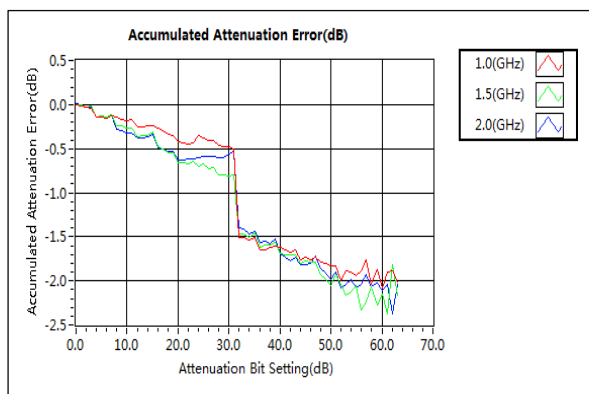
Attenuation Range Linearity



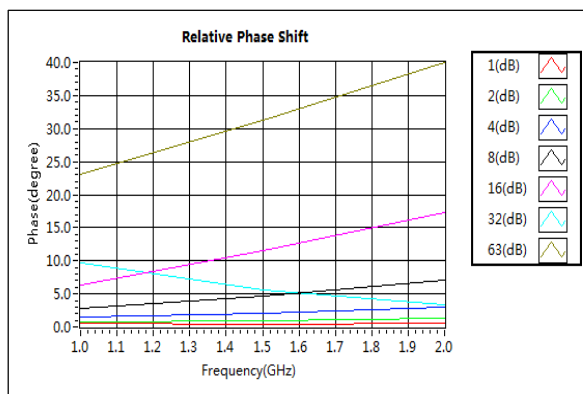
Attenuation Step Error Per Bit (dB)



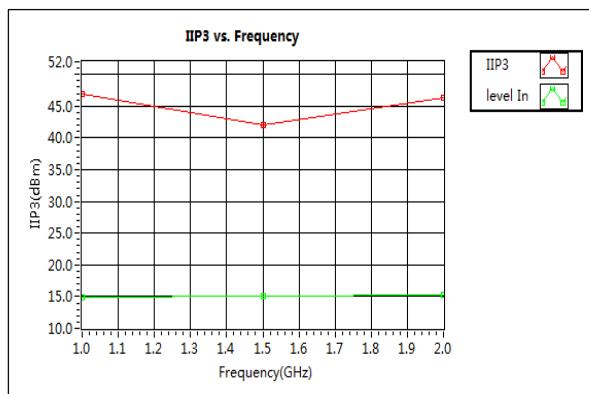
Accumulated Attenuation Error (dB)



Relative Phase Shift



IIP3



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 set.	x(step):0~63.

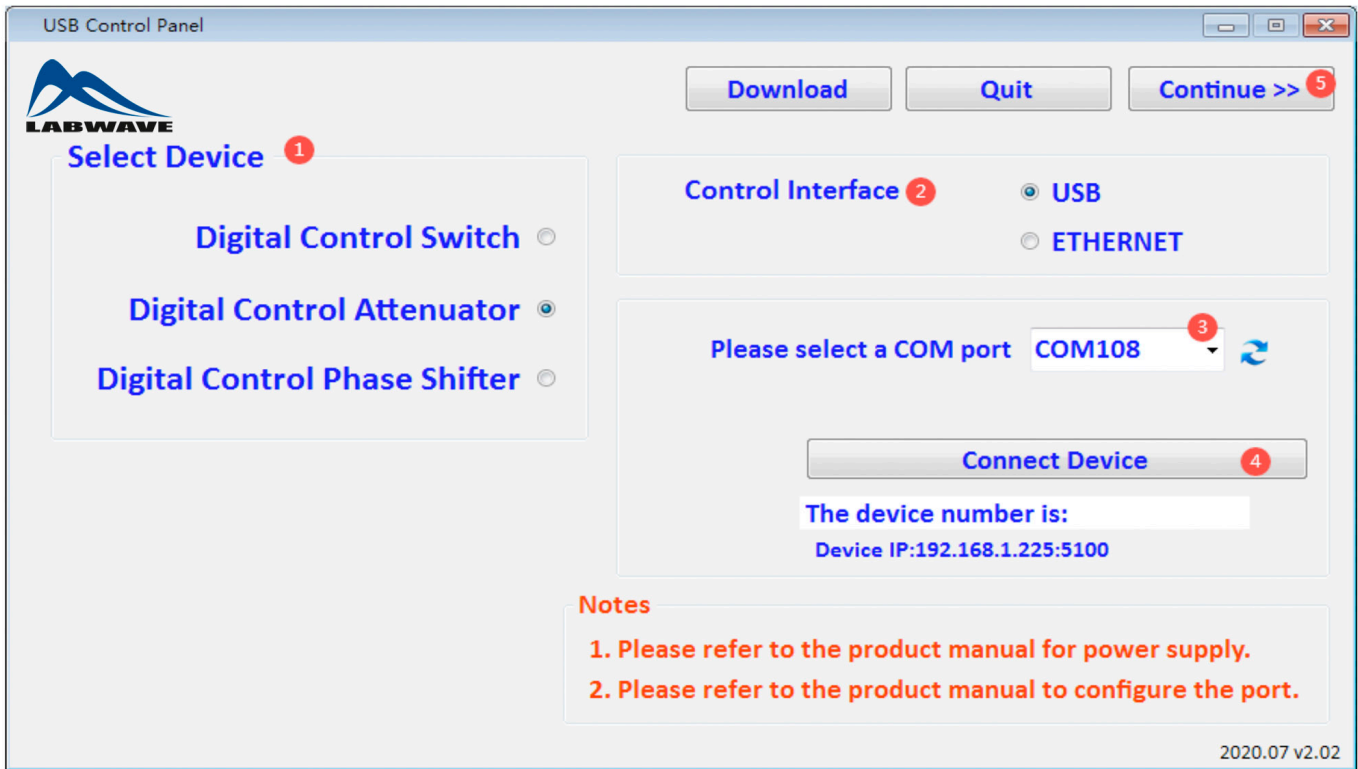
Command specification

ID	Command	Description	Parameter	Return
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

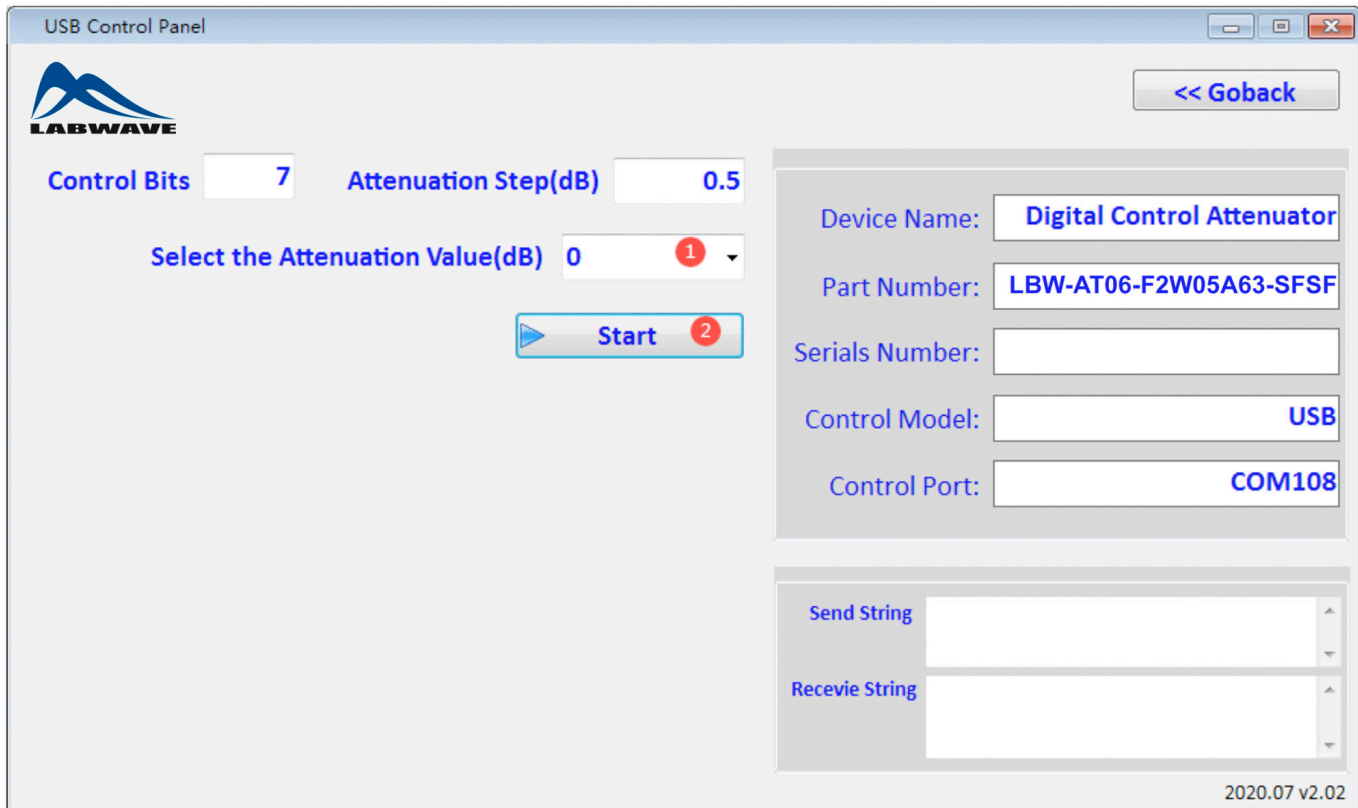
Error code query

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

USB/Ethernet поглощающий аттенюатор с цифровым управлением 1 - 2 ГГц

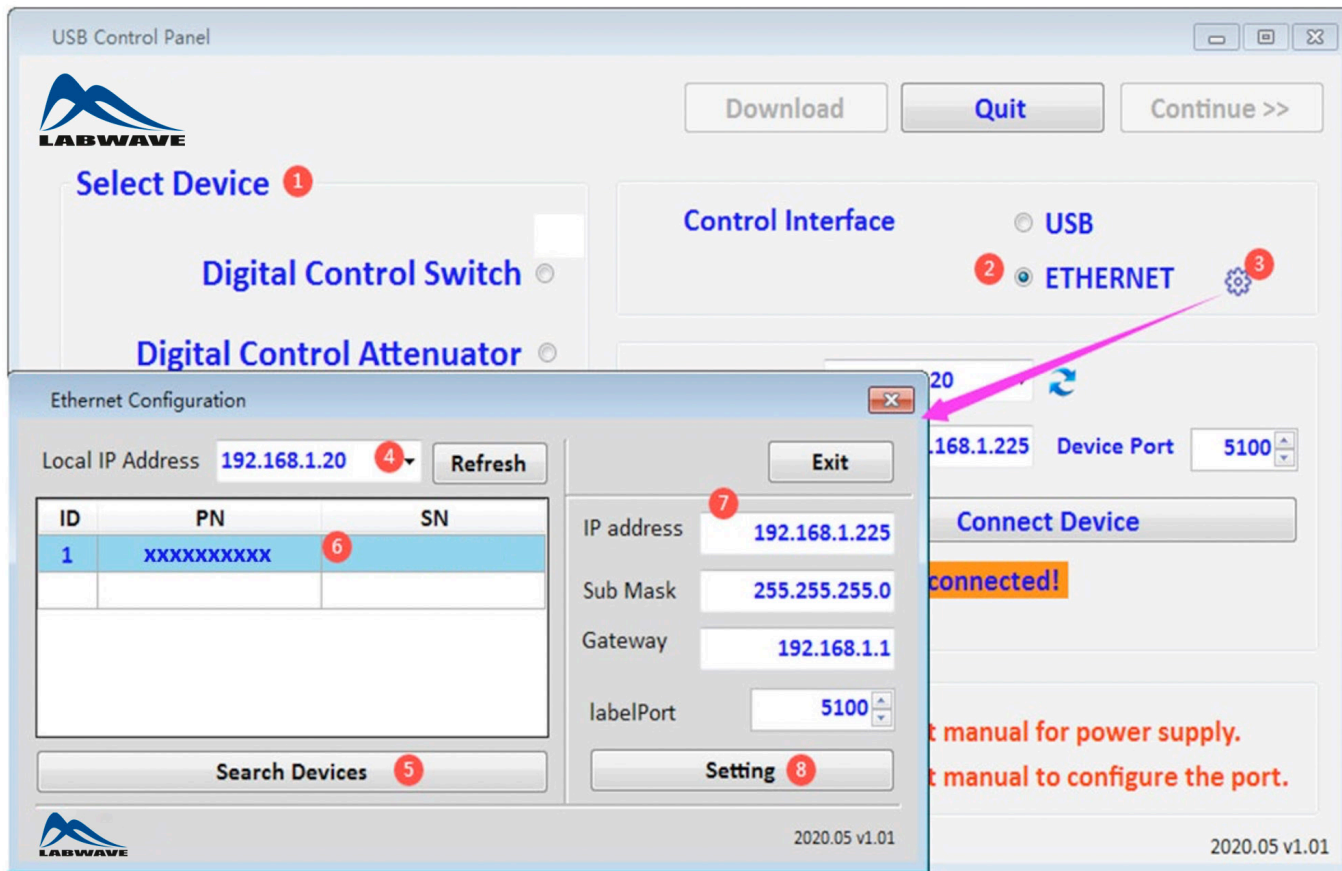


The screenshot shows the 'USB Control Panel' window. On the left, under 'Select Device' (1), there are three radio button options: 'Digital Control Switch', 'Digital Control Attenuator' (selected), and 'Digital Control Phase Shifter'. On the right, 'Control Interface' (2) has 'USB' selected over 'ETHERNET'. Below that, 'Please select a COM port' (3) has 'COM108' selected. A 'Connect Device' button (4) is visible. Below the interface settings, it displays 'The device number is:' and 'Device IP:192.168.1.225:5100'. At the bottom right, there is a 'Continue >>' button (5). A 'Notes' section contains two instructions: '1. Please refer to the product manual for power supply.' and '2. Please refer to the product manual to configure the port.' The version '2020.07 v2.02' is shown in the bottom right corner.



The screenshot shows the 'USB Control Panel' window in a configuration state. At the top right is a '<< Goback' button. On the left, 'Control Bits' is set to 7 and 'Attenuation Step(dB)' is set to 0.5. Below these, 'Select the Attenuation Value(dB)' (1) is set to 0. A 'Start' button (2) is located below the attenuation value. On the right, a form contains the following fields: 'Device Name: Digital Control Attenuator', 'Part Number: LBW-AT06-F2W05A63-SFSF', 'Serials Number:' (empty), 'Control Model: USB', and 'Control Port: COM108'. At the bottom right, there are two text areas: 'Send String' and 'Recevie String' (empty). The version '2020.07 v2.02' is shown in the bottom right corner.

USB/Ethernet поглощающий аттенюатор с цифровым управлением 1 - 2 ГГц



The screenshot shows the 'USB Control Panel' application window. The main interface includes a 'Select Device' section with radio buttons for 'Digital Control Switch' and 'Digital Control Attenuator'. A 'Control Interface' section has radio buttons for 'USB' and 'ETHERNET', with a gear icon next to 'ETHERNET'. An 'Ethernet Configuration' dialog box is open, showing a table of devices and configuration fields for IP address, Sub Mask, Gateway, and labelPort. A pink arrow points from the gear icon in the main window to the dialog box.

USB Control Panel

Download Quit Continue >>


Select Device ¹

Digital Control Switch

Digital Control Attenuator

Control Interface

USB

ETHERNET ²  ³

Local IP Address: 192.168.1.20 ⁴ Refresh

ID	PN	SN
1	XXXXXXXXXX ⁶	

Exit

IP address ⁷: 192.168.1.225

Sub Mask: 255.255.255.0

Gateway: 192.168.1.1

labelPort: 5100

Device Port: 5100

Connect Device

connected!

manual for power supply.

manual to configure the port.

Search Devices ⁵ Setting ⁸

2020.05 v1.01