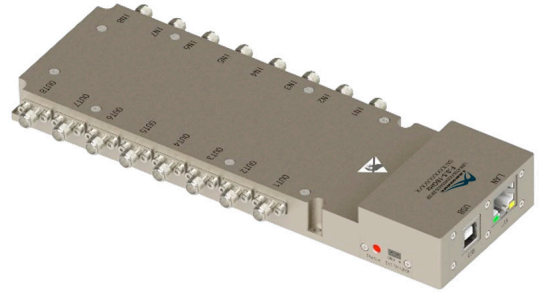


Характеристики:

- Ультранизкий диапазон рабочих частот 0,1 - 43,5 ГГц
- Управление и питание через USB
- Ослабление до 63,5 дБ с шагом 0,5 дБ



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1		1	1		30	30		43.5	GHz
Attenuation Range		63.5			63.5			55		dB
Insertion Loss		7.0	8.5		14.5	16.0		17.5	19.5	dB
Insertion Loss Temperature Coefficient		0.01			0.01			0.01		dB/ °C
Attenuation Flatness: (Referenced to Insertion Loss)		±2.0			±4.0			±5.0		dB
Control Bits			7			7			7	Bit
Control Step Size		0.5			0.5			0.5		dB
Input VSWR (All Atten. States)		2.2	3.0		1.6	2.2		1.6	2.0	: 1
Output VSWR (All Atten. States)		2.2	3.0		1.6	2.2		1.6	2.0	: 1
Input 0.1 dB Compression Point (P0.1dB)		25			25			25		dBm
RF Input Power			27			27			27	dBm
Input IP3		38			38			37		dBm
Bias Current	350Typ.									mA
Power Supply	USB(+5.0V)									
Weight	12.8 Max.									Ounces
Impedance	50									Ohms
Input / Output Connectors	2.92-Female (Input) – 2.92-Female (Output)									
Ext Trigger Input Status(C1)	0 (0-0.8V)	Normal								
	1 (2.8-5V)	protection (Maximum attenuation mode)								
Control Interface	USB2.0 & Ethernet(IPv4) (Control Cable Included)									
Material	Aluminum									
Finish	Nickel Plated									
Sealing	Hermetically Sealed (Optional)									

USB / Ethernet 8-канальный поглощающий аттенюатор с цифровым управлением 0,1 - 43,5 ГГц

Ordering Information

Part No.	Description
LBW-AT06-F435W05A635-29F29F	0.1-43.5GHz Digital Control Attenuator

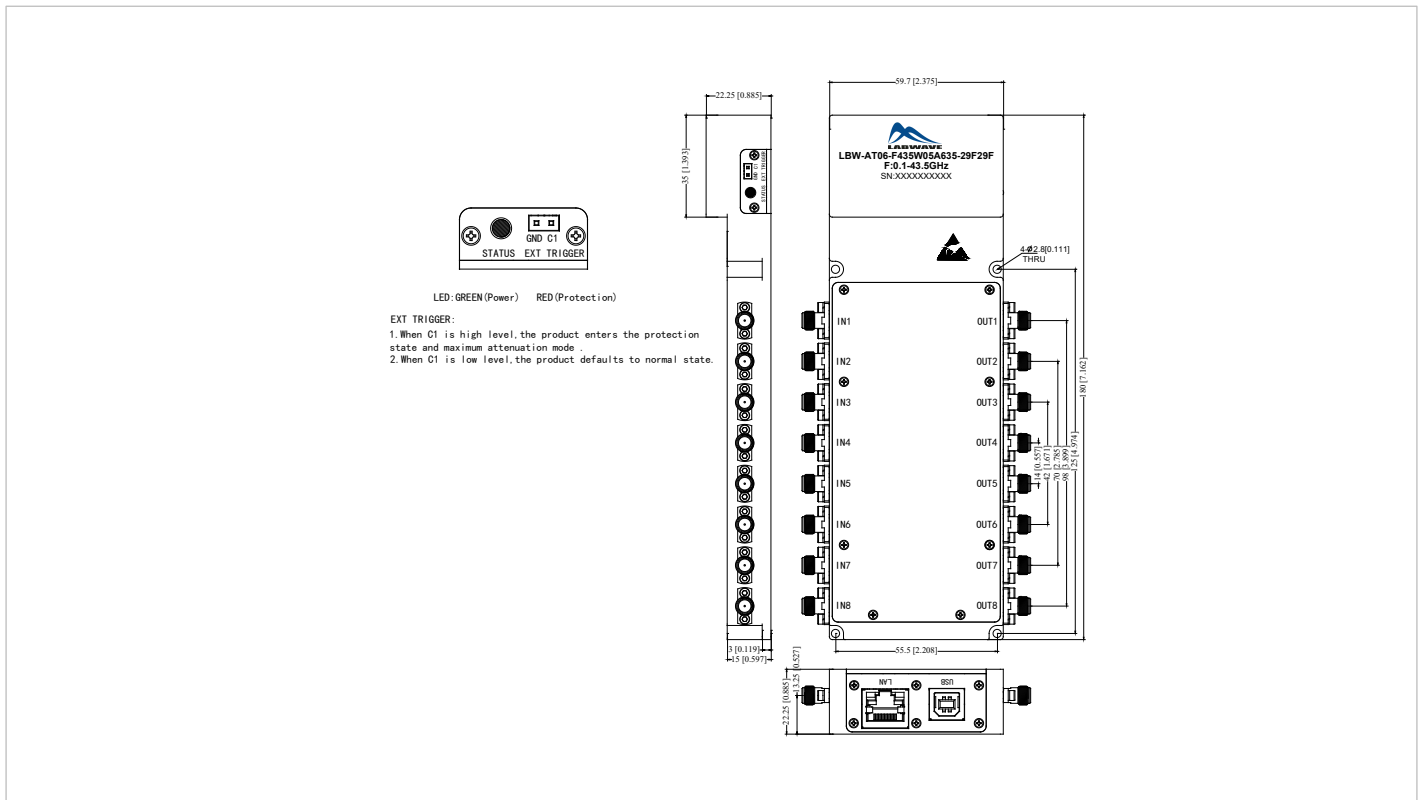
Environmental Specifications

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 ± 0.5 (0.02)



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
4	Fig d. Dupont Line (0.2 feet / 0.65 meter)	1



Fig b.

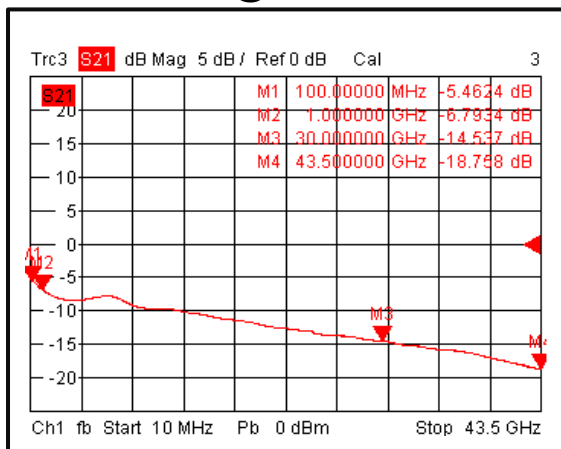


Fig c.

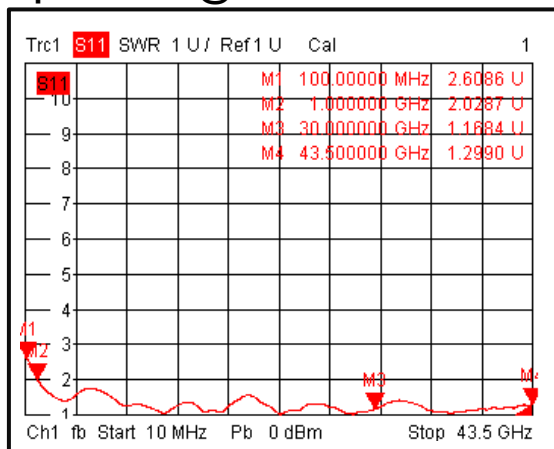


Fig d.

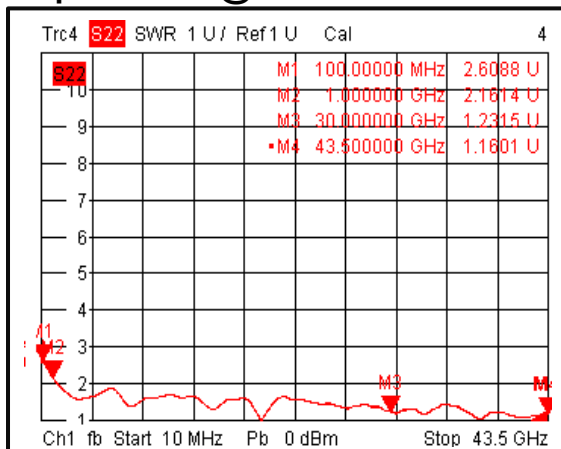
Insertion Loss @+25°C



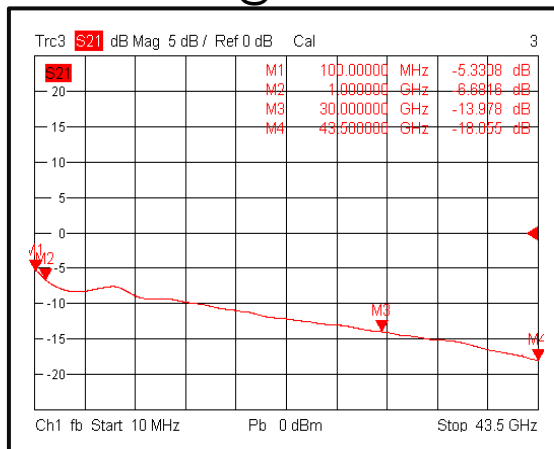
Input VSWR @+25°C



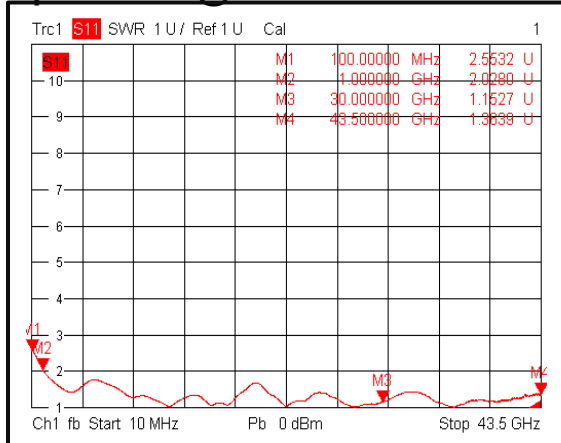
Output VSWR @+25°C



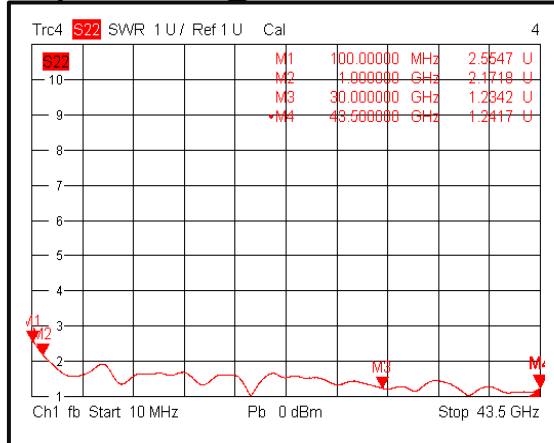
Insertion Loss @-40°C



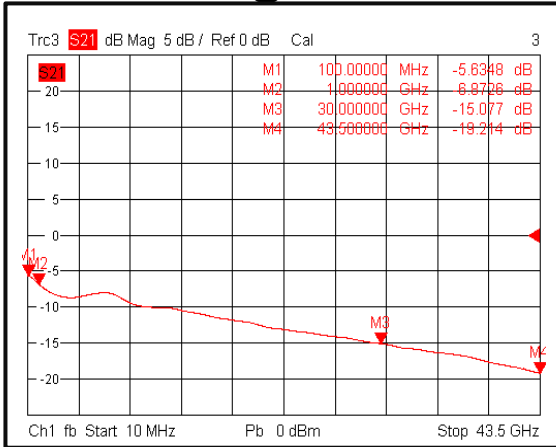
Input VSWR @-40°C



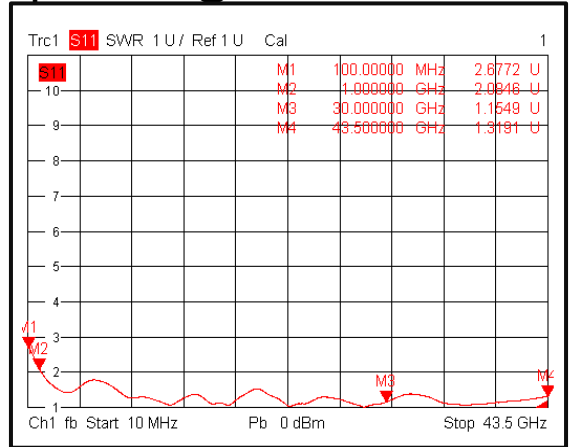
Output VSWR @-40°C



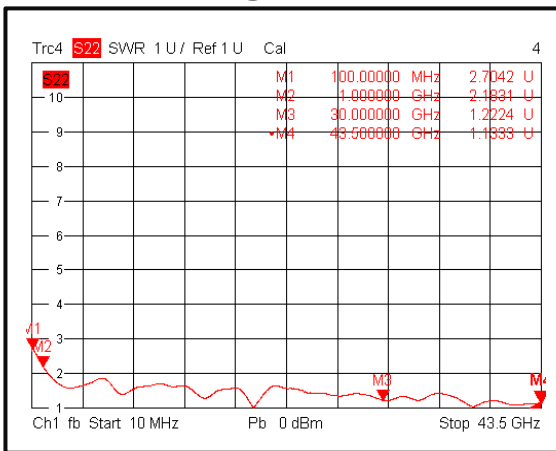
Insertion Loss @+85°C



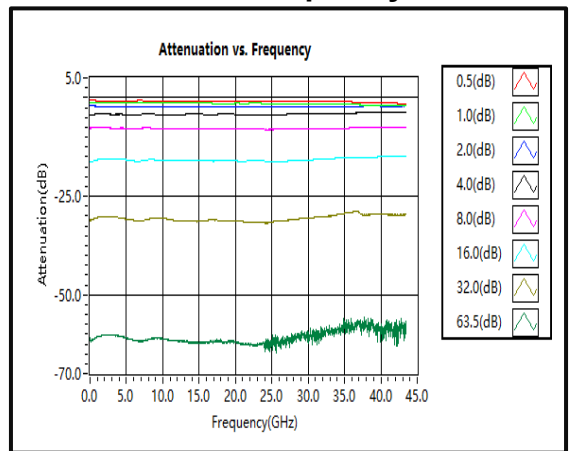
Input VSWR @+85°C



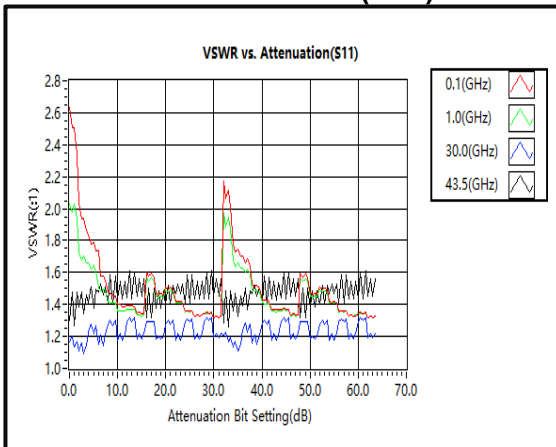
Output VSWR @+85°C



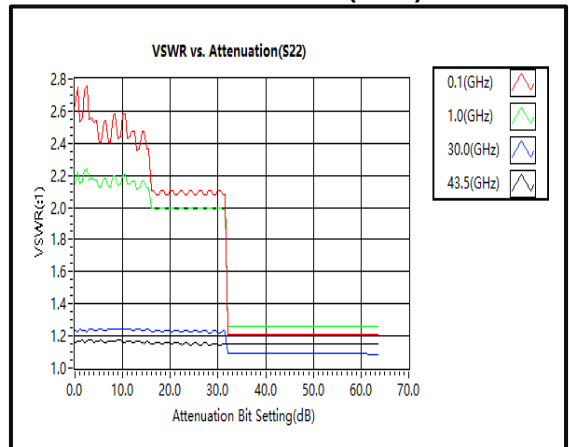
Attenuation vs. Frequency



VSWR vs. Attenuation (S11)

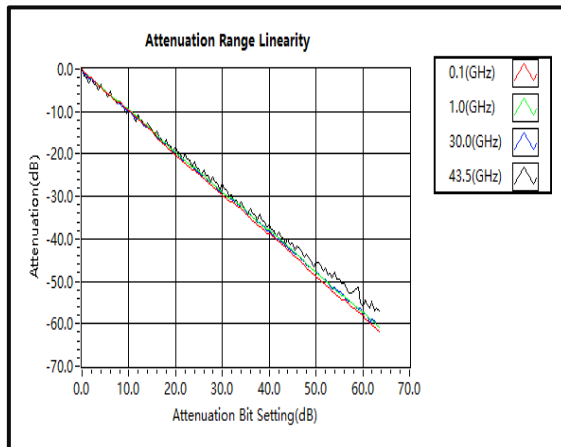


VSWR vs. Attenuation (S22)

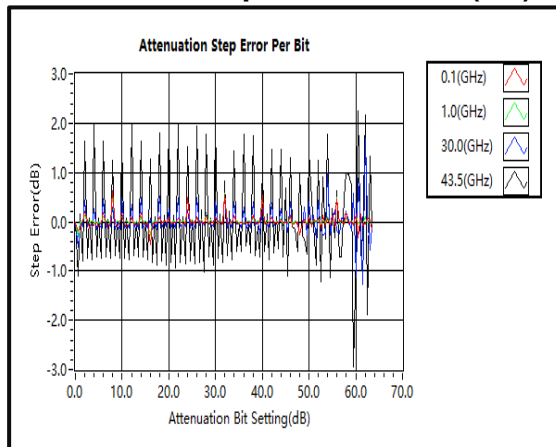


USB / Ethernet 8-канальный поглощающий аттенюатор с цифровым управлением 0,1 - 43,5 ГГц

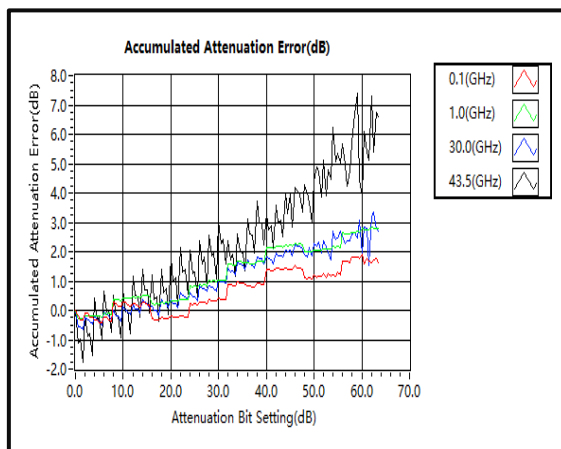
Attenuation Range Linearity



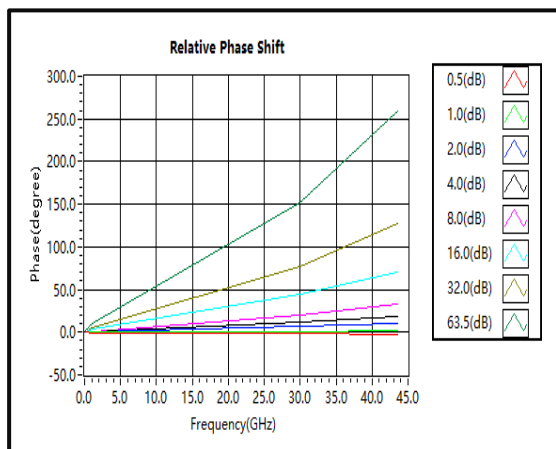
Attenuation Step Error Per Bit (dB)



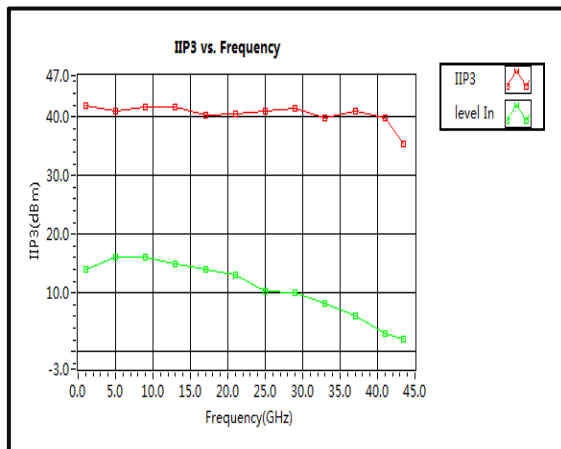
Accumulated Attenuation Error (dB)



Relative Phase Shift



IIP3



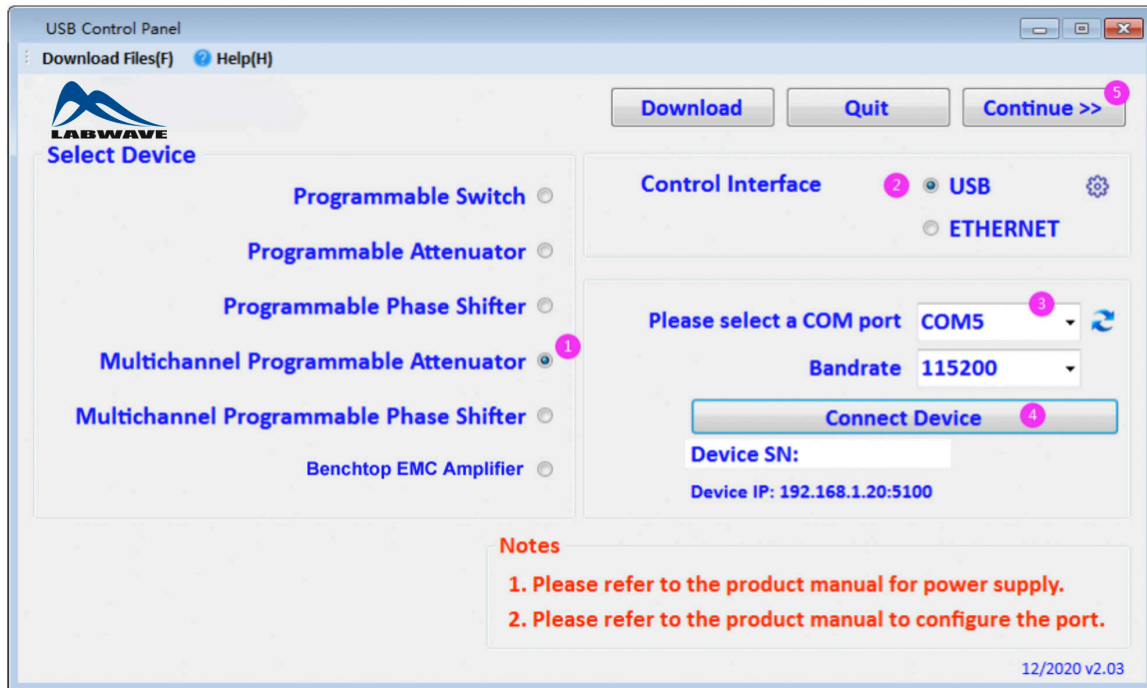


Control Content Description			
Format Requirement	USB (virtual serial port) Configuration	LAN Interface	Range of Parameters
a.All commands must end with a semicolon. b.All commands are case insensitive. c.Comma is used to separate multiple parameters in commands. d.All commands are suitable for USB(virtual 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 update.	x(Step): 1~2^n ,n is control bits.

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

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	GetMAC?;	Query the device MAC address	MAC address	GetMAC?;
4	SetBaudrate x;	Set the Baud rate (x=0,9600; x=1,115200)	Baud:badurate	SetBaudrate 1;
5	AT:SetStep x-y;	Set the attenuation step y of channel x.	SetS:x-y	AT:SetStep 2-5;
6	AT:StartStep z1,z2,...,z8;	Execute the current settings for all channels.	StartS: ...	AT:StartStep 0,1,0,1,1,0,0,0;
7	AT:SetLoop x-y-z-s-t-n;	Set the looping parameters for channel x.	SetL:x-y-z-s-t-n	AT:SetLoop 2-1-16-2-0.1-100;
8	AT:StartLoop x1,x2,...,x8;	Execute the loop settings for all channels.	StartL:...	AT:StartLoop 0,1,0,1,1,0,0,0;
9	AT:StopLoop x1,x2,...,x8;	Stop the cycle of all channels.	StopL:...	AT:StopLoop 0,1,0,1,1,0,0,0;
10	AT:GetProtection Status?;	Query the external protection status. Protect:1--Protected. Protect:0--Unprotected.	Protect:1	AT:GetProtection Status?;
11	AT:GetBits x?;	Query the control bits of channel x.	Control Bits	AT:GetBits 1?;
12	AT:GetStepsize x?;	Query the step size of channel x.	Stepsize	AT:GetStepsize 1?;
13	AT:GetStep x?;	Query the current step of channel x.	Current step	AT:GetStep 1?;
14	AT:GetLoop x?;	Query the current loop settings for channel x.	Current settings	AT:GetLoop 1?;
15	AT:GetStatus x?;	Query the status of channel x. Return 0 or 1, and 1 means fixed attenuation, 0 means loop mode.	Status	AT:GetStatus 1?;

USB / Ethernet 8-канальный поглощающий аттенюатор с цифровым управлением 0,1 - 43,5 ГГц



USB Control Panel

Download Files(F) Help(H)

LABWAVE

Select Device

- Programmable Switch
- Programmable Attenuator
- Programmable Phase Shifter
- Multichannel Programmable Attenuator
- Multichannel Programmable Phase Shifter
- Benchtop EMC Amplifier

Control Interface

USB

ETHERNET

Please select a COM port COM5

Bandrate 115200

Connect Device

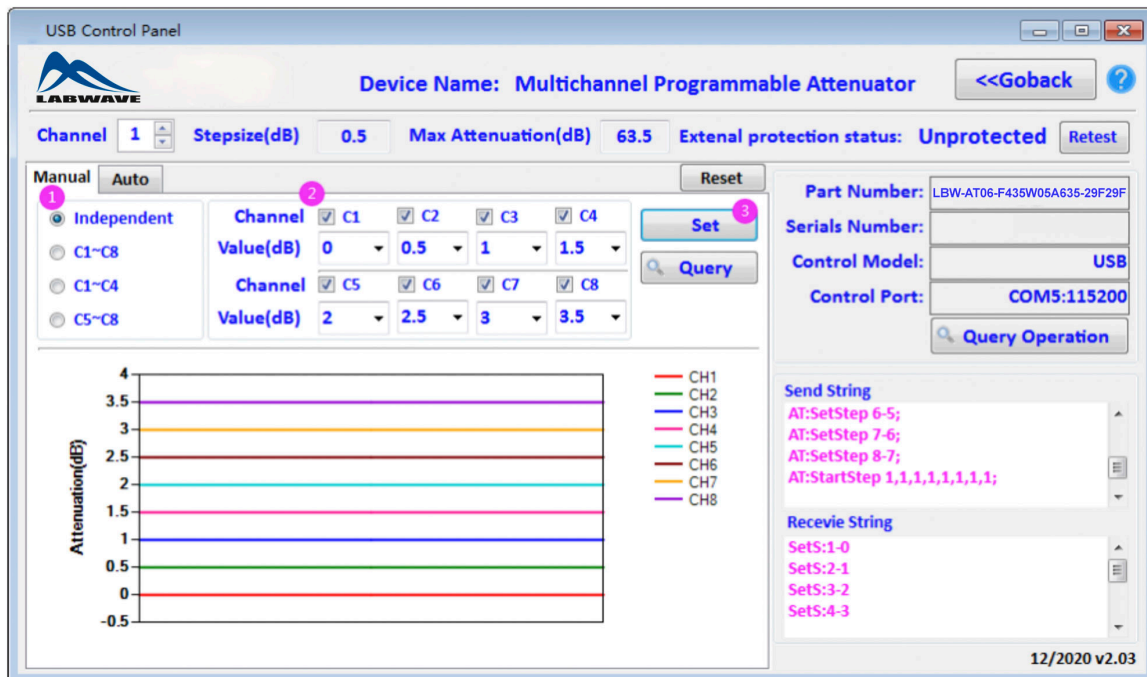
Device SN:

Device IP: 192.168.1.20:5100

Notes

- Please refer to the product manual for power supply.
- Please refer to the product manual to configure the port.

12/2020 v2.03



USB Control Panel

Device Name: Multichannel Programmable Attenuator

Channel 1 Stepsize(dB) 0.5 Max Attenuation(dB) 63.5 External protection status: Unprotected Retest

Manual Auto

Independent

Channel C1 C2 C3 C4

Value(dB) 0 0.5 1 1.5

Channel C5 C6 C7 C8

Value(dB) 2 2.5 3 3.5

Part Number: LBW-AT06-F435W05A635-29F29F

Serial Number:

Control Model: USB

Control Port: COM5:115200

Send String

AT:SetStep 6-5;

AT:SetStep 7-6;

AT:SetStep 8-7;

AT:StartStep 1,1,1,1,1,1,1;

Receive String

Sets:1-0

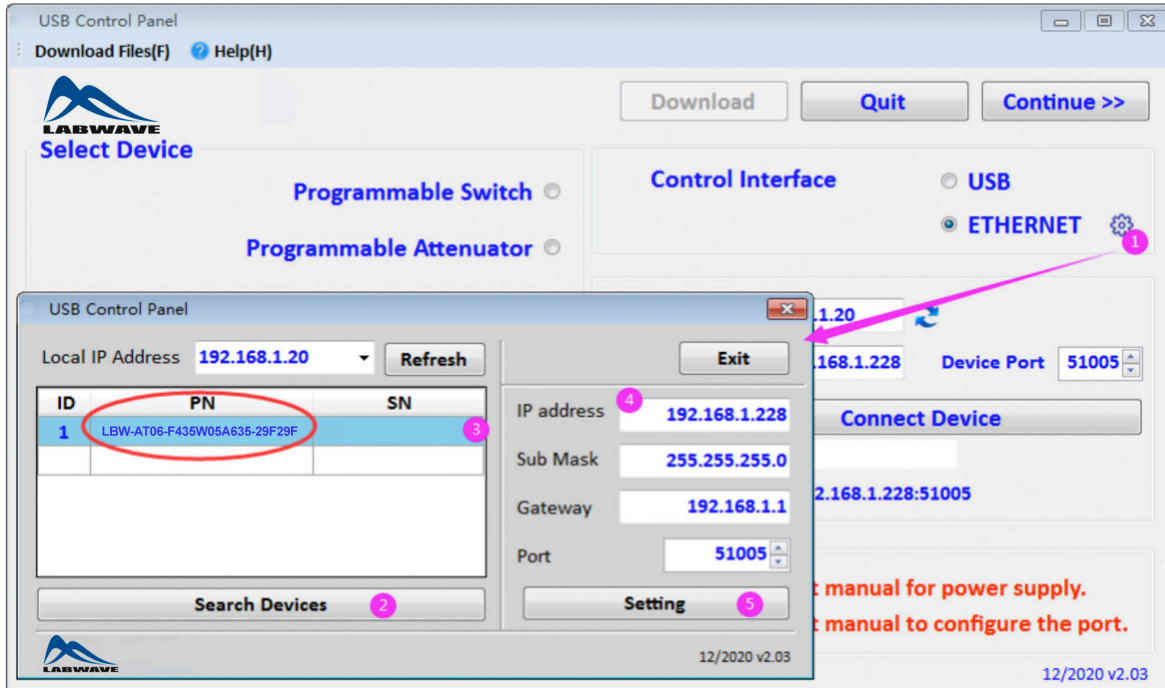
Sets:2-1

Sets:3-2

Sets:4-3

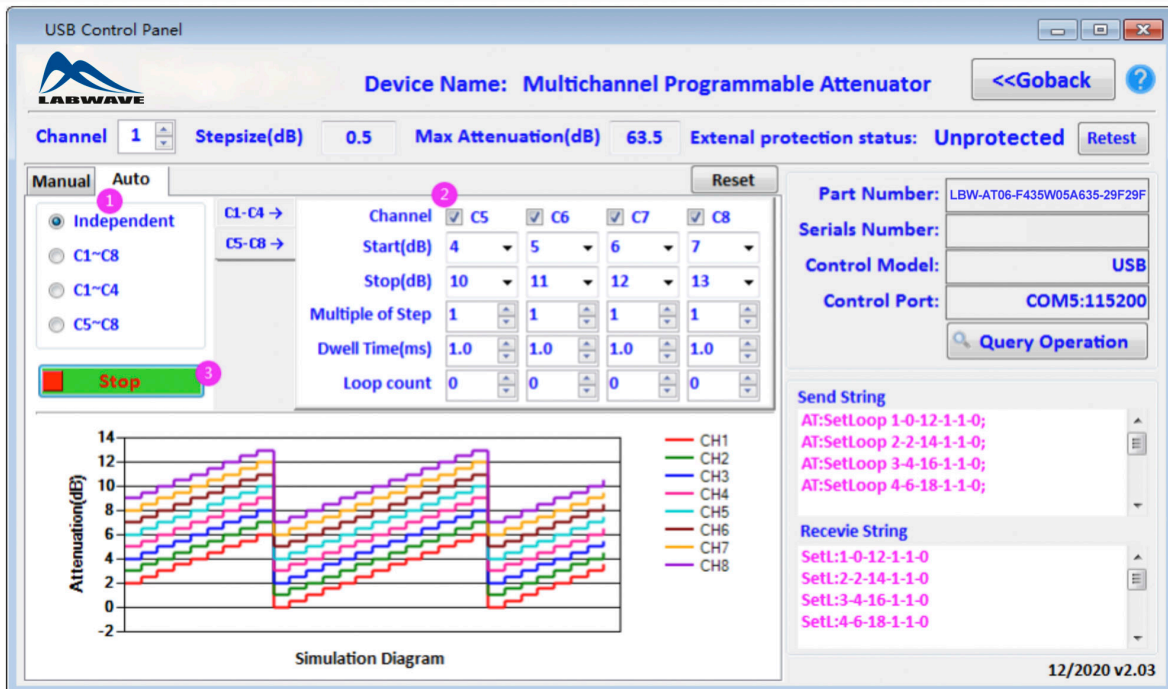
12/2020 v2.03

USB / Ethernet 8-канальный поглощающий аттенюатор с цифровым управлением 0,1 - 43,5 ГГц



The screenshot shows the 'USB Control Panel' software interface. It features a 'Select Device' section with 'Programmable Switch' and 'Programmable Attenuator' options. The 'Control Interface' is set to 'ETHERNET'. A pop-up window displays a table of devices with columns for ID, PN, and SN. The first device is highlighted with a red circle. To the right, network configuration fields are visible, including IP address (192.168.1.228), Sub Mask (255.255.255.0), Gateway (192.168.1.1), and Port (51005). A 'Connect Device' button is also present.

ID	PN	SN
1	LBW-AT06-F435W05A635-29F29F	



The screenshot shows the 'USB Control Panel' software interface for a 'Multichannel Programmable Attenuator'. It displays various configuration parameters such as Channel (1), Stepsize (0.5 dB), Max Attenuation (63.5 dB), and External protection status (Unprotected). The 'Manual' tab is selected, showing channel settings for C5, C6, C7, and C8. A 'Simulation Diagram' is visible at the bottom, plotting Attenuation (dB) against time for eight channels (CH1-CH8). The diagram shows a step-wise increase in attenuation for each channel.

Channel Configuration:

Channel	Start (dB)	Stop (dB)	Multiple of Step	Dwell Time (ms)	Loop count
C5	4	10	1	1.0	0
C6	5	11	1	1.0	0
C7	6	12	1	1.0	0
C8	7	13	1	1.0	0

Simulation Diagram Data:

Channel	Start (dB)	Stop (dB)
CH1	4	10
CH2	5	11
CH3	6	12
CH4	7	13
CH5	4	10
CH6	5	11
CH7	6	12
CH8	7	13