Keysight U1810B
USB Coaxial Switch

DC to 18 GHz USB plug-and-play SPDT coaxial switch

Operating and
Service Manual

KEYSIGHT
TECHNOLOGIES

Notices

Trademarks

Microsoft, Windows, Windows Vista, DirectX, Visual C++, Visual C#, and Visual Basic are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.

Itanium is a trademark or registered trademark of Intel Corporation.

LabVIEW is a trademark of National Instruments.

Manual Part Number

U1810-90002

Edition

Warranty

Technology Licenses

Restricted Rights Legend

Safety Notices

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Compliance Notices and Regulatory Information

Compliance with Electromagnetic Compatibility (EMC)

This product conforms with the protection requirements of EMC Directive 2004/108/EC for Electromagnetic Compatibility.

This product complies to the EMC Directive by assessment according to the IEC/EN61326-1 EMC standard.

In order to preserve the EMC performance of this product, any cable which becomes worn or damaged must be replaced with the same type and specifications.

Regulatory Markings

C E	The CE mark shows that the product complies with all the relevant European Legal Directives.	**ISM GRP.1 CLASS A**	This symbol indicates that this is an Industrial Scientific and Medical Group 1 Class A product.
ICES/NMB-001	ICES/NMB-001 indicates that this ISM device complies with Canadian ICES-001. Cet appareill ISM est conforme a la norme NMB-001 du Canada.	(C-Tick mark)	The C-Tick mark is a registered trademark of the Spectrum Management Agency of Australia. This signifies compliance with the Australian EMC Framework Regulations under the terms of the Radio Communications Act of 1992.
(40 symbol)	This symbol indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.	**KC** KCC-CRM-ABC-XXXXXXXXXXXXX	South Korean Class A EMC declaration: This equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home. A급 기기 (업무용 방송통신기자재) 이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

This instrument complies with the WEEE Directive (2002/96/EC) marking requirement. This affixed product label indicates that you must not discard this electrical or electronic product in domestic household waste.

Product category:

With reference to the equipment types in the WEEE directive Annex 1, this instrument is classified as a "Monitoring and Control Instrument" product.

The affixed product label is as shown below.

Do not dispose in domestic household waste.

To return this unwanted instrument, contact your nearest Keysight Service Center, or visit www.keysight.com/environment/product for more information.

Declaration of Conformity (DoC)

The Declaration of Conformity (DoC) for this instrument is available on the Keysight Web site. You can search the DoC by its product model or description at the Web address below.

http://www.keysight.com/go/conformity

NOTE	If you are unable to search for the respective DoC, contact your local Keysight representative.

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

Table of Contents

List of Figures

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

List of Tables

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

1 Introduction

This chapter provides an overview of the Keysight U1810B USB Coaxial Switch.

KEYSIGHT
TECHNOLOGIES

Product Overview

The U1810B is a USB-powered SPDT coaxial switch, operating from DC to 18 GHz and supporting the standard plug-and-play functionality of typical USB devices. The unique combination of excellent RF performance with the convenience of USB connectivity presents an invaluable alternative for you to optimize the efficiency of your test systems. No additional power supply is required and the Type-N common input connector provides a rugged and robust connection with the instrument ports.

A push button is provided on the switch casing for direct toggling between the two output ports, without the need of any software interface. In addition, the bundled soft front panel provides an alternative virtual interface to control the U1810B.

Figure 1-1   U1810B USB Coaxial Switch

Key features of the U1810B USB coaxial switch

– USB plug-and-play eliminates the need for additional power adapters or drivers, simplifies complex switching, and saves time

– Guaranteed 0.03 dB insertion loss repeatability, ensures accuracy and reduces calibration cycles

– Guaranteed 5 million cycles operating life (typical 10 million cycles), reduces cost-of-test and ensures reliability of the test system life expectancy

– Excellent isolation; typically >70 dB at 18 GHz, minimizes crosstalk between channels to ensure signal integrity

– Instant switch toggling via the push button on the casing

THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.

2 Installation

This chapter provides you important information on how to check and prepare your instrument for operation.

Initial Inspection

1   Unpack and inspect the shipping container and its contents throughly to ensure that nothing was damaged during shipment. If the shipping container or cushioning material is damaged, the contents should be checked both mechanically and electrically.

–   Check for mechanical damage such as scratches or dents.

–   Procedures for checking electrical performance are given under "**Operator's check**" on page 32.

2   If the contents are damaged or defective, contact your nearest Keysight Technologies Service and Support Office. Keysight Technologies will arrange for repair or replacement of the damaged or defective equipment. Keep the shipping materials for the carrier's inspection.

3   If you are returning the instrument under warranty or for service, repackaging the instrument requires original shipping containers and material or their equivalents. Keysight Technologies can provide packaging materials identical to the original materials. Attach a tag indicating the type of service required, return address, model number, and serial number. Mark the container *FRAGILE* to insure careful handling. In any correspondence, refer to the instrument by model number and serial number.

Service and Recalibration

If your U1810B requires service or repair, contact the nearest Keysight office for information on where to send it. The performance of the U1810B can only be verified by specially-manufactured equipment and calibration standard from Keysight. The recommended interval for recalibration is 12 months.

Verify the U1810B Shipment Contents

The following table lists the items that are shipped with the U1810B.

Table 2-1   U1810B contents

Quantity	Description	Part number
1	Keysight U1810B Product Software and Information CD	U1810-90001
1	U1810B Operating and Service Manual	U1810-90002
1	Certificate of Calibration	5962-0476
1	USB cable 1.8 m	8121-0506

Related Documentation

This Operating and Service Manual and the Keysight U1810B USB Switch Soft Front Panel can be located on the product CD that is shipped with the product. They are also available at http://www.keysight.com/find/USBswitch.

Operating and Safety Precautions

Observe the following guidelines before connecting or operating the U1810B USB Switch.

ESD damage

Protection against electrostatic discharge (ESD) is important while handling and operating the U1810B.

Static electricity can build up on your body and can easily damage sensitive components when discharged.

Static discharges too small to be felt can cause permanent damage to the unit.

To prevent damage from ESD:

– **Use** a grounded antistatic mat in front of your test equipment and wear a grounded wrist strap attached to it when handling or operating the U1810B.

– **Wear** a heel strap when working in an area with a conductive floor.

– **Ground** yourself before you clean, inspect, or make a connection to the U1810B. You can, for example, grasp the grounded outer shell of the analyzer test port or cable connector briefly.

– **Avoid** touching the exposed connector pins.

Connector care

Because connectors can become defective due to wear during normal use, all connectors should be inspected and maintained to maximize their service life.

– Inspect the mating surface each time a connection is made. Metal particles from connector threads often find their way onto the mating surface when a connection is made or disconnected.

– Clean dirt and contamination from the connector mating surface and threads. This simple step can extend the service life of the connector and improve the quality of your calibration and measurements.

– Gage connectors periodically. This not only provides assurance of proper mechanical tolerances and thus connector performance, but can also indicate situations where the potential for damage to another connector may exist.

CAUTION	The U1810B can be damaged if excessive torque is applied to the connectors.
	The recommended torque value is 8 lb-in torque for SMA and 12 lb-in torque for N-type.

System Requirements

Prior to any installation or configuration, ensure that the following system requirements are met.

Operating system	Windows® XP SP3 or later (32-bit)	Windows Vista® SP1 and SP2 (32-bit and 64-bit), Business, Ultimate, Enterprise, Home Basic, and Home Premium	Windows® 7 (32-bit and 64-bit) Starter, Home Basic, Home Premium, Professional, Ultimate, Enterprise
Processor speed	600 MHz or higher required, 800 MHz recommended	1 GHz 32-bit (x86), 1 GHz 64-bit (x64), no support for Itanium® 64	1 GHz 32-bit (x86), 1 GHz 64-bit (x64), no support for Itanium® 64
Available memory	256 MB minimum (1 GB or higher recommended)	1 GB minimum	1 GB minimum
Available hard-disk space[a]	1 GB for Microsoft® .NET Framework 3.5	1 GB for Microsoft® .NET Framework 3.5	1 GB for Microsoft® .NET Framework 3.5
Video	Super VGA (800×600) 256 colors or more	Support for DirectX® 9 graphics with 128 MB graphics memory recommended (Super VGA graphics supported)	Support for DirectX® 9 graphics with 128 MB graphics memory recommended (Super VGA graphics supported)
Browser	Microsoft® Internet Explorer 6.0 or higher	Microsoft® Internet Explorer 7 or higher	Microsoft® Internet Explorer 7 or higher

[a]   Because of the installation procedure, less memory may be required for operation than is required for installation.

Software Installation

The U1810B software is located on the U1810B Product Software and Information CD (U1810-90001). The software installation includes the Soft Front Panel (SFP) software and the Examples file. The Examples file covers the Visual Basic, Visual C#, Visual C++, and Keysight VEE examples. The SFP software and the Examples file are also available for download at www.keysight.com/find/USBswitch.

Use the following procedure to install the software:

1 Power up the host PC to install the U1810B software.

2 From the U1810B Product Software and Information CD browser, launch the installer.

3 Follow the installer prompts to install all software and documentation for the U1810B.

4 After installation has completed, power down the host PC.

3 Specifications

This chapter provides the specifications of the U1810B USB Switch.

KEYSIGHT
TECHNOLOGIES

General Specifications

Specifications

Specifications refer to the performance standards or limits against which the U1810B is tested.

Typical characteristics are included for additional information only and they are not specifications. These are denoted as "typical", "nominal", or "approximate", and are printed in italic.

Table 3-1   U1810B specifications

Specifications	
Frequency range	DC to 18 GHz
SWR	< 1.15 (DC to 4 GHz) < 1.25 (4 GHz to 12.4 GHz) < 1.40 (12.4 GHz to 18 GHz)
Insertion loss (dB, max)	0.3 + (0.6/18)f, where f is specified in GHz
Isolation (dB)	90 – (30/26.5)f, where f is specified in GHz
Life cycle	5 million cycles (*typical 10 million cycles*)
Input connector	Type N (male)
Output connector	SMA (female)
Max input RF power:	
Hot switching	2 W CW, 100 W peak, 10 μs max pulse width, not to exceed 2 W average
Cold switching	See "**Supplemental specifications (cold switching)**" on page 27

Absolute maximum rating

Parameter	Condition	Typical	Unit
Rated voltage	–	5	V
Rated current	Switching	420	mA
	Non-switching (Quiescent)	60	mA
Switching time	–	25	ms
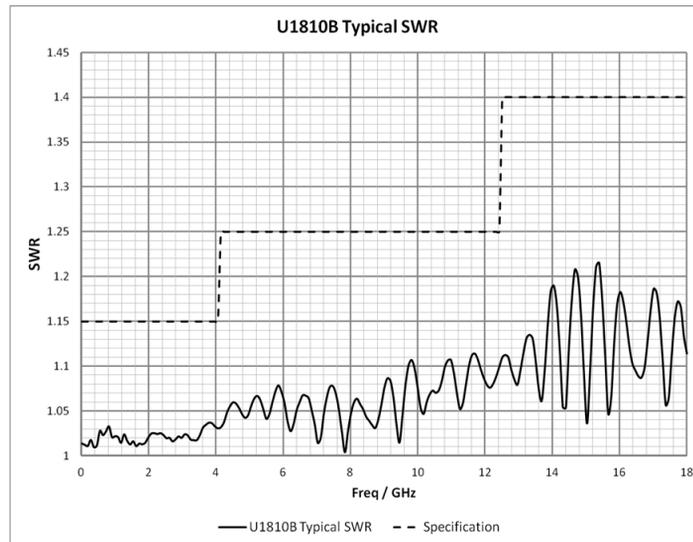
Figure 3-1   U1810B typical SWR
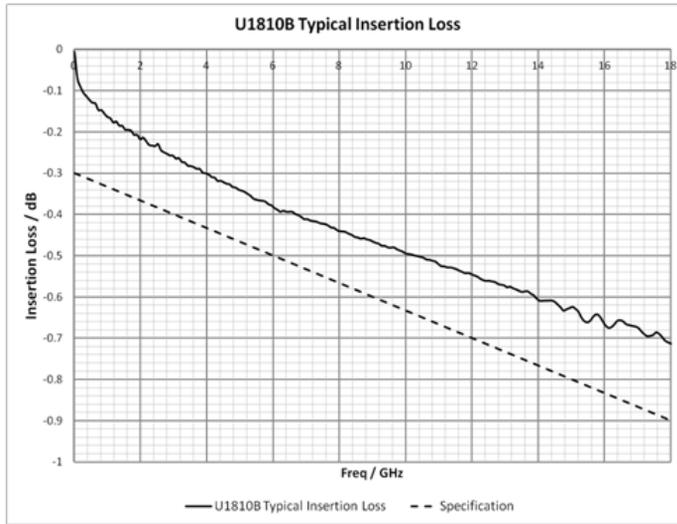
Figure 3-2   U1810B typical insertion loss performance
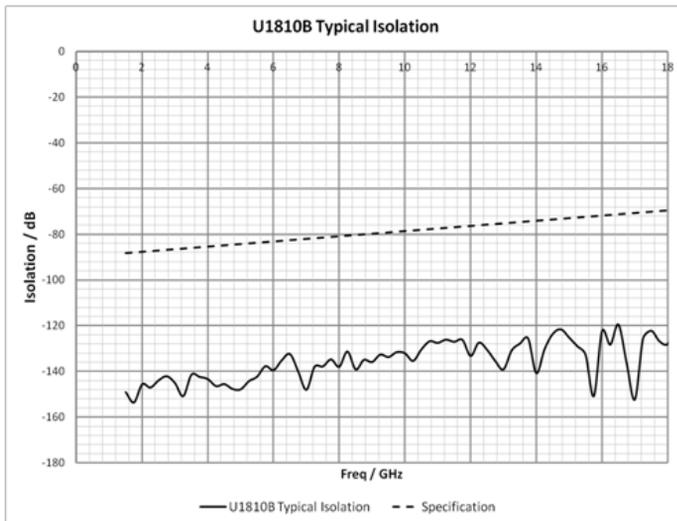
Figure 3-3   U1810B typical isolation performance

Supplemental specifications (cold switching)

MAX incident CW power (cold switching) vs. frequency
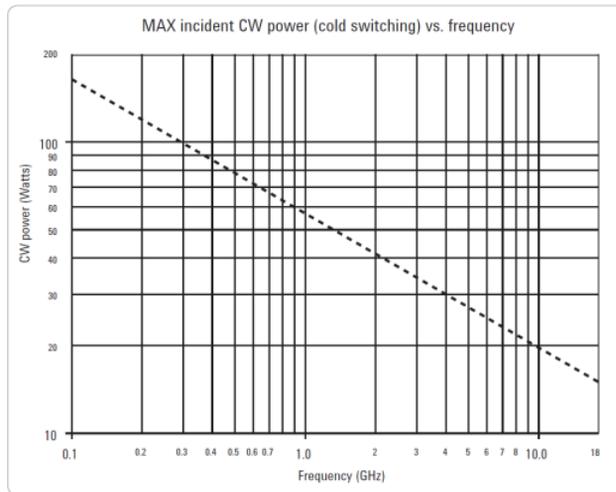
> **NOTE**
>
> – Cold switching only (NO hot switching)
> – Ambient temperature of 75 °C or less
> – Sea level (0.88 derating at 15000 ft.)
> – Load VSWR < 1.2 (see graph for derating above 1.2 VSWR)
> – Power handling at 25 °C is 100 W at 4 GHz

Power derating factor versus VSWR
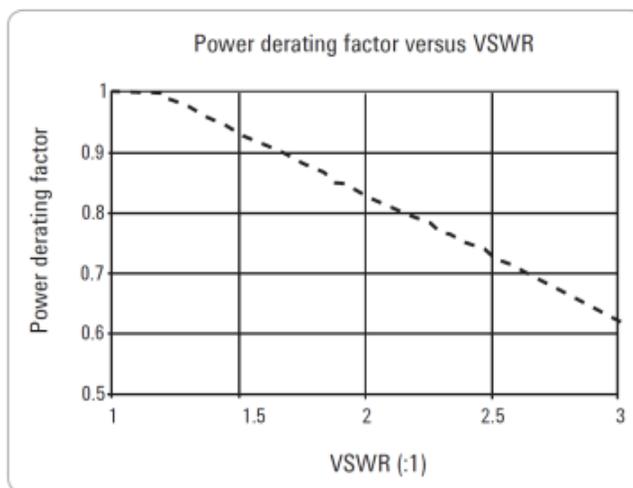
Physical specifications

Physical specifications	
Net weight	0.25 kg
Shipping weight	0.88 kg
Shipping dimensions:	
Length	290 mm
Width	265 mm
Height	105 mm

Mechanical Dimensions
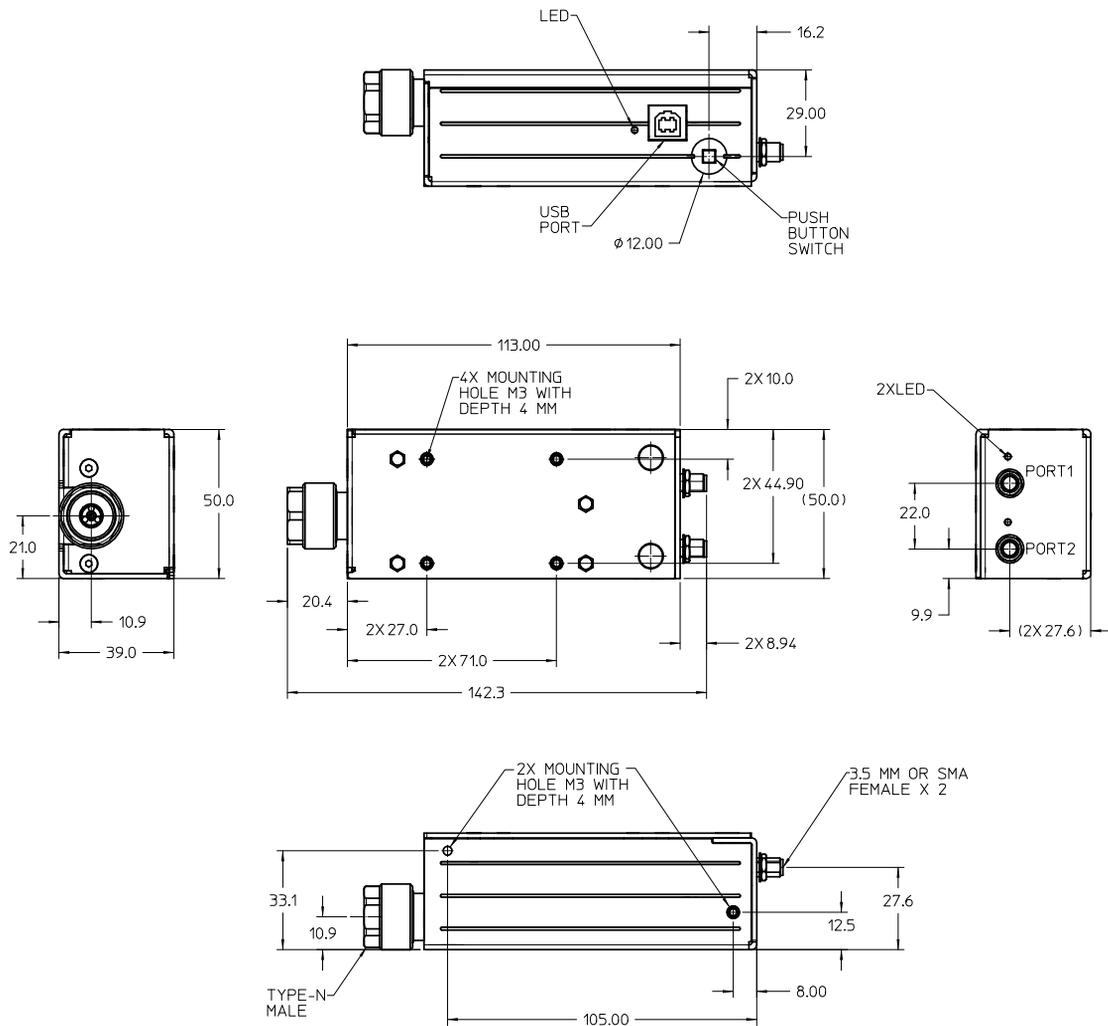
Figure 3-4   Mechanical dimensions of the U1810B

Environmental Specifications

The U1810B is designed to fully comply with Keysight Technologies's product operating environment specifications.

The following table shows the summarized environmental specifications for this product.

Table 3-2   U1810B environmental specifications

Temperature	
– Operating	–25 °C to +75 °C
– Storage	–55 °C to +85 °C
Vibration	
– Operating	0.21 grms, 5-500 Hz, 10 min/axis
– Survival	Random: 2.09 grms, 5-500 Hz, 10 min/axis
	Swept Sine: 0.5 g, 5-500 Hz, 10 min/axis
Shock	
– Operating	Pulse duration <3 ms, velocity 60 in/s
– Transportation	Minimum 50 g
Humidity	
– Operating/Storage	15 to 95% Relative Humidity (RH)
Altitude	
– Operating/Storage	15000 ft/4600 m
ESD immunity	
– Direct discharge	8.0 kV
– Air discharge	15 kV

4 Operating Guide

This chapter provides simple quick-check instructions to verify the U1810B USB Switch's functionality prior to usage. It also provides information to get you started on the Soft Front Panel (SFP) of the U1810B.

KEYSIGHT
TECHNOLOGIES

Operating Instructions

Operator's check

The operator's check is supplied to allow the operator to make a quick check of the U1810B prior to usage or if a failure is suspected.

CAUTION	ESD exceeding the level specified in **Table 3-2** or the RF power applied is greater than the maximum specified as in **Table 3-1** may cause permanent damage to the device.

Operator's check for the S-parameter test

Any network analyzer with a USB supply can be used for performance test verification. The equipment setup is illustrated in Table 4-1.
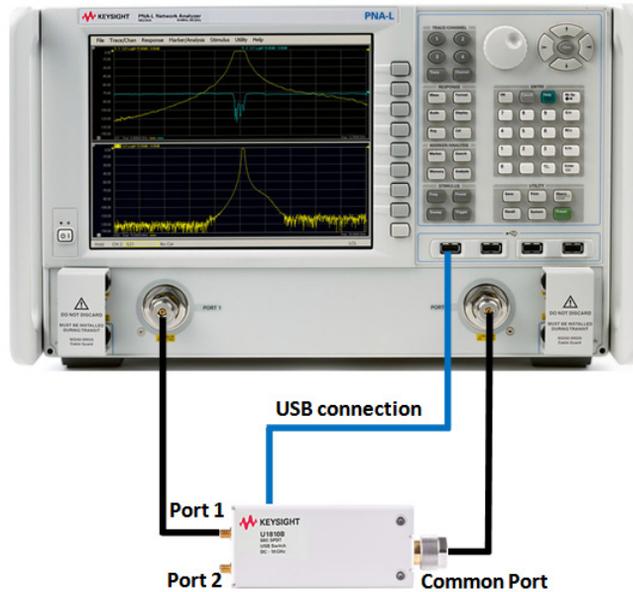
Figure 4-1   Quick-check configuration for the S-parameter test

Quick–check procedure

1 Set the following parameters on the network analyzer to perform 2-port measurements:

   – Start frequency: 10 MHz

   – Stop frequency: 18 GHz

   – IF bandwidth: 100 Hz

2 Calibrate the network analyzer with full 2-port calibration using the appropriate electronic or mechanical calibration kit.

3 Connect the U1810B to the USB supply of the network analyzer.

4 Connect the Common port of the U1810B to Port 2 of the network analyzer, and Port 1 of the U1810B to Port 1 of the network analyzer.

5 Press the switch toggle button on the U1810B to Port 1. You will hear a 'clicking' sound indicating the mechanical switch is switching and the LED at Port 1 of the U1810B lights up.

6 Obtain the measurement results for Input Return Loss and Insertion Loss for the U1810B.

7 Compare the measurement results to the specifications in **Table 3-1**.

8 Repeat steps 3 to 7 for Port 2 of the U1810B and verify against **Table 3-1**.

| **NOTE** | – A switch toggle button on the U1810B switch casing enables direct toggling between the two output ports, without the need of any software interface. |

   – LED indicators are available at Port 1 and Port 2 of the U1810B.

   – The U1810B LED will light up at Port 1 or Port 2 each time you press the switch toggle button on the U1810B.

   – During firmware update, the LEDs on the U1810B will light up alternately.

Getting Started with the Soft Front Panel (SFP)

This section guides you through the SFP that provides an easy-to-use interface for controlling the U1810B.

1   Refer to **Chapter 2**, "Software Installation" to install the SFP.

2   Launch the SFP software from the desktop by double-clicking the SFP icon, or from **Start > All Programs > Keysight > U1810B > U1810B SFP**.

3   The SFP window will appear as shown below.

Figure 4-2   U1810B SFP window

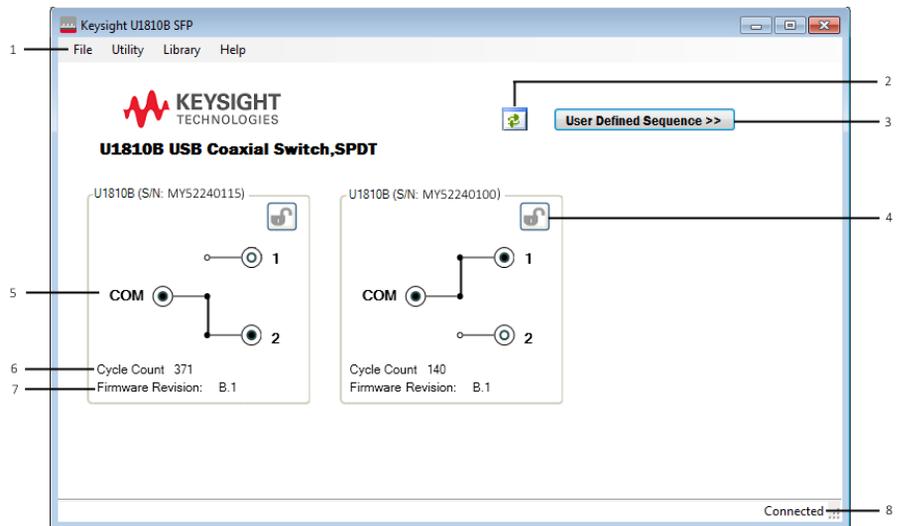4   The main SFP interface is shown in **Figure 4-3** and described in **Table 4-1**.

Figure 4-3   U1810B main SFP interface

Table 4-1   Overview of the main SFP interface

No.	Item	Description
1	Menu bar	– The File menu consists of the following functions: – Close: Closes this window and returns to the Connect to U1810B window. – Exit: Exits the SFP. – The Utility menu consists of the following functions: – Clear Cycle Count: Opens the Clear Cycle Count window. – Reset: Resets the U1810B. – Driver Call Log: Opens the Driver Call Log window. – The Library menu allows you to access and configure the 1 x 4 switch matrix. – The Help menu consists of the following functions: – Help: Opens this help file. – Online Support: Opens the U1810B Web interface. – About: Opens the SFP information window.
2	Refresh button	Refreshes the SFP. During the refresh operation, a message will appear to inform you not to connect or disconnect any USB devices.
3	User Defined Sequence button	Opens the User Defined Sequence window which allows you to configure the switching sequence.
4	Lock button	Locks/unlocks the switch. Locking the switch prevents manual toggling of the switch ports. It disables the switch toggle button on the U1810B switch casing to prevent a change of state without 'notifying' the SFP.
5	Switch relays	Performs switching of the U1810B when either port 1 or port 2 is clicked.
6	Cycle count	A full cycle count refers to a complete switching from one port to another and back to the previous stage. The cycle count is incremented per each complete switching sequence. The cycle count is used to track and determine the expected life of the switch relay.
7	Firmware revision indicator	Displays the current firmware revision of the U1810B.
8	Status indicator	Displays the operating status.

NOTE   Do not connect or disconnect any USB devices when the SFP initializing and refresh operations are in progress.

5 The U1810B SFP is a graphical interface that helps you with the following tasks:

a   To connect to the U1810B

-- Upon launching the SFP, the U1810B SFP window will appear as shown in **Figure 4-2**.

-- Click the **Actual** radio button. Then, click **Connect** to access the main interface which will display the connected U1810B switch diagram.

-- In the situation when the U1810B is not connected, the simulation mode can be used. On the U1810B SFP window (**Figure 4-2**), click the **Simulation** radio button. Then, click **Simulate** to access the main interface of the U1810B.

b   To operate the U1810B

-- On the U1810B main SFP interface as shown in **Figure 4-4**, click either Port 1 or Port 2 of the switch to make a connection with the Common (COM) port.
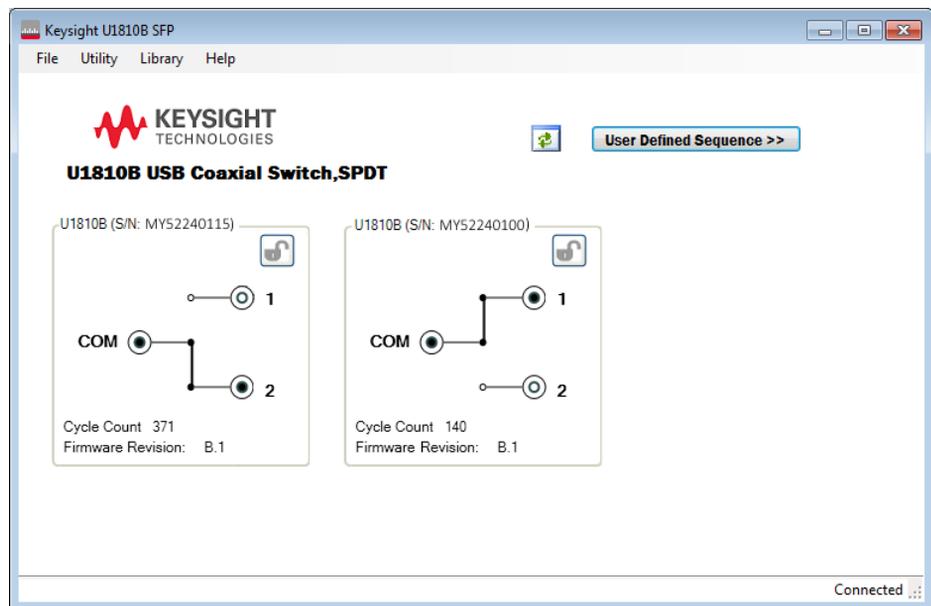
Figure 4-4   U1810B main SFP interface

c   To operate the U1810B as a 1 x 4 switch matrix

-- You can perform a 1 x 4 matrix switching by routing the U1810B to two other switches. You can also configure the switching sequence and monitor driver calls for this switch matrix.
On the U1810B main SFP interface as shown in **Figure 4-4**, click **Library > 1 x 4 Switch Matrix** from the menu bar to open the 1 x 4 Switch Matrix window, as shown in **Figure 4-5**.
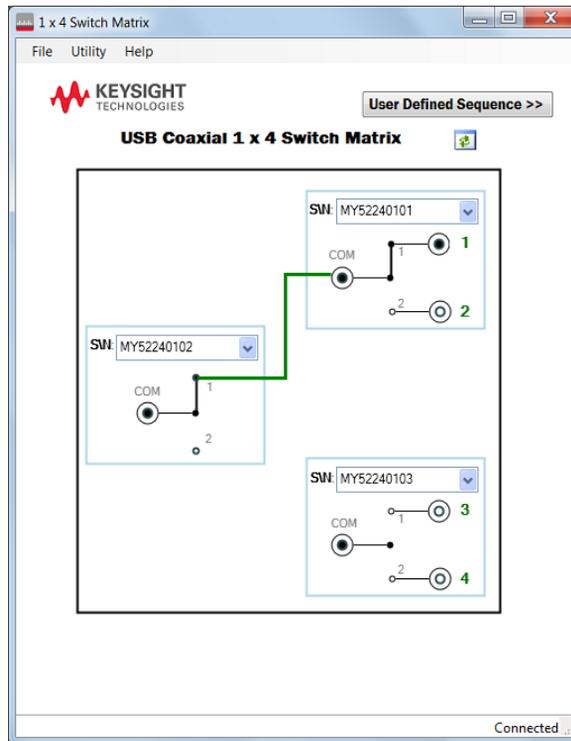
Figure 4-5   1 x 4 Switch Matrix window

-- Specify each connected unit by selecting its serial number from the drop-down list at the **S\N** field. Once all units have been specified, you will be able to make a connection with port 1 to port 4 by clicking the respective port.

-- To configure the switching sequence, click **User Defined Sequence**. The functions are similar to the User Defined Sequence for the main U1810B operation. Refer to "**To configure the User Defined Sequence**" on page 38 for details.

-- The **Refresh** button ( ) when clicked allows you to refresh the switch matrix. During the refresh operation, a message will appear to inform you not to connect or disconnect any USB devices.

-- The menu bar provides the following functions:

Table 4-2   1 x 4 Switch Matrix menu bar

Item	Function description
File	Close: Closes this window and returns to the main interface.
Utility	Driver Call Log: Opens the Driver Call Log window. Refer to "**To monitor driver calls**" on page 40 for details.

Table 4-2   1 x 4 Switch Matrix menu bar (continued)

| Item	Function description
Help	– Help: Opens the help file. – Online Support: Opens the U1810B Web interface. – About: Opens the SFP information window.

d   To configure the User Defined Sequence

-- You can set the sequence to perform switching. On the User Defined Sequence window as shown in **Figure 4-6**, you can double-click on the sequence table to toggle between Port 1 and Port 2 for the connected switches.
To edit the **Sequence** field or to specify the time delay for each sequence at the **Wait (mSec)** field, you can double-click on the particular field.
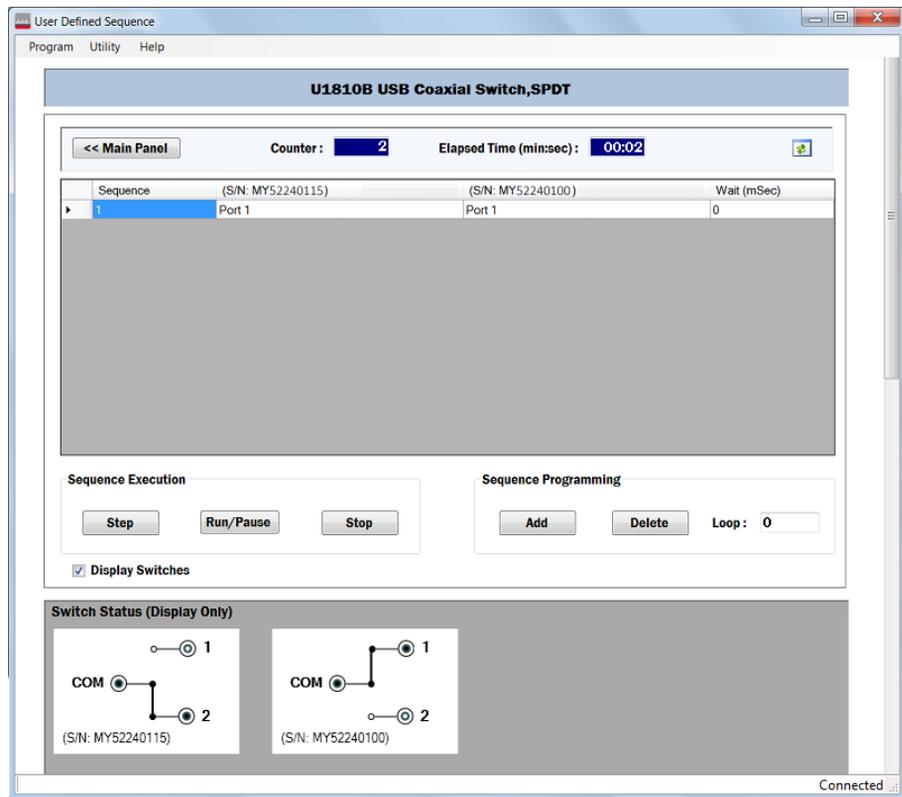
Figure 4-6   User Defined Sequence window

-- The **Sequence Programming** area allows you to add or delete a sequence by selecting the entire row and clicking the respective buttons. You can also specify the number of times to repeat the entire sequence at the **Loop** field.

-- The **Sequence Execution** area allows you to run, pause, step across, or stop the sequence by clicking the respective buttons.
If the switch is disconnected and the **Run/Pause** button is clicked, a warning message will prompt you to delete the data entry for that switch. The data entry field will be highlighted in blue if you choose not to delete.

-- If there are any switches being connected or disconnected, click the **Refresh** button ( ) to update the table.
If the switch is disconnected and the **Refresh** button is clicked, a warning message will prompt you to delete the data entry for that switch. If you choose not to delete, the data entry field will be highlighted in blue.

-- The status indicator at the bottom of the window displays the switch operating status.

-- To view the switch status, click the **Display Switches** check box. To close the display, clear the check box.

-- To return to the main interface, click the **<< Main Panel** button. A message will prompt you to save the current data before exiting.

-- The menu bar provides additional functions as described in **Table 4-3**.

**Table 4-3**   User Defined Sequence menu bar

Item	Function description
Program	– New: Opens a new table. This new table will replace the existing table.
	– Save: Saves the existing table data to a file at "<user's personal folder>\Keysight U1810B\Sequence". If you click **Open Path**, you will be directed to all the saved table data files at "<user's personal folder>\Keysight U1810B\Sequence".
	– Recall: Recalls a saved table data file to use. The table data will be displayed in the existing table. If you disconnect a switch, a message will prompt you to swap with another available switch. Select the switch and click **Swap**. If you choose not to swap, the data field of the disconnected switch will be displayed in blue. If you click **Delete**, the data field of the disconnected switch will be deleted from the table.
	– Delete: Deletes a saved table data file.
	– Export: Exports the commands of the User Defined Sequence functions to a text file.
	– Close: Closes the User Defined Sequence window and returns to the main interface.
Utility	Cycle Count: Displays the cycle count for all connected U1810B switches.
Help	– Help: Opens this help file.
	– Online Support: Opens the U1810B Web interface.
	– About: Opens the SFP information window.

| NOTE | No auto-refresh operation is allowed when switches are being connected or disconnected. |

e   To clear the cycle count

--   On the main SFP interface as shown in **Figure 4-4**, click **Utility > Clear Cycle Count** from the menu bar to open the Clear Cycle Count window as shown in **Figure 4-7**.
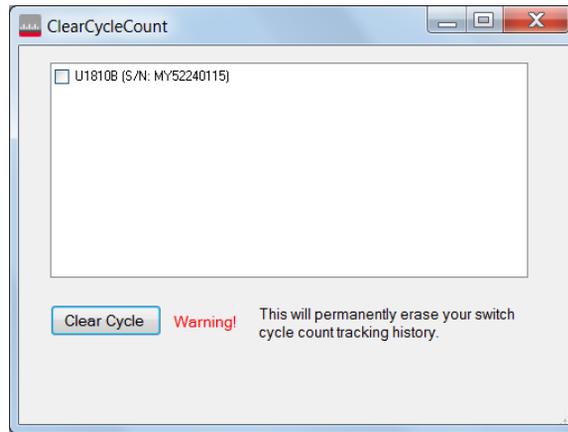
**Figure 4-7**   Clear Cycle Count window

--   Select the switch by clicking its respective check box. Click **Clear Cycle** to permanently clear the cycle count for the selected switch.

f   To reset the U1810B

--   On the main SFP interface as shown in **Figure 4-4**, click **Utility > Reset** from the menu bar to reset the U1810B.

g   To monitor driver calls

--   The Driver Call Log allows you to identify the commands required to operate the U1810B switch. Each log entry corresponds to an operation triggered via the SFP.

--   On the main SFP interface as shown in **Figure 4-4**, click **Utility > Driver Call Log** from the menu bar to open the Driver Call Log window as shown in **Figure 4-8**.
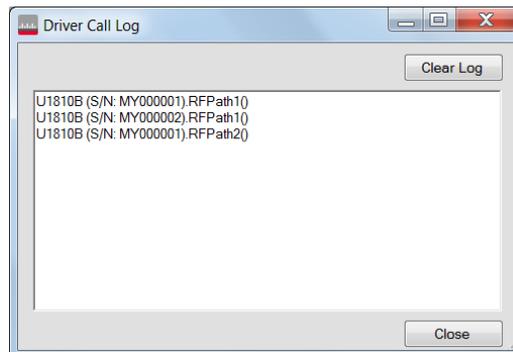
Figure 4-8   Driver Call Log window

-- To erase all the driver calls from the log, click **Clear Log**.

6 To get help using the SFP, refer to the Help file from the main SFP interface.

Software Programming Guide

The following table lists the methods used to control the U1810B.

The DLL file is located in the program file folder.

–   For 32-bit Windows:

C:\Program Files\Keysight\U1810B\Dll

–   For 64-bit Windows:

C:\Program Files (x86)\Keysight\U1810B\Dll

Table 4-4   List of methods

Method	Description
1. string InstrumentModel():	Return the model information
2. string SerialNumber():	Return the device serial number
3. string InstrumentFirmwareRevision():	Return the firmware revision
4. StatusEnum RFPath1() :	Set the RF path to Port 1
5. StatusEnum RFPath2() :	Set the RF path to Port 2
6. StatusEnum GetRFPath(ref int PathNo) :	Obtain the RF path
7. StatusEnum GetRelayCount(ref int cyclecount) :	Obtain the cycle count
8. StatusEnum ClearRelayCount() :	Clear the cycle count
9. StatusEnum LockOut(boolean state) :	Set the manual switch toggle capability
10.boolean GetLockOut :	Obtain the manual switch toggle capability
11.List<string> InstrumentList() :	Return the list of connected switches

The following table list the members of StatusEnum.

Table 4-5   List of StatusEnum members

Member name	Value	Description
STAT_SUCCESS	0	Execution completed
HARDWARE_ERROR	–1	Hardware error
SYNTAX_ERROR	–2	Syntax error

Software programming

Apart from using the SFP, you also have the option to control the U1810B via other commonly-used software programming platforms such as Visual Basic, C#, C++, LabVIEW^{TM}, and VEE.

Control via Visual Basic

The Visual Basic example file is located on the U1810B product software and information CD (U1810-90001). After installation has completed, you can launch it from **Start › All Programs › Keysight › U1810B › Examples › VS.NET › VB** with the file name of **DLL_VB_Example1**.

Control via C#

The C# example file is located on the U1810B product software and information CD (U1810-90001). After installation has completed, you can launch it from **Start › All Programs › Keysight › U1810B › Examples › VS.NET › CSharp** with the file name of **DLL_CS_Example1**.

Control via C++

The C++ example file is located on the U1810B product software and information CD (U1810-90001). After installation has completed, you can launch it from **Start › All Programs › Keysight › U1810B › Examples › VS.NET › Cpp** with the file name of **DLL_Cpp_Example1**.

Control via Keysight VEE

The Keysight VEE example file is located on the U1810B product software and information CD (U1810-90001). After installation has completed, you can launch it from **Start › All Programs › Keysight › U1810B › Examples › Keysight VEE Pro** with the file name of **DLL_Vee_Example1.vee**.

Control via NI LabVIEW

The NI LabVIEW example file is located on the U1810B product software and information CD (U1810-90001). After installation has completed, you can launch it from **Start › All Programs › Keysight › U1810B › Examples › LabVIEW** with the file name of **DLL_LabVIEW_Example1**.

Service and Maintenance

Service

The U1810B does not have internal adjustments and should not be opened; it should only be repaired by service-trained personnel. Should it become necessary to return the U1810B for repair or service, contact your nearest Keysight Sales and Service Center.

Maintenance

The connectors of the U1810B, particularly the connector faces, must be kept clean. Keysight recommends that the connectors be periodically inspected and cleaned if necessary. For instructions on the connection and maintenance of your connectors, refer to the Connector Care Quick Reference Card (08510-90360).

KEYSIGHT
TECHNOLOGIES

www.keysight.com