USB / Ethernet Absorptive Coaxial SP4T Switch 0.5GHz-43.5GHz

Product Description

RFSP4TA5M43GUSB is an absorptive USB / ethernet controlled coaxial single pole four throw switch with a frequency range of 0.5 to 43.5GHz.

The power input of this switch is 23dBm max. The insertion loss is 5.5dB with a typical isolation of 70dB.

This product features fast switching speed, low insertion loss and high isolation.

The working temperature of this product is between - 40℃ and + 85℃

Features

- USB / Ethernet Control
- Control SW included.
- Low Power Cold Switching
- Insertion Loss 5.5dB
- Isolation 70dB
- 50 Ohm Matched

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), USB Powered

Parameter	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.5		18	18		30	30		43.5	GHz
Insertion Loss		3.5	4.0		4.5	5.0		5.5	6.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	60	70		50	57		45	50		dB
Input VSWR		2.0	2.5		2.5	3.0		2.5	3	: 1
Output VSWR		2.0	2.5		2.5	3.0		2.5	3	: 1
RF Input Power (CW)						23			23	dBm
DC Power Dissipation		0.8			0.8			0.8		W
0.1dB Compression Point (P 0.1dB)		23			23			23		dBm
IIP3		40			43			38		dBm
Bias Current	260 Typ.									mA
Power Supply	USB (+5.0V)									
Control Interface	USB2.0 & Ethernet(IPv4) (Control Cable Included)									
Weight	0.2 Max.									lbs
Impedance	50									Ω
Input / Output Connectors	2.92mm-Female(Input) - 2.92mm-Female(Output)									
Package	Epoxy Sealed (Standard)									
	Hermetically Sealed (Optional)									

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Sales: sales@rflambda.com Technical: support@rflambda.com

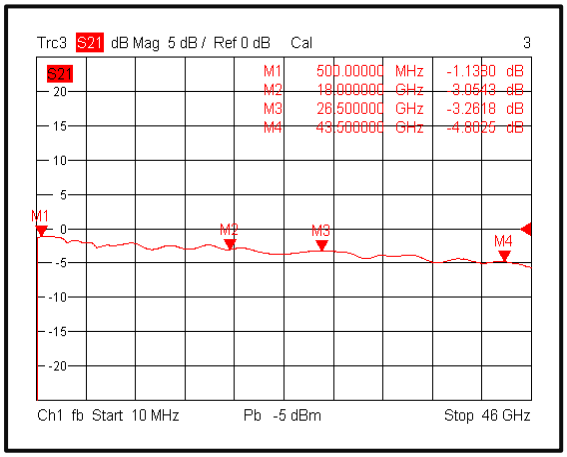
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40ºC to +85ºC (Case Temperature)
Storage Temperature	-50ºC to +105ºC
Thermal Shock	-40ºC → +85ºC (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 +85ºC 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)

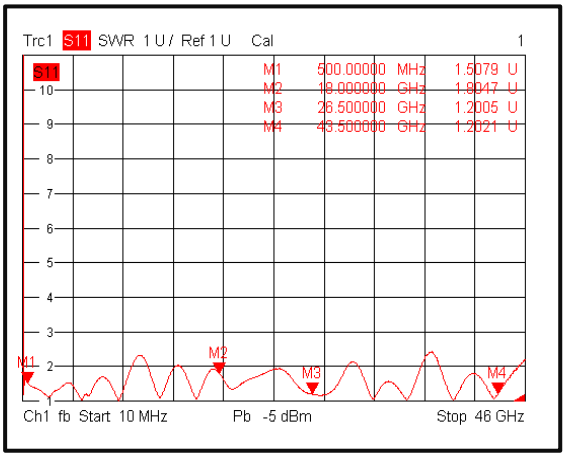
*For vibration testing details please see additional information section.

Typical Performance Plots

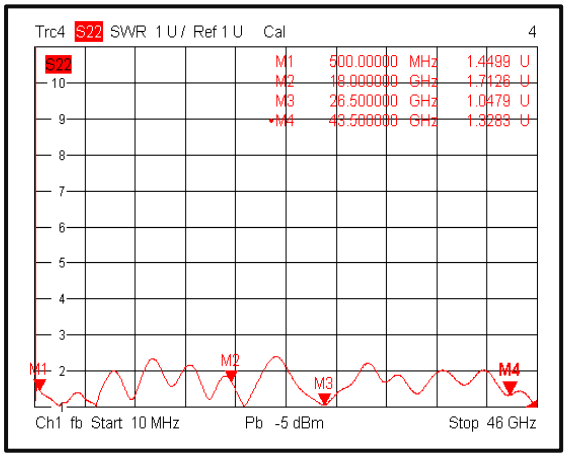
Insertion Loss @+25℃



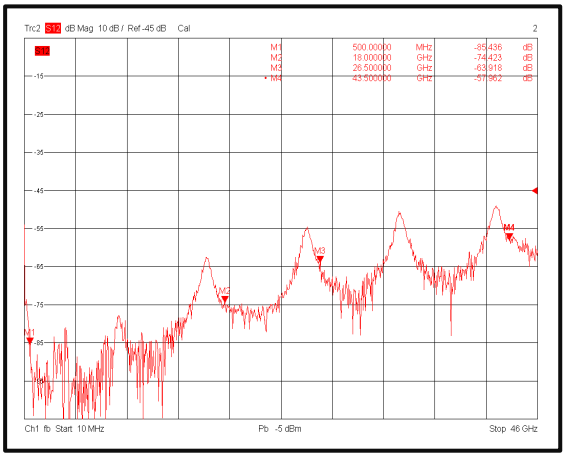
Input VSWR @+25℃



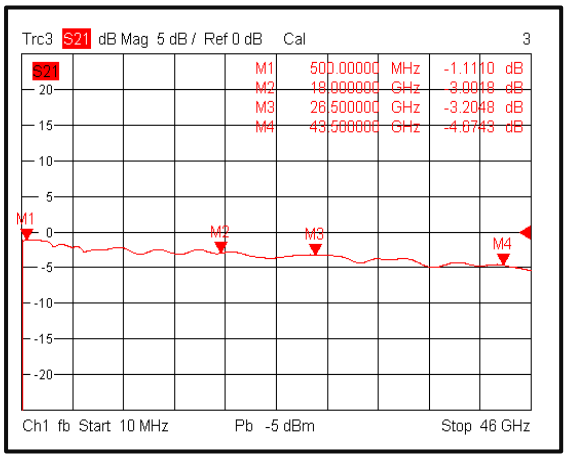
Output VSWR @+25℃



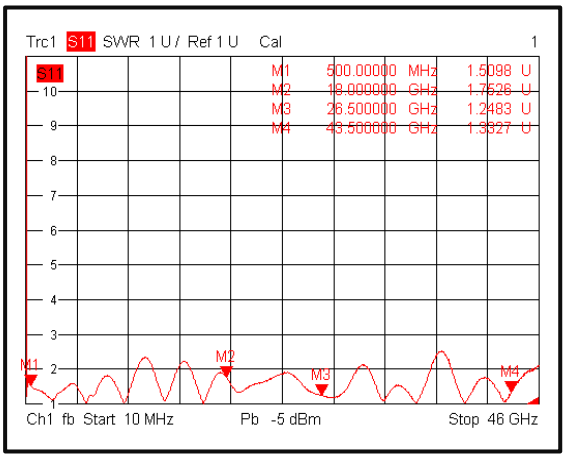
Isolation @+25℃



Insertion Loss @-40℃

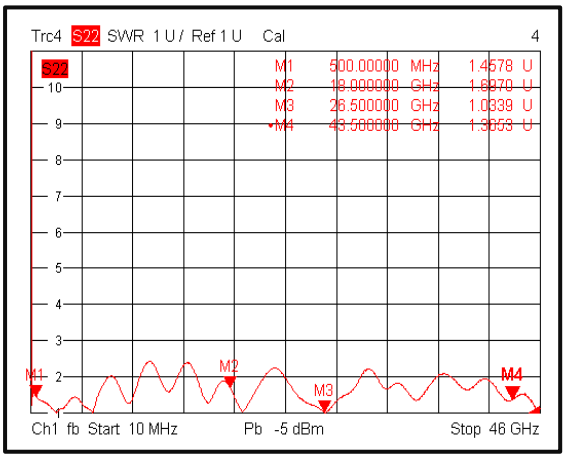


Input VSWR @-40℃

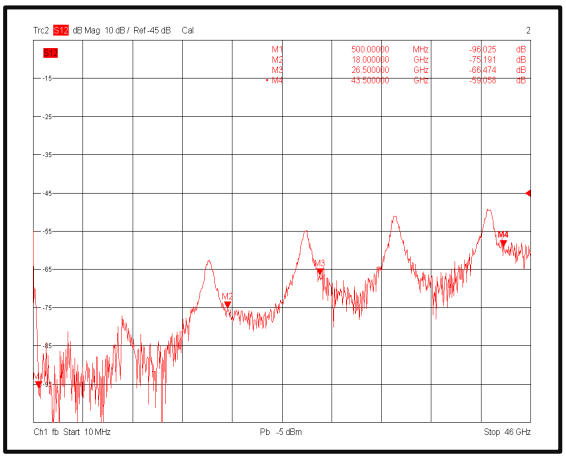


Typical Performance Plots

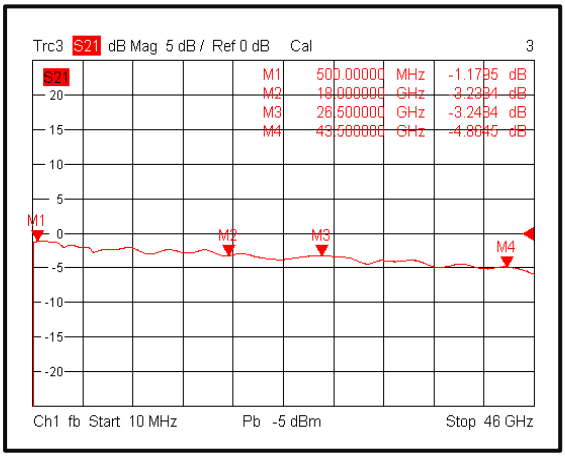
Output VSWR @-40℃



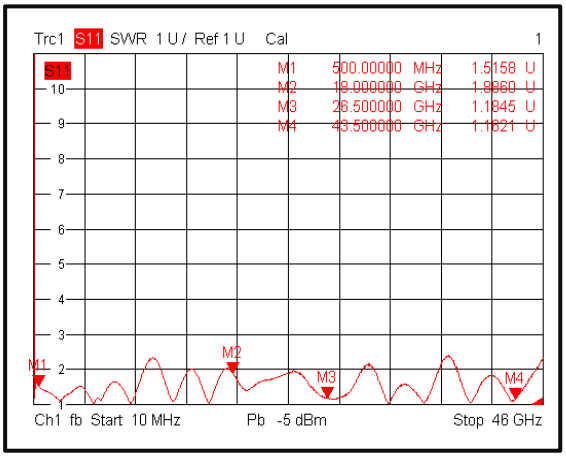
Isolation @-40℃



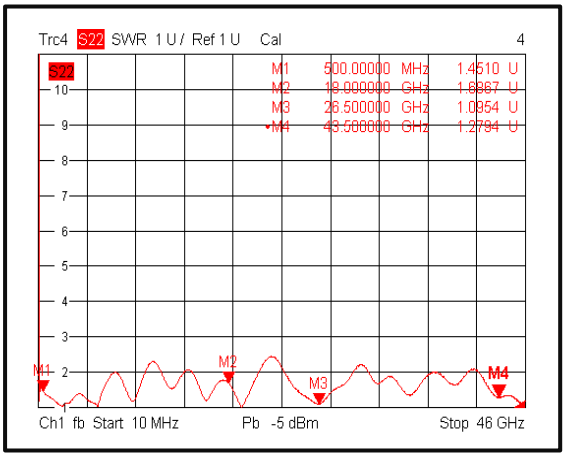
Insertion Loss @+85℃



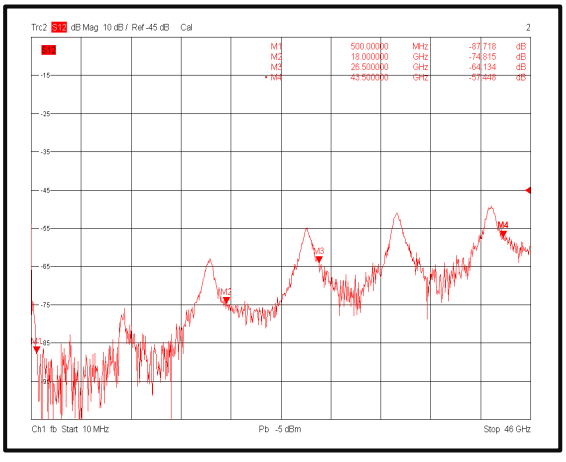
Input VSWR @+85℃



Output VSWR @+85℃

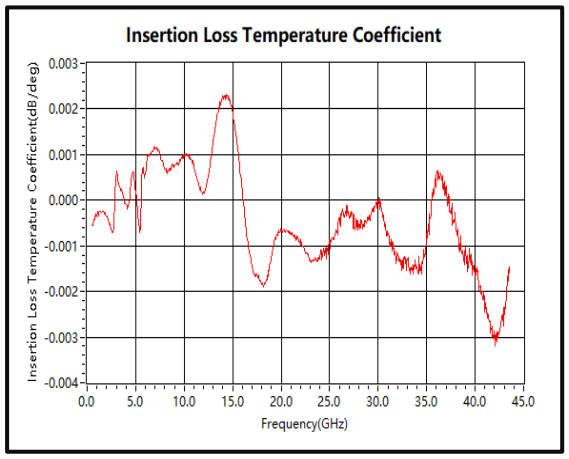


Isolation @+85℃

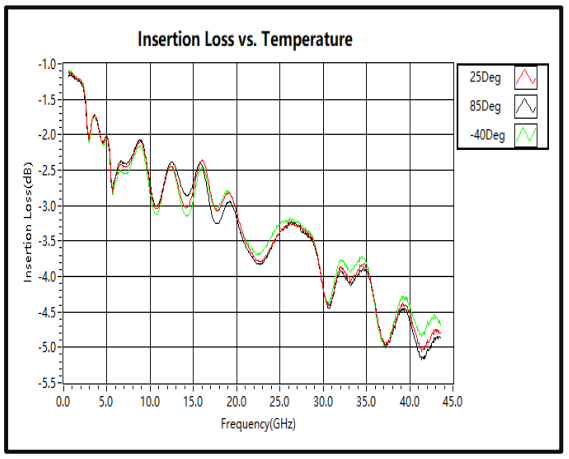


Typical Performance Plots

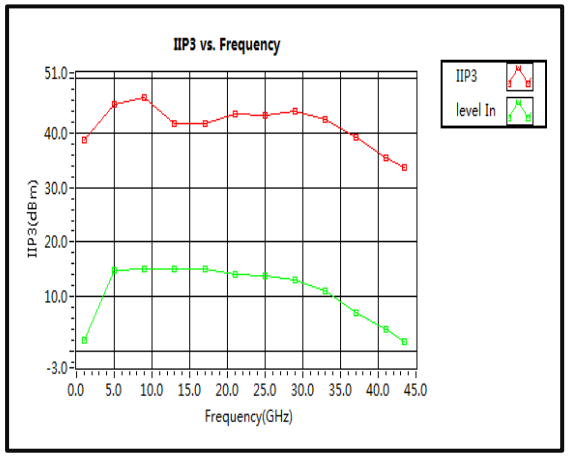
Insertion Loss Temperature Coefficient



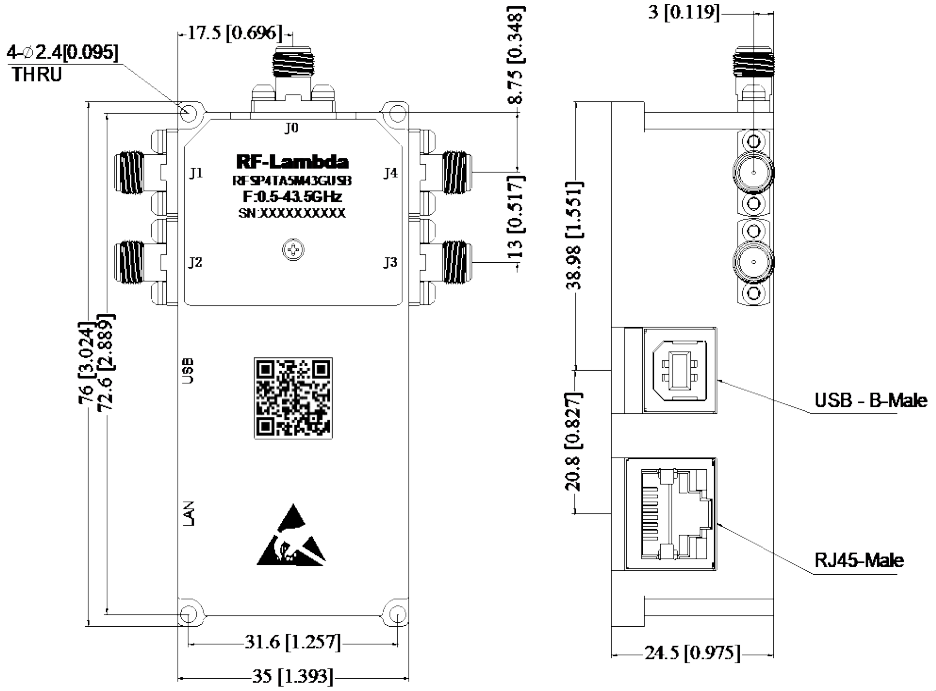
Insertion Loss vs. Temperature

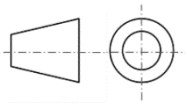


IIP3



Outline Drawing





Notes:
1. Package Material: Aluminum
2. Plating: Nickel
3. All dimensions are in millimeters [inches].
4. Housing Tolerances±0.1 [0.004]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 Switch	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

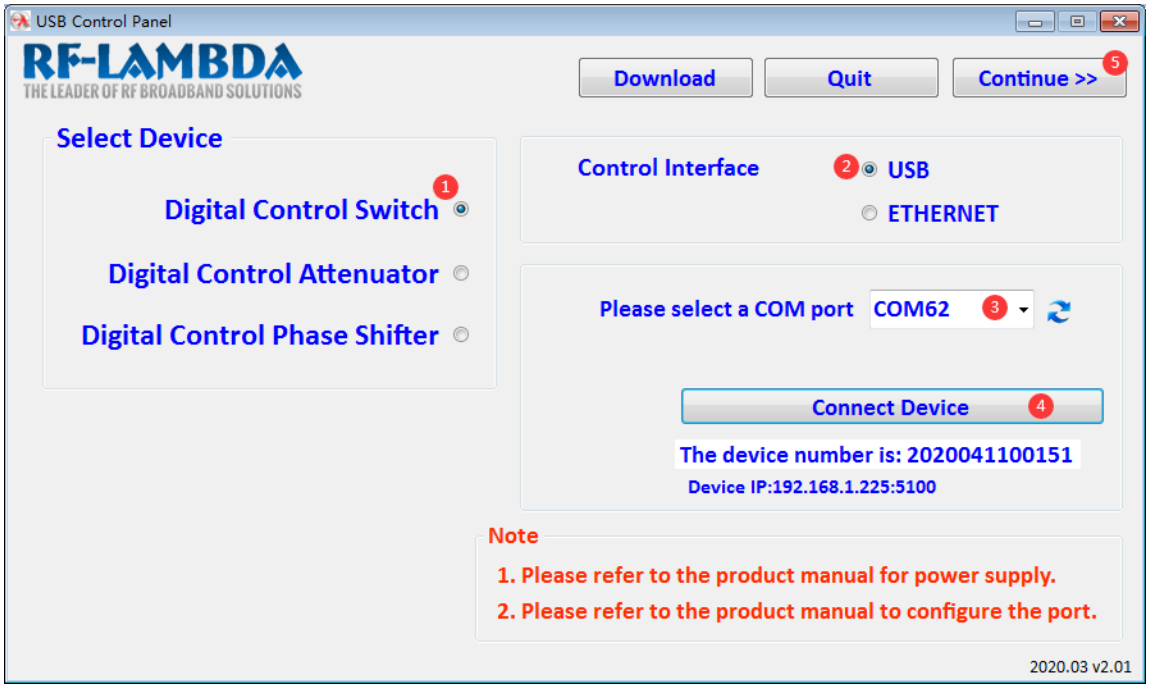
Format Requirement	USB (virtual serial port) Configuration	LAN Interface	Range of Parameters
a. All commands must end with a semicolon. b. All commands are case - insensitive. c. Comma is used to separate multiple parameters in commands. d. All commands are suitable for USB(virtual serial port) and LAN 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 set.	x(channel):1～n. y(period ,ms): 0.01～2000 z(pulse ,ms): 0.01～2000

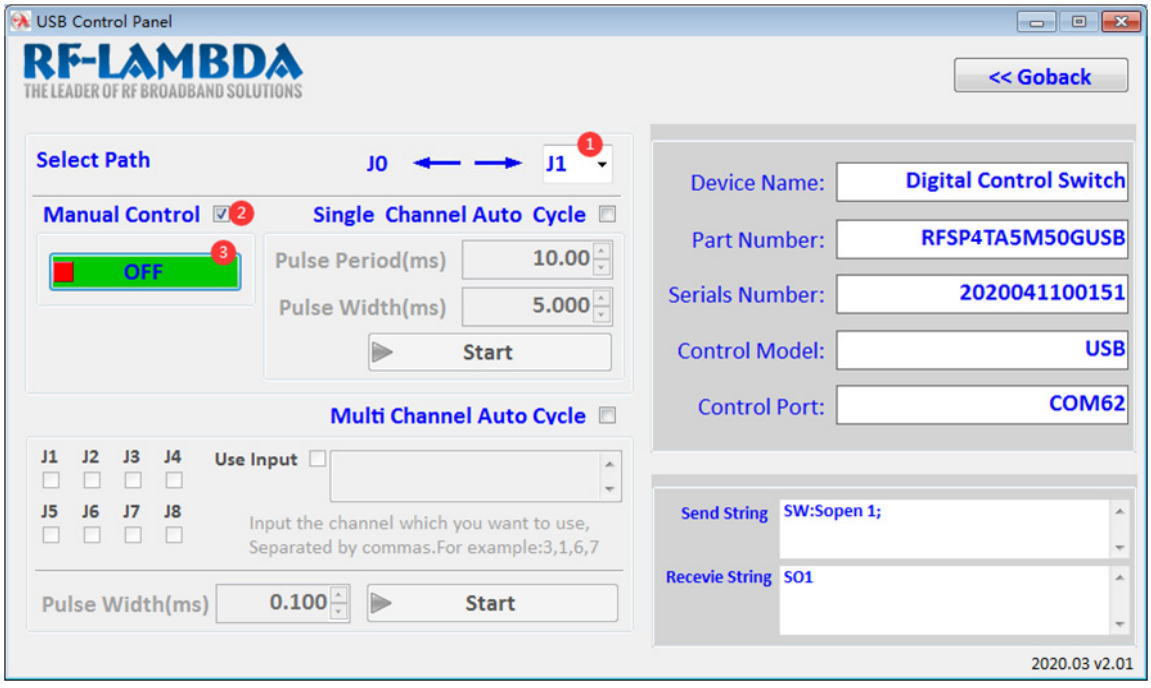
Command Specification

ID	Order	Description	Return	Example
1	*IDN?;	Query product information	Product PN ,SN, Manufacturer , version	*IDN?;
2	Reset;	Reset the product	/	Reset;
3	SW:Sopen x;	Open channel x	SOx	SW:Sopen 2; Return : SO2
4	SW:Sloop x,y,z;	Automatic cycle opening channel x with period as y (ms) and pulse width as z(ms)	SLx	SW:Sloop 2,0.1,0.05; Return :SL2
5	SW:Mloop x1,x2,…,z;	Cycle on channels x1, x2,… with pulse width as z(ms)	MLx1	SW:Mloop 1,2,0.1; Return :ML1
6	SW:Close;	Close all channel. Stop loop ,close all channel.	SC0	SW:Close; Return: SC0

Error Code Query

ID	Return	Description
1	E1	Semicolon missing
2	E2	Incorrect commands
3	E3	Missing space
4	E4	Incorrect parameter format
5	E5	Out of range parameters


USB Control Panel
RF-LAMBDA
THE LEADER OF RF BROADBAND SOLUTIONS
Download
Quit
Continue >>
5
Select Device
Digital Control Switch
1
Digital Control Attenuator
Digital Control Phase Shifter
Control Interface
2
USB
ETHERNET
Please select a COM port
COM62
3
Connect Device
4
The device number is: 2020041100151
Device IP:192.168.1.225:5100
Note
1. Please refer to the product manual for power supply.
2. Please refer to the product manual to configure the port.
2020.03 v2.01


USB Control Panel
RF-LAMBDA
THE LEADER OF RF BROADBAND SOLUTIONS
<< Goback
Select Path
J0
J1
1
Manual Control
2
Single Channel Auto Cycle
OFF
3
Pulse Period(ms)
10.00
Pulse Width(ms)
5.000
Start
Multi Channel Auto Cycle
J1 J2 J3 J4
Use Input
J5 J6 J7 J8
Input the channel which you want to use,
Separated by commas.For example:3,1,6,7
Pulse Width(ms)
0.100
Start
Device Name:
Digital Control Switch
Part Number:
RFSP4TA5M50GUSB
Serials Number:
2020041100151
Control Model:
USB
Control Port:
COM62
Send String
SW:Sopen 1;
Recevie String
SO1
2020.03 v2.01

USB Control Panel
RF-LAMBDA
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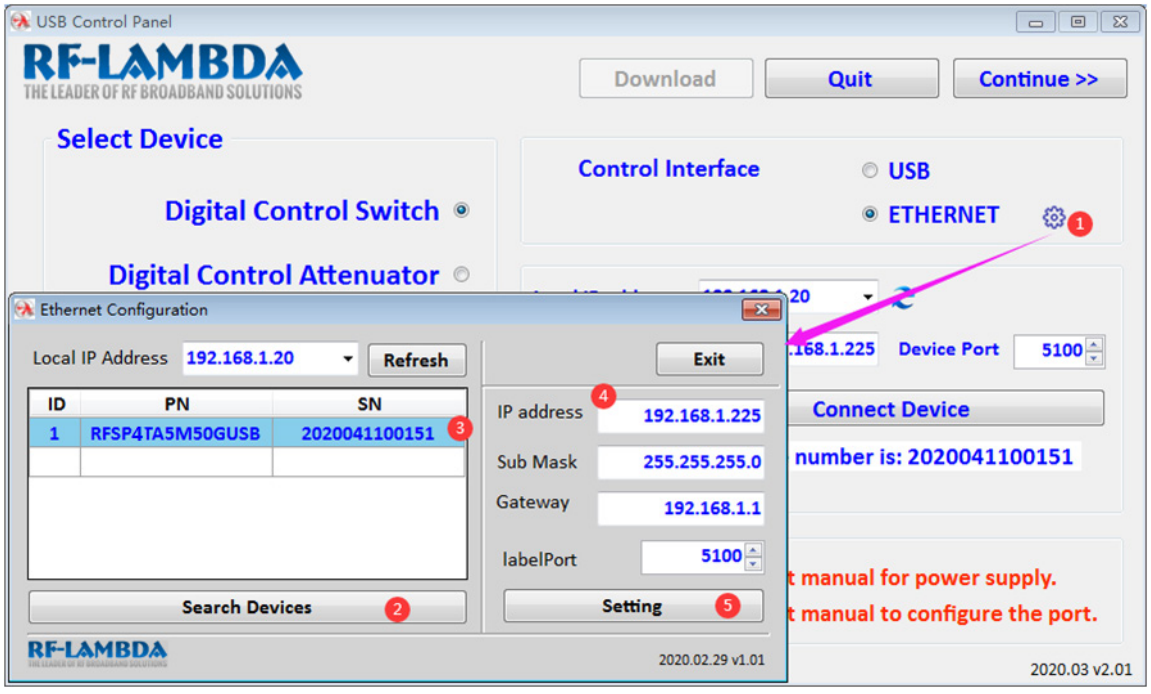
Download
Quit
Continue >>
6
Select Device
1
Digital Control Switch
Digital Control Attenuator
Digital Control Phase Shifter
Control Interface
USB
2
ETHERNET
Local IP address
192.168.1.20
Device IP address
3
192.168.1.225
Device Port
4
5100
Connect Device
5
The device number is: 2020041100151
Note
1. Please refer to the product manual for power supply.
2. Please refer to the product manual to configure the port.
2020.03 v2.01


USB Control Panel
RF-LAMBDA
THE LEADER OF RF BROADBAND SOLUTIONS
Download
Quit
Continue >>
Select Device
Digital Control Switch
Digital Control Attenuator
Control Interface
USB
ETHERNET
1
Ethernet Configuration
Local IP Address
192.168.1.20
Refresh
Exit
ID
PN
SN
1
RFSP4TA5M50GUSB
2020041100151
3
IP address
4
192.168.1.225
Sub Mask
255.255.255.0
Gateway
192.168.1.1
labelPort
5100
Search Devices
2
Setting
5
RF-LAMBDA
2020.02.29 v1.01
Device Port
5100
Connect Device
number is: 2020041100151
manual for power supply.
manual to configure the port.
2020.03 v2.01

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
RFSP4TA5M43GUSB	Connectors 2.92mm-Female	0.5-43.5GHz SP4T USB / Ethernet Controlled Switch

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