

## USB / Ethernet Absorptive Coaxial SP8T Switch 2GHz-50GHz



### Features

- USB / Ethernet Control
- Control SW included.
- Low Power Cold Switching
- Insertion Loss 8.0dB
- Isolation 50dB
- 50 Ohm Matched

### Product Description

RFSP8TA0250GUSB is an absorptive USB / ethernet controlled coaxial single pole eight throw switch with a frequency range of 2 to 50GHz.

The power input of this switch is 23dBm max. The insertion loss is 8.0dB with a typical isolation of 50dB.

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

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

### 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		2-18			18-43.5			43.5-50		GHz
Insertion Loss		6.0	7.0		8.0	9.5		9.5	10.0	dB
Insertion Loss Temperature Coefficient		0.003			0.003			0.003		dB/ °C
Isolation	50	60		48	50		43	48		dB
Input VSWR		2	3		2.5	3		2	2.5	: 1
Output VSWR		2	3		2.5	3		2	2.5	: 1
RF Input Power (CW)			23			23			23	dBm
DC Power Dissipation		1.5			1.5			1.5		W
0.1dB Compression Point (P 0.1dB)		23			23			23		dBm
IIP3		43			38			33		dBm
Bias Current					320 Typ.					mA
Power Supply					USB(+5.0V)					
Control Interface					USB2.0 & Ethernet(IPv4) (Control Cable Included)					
Weight					0.34 Max.					lbs
Impedance					50					Ω
Input / Output Connectors					2.4mm-Female(Input) – 2.4mm-Female(Output)					
Package					Epoxy Sealed (Standard)					
					Hermetically Sealed (Optional)					

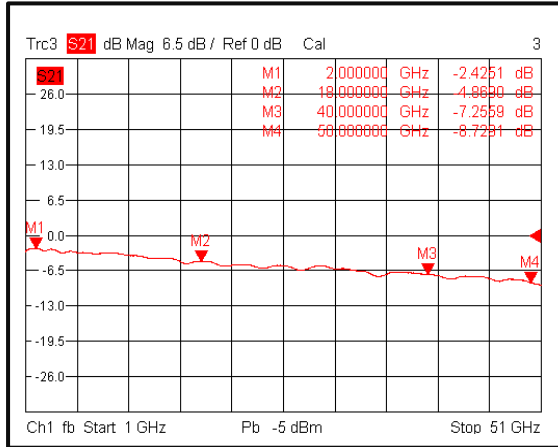
**Environmental Specifications and Test Standards**

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

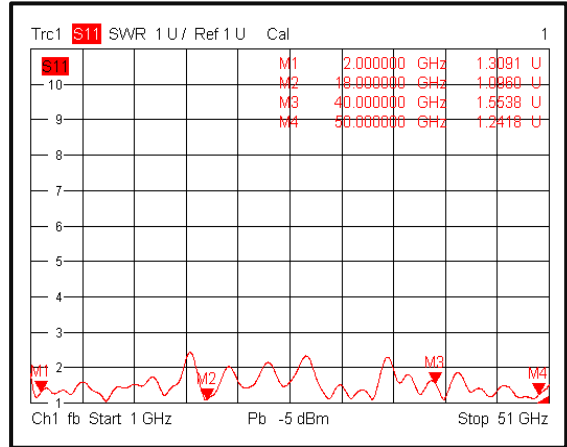
\*For vibration testing details please see additional information section.

Typical Performance Plots

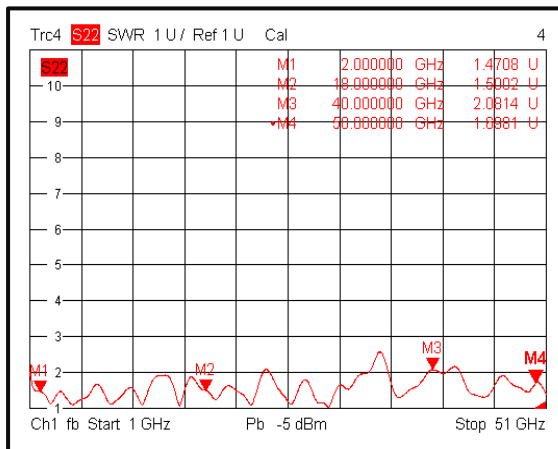
Insertion Loss @+25°C



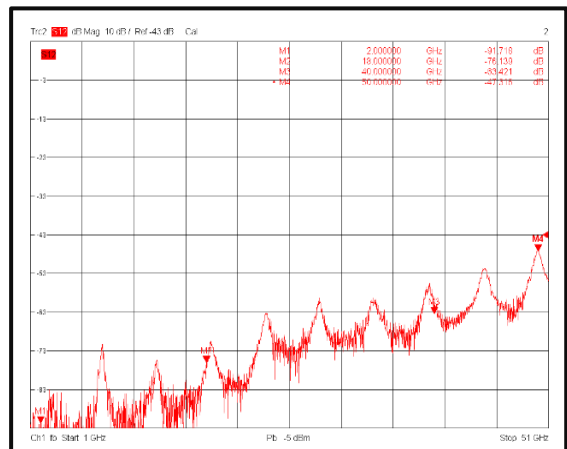
Input VSWR @+25°C



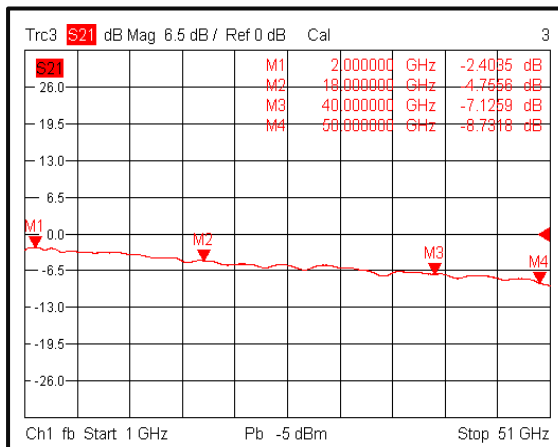
Output VSWR @+25°C



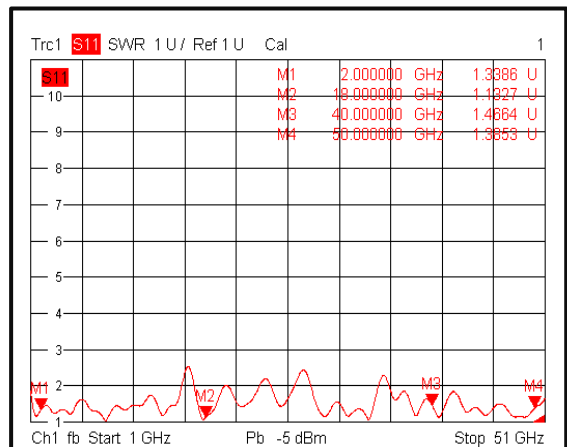
Isolation @+25°C



Insertion Loss @-40°C

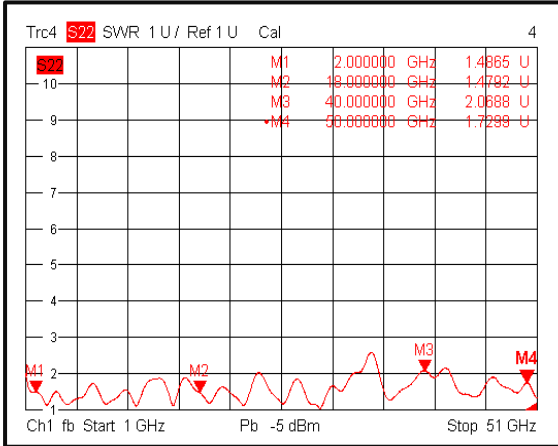


Input VSWR @-40°C

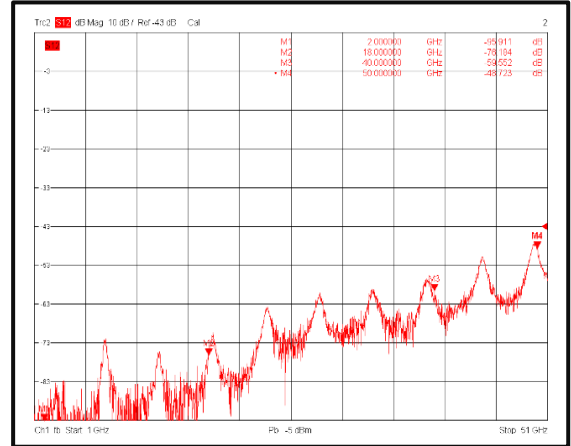


Typical Performance Plots

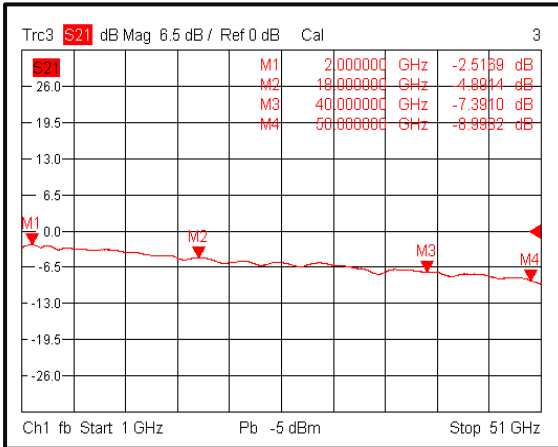
Output VSWR @-40°C



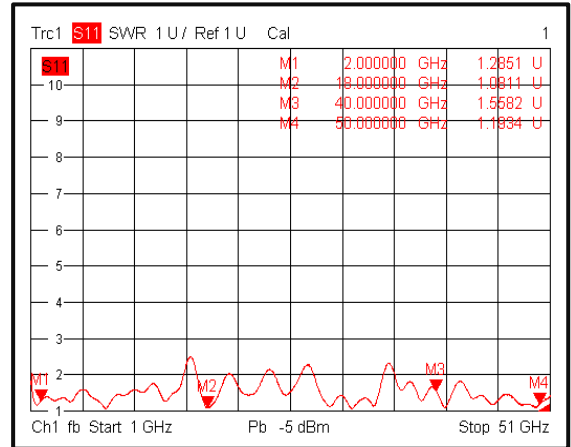
Isolation @-40°C



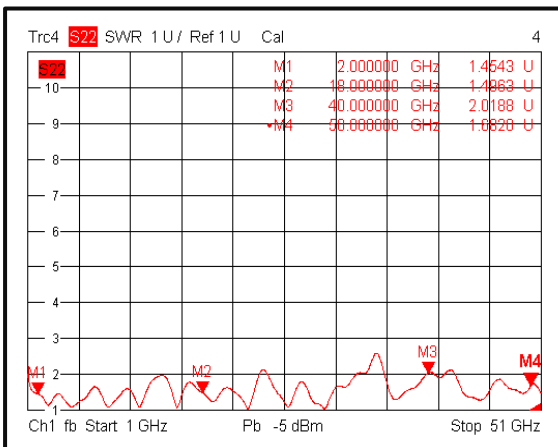
Insertion Loss @+85°C



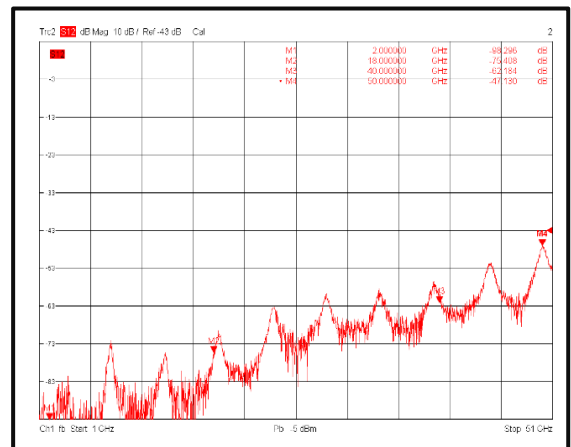
Input VSWR @+85°C



Output VSWR @+85°C

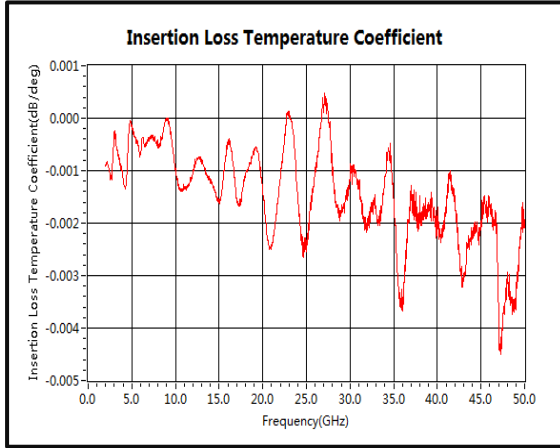


Isolation @+85°C

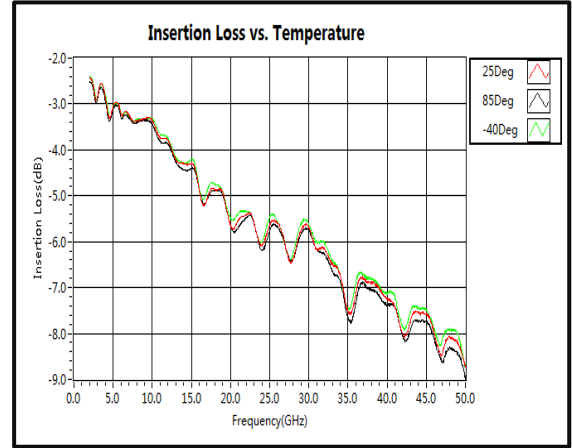


**Typical Performance Plots**

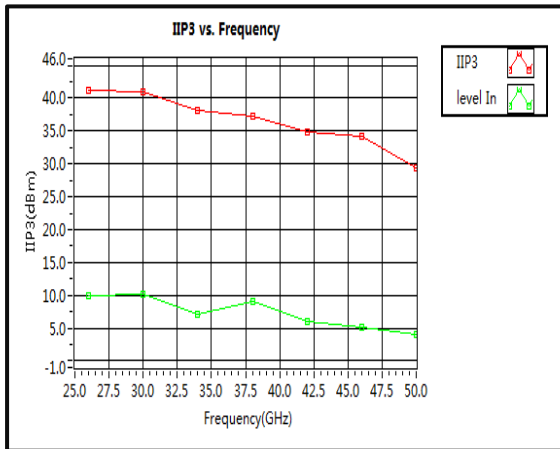
**Insertion Loss Temperature Coefficient**



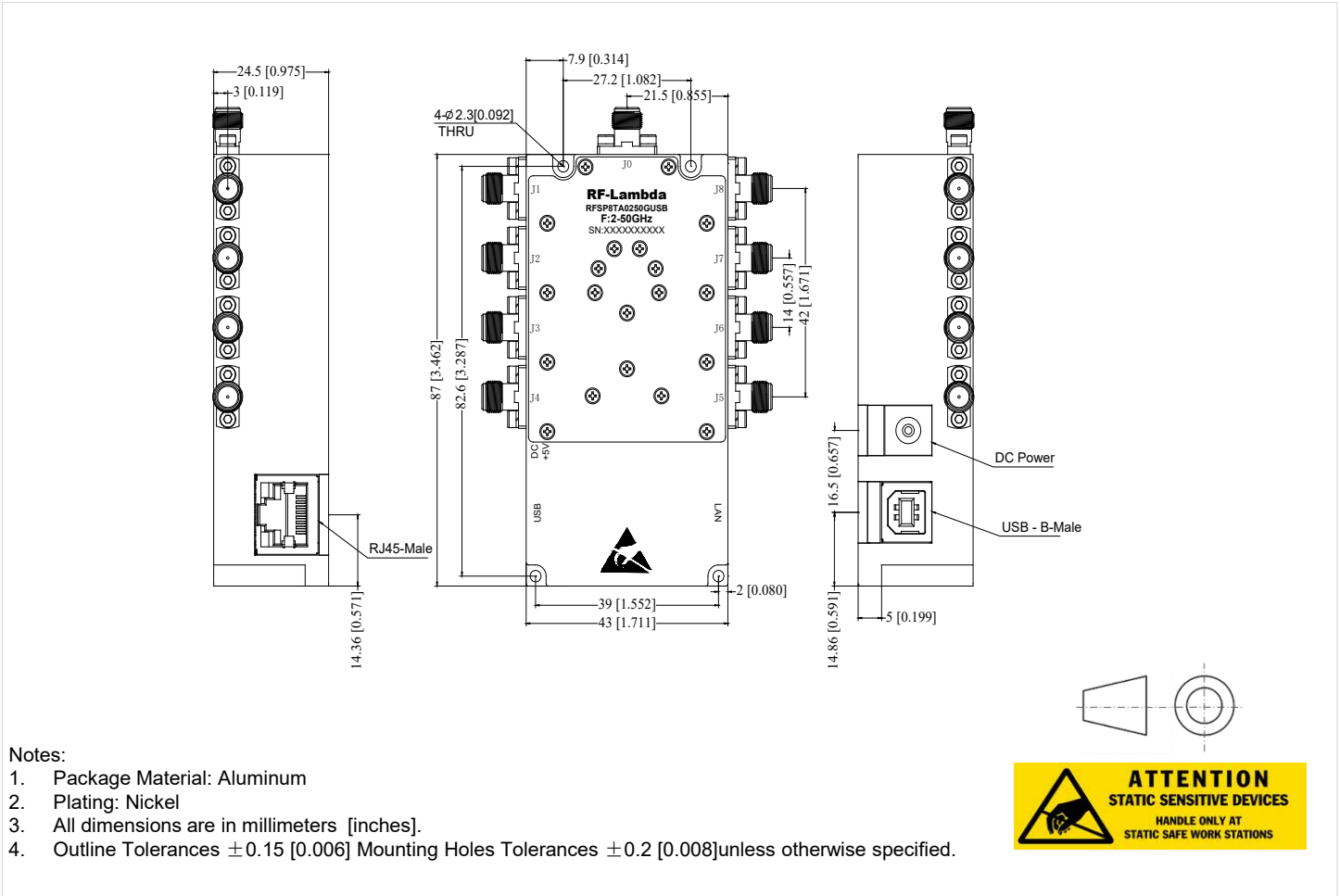
**Insertion Loss vs. Temperature**



**IIP3**



**Outline Drawing**



**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
4	Fig d. International Universal AC Power Adapter (For SP6T or higher)	1



Fig b.



Fig c.



Fig d.

**Control Content Description**

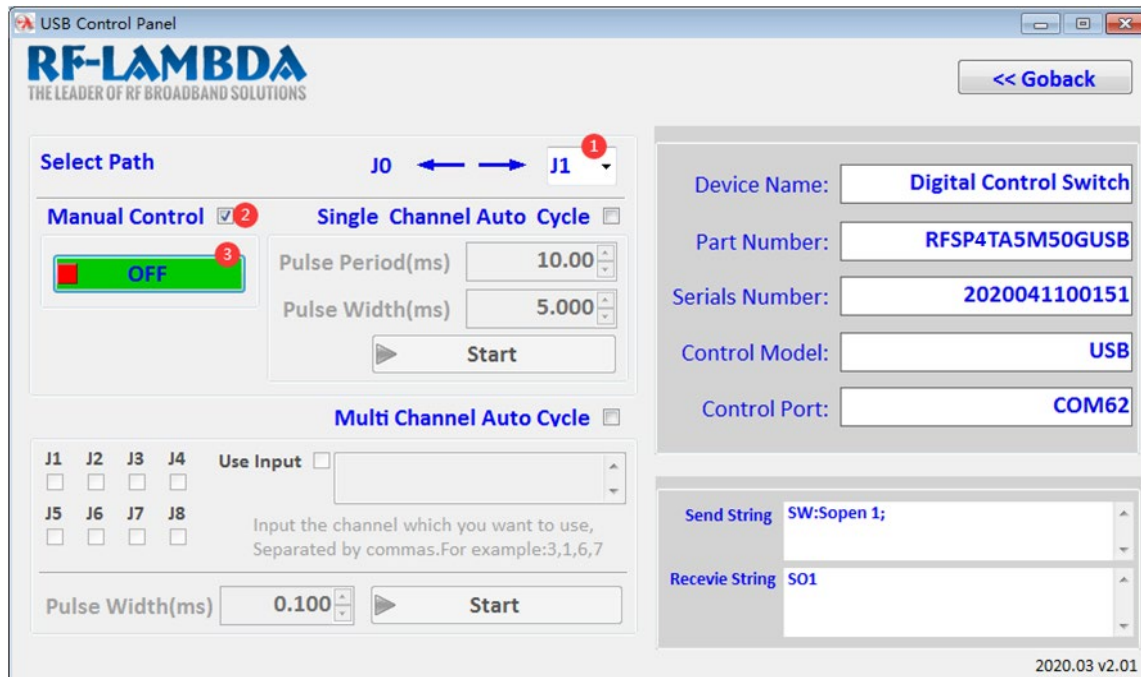
Format Requirement	USB (virtual serial port ) Configuration	LAN Interface	Range of Parameters
<p>a. All commands must end with a semicolon.                      b. All commands are case - insensitive.                      c. Comma is used to separate multiple parameters in commands.                      d. All commands are suitable for USB(virtual serial port) and LAN interface.</p>	<p>Baud Rate :115200                      Data bits : 8                      Parity : None                      Stop bits : 1                      Flow Type :None</p>	<p>IP address and Port.                      Default:192.168.1.225:5100                      Use 'USB Control Panel.exe' to set.</p>	<p>x(channel):1~n.                      y(period ,ms):                      0.01~2000                      z(pulse ,ms):                      0.01~2000</p>

**Command Specification**

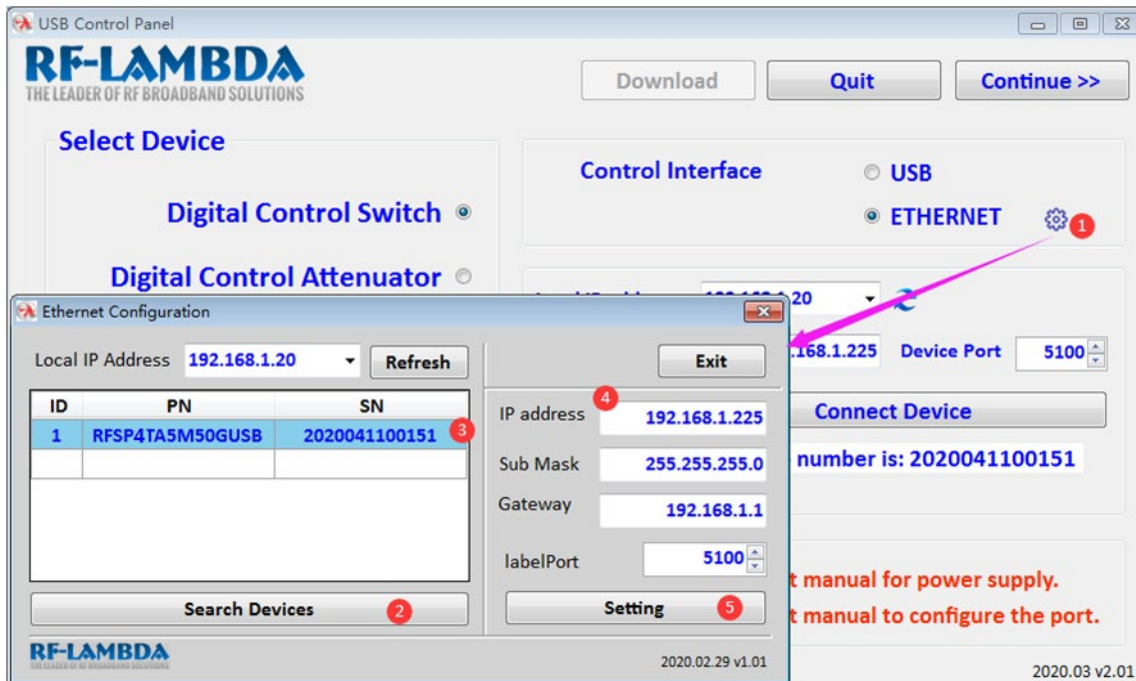
ID	Order	Description	Return	Example
1	*IDN?;	Query product information	Product PN ,SN, Manufacturer , version	*IDN?;
2	Reset;	Reset the product	/	Reset;
3	SW:Sopen x;	Open channel x	SOx	SW:Sopen 2; Return : SO2
4	SW:Sloop x,y,z;	Automatic cycle opening channel x with period as y (ms) and pulse width 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







Additional Information

Documentation	Webpage
ESD Policy	<a href="https://rflambda.com/pdf/rflambda_esd_control.pdf">https://rflambda.com/pdf/rflambda_esd_control.pdf</a>
Connector Torque Specifications	<a href="https://www.rflambda.com/pdf/Torque_Specifications.pdf">https://www.rflambda.com/pdf/Torque_Specifications.pdf</a>
Random Vibration Test Standard	<a href="https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf">https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf</a>

Ordering Information

Part Number	Modification	Description
RFSP8TA0250GUSB	Connectors 2.4mm-Female	2-50GHz SP8T USB / Ethernet Controlled Switch

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