



P/N: LBW-PS06-DC2G4G-25

Фазовращатель с цифровым управлением USB / Ethernet
360° 2 ГГц – 4 ГГц

Характеристики:

- Широкий рабочий диапазон частот 2 ГГц - 4 ГГц
- Изменение фазы 360°
- Управление и питание через USB



Parameters	Min	Typ.	Max	Units
Frequency Range	2		4	GHz
Phase Range		360		deg
Control Bits			6	bit
Control Step Size		5.625		deg
Insertion Loss		5.5		dB
Insertion Loss Temperature Coefficient		0.003		dB / °C
Phase Flatness		±10		deg
Input VSWR		2.2	3	: 1
Output VSWR		2.2	3	: 1
Input 1dB Compression Point (P1dB)		25		dBm
RF Input power			27	dBm
Input Ip3		28		dBm
Bias Current	210 Typ.			mA
Power Supply	USB(+5.0V)			
Control Interface	USB2.0 & Ethernet(IPV4) (Control Cable Included)			
Weight	4.8 Max			Ounces
Input / Output Connectors	SMA - Female			
Finish	Nickel Plated			
Material	Aluminum			
Sealing	Hermetically Sealed (Optional)			

Фазовращатель с цифровым управлением USB / Ethernet 360° 2 ГГц – 4 ГГц

Ordering Information

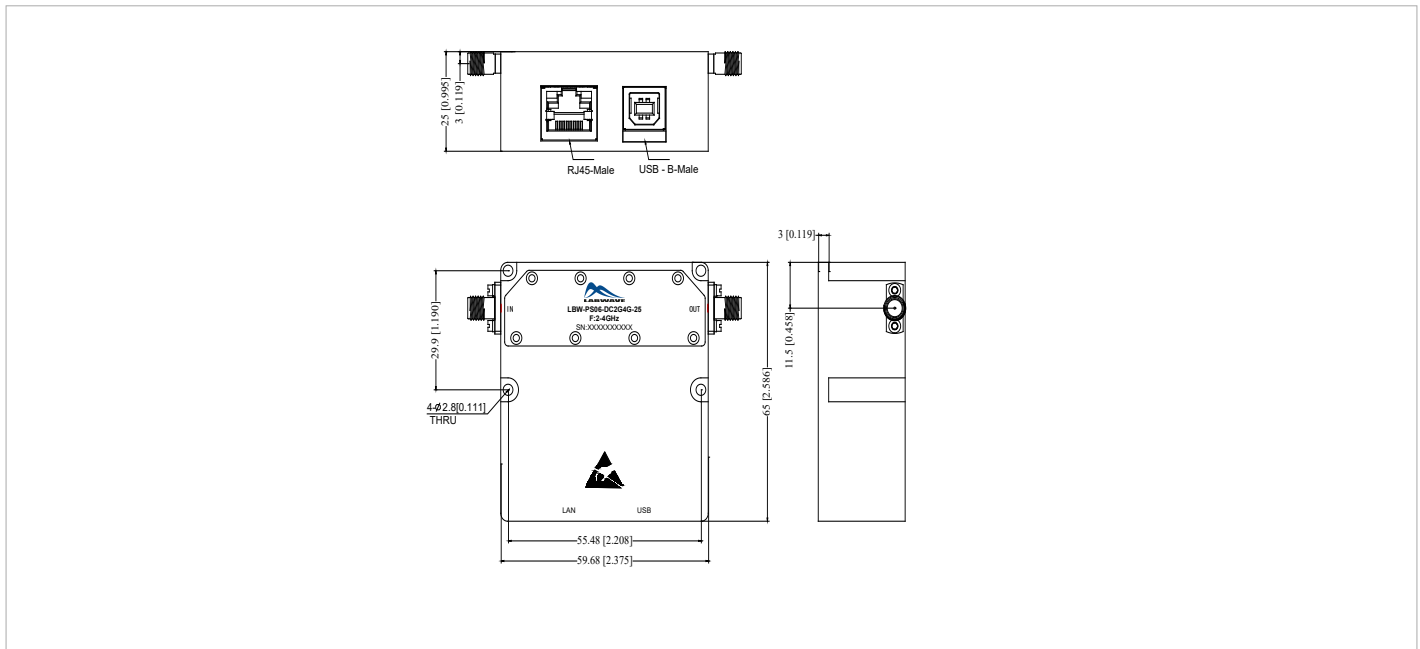
Part No.	Description
LBW-PS06-DC2G4G-25	2-4GHz Digital Phase Shifter

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 Phase Shifter	1
2	Fig b. USB2.0 Cable (5 feet / 1.5 meter)	1
3	Fig c. Network Cable (6 feet / 2 meter)	1

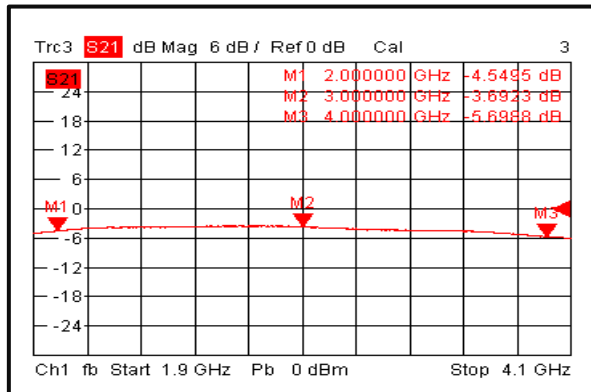


Fig b.

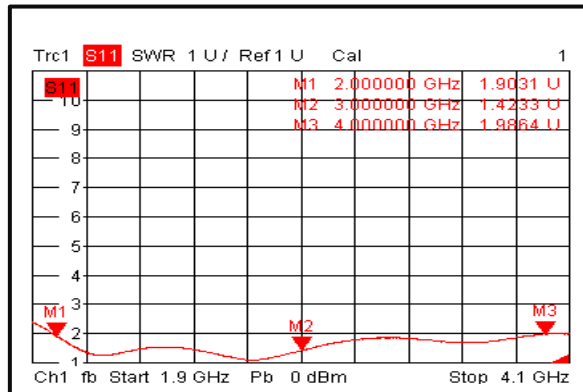


Fig c.

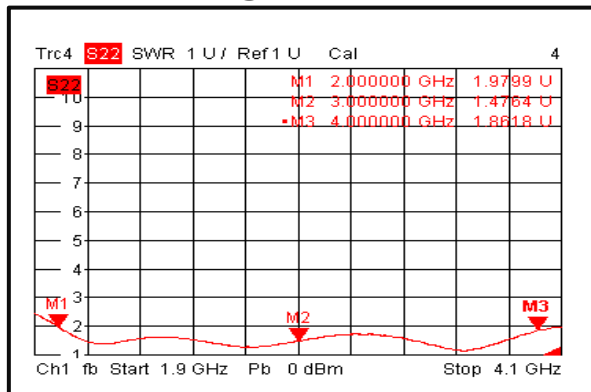
Insertion Loss@+25°C



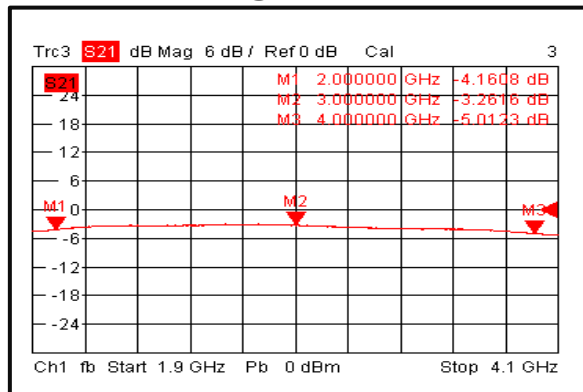
Input VSWR @+25°C



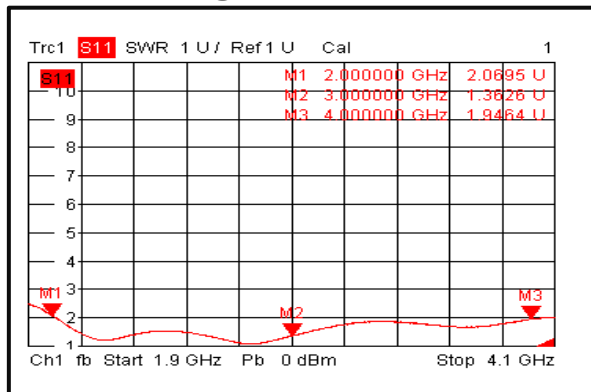
Output VSWR @+25°C



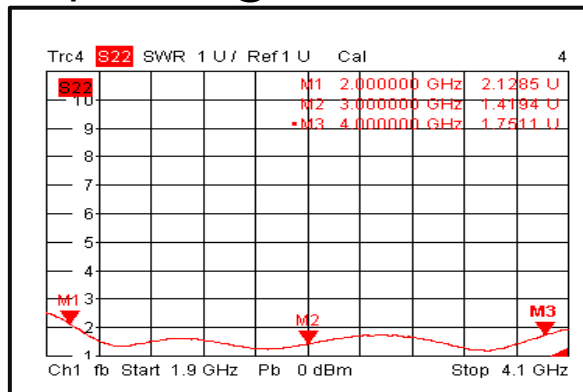
Insertion Loss @-40°C



Input VSWR @-40°C

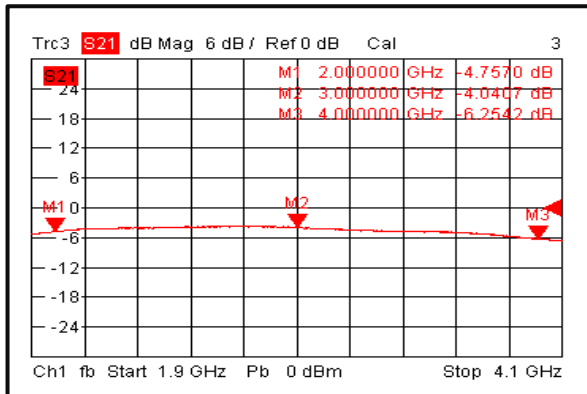


Output VSWR @-40°C

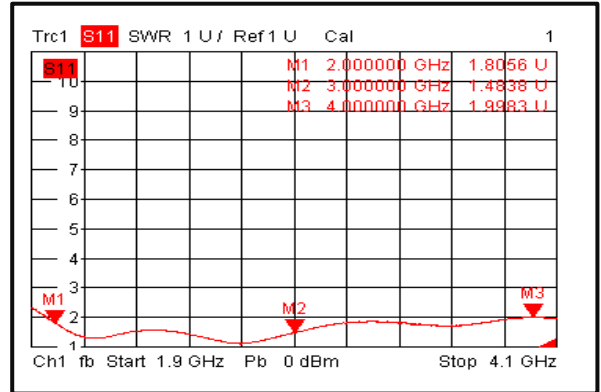


Фазовращатель с цифровым управлением USB / Ethernet 360° 2 ГГц – 4 ГГц

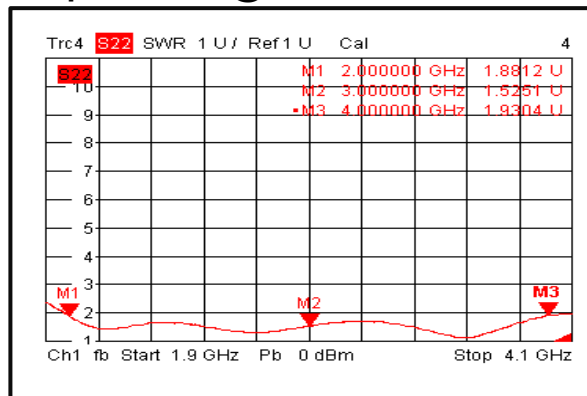
Insertion Loss @+85°C



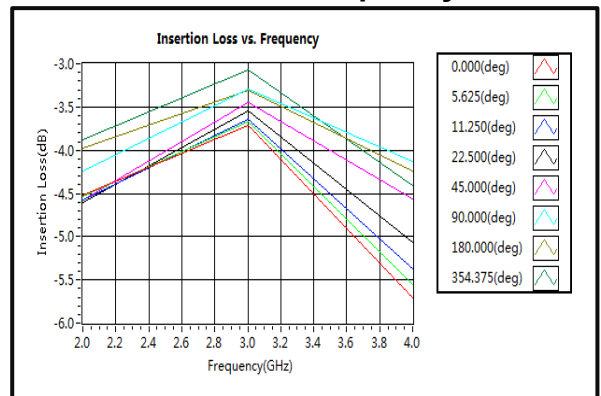
Input VSWR @+85°C



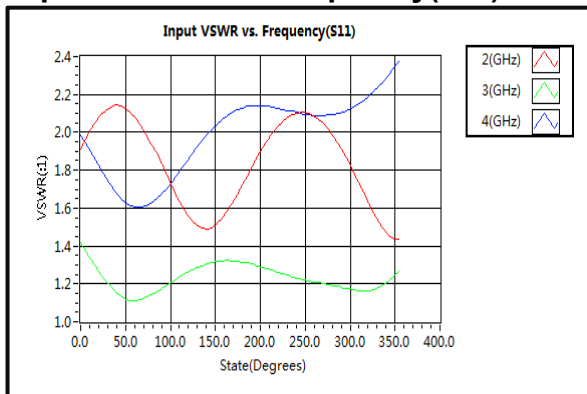
Output VSWR @+85°C



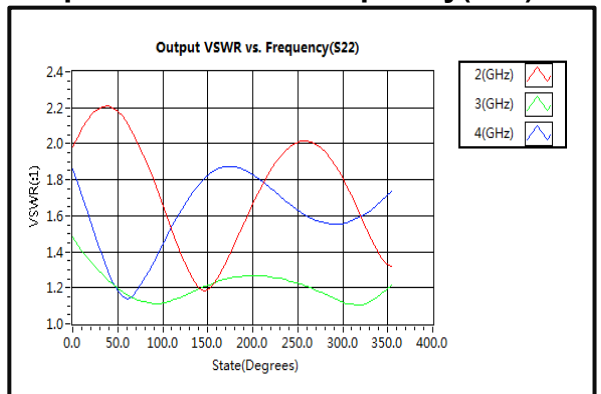
Insertion Loss vs. Frequency



Input VSWR vs. Frequency(s11)

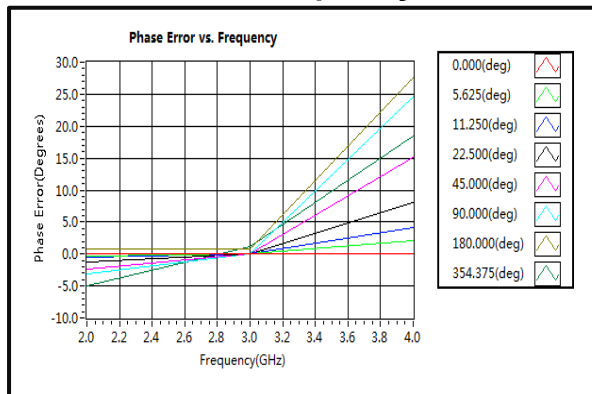


Output VSWR vs. Frequency(s22)

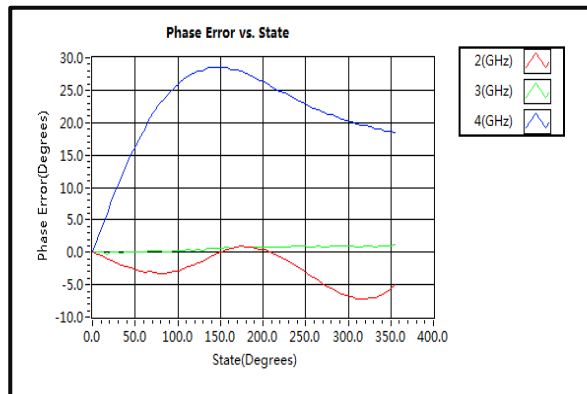


Фазовращатель с цифровым управлением USB / Ethernet 360° 2 ГГц – 4 ГГц

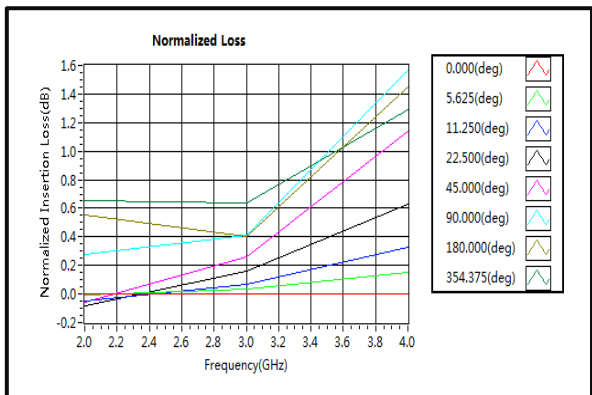
Phase Error vs. Frequency



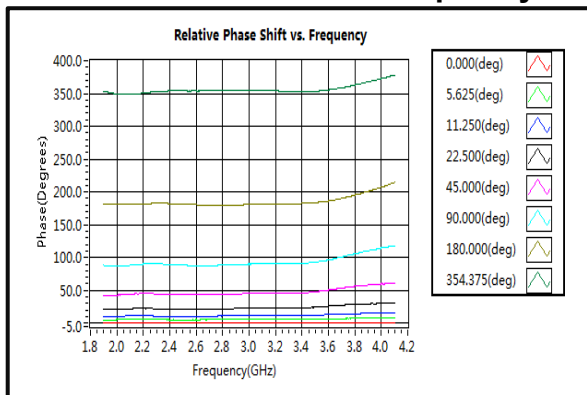
Phase Error vs. State



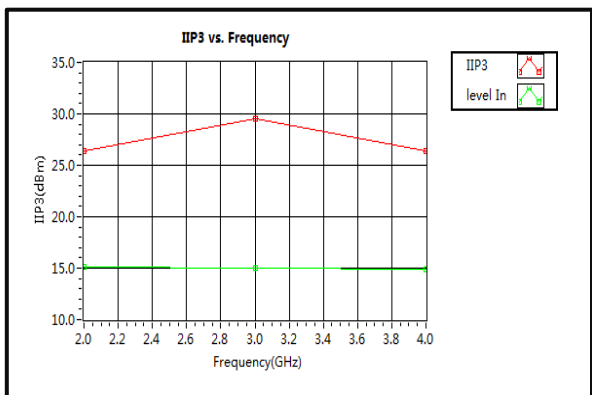
Normalized Loss. All States



Relative Phase Shift vs. Frequency



IIP3



Фазовращатель с цифровым управлением USB / Ethernet 360° 2 ГГц – 4 ГГц

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	PS:PS x;	Set phase step	Phase value	PS:PS2; Return : 2*step size
4	PS:PS?;	Query current phase value	Phase step, Phase value	PS:PS? Return :2, 2*step size
5	PS:PSS?	Query phase step size	Phase step size	PS:PSS? 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

Фазовращатель с цифровым управлением USB / Ethernet 360° 2 ГГц – 4 ГГц



USB Control Panel

LABWAVE

Select Device

- Digital Control Switch
- Digital Control Attenuator
- Digital Control Phase Shifter

Control Interface

- USB
- ETHERNET

Please select a COM port: COM140

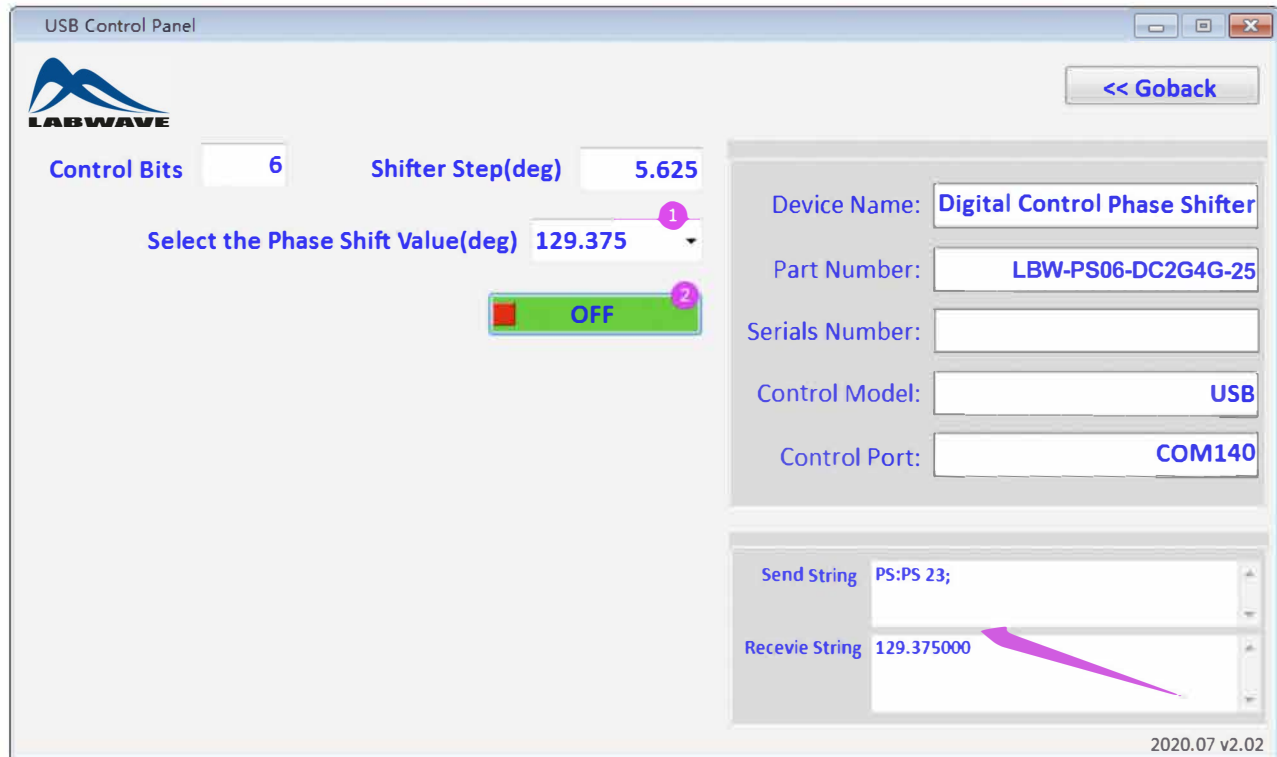
Connect Device

The device number is:
Device IP:192.168.1.225:5100

Notes

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

2020.07 v2.02



USB Control Panel

LABWAVE

<< Goback

Control Bits: 6 Shifter Step(deg): 5.625

Select the Phase Shift Value(deg): 129.375

OFF

Device Name: Digital Control Phase Shifter

Part Number: LBW-PS06-DC2G4G-25

Serials Number:

Control Model: USB

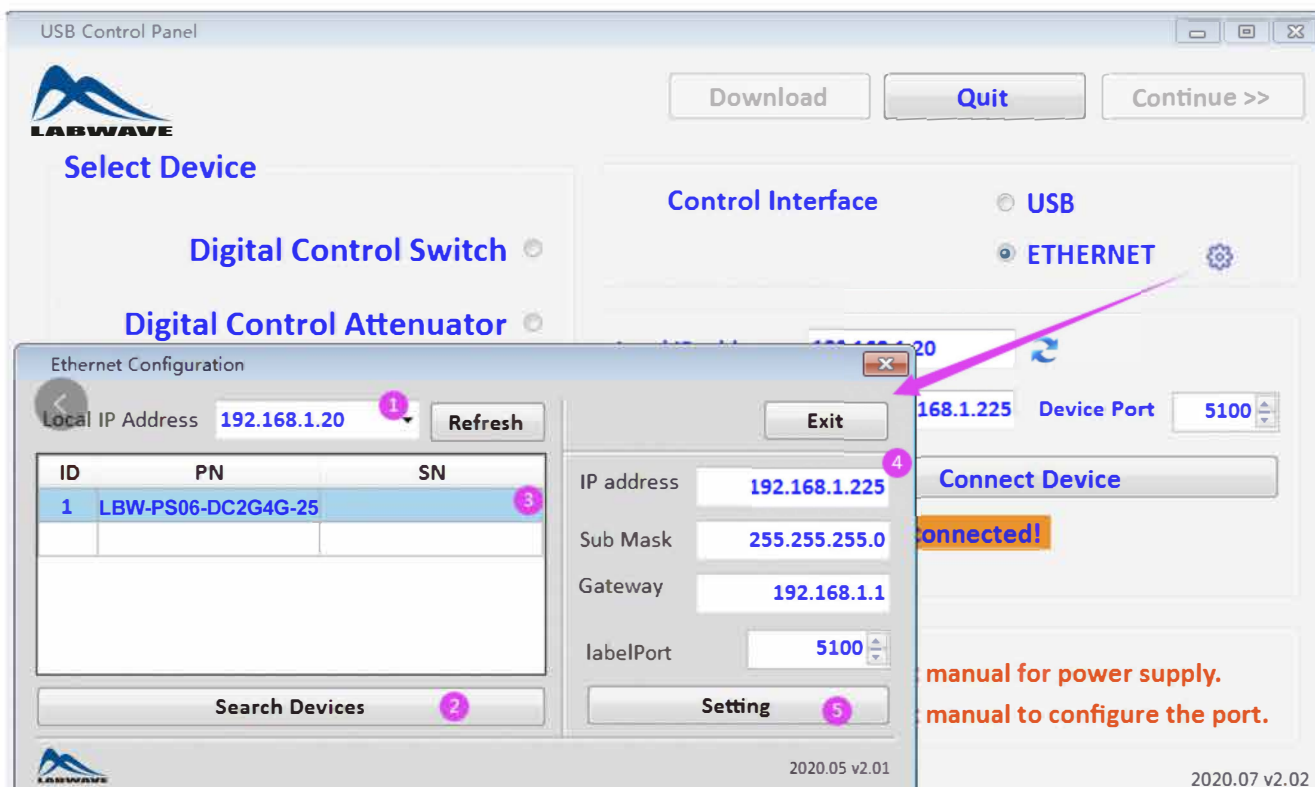
Control Port: COM140

Send String: PS:PS 23;

Recevie String: 129.375000

2020.07 v2.02

Фазовращатель с цифровым управлением USB / Ethernet 360° 2 ГГц – 4 ГГц



The screenshot displays the 'USB Control Panel' software interface. The main window has a title bar 'USB Control Panel' and standard window controls. It features the LABWAVE logo and a 'Select Device' section with options for 'Digital Control Switch' and 'Digital Control Attenuator'. A 'Control Interface' section allows switching between 'USB' and 'ETHERNET' (selected). A 'Connect Device' button is visible, with a 'connected!' status indicator below it. A 'Device Port' is set to 5100. A 'manual for power supply' and 'manual to configure the port' are mentioned in orange text.

An 'Ethernet Configuration' dialog box is open, showing the following fields and actions:

- Local IP Address: 192.168.1.20 (1)
- Refresh button
- Table with columns ID, PN, and SN:

ID	PN	SN
1	LBW-PS06-DC2G4G-25	

- Search Devices button (2)
- IP address: 192.168.1.225 (4)
- Sub Mask: 255.255.255.0
- Gateway: 192.168.1.1
- labelPort: 5100
- Exit button
- Setting button (5)

Version information: 2020.05 v2.01 (bottom left) and 2020.07 v2.02 (bottom right).