



# P/N:LBW-AT06-F12W025A63-SFSF

USB / Ethernet поглощающий аттенюатор с цифровым управлением  
2 - 12 ГГц

## Характеристики:

- Широкий диапазон рабочих частот 2 - 12 ГГц
- Управление и питание через USB/Ethernet
- Ослабление до 63 дБ с шагом 1 дБ



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	2~4		4~8		8~12					GHz
Attenuation Range		63			63			63		dB
Insertion Loss		4.5	5.0		5.0	5.8		5.8	7.0	dB
Insertion Loss Temperature Coefficient		0.01			0.01			0.01		dB/ °C
Attenuation Flatness: (Referenced to Insertion Loss)		±2			±2			±2		dB
Control Bits	6									Bit
Control Step Size		1			1			1		dB
Input VSWR (All Atten. States)		1.7	2.2		1.6	2.2		1.5	1.8	: 1
Output VSWR (All Atten. States)		1.7	2.2		1.6	2.2		1.5	1.8	: 1
Input 0.1 dB Compression Point (P0.1dB)		23			23			23		dBm
RF Input Power			25			25			25	dBm
Input IP3		37			36			35		dBm
Bias Current	210 Typ.									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)									

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## Ordering Information

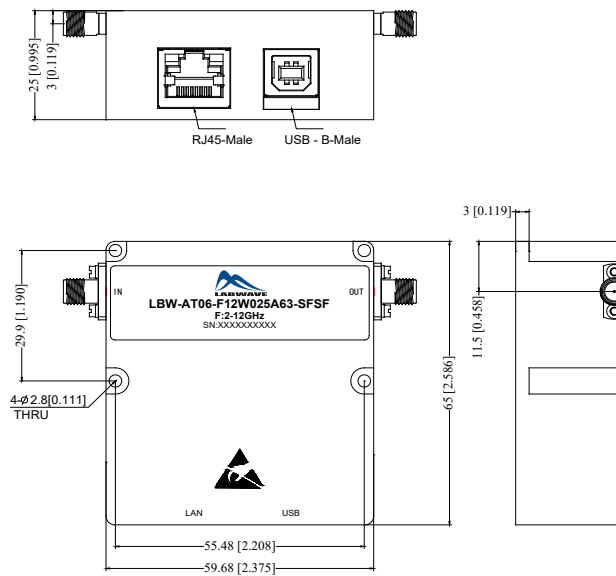
Part No.	Description
LBW-AT06-F12W025A63-SFSF	2-12GHz USB / Ethernet Digital Control Attenuator

## 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  $\pm 0.2$  (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

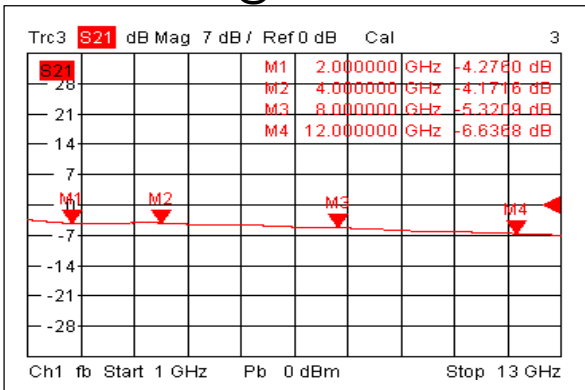


Fig b.

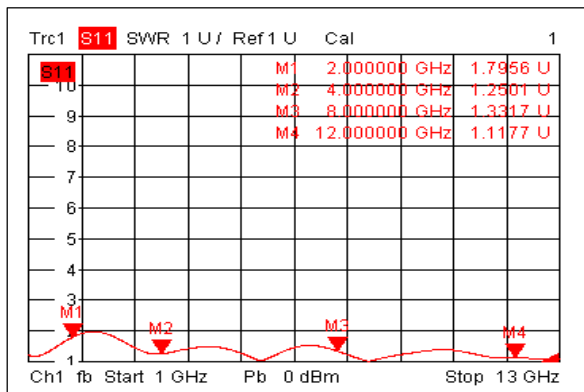


Fig c.

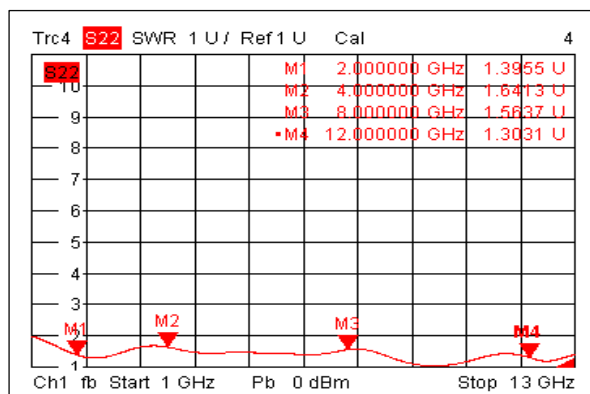
## Insertion Loss @+25°C



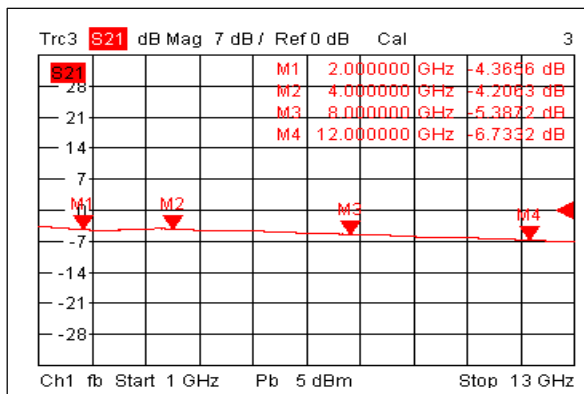
## Input VSWR @+25°C



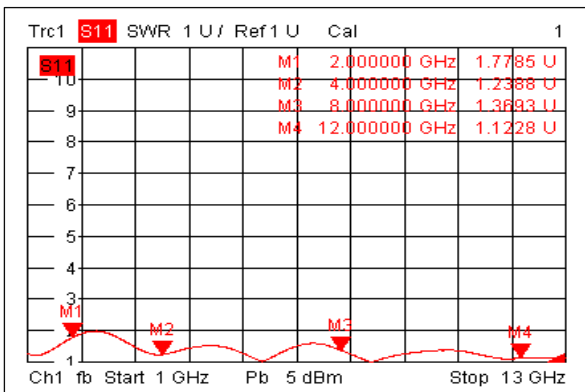
## Output VSWR @+25°C



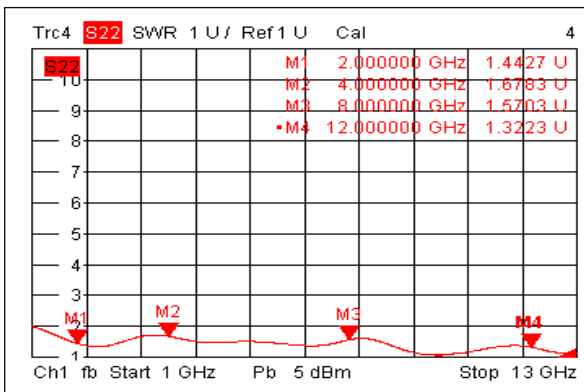
## Insertion Loss @-40°C



## Input VSWR @-40°C

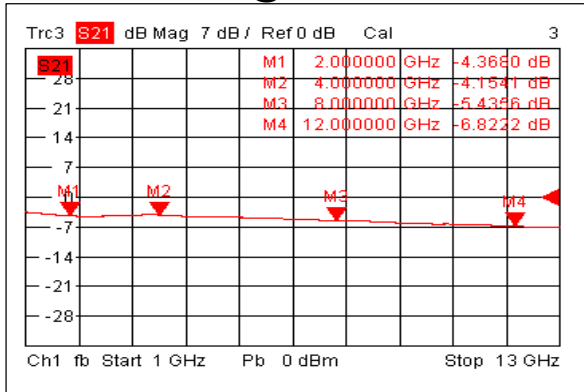


## Output VSWR @-40°C

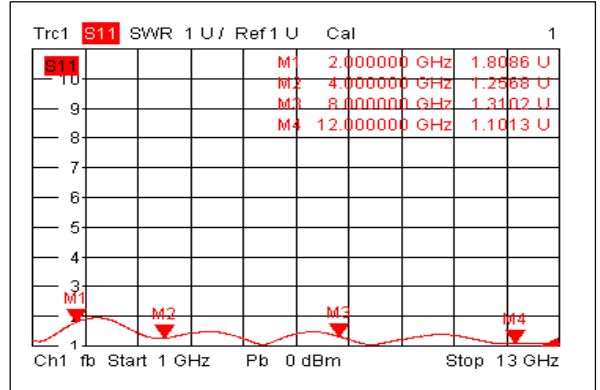


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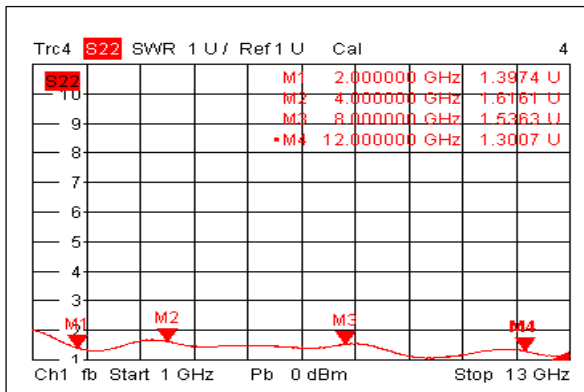
## Insertion Loss @+85°C



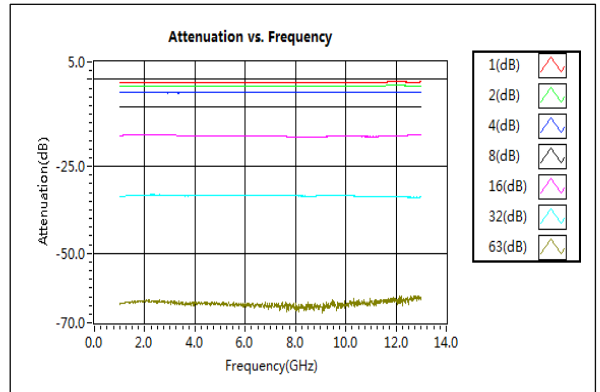
## Input VSWR @+85°C



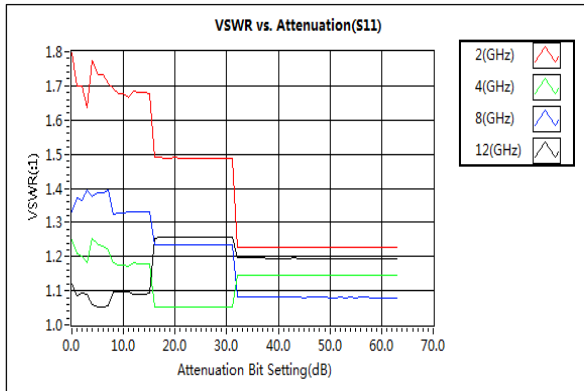
## Output VSWR @+85°C



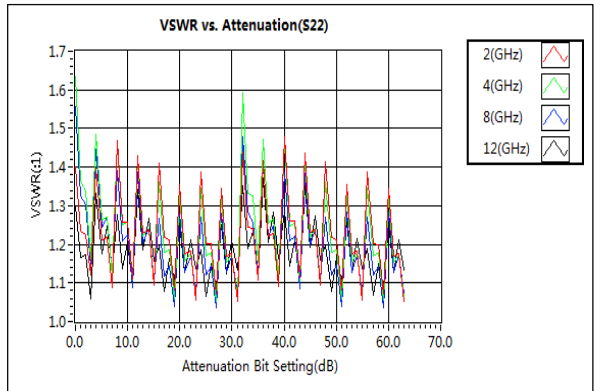
## Attenuation vs. Frequency



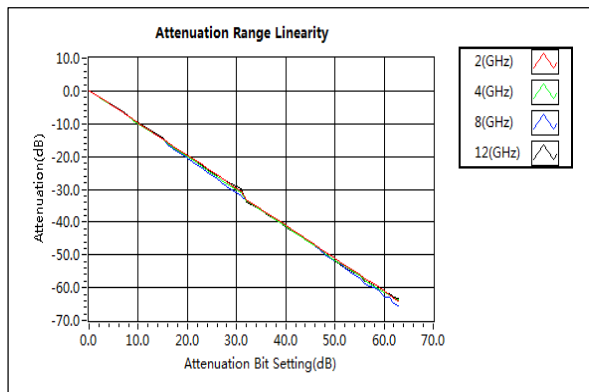
## VSWR vs. Attenuation (S11)



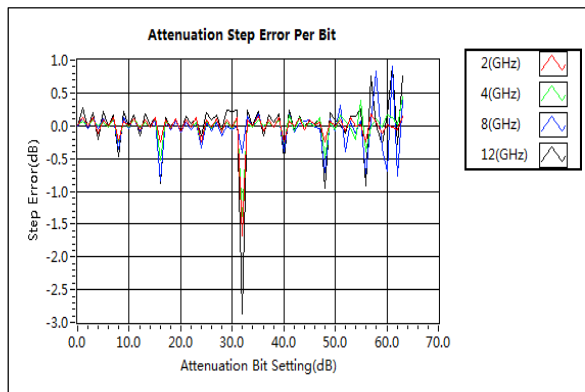
## VSWR vs. Attenuation (S22)



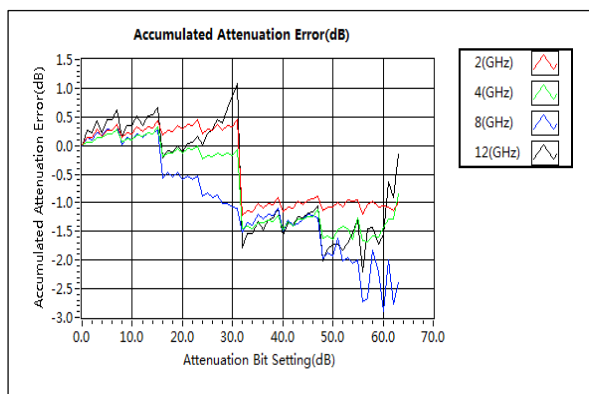
## Attenuation Range Linearity



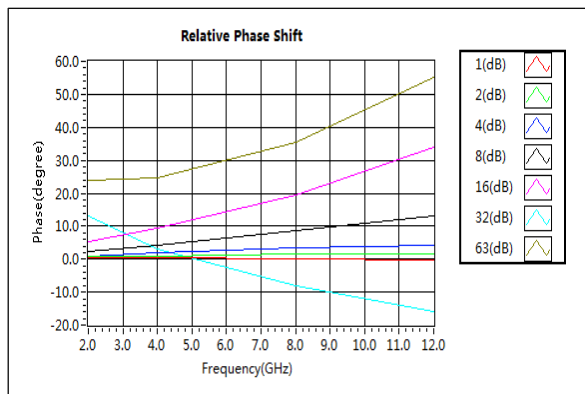
## Attenuation Step Error Per Bit (dB)



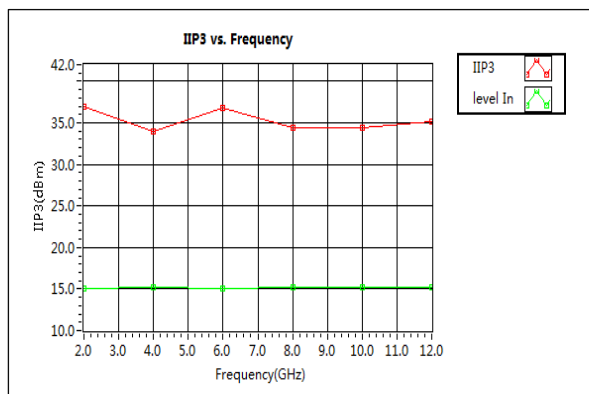
## Accumulated Attenuation Error (dB)



## Relative Phase Shift



## IIP3



## Control content description

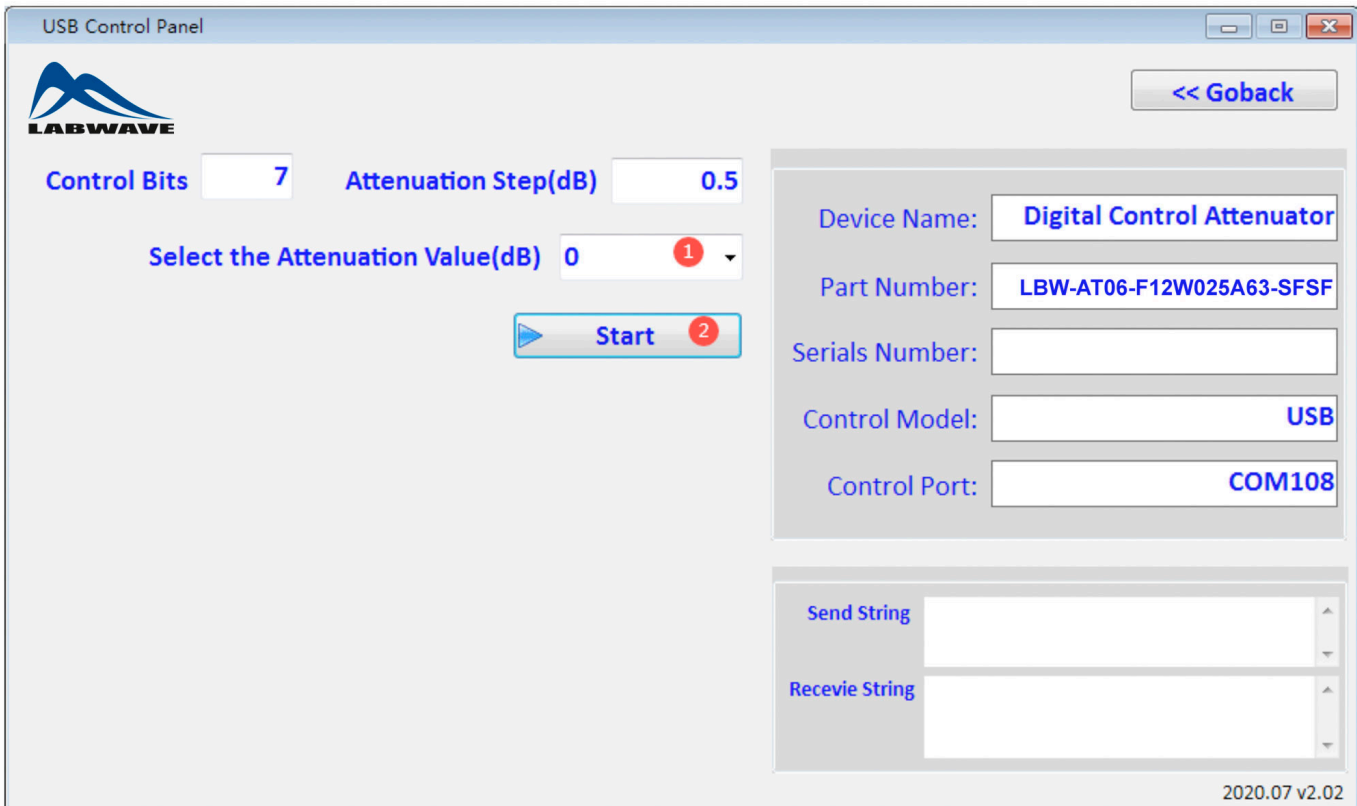
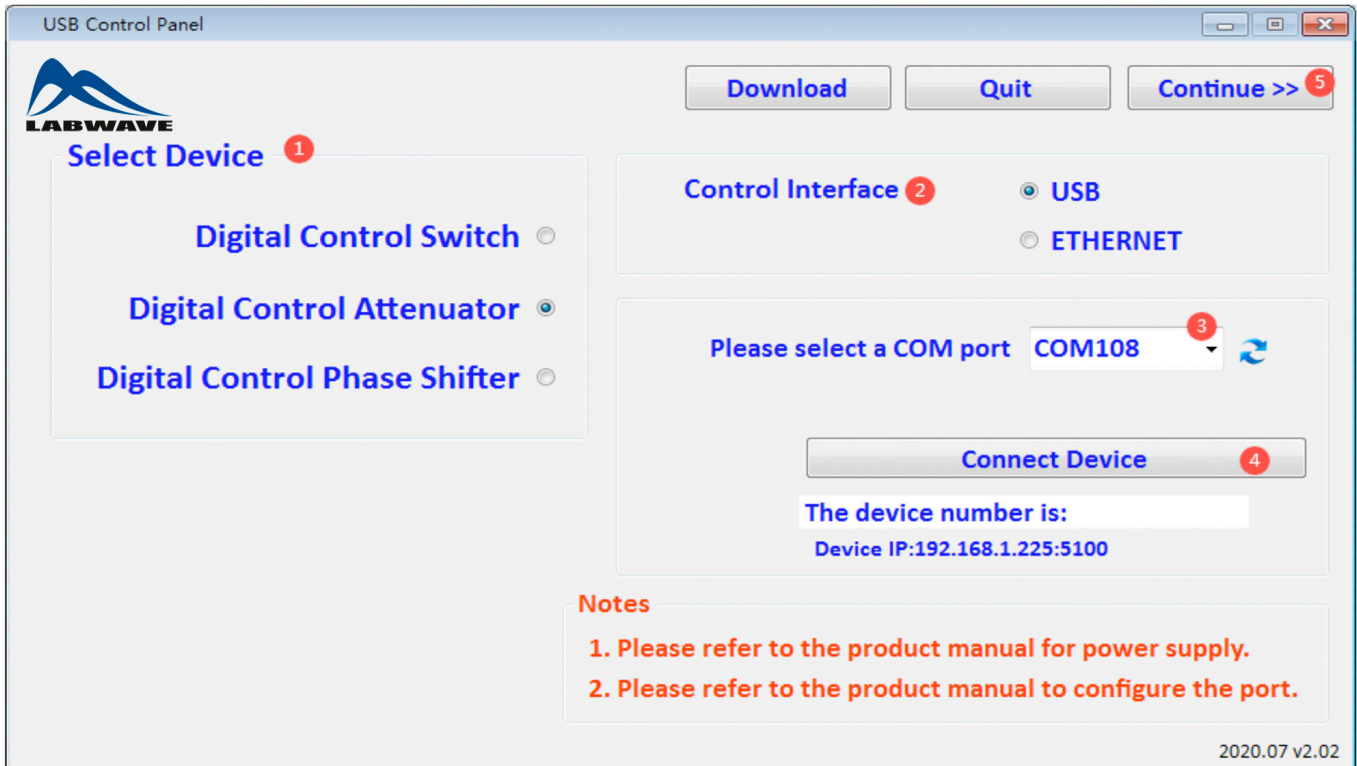
Format Requirement	USB (virtual serial port ) Configuration	LAN Interface	Range of Parameters
a.All commands must end with a semicolon. b.All commands are case insensitive. c.Comma is used to separate multiple parameters in commands. d.All commands are suitable for USB(virtual serial port) and LAN interface.	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.

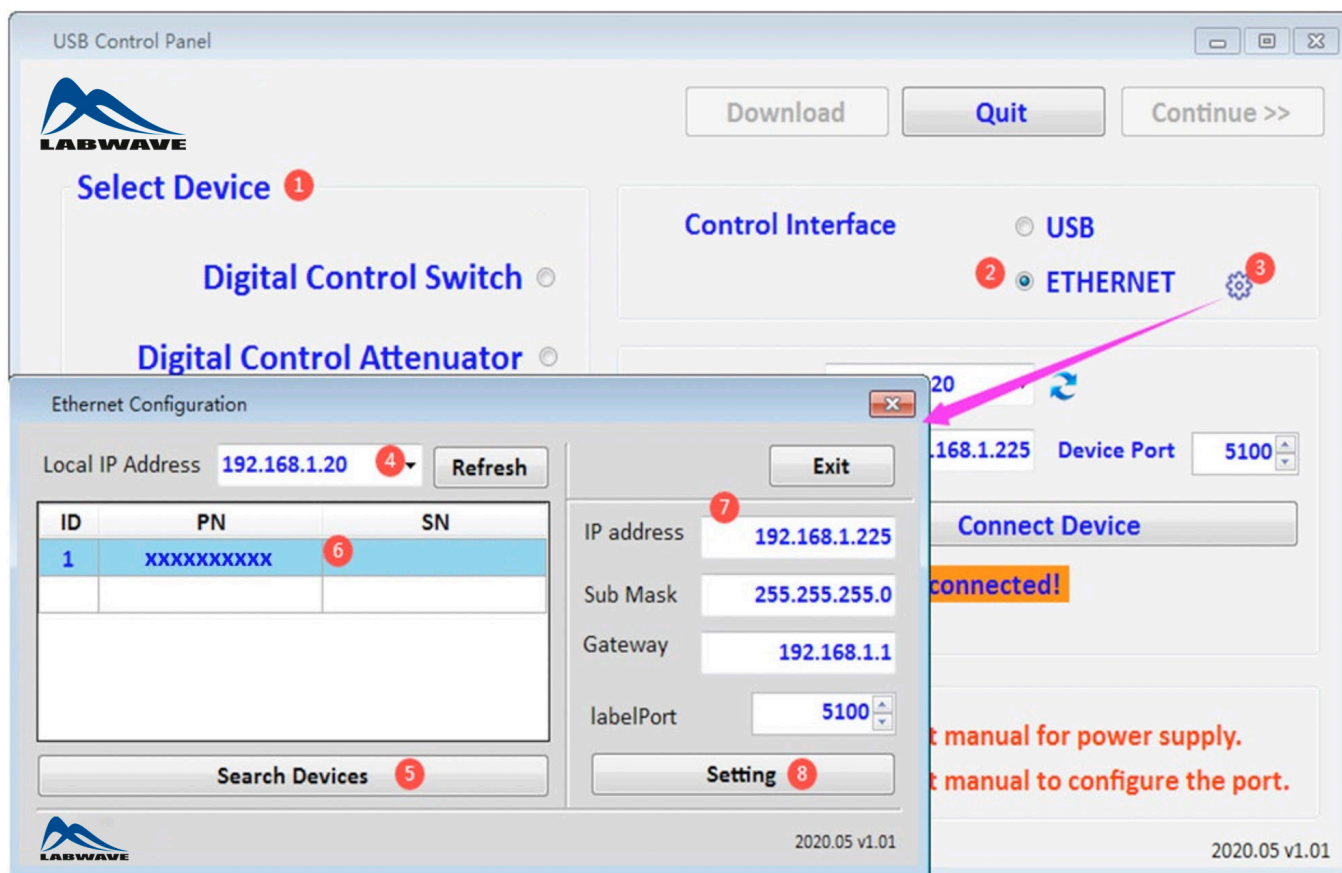
## Command specification

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





The screenshot displays the 'USB Control Panel' software interface. The main window includes a 'Select Device' section with radio buttons for 'Digital Control Switch' and 'Digital Control Attenuator'. A 'Control Interface' section allows switching between 'USB' and 'ETHERNET'. An 'Ethernet Configuration' dialog box is open, showing a table of devices and configuration parameters.

**USB Control Panel**

Download    Quit    Continue >>

Select Device 1

Digital Control Switch

Digital Control Attenuator

Control Interface

USB

ETHERNET 2

ETHERNET 3

Local IP Address 192.168.1.20 4 Refresh

ID	PN	SN
1	XXXXXXXXXX 6	

Search Devices 5

Exit

IP address 7 192.168.1.225

Sub Mask 255.255.255.0

Gateway 192.168.1.1

labelPort 5100

Setting 8

Device Port 5100

Connect Device

connected!

... manual for power supply.  
... manual to configure the port.

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