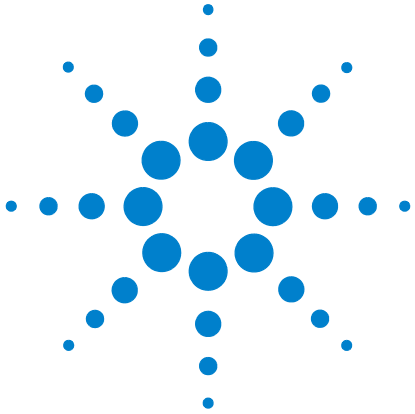


Agilent U8101A
Display Tester

Quick Start Guide

Agilent Technologies

Notices

® Agilent Technologies Inc., 2008, 2010

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Agilent Technologies, Inc. as governed by United States and international copyright laws.

Manual Part Number

U8101-90002

Edition

Second Edition, 19 April 2010

Printed in Malaysia

Agilent Technologies Inc.
3501 Stevens Creek Blvd.
Santa Clara, CA 95052 USA

Warranty

The material contained in this document is provided "as is," and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

U.S. Government Restricted Rights. Software and technical data rights granted to the federal government include only those rights customarily provided to end user customers. Agilent provides this customary commercial license in Software and technical data pursuant to FAR 12.211 (Technica Data) and 12.212 (Computer Software) and, for the Department of Defense, DFARS 252.227-7015 (Technical Data - Commercial Items) and DFARS 227.7202-3 (Rights in Commercial Computer Software or Computer

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.

Safety Symbols

The following symbols on the instrument and in the documentation indicate precautions which must be taken to maintain safe operation of the instrument.

	Direct current (DC)		Equipment protected throughout by double insulation or reinforced insulation
	Alternating current (AC)		Off (supply)
	Both direct and alternating current		On (supply)
	Three-phase alternating current		Caution, risk of electric shock
	Earth (ground) terminal		Caution, risk of danger (refer to this manual for specific Warning or Caution information)
	Protective conductor terminal		Caution, hot surface
	Frame or chassis terminal		Out position of a bi-stable push control
	Equipotentiality		In position of a bi-stable push control

General Safety Information

WARNING

- **Do not use the device if it is damaged. Before you use the device, inspect the casing. Look for cracks or missing plastic. Do not operate the device around vapor, dust, or explosive gas.**
- **Always use the device with the cables provided.**
- **Observe all markings on the device before establishing any connection.**
- **Turn off the device and application system power before connecting to the I/O terminals.**
- **When servicing the device, use only the specified replacement parts.**
- **Do not operate the device with the cover removed or loosened.**
- **Do not connect any terminal block or cables prior to performing the self test process.**
- **Use only the power adapter provided by the manufacturer to avoid any unexpected hazards.**

CAUTION

- If the device is used in a manner not specified by the manufacturer, the device protection may be impaired.
- Always use dry cloth to clean the device. Do not use ethyl alcohol or any other volatile liquid to clean the device.
- Do not permit any blockage of the ventilation holes of the device.

Environmental Conditions

This instrument is designed for indoor use and in an area with low condensation. The table below shows the general environmental requirements for this instrument.

Environmental conditions	Requirements
Operating temperature	0 °C to 40 °C
Operating humidity	20% to 80% RH non condensing
Storage temperature	–40 °C to 70 °C
Storage humidity	5% to 90% RH non condensing
Operating altitude	Up to 3000 m

NOTE

The U8101A display tester complies with the following safety and EMC requirements.

- IEC 61326-2002/EN 61326:1997+A1:1998+A2:2001+A3:2003
- CISPR 11:1990/EN55011:1990
- Canada: ICES-001:2004
- Australia/New Zealand: AS/NZS CISPR11:2004
- IEC 61010-1:2001/EN 61010-1:2001 (2nd Edition)
- Canada: CAN/CSA-C22.2 No. 61010-1-04
- USA: ANSI/UL 61010-1:2004

Regulatory Markings

CE ISM 1-A	The CE mark is a registered trademark of the European Community. This CE mark shows that the product complies with all the relevant European Legal Directives.	N10149	The C-tick mark is a registered trademark of the Spectrum Management Agency of Australia. This signifies compliance with the Australia EMC Framework regulations under the terms of the Radio Communication Act of 1992.
ICES/NMB-001	ICES/NMB-001 indicates that this ISM device complies with the Canadian ICES-001. Cet appareil ISM est confomre a la norme NMB-001 du Canada.		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.
C SA ® US	The CSA mark is a registered trademark of the Canadian Standards Association.		

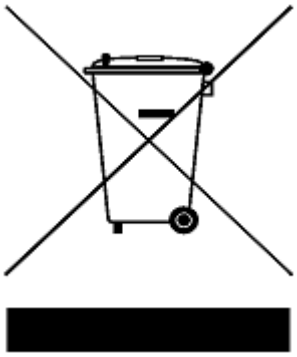
Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

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 Agilent Technologies, or visit:

www.agilent.com/environment/product

for more information.

In This Guide...

1 Introduction to Agilent U8101A

This chapter provides a brief introduction of the functions of the U8101A, a list of standard and optional purchase items, and instructions on how to install and configure the U8101A.

2 Product Overview

This chapter provides an overview of the U8101A, which includes the product outlook, product dimensions, and product layout.

3 The Basics

This chapter gives a quick start guide on how to power up the U8101A, how to access and navigate the U8101A using the front panel key, resetting the U8101A, and other basic operation when operating the U8101A.

4 Setting Up

This chapter describes the common steps in setting up the U8101A for editing and generating patterns for display tests.

5 File Maintenance

This chapter provides instructions on how to import and export customized images, EDID data, and test sequences into external USB flash storage devices.

6 User Interface Connection

This chapter provides instructions on how to configure LAN settings and GPIB address for remote control interface.

Contents

1 Introduction to Agilent U8101A 1

Introduction 2

Standard Purchase Items 3

Optional purchase items 3

Installation and Configuration 5

Initial inspection 5

Ventilation 5

Rack mounting 5

2 Product Overview 7

Introduction 8

Front panel 8

Rear panel 10

Product Dimensions 11

3 The Basics 13

How to Power-on the U8101A 14

Power-on sequence 14

Help 16

Preset 16

Front Panel Operation 17

Menu section 17

Pattern menu 18

System menu 23

File menu 25

Utility menu 26

HDCP menu 27

Control menu 27

Slots menu 28

Sequence menu 28

Front panel LCD display 29

Editing keys 32

Control navigation 33

4 Setting Up 35

Creating a Pattern 36

Selecting a format 36

Selecting an image 37

Selecting the duration 38

Creating a Sequence 39

Running a Sequence 41

Creating a Customized Image 42

Testing Multiple Displays Simultaneously 43

5 File Maintenance 45

Export Image to External USB Flash Storage 46

Import Image from External USB Flash Storage 48

Export Sequence File/EDID Data 49

Import Sequence File/EDID Data 50

6 User Interface Connection 53

Interface Configuration 54

GPIB 54

LAN 54

List of Figures

Figure 2-1 U8101A front panel 8

Figure 2-2 U8101A rear panel 10

Figure 3-1 Front panel operation 17

Figure 3-2 Pattern menu tree 18

Figure 3-3 EDID menu tree 21

Figure 3-4 System menu tree 23

Figure 3-5 File menu tree 25

Figure 3-6 Utility menu tree 26

Figure 3-7 HDCP key 27

Figure 3-8 Control menu 27

Figure 3-9 Slots and Sequence menu 28

Figure 3-10 Front panel LCD display 29

Figure 3-11 Alphanumeric keypad 32

Figure 3-12 Example 1 of navigation control on the U8101A 33

Figure 3-13 Example 2 of navigation control on the U8101A 34

Figure 4-1 Inserting steps in a particular sequence 39

Figure 4-2 Removing steps in a particular sequence 40

Figure 4-3 Simultaneous test setup example 43

List of Tables

Table 2-1 U8101A front panel description 8

Table 2-2 U8101A rear panel description 10

Table 3-1 Power cord plug types 15

Table 3-2 Pattern menu command description 19

Table 3-3 EDID menu command description 22

Table 3-4 System menu command description 24

Table 3-5 File menu command description 25

Table 3-6 Utility menu command description 26

Table 3-7 Front panel field description 29

Table 3-8 Front panel symbol description 30

Table 3-9 Status area field description 31

Table 3-10 U8101A alphanumeric keypad descriptions 32

Table 4-1 U8101A compatible resolutions 42

1 Introduction to Agilent U8101A

Introduction 2
Standard Purchase Items 3
Optional purchase items 3
Installation and Configuration 5
Initial inspection 5
Ventilation 5
Rack mounting 5

This chapter provides a brief introduction of the functions of the U8101A, a list of standard and optional purchase items, and instructions on how to install and configure the U8101A.

Introduction

The U8101A can test a broad range of analog and digital video displays such as CRT and LCD. Each test is able to cover a wide range of video test parameters.

The U8101A provides a quick and easy means to test video displays using a pattern or sequence of patterns. Its functions can be customized to support display tests in various applications.

The U8101A can either be operated from its front panel knobs and keys, or via GPIB (IEEE- 488), USB, or LAN. The U8101A can also be operated via a web-based interface.

This Quick Start Guide provides a quick approach for setting up the U8101A display tester for testing analog and digital video display devices. For detailed step-by-step installation and configuration instructions, refer to the *Agilent U8101A Display Tester User's Guide*.

Standard Purchase Items

Verify that you have received the following items with your unit. If anything is missing or damaged, please contact the nearest Agilent Sales Office.

- ✔ LAN cable
- ✔ USB cable
- ✔ Power cord
- ✔ Agilent U8101A Display Tester Product Reference CD-ROM
- ✔ Agilent U8101A Display Tester Quick Start Guide
- ✔ Certificate of Calibration
- ✔ 2x male RCA to 2x male RCA cable (2 m)

Optional purchase items

Optional plug-in cards

The U8101A has five slots located at the rear for the insertion of up to five plug-in cards to test various display applications. See Chapter 2, “Rear panel” on page 10 for more information on the location of the slots. You can plug in any combination of the four optional cards into the five slots.

The four optional plug-in cards available are:

- Analog TV Card
- Analog RGB Card (VGA Card)
- DVI Card (Single Link)
- HDMI 1.2 Generator Card

Refer to the *Agilent U8101A Display Tester User's Guide* for more information on the plug-in cards.

Contact the nearest Agilent Service Center for installation or reconfiguration of the plug-in cards.

Optional accessories

- Rack mount kit and rack mount filler
- 75 Ω male BNC to male BNC cable (2 m)
- Male S-video to male S-video cable (2 m)
- 1x male RCA to 1x male RCA composite cable (2 m)
- 3x male RCA to 3x male RCA component cable (2 m)
- Male HDMI to male HDMI cable (2 m)
- Male DVI to male HDMI cable (2 m)
- Male BNC to male RCA cable (2 m)
- Male VGA to male VGA cable (2 m)
- Male DVI to male DVI cable (2 m)

NOTE Do not connect a DVI source to another DVI source or an HDMI source to another HDMI source as there is no internal protection circuit for such usage.

Installation and Configuration

Initial inspection

When you receive your U8101A, inspect the unit for any obvious damage such as broken terminals or cracks, dents, and scratches on the chassis that may occur during shipment. If any damage is found, contact the nearest Agilent Sales Office immediately.

Keep the original packaging in case the U8101A has to be returned to Agilent in the future. If you return the U8101A for service, attach a tag identifying the owner and the model number. Also include a brief description of the problem.

Ventilation

The U8101A can operate within the temperature range of 0 °C to 40 °C. The U8101A must be installed in a location that allows sufficient space at the sides of the U8101A for adequate air circulation.

Rack mounting

The U8101A can be fitted into a standard industrial rack using the rack mount flange kit (Agilent part number: 5063-9214) together with the rack panel filler (Agilent part number: U8101-00026). Refer to Chapter 2, “Product Dimensions” on page 11, for the dimensions of the U8101A.

2 Product Overview

Introduction 8
Front panel 8
Rear panel 10
Product Dimensions 11

This chapter provides an overview of the U8101A, which includes the product outlook, product dimensions, and product layout.

Introduction

This chapter provides a product overview of the front and rear panels of the U8101A. For details on the U8101A and remote programming, refer to the *U8101A Display Tester User's Guide*.

Front panel

This section describes the U8101A front panel.

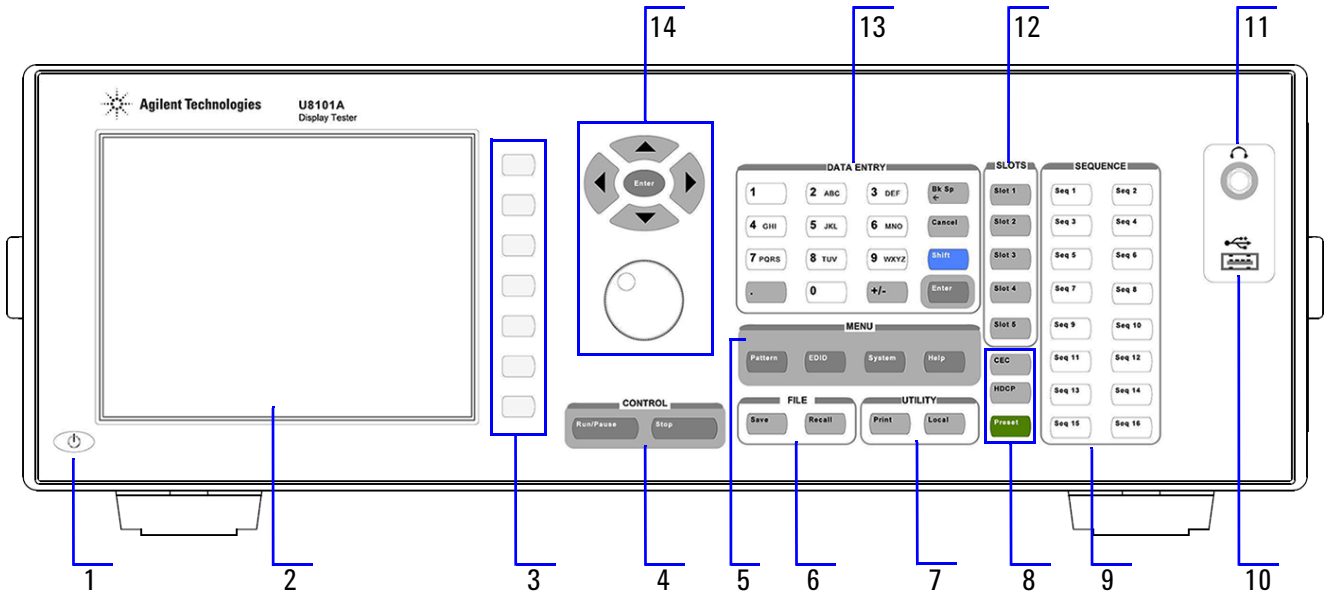


Figure 2-1 U8101A front panel

Table 2-1 U8101A front panel description

Item	Key	Description
1	Power switch	Power-on or power-off the U8101A
2	Display	Displays information on the current setup, which includes status indicators, settings, error messages, and softkey labels
3	Softkeys 1 to 7	Activates the function indicated by the label to the left of each key
4	**Control:** Run/Pause Stop	 Runs or pauses the test sequences Stops the test sequences

Table 2-1 U8101A front panel description

Item	Key	Description
5	**Menu:**	
	Pattern	Activates the Pattern menu
	EDID	Activates the EDID menu
	System	Activates the System menu
	Help	Displays the description of any key or softkey. See "Help" on page 16 for more information.
6	**File:**	
	Save	Stores the current setting
	Recall	Loads a saved setting
7	**Utility:**	
	Print	Captures the instrument front panel screenshot and saves it into an external USB flash storage device
	Local	Switches from remote mode to front panel access
8	CEC	Activates the CEC menu which is only applicable for HDMI 1.3 cards
	HDCP	Activates the HDCP menu
	Preset	Resets the U8101A to its factory default configuration
9	**Sequence:**	
	Sequence 1 to 16	Loads the test sequence assigned to the key
10	USB host[1]	Connects to an external USB flash storage device
11	Audio jack (headset)	Enables the audio connection
12	**Slots:**	
	Slots 1 to 5	Selects the appropriate slot module
13	**Data Entry:**	Enter or edit numbers and text. See "Editing keys" on page 32 for more information.
14	Navigation keys and knob	Navigate through the items and enter the selection. The knob is used to increase or decrease a numeric value, change a highlighted digit or character, step through a list, or select an item in a row. See "Editing keys" on page 32 and "Control navigation" on page 33 for more information.

[1] The USB host on the U8101A only supports external USB flash storage devices. Other external USB storage devices such as external hard disk, or external CD-ROM is not supported.

Rear panel

The U8101A rear panel is described in this section.

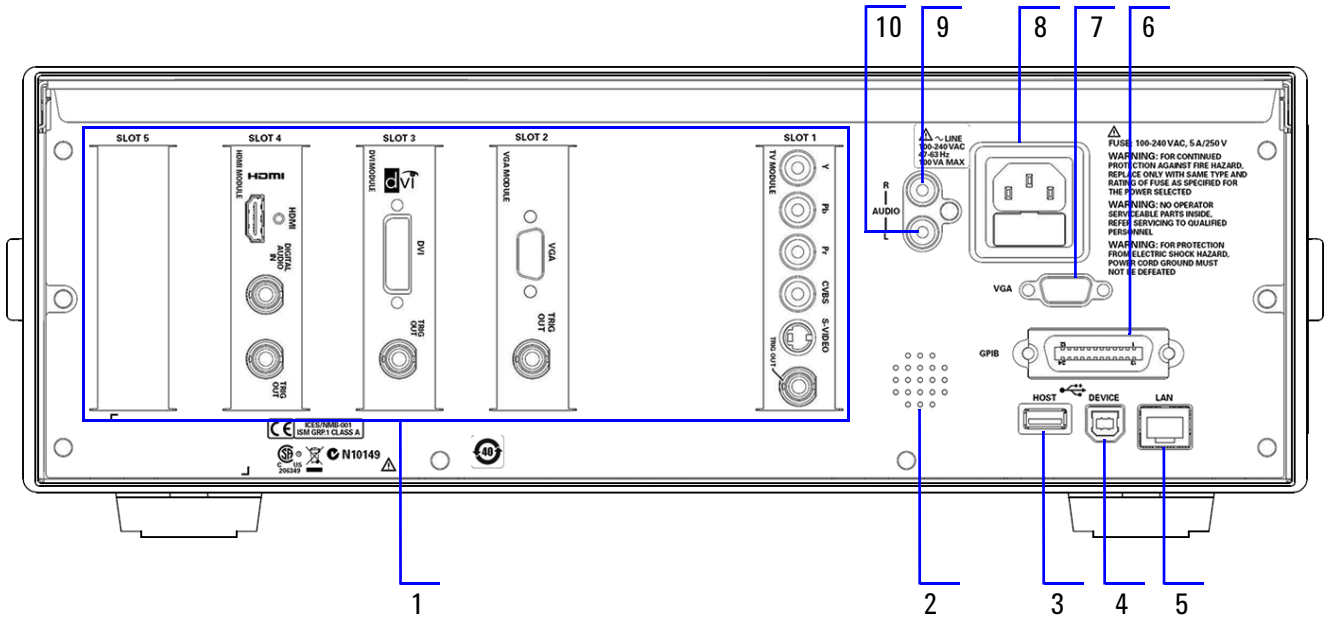


Figure 2-2 U8101A rear panel

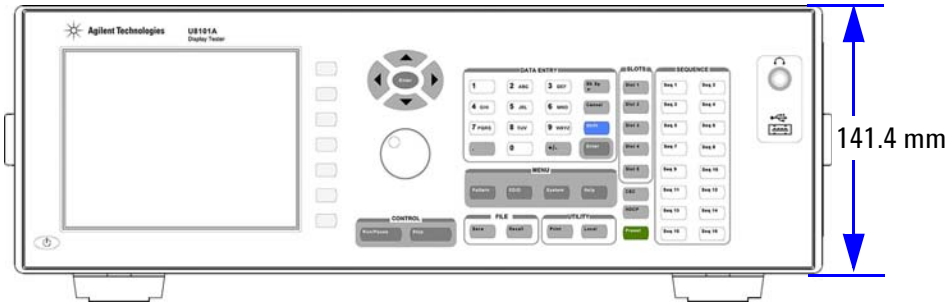
Table 2-2 U8101A rear panel description

Item	Key	Description
1	Slots 1 to 5	For installation of optional plug-in cards
2	Speaker	Rear panel audio output
3	USB host[1]	USB host interface
4	USB device[1]	USB device interface
5	LAN interface	For Ethernet LAN communication through a 10/100 Base-T LAN cable
6	GPIB interface	General Purpose Interface Bus (IEEE-488) standard interface
7	VGA interface	Video Graphics Array, an interface to the PC monitor
8	AC power inlet	For AC line voltage connection
9	Audio jack (Right)	Audio out for right stereo channel connection using RCA cable
10	Audio jack (Left)	Audio out for left stereo channel connection using RCA cable

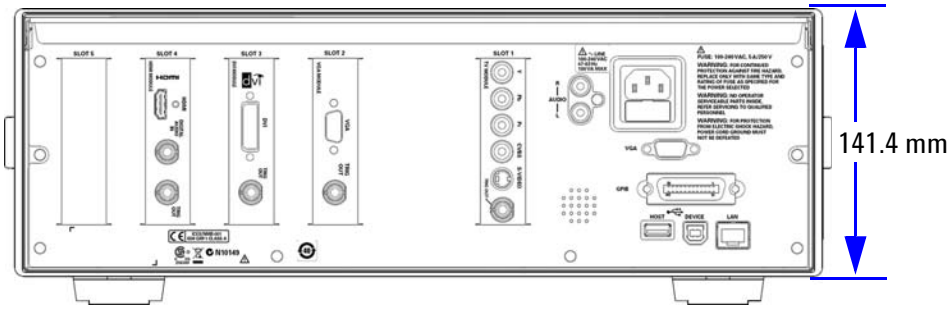
[1] The USB host on the U8101A only supports external USB flash storage devices. Other external USB storage devices such as external hard disk, or external CD-ROM is not supported.

Product Dimensions

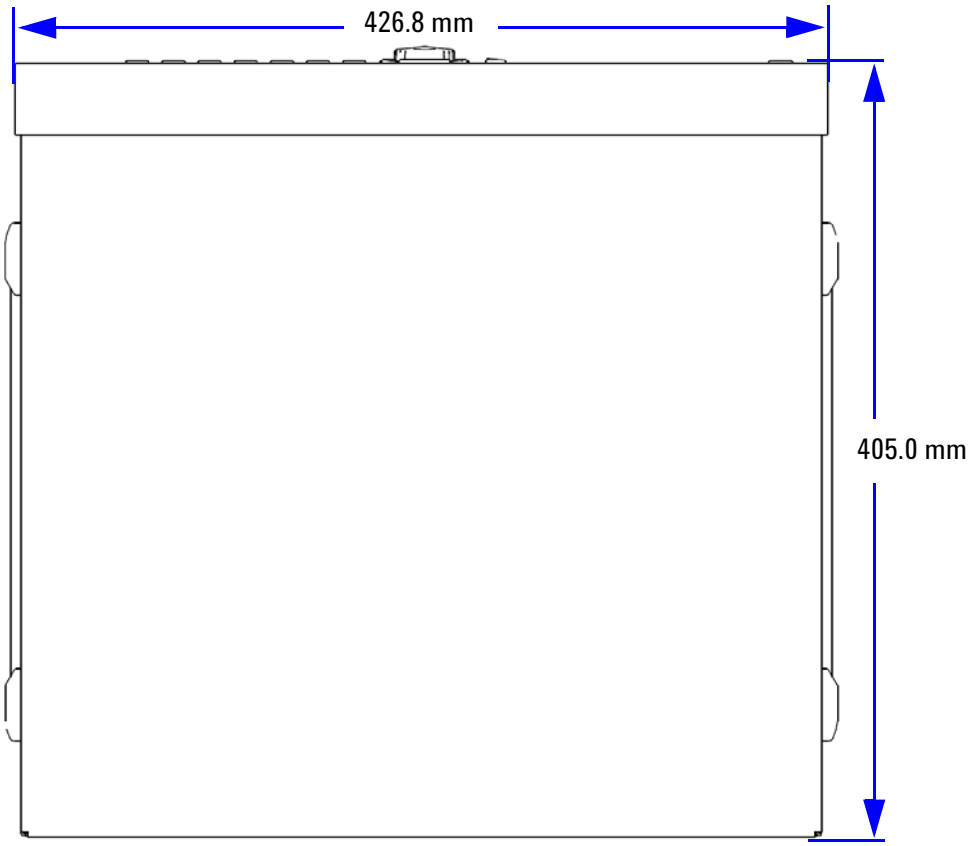
Front view



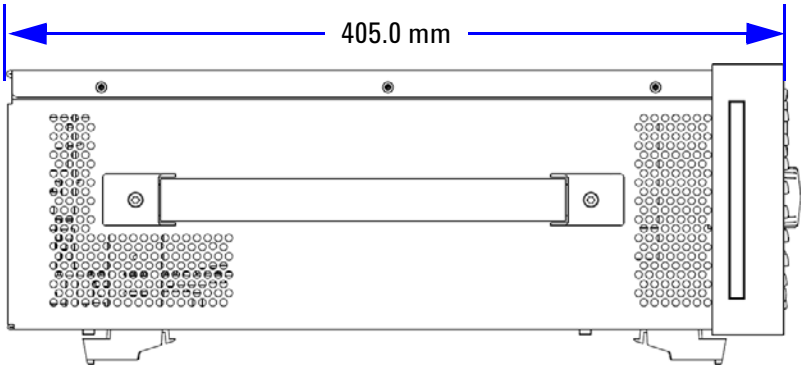
Rear view



Top view



Side view



3 The Basics

How to Power-on the U8101A 14
- Power-on sequence 14
- Help 16
- Preset 16

Front Panel Operation 17
- Menu section 17
- Pattern menu 18
- System menu 23
- File menu 25
- Utility menu 26
- HDCP menu 27
- Control menu 27
- Slots menu 28
- Sequence menu 28
- Front panel LCD display 29
- Editing keys 32
- Control navigation 33

This chapter gives a quick start guide on how to power up the U8101A, how to access and navigate the U8101A using the front panel key, resetting the U8101A, and other basic operation when operating the U8101A.

How to Power-on the U8101A

Connect one end of the power cord to the AC power inlet of the U8101A, and the other end to an AC voltage source. Ensure that the provided power cord plug matches the country of origin as shown in Table 3-1 on page 15.

The U8101A will automatically adjust to the correct line voltage in the range of 100 VAC to 240 VAC.

To turn the instrument on or off, press located on the lower left corner of the front panel.

WARNING **Always use a grounded power cord.**

Power-on sequence

Once the U8101A is powered up, it will load the default power-on sequence and the last configuration setup from its nonvolatile memory.

Table 3-1 Power cord plug types

Plug type	Cable part number	Plug type	Cable part number
Opt 900 (U.K.)	8120-1703	Opt 918 (Japan)	8120-4754
Opt 901 (Australia)	8120-0696	Opt 919 (Israel)	8120-6799
Opt 902 (Europe)	8120-1692	Opt 920 (Argentina)	8120-6871
Opt 903 (U.S.A.)	8120-1521	Opt 921 (Chile)	8120-6979
Opt 906 (Switzerland)	8120-2296	Opt 922 (China)	8120-8377
Opt 912 (Denmark)	8120-2957	Opt 927 (Thailand)	8120-8871
Opt 917 (South Africa)	8120-4600		

Help

Help allows you to obtain help information on the key or softkey on the screen.

Press and hold Help for three seconds to activate or deactivate the Help mode.

NOTE The normal functions will not be functional until you exit from the Help mode.

Preset

To preset the U8101A, you can either do one of the following.

- Send the SCPI command `SYSTem:PRESet` from the PC via the GPIB, USB, or LAN interface.
- Press Preset on the front panel.

Preset will restore the U8101A to factory default settings. The U8101A will automatically reboot.

Front Panel Operation

The keys under the Menu section are organized in a left-to-right tree structure. The U8101A allows you to quickly navigate between menus by pressing the various function keys located on the front panel. To navigate away from a submenu, simply press another main function key.

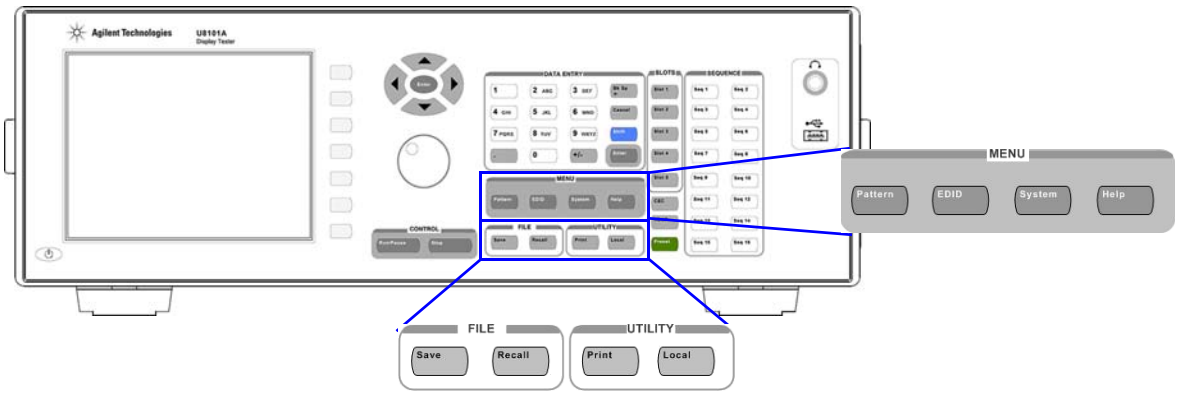


Figure 3-1 Front panel operation

Menu section

There are four menu keys (Pattern, EDID, System, and Help) under the Menu section. The hierarchical tree of these menu keys and their functions are described in the following pages.

Pattern menu

The pattern menu allows you to create and edit a pattern or a sequence, and configure the color and motion aspect of the pattern sequence. See Chapter 4, “Setting Up,” starting on page 35 for more information.

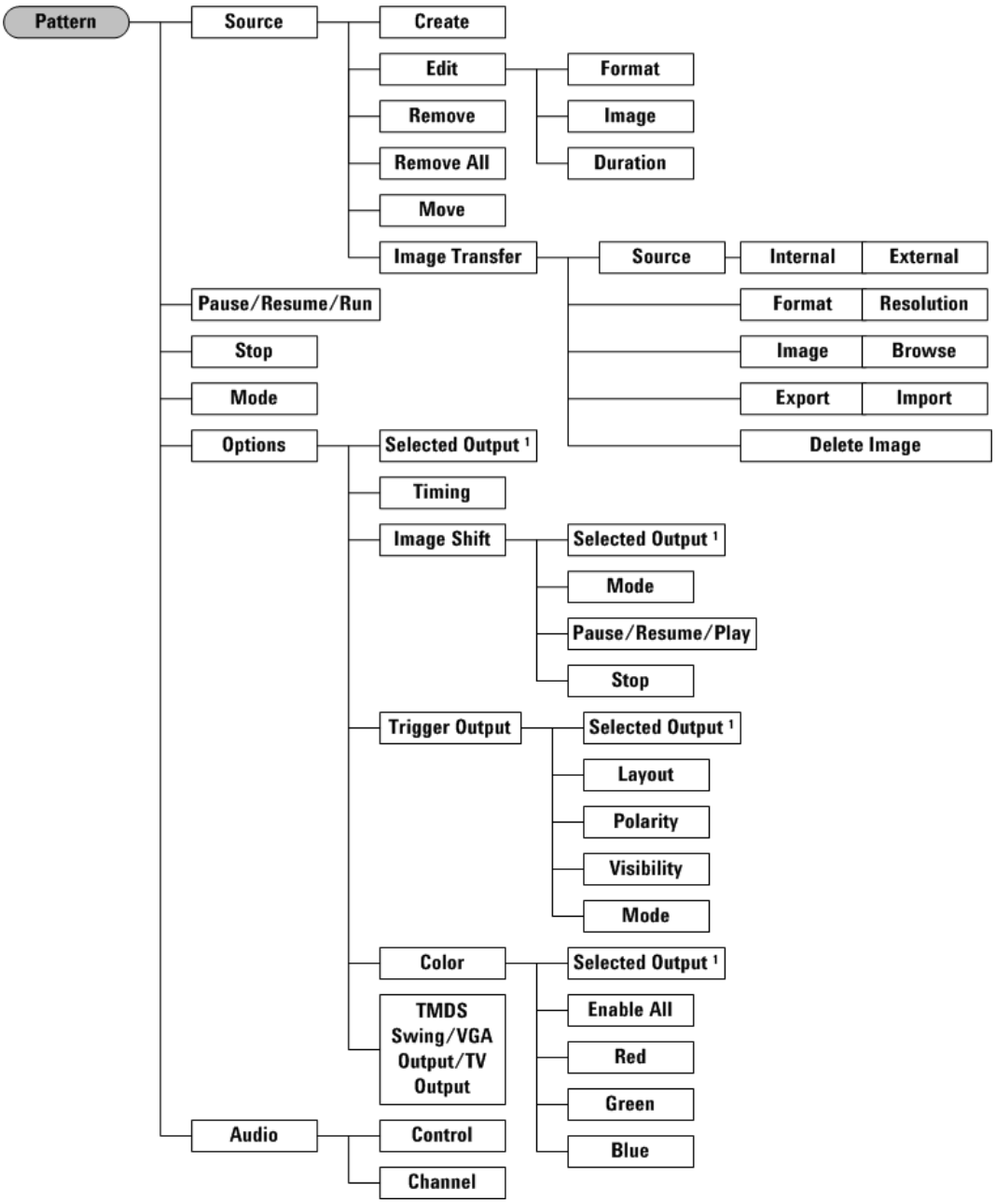


Figure 3-2 Pattern menu tree

[1] The Selected Output function applies for Image Shift, Trigger Output, and Color functions.

Table 3-2 Pattern menu command description

Level 1	Level 2	Level 3	Description
Source	Create		Creates a new pattern source
	Edit	Format	Sets the format
		Image	Sets the image
		Duration	Sets the duration
	Remove		Removes current pattern source
	Remove all		Removes all patterns sources
	Move		Moves a pattern to the left or right using the key knob
	Image Transfer	Source (Internal/External)	Selects the source of image to be exported or imported • Internal - The **Format, Image, Export** and **Delete Image** softkeys will appear on the screen • External - The **Resolution, Browse, Import** and **Delete Image** softkeys will appear on the screen
		Format/Resolution	• Format: Select an image format • Resolution: Select a image resolution
		Image/Browse	• Image: Select an image • Browse: Locate an image from external USB flash drive
		Export/Import	• Export: Exports selected image to external USB flash storage device • Import: Imports selected image from external USB flash drive
		Delete Image	Deletes selected image
Pause/Resume/Run			Pauses, resumes, or runs the pattern
Stop			Stops the pattern
Mode			Sets Auto, Repeat, or Normal mode

Table 3-2 Pattern menu command description

Level 1	Level 2	Level 3	Description
Options	Selected Output		Displays the current playing output card
	Timing		Sets the timing
	Image Shift	Selected Output	Selects the output card
		Mode	Sets Repeat or Reverse mode
		Pause/Resume/ Play	Pauses, resumes, or plays the image shift
		Stop	Stops the image shift
	Trigger Output	Selected Output	Selects the output card
		Layout	Sets Frame synchronization, Line synchronization, Probe synchronization, or Composite synchronization
		Polarity	Sets Positive or Negative polarity
		Visibility	Selects between making the trigger point visible, or hiding it in the display under test
		Mode	Sets the trigger output mode to Once Per Frame, Every Active Line, or Every Line
	Color	Enable All	Enables all color components
		Red	Enables or disables red component
		Green	Enables or disables green component
		Blue	Enables or disables blue component
	TMDS Swing/VGA Output/ TV Output		Sets the output level for TMDS Swing or VGA Output or TV Output
Audio	Control		Turns the audio control on or off. Default: On • On - Outputs a continuous tone to the rear panel audio output; mutes internal system audio. • Off - Stops playing continuous tone output to rear panel audio output; enables the internal system audio.
	Channel		Select the desired channel for audio output • Stereo - Enables left and right channel • Left - Enables left channel only • Right - Enables right channel only

EDID menu

Enhanced Extended Display Identification Data (E-EDID) defines a data structure used to carry configuration information for optimal use of a display. The EDID menu is based on the EDID structure with CEA Extension Version 3 that allows additional data to be stored as an EDID Extension. The EDID menu allows you to read and write E-EDID information from and to an external display, store E-EDID information to file, and display and edit the EDID information. See *Agilent U8101A Display Tester User's Guide* for more information.

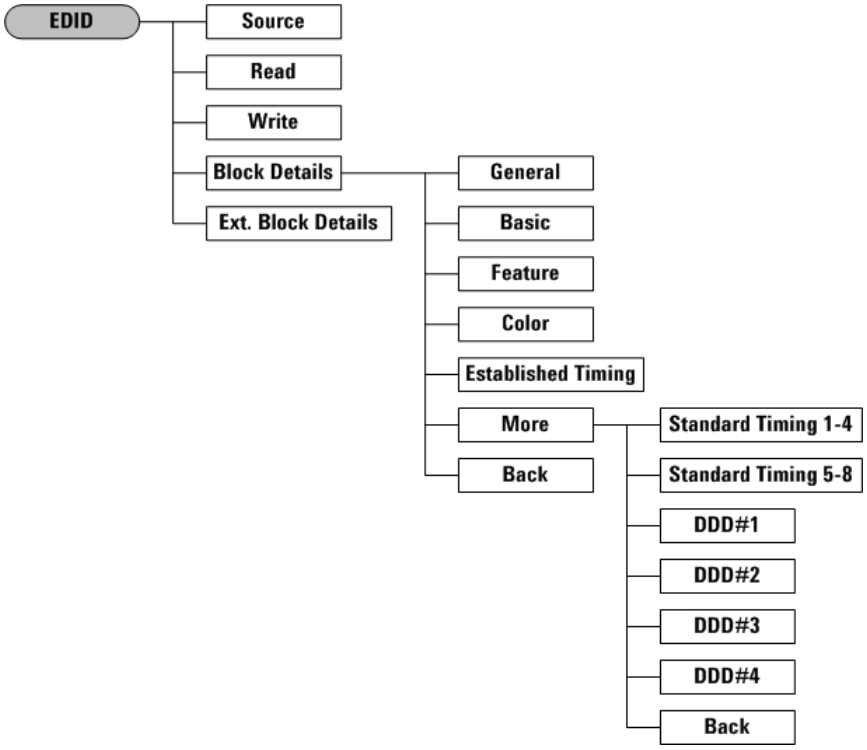


Figure 3-3 EDID menu tree

Table 3-3 EDID menu command description

Level 1	Level 2	Level 3	Description
Source			Sets the EDID source
Read			Reads the EDID from source
Write			Writes the EDID to source
Block Details	General		Sets the general parameters
	Basic		Sets the basic display parameters
	Features		Sets the features parameters
	Color		Sets the color parameters
	Established Timing		Sets the established timing
	More	Standard Timing 1-4	Sets the standard timing ID 1, 2, 3, 4
		Standard Timing 5-8	Sets the standard timing ID 5, 6, 7, 8
		DDD #1	Sets the detailed timing #1
		DDD #2	Sets the detailed timing #2
		DDD #3	Sets the detailed timing #3
		DDD #4	Sets the detailed timing #4
		Back	Returns to the previous menu
	Back		Returns to the previous menu
Ext Block Details			Access the extension block information in hexadecimal format

System menu

The System menu provides access for remote operation preferences and to the menus in which you can enable the U8101A options.

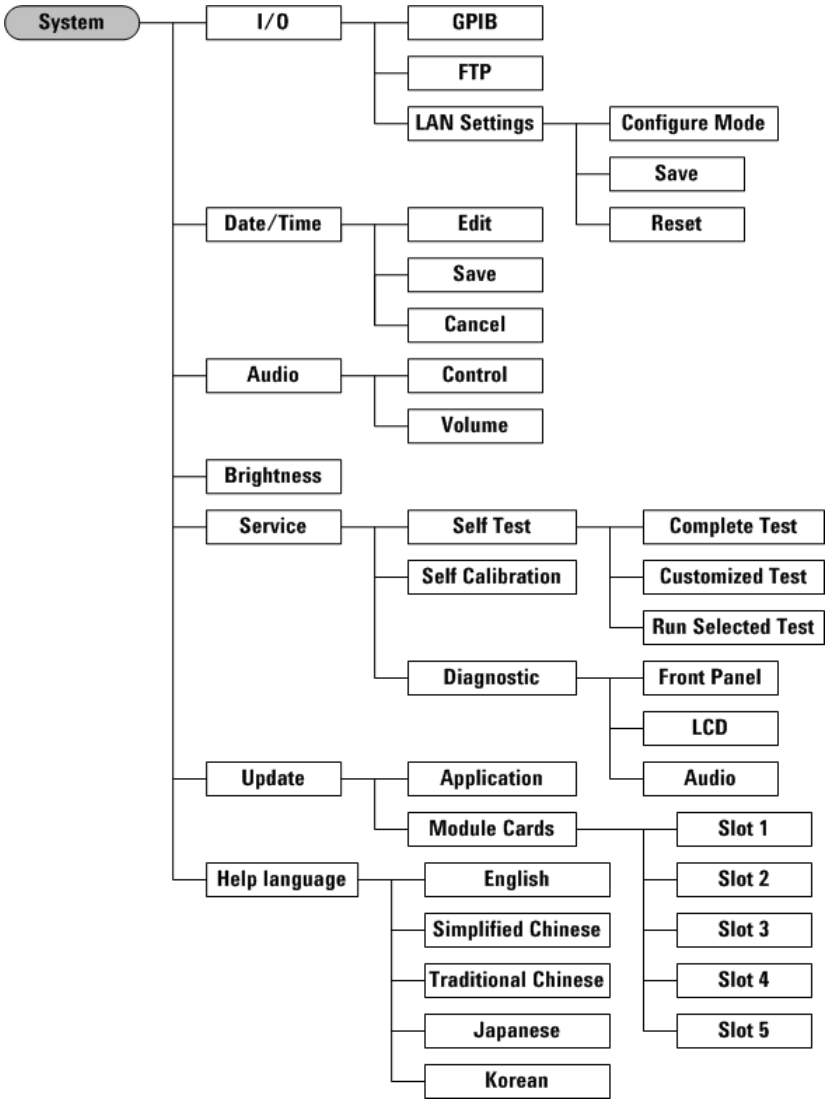


Figure 3-4 System menu tree

Table 3-4 System menu command description

Level 1	Level 2	Level 3	Description
About			Displays the instrument information
I/O	GPIB		Sets the GPIB address
	FTP		Enables or disables the FTP control
	LAN Settings	Configure Mode	Configures the LAN settings
		Save	Saves the configured LAN settings
		Reset	Resets the LAN settings to default
Date/Time	Edit		Sets the date and time
	Save		Saves the configured time settings
	Cancel		Cancels the changes made
Audio	Control (On/Off)		Enables or disables the audio
	Volume		Sets the audio volume level (0 to 15)
Brightness			Sets the brightness level (0 to 6)
Service	Self Test	Complete Test	Runs a complete self test.
		Customized Test	Selects a customized self test
		Run Selected Test	Runs a selected customized test
	Self Calibration		Automatically calibrates Y-luminance output level for TV card and RGB output level for VGA
	Diagnostic	Front Panel	Checks if the front panel keys are working properly
		LCD	Checks if the LCD display panel is working properly
		Audio	Checks if the speaker is operating properly
Update	Application		Updates the application firmware
	Module Cards	Slot 1	Selects Slot 1 to be updated
		Slot 2	Selects Slot 2 to be updated
		Slot 3	Selects Slot 3 to be updated
		Slot 4	Selects Slot 4 to be updated
		Slot 5	Selects Slot 5 to be updated
Help language	English		Sets the language to English
	Simplified Chinese		Sets the language to Simplified Chinese
	Traditional Chinese		Sets the language to Traditional Chinese
	Japanese		Sets the language to Japanese
	Korean		Sets the language to Korean

File menu

The instrument recognizes several types of files, such as the U8101A state files, sequence files, and EDID files. Files can be stored in the U8101A internal memory or on the external USB flash storage device. This section provides an overview of the procedure to navigate the U8101A File menus and also to view, store, recall, export, and import files.

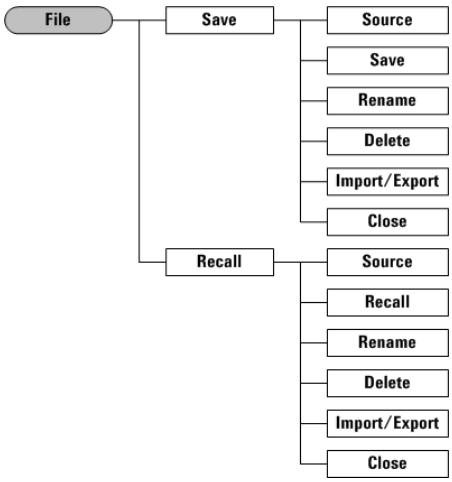


Figure 3-5 File menu tree

Table 3-5 File menu command description

File Menu	Sub Menu	Description
Save[1]	Source	Selects the source of the displayed file list from internal storage or external USB flash storage device
	Save[2]	Saves the selected file in the file list
	Rename	Renames the selected file in the file list
	Delete	Deletes the selected file in the file list
	Export/Import	Imports selected file from external USB flash storage device or exports selected file to external USB flash storage device
	Close	Closes the current menu

Table 3-5 File menu command description

File Menu	Sub Menu	Description
Recall[3]	Source	Selects the source of the displayed file list from internal storage or external USB flash storage device
	Recall	Recalls the selected file in the file list
	Rename	Rename the selected file in the file list
	Delete	Deletes the selected file in the file list
	Import/Export	Imports selected file from external USB flash storage device or exports selected file to external USB flash storage device
	Close	Closes the current menu

[1] Not applicable in System menu.
[2] To verify if the selected file is properly saved, please return to the File Manager page.
[3] Only applicable in Pattern menu.

Utility menu

The Utility menu provides you to capture snapshots on the screen and to switch to local operation from remote mode.

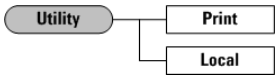


Figure 3-6 Utility menu tree

Table 3-6 Utility menu command description

Utility Menu	Description
Print	Captures screenshot and saves it into the external USB flash storage device
Local	Switches from remote mode to local operation

HDCP menu

HDCP allows you to enable and disable the HDCP feature on HDMI/DVI plug-in cards.

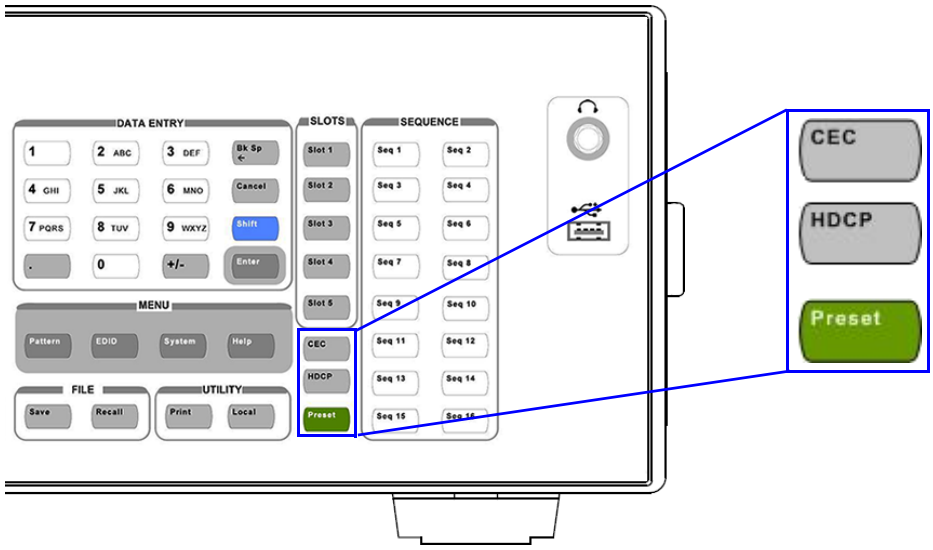


Figure 3-7 HDCP key

For DVI, the default setting for HDCP is disabled.

For HDMI, the default setting for HDCP is enabled

NOTE CEC is only applicable for HDMI 1.3 cards.

Control menu

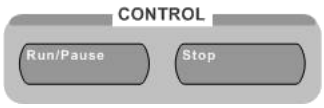


Figure 3-8 Control menu

In the Control menu, Run/Pause allows you to run a test sequence if no test sequence is running or pause a test sequence if a test sequence is running, Stop allows you to stop the test sequence execution. See Chapter 4, "Setting Up," starting on page 35 for more information.

Slots menu

Slot 1 (Slot 1) to Slot 5 (Slot 5) keys allow you to select slot module 1 to 5 as the output, as shown in Figure 3-9. See *Agilent U8101A Display Tester User's Guide* for more information on plug-in cards available.

Sequence menu

The Seq 1 (Seq 1) to Seq 16 (Seq 16) keys allow you to quickly recall any of the 16 preset pattern sequences, as shown in Figure 3-9. See *"Recalling a Sequence", Agilent U8101A Display Tester User's Guide* for more information.

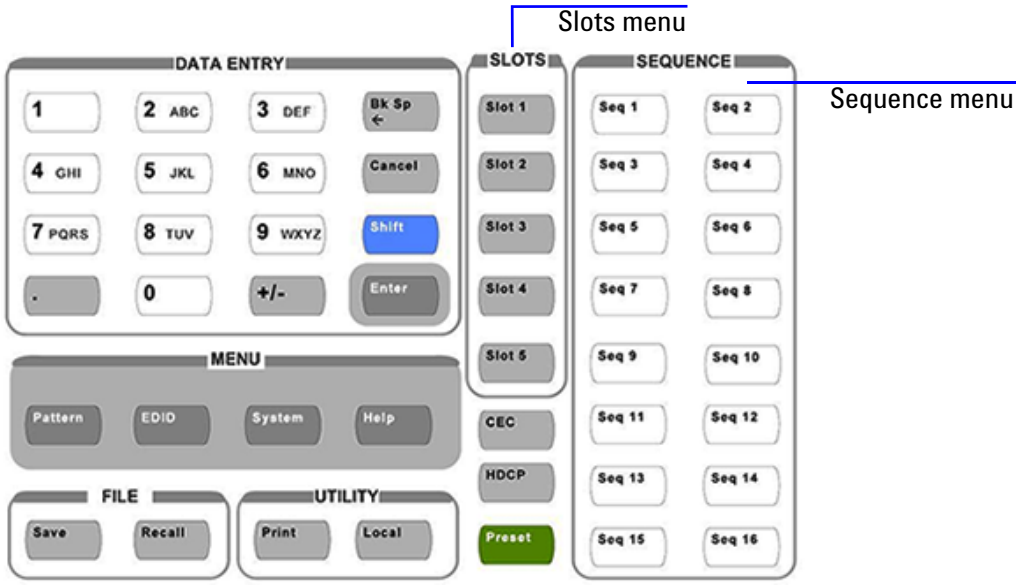


Figure 3-9 Slots and Sequence menu

Front panel LCD display

Upon U8101A power up, the default start-up sequence will be loaded on the front panel as shown in Figure 3-10.

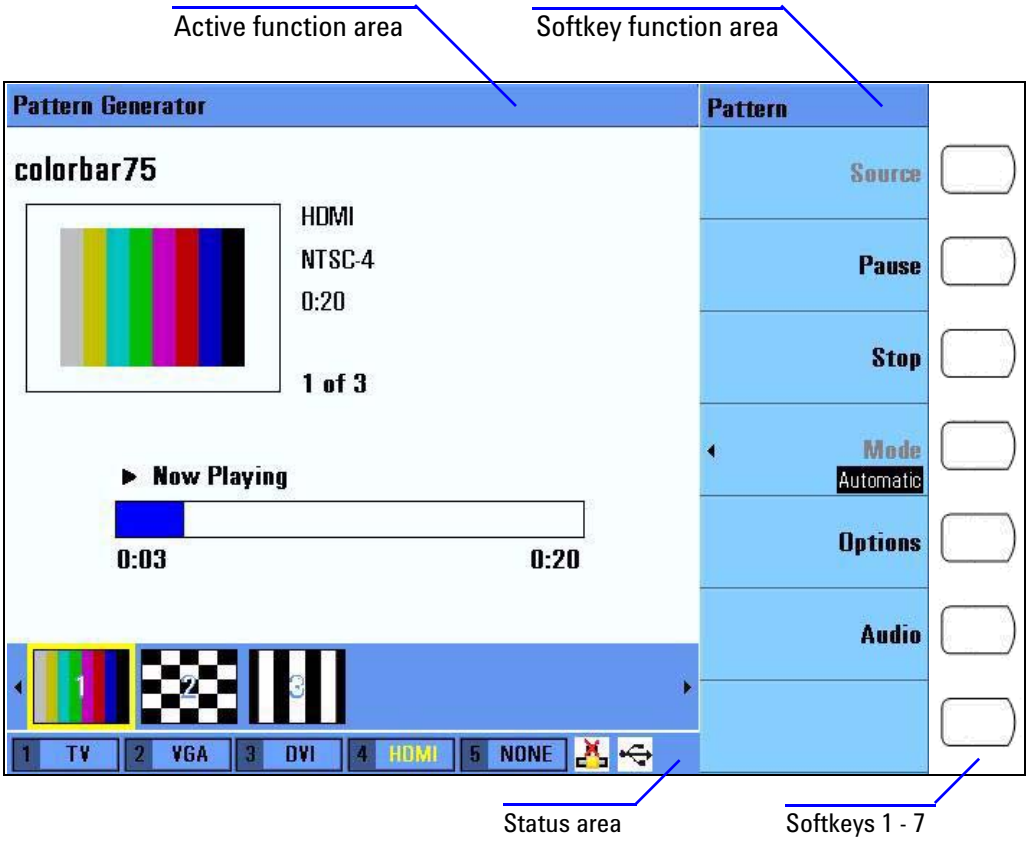


Figure 3-10 Front panel LCD display

Table 3-7 Front panel field description

Field	Description
Active function area	Displays the currently active function
Softkey function area	Displays the labels that define the function of the softkeys located immediately to the right of the display. The softkey labels change, depending on the function selected.
Status area	Displays the U8101A status
Softkeys 1 - 7	Press to select a function. See Table 3-8 for examples on how to use the assigned functions.

Table 3-8 Front panel symbol description

Symbol	Description
	Press a softkey to go one menu level deep if there is a submenu for the selected softkey. For example, selecting the Source softkey will allow access to the Source submenu.
	Press a softkey to execute a function. For example, selecting the Run softkey will start the test sequence.
	Press a softkey to insert/modify a data value. For example, selecting the Duration softkey will allow you to use the alphanumeric keypad, knob, or arrow keys to change the data value.
	Press a softkey to modify a data value from the pop-up menu. For example, selecting the Timing softkey will allow you to use the knob or arrow keys to change the data value from the pop-up menu.
	Press a softkey to select an item from the pop-up menu. For example, selecting the Mode softkey will allow you to use the knob or arrow keys to select either Automatic, Normal, or Repeat from the pop-up menu.
	Inactive softkey. Assigned function cannot be selected.
	Empty softkey. No functions assigned.

Status area

Table 3-9 Status area field description

Field	Description
Slot1	Card detected in slot 1
Slot2	Card detected in slot 2
Slot3	Card detected in slot 3
Slot4	Card detected in slot 4
Slot5	Card detected in slot 5
USB status	Shows USB state - active or inactive
LAN status	Shows LAN state - active or inactive

NOTE

See *Chapter 5, "Optional Plug-in Cards", Agilent U8101A Display Tester User's Guide* for more information on compatible optional plug-in cards.

Editing keys

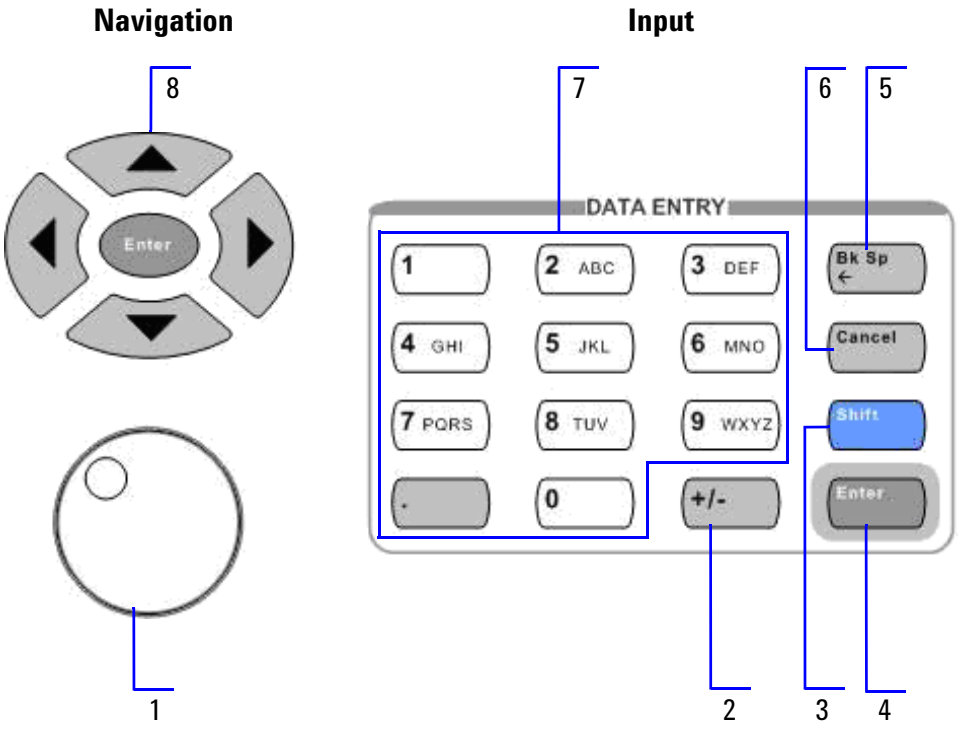


Figure 3-11 Alphanumeric keypad

Table 3-10 U8101A alphanumeric keypad descriptions

Item	Key	Description
1	Knob	Turn the knob to increase or decrease a numeric value, change a highlighted digit or character, or step through a list or items in a row
2	+/–	Specifies a negative value by entering the negative sign before or after the numeric value (this is a toggle key)
3	Shift	Use the Shift key to type capital letters (this is a toggle key)
4	Enter	Use the Enter key to choose a part of an entry, when entering alphanumeric characters. In some menus, the Enter key also acts as a terminator, which is equivalent to the **[Enter]** softkey.
5	Backspace	Moves the cursor one position backwards, deletes the preceding character
6	Cancel	Cancels a selected action
7	Alphanumeric keys	Use the alphanumeric keys and decimal point to type alphanumeric data
8	Arrow	Use the arrow keys to highlight items on the U8101A display. These keys can also be used to change the numeric values or to step through a list or items in a row.

Control navigation

Use softkeys 1 to 7 ( ) to select softkey functions to navigate the controls.

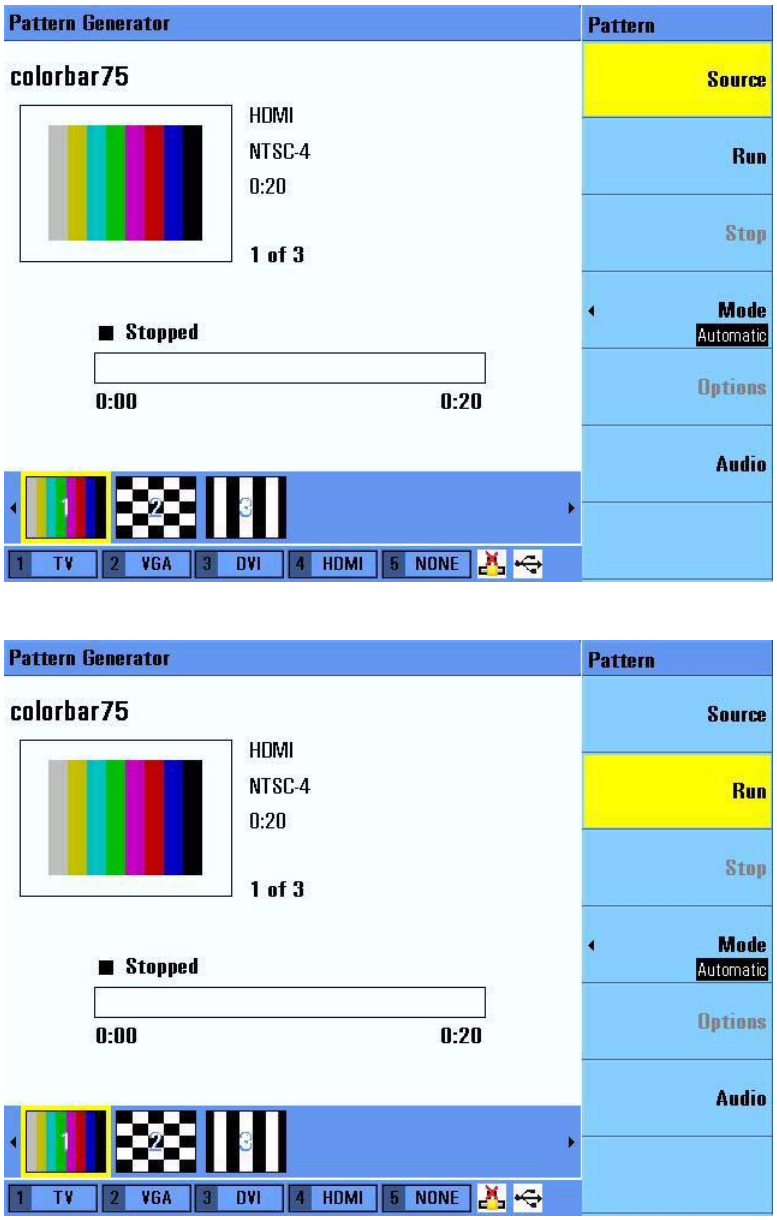


Figure 3-12 Example 1 of navigation control on the U8101A

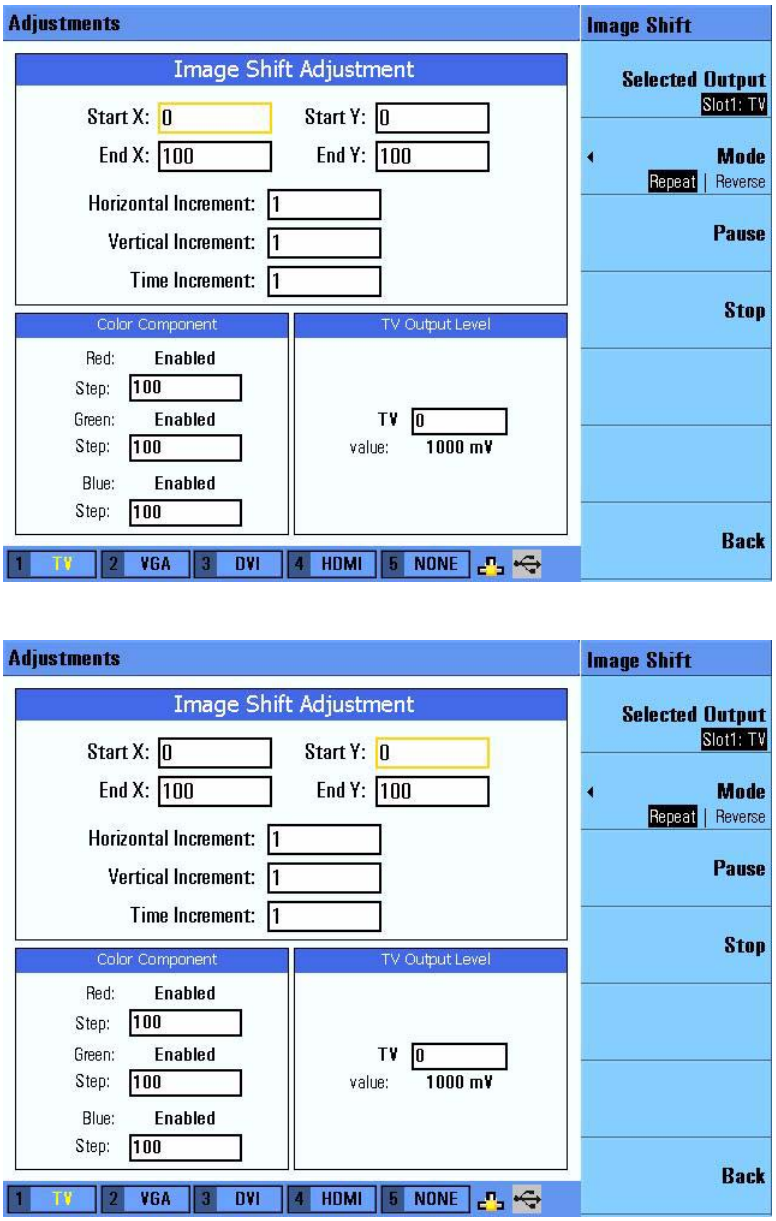


Figure 3-13 Example 2 of navigation control on the U8101A

Use the knob or arrow keys to select a specific control in the active function area. If the highlighted control is a text box, press Enter and use the **Alphanumeric Keypad** to type the value. If the highlighted control is a list, combo box or numeric entry, use the knob or arrow keys to change its value.

4 Setting Up

Creating a Pattern 36
Selecting a format 36
Selecting an image 37
Selecting the duration 38
Creating a Sequence 39
Running a Sequence 41
Creating a Customized Image 42
Testing Multiple Displays Simultaneously 43

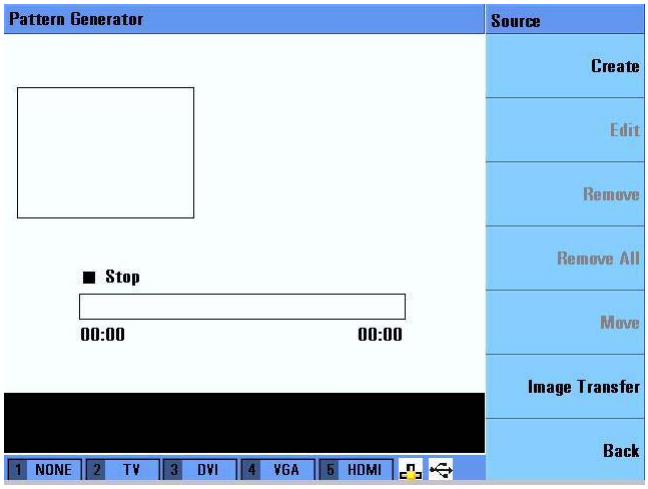
This chapter describes the common steps in setting up the U8101A for editing and generating patterns for display tests.

Creating a Pattern

The U8101A allows the creation of customized patterns for display tests. To create a pattern, proceed as follows.

1 Press Pattern to activate the Pattern menu.

2 Press **[Source]** to access the Source submenu.



3 Press **[Create]** to insert a blank pattern.

4 Press **[Edit]** to access the Edit submenu. The Edit submenu allows further customization of your created pattern. See "Selecting a format" on page 36, "Selecting an image" on page 37, and "Selecting the duration" on page 38 for more information.

Selecting a format

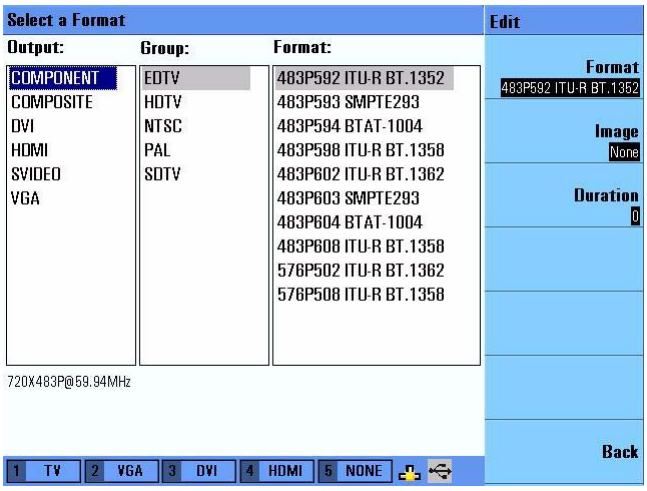
To select a particular display format for your pattern, proceed as follows.

1 Press Pattern to activate the Pattern menu. To create a new pattern, see "Creating a Pattern" on page 36.

2 Press **[Source]** to access the Source submenu.

3 Press **[Edit]** to access the Edit submenu.

4 Press **[Format]** to select an output type, a display group, and a specific format. Compatible formats are displayed according to the selected output and group. Use the knob or arrow keys to select a format and press Enter.



Selecting an image

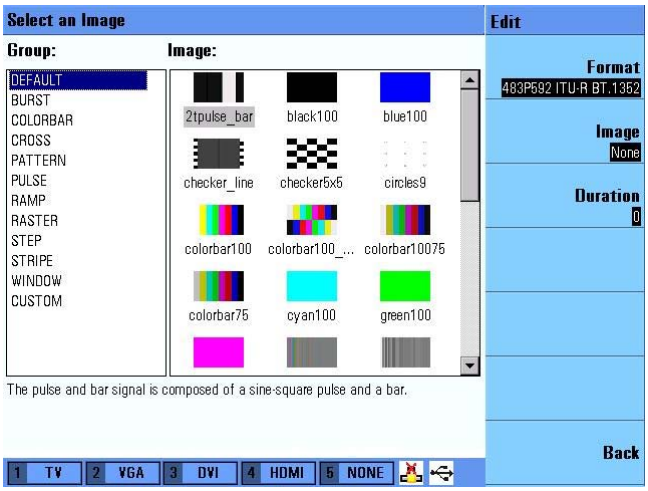
To select a particular image for your pattern, proceed as follows.

1 Press Pattern to activate the Pattern menu. To create a new pattern, see "Creating a Pattern" on page 36.

2 Press **[Source]** to access the Source submenu.

3 Press **[Edit]** to access the Edit submenu.

4 Press **[Image]** to select an image. Compatible images are displayed according to the selected group. Use the knob or arrow keys to select an image and press Enter.



Selecting the duration

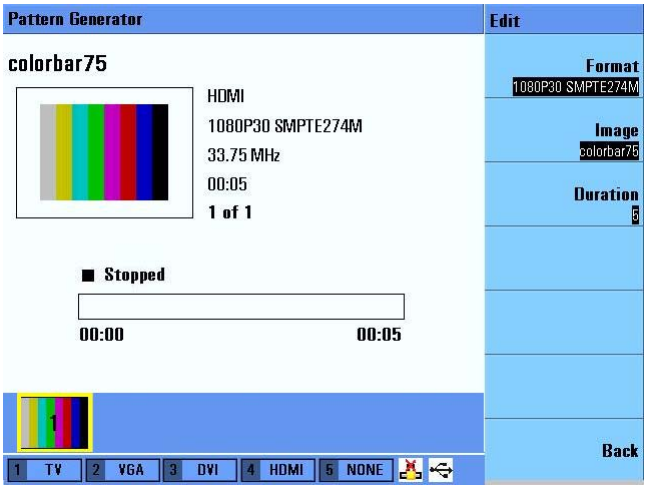
To select the display duration for your pattern, proceed as follows.

1 Press Pattern to activate the Pattern menu. To create a new pattern, see "Creating a Pattern" on page 36.

2 Press **[Source]** to access the Source submenu.

3 Press **[Edit]** to access the Edit submenu.

4 Press **[Duration]** to change the pattern display duration. Select your desired duration (in seconds) and press Enter.



NOTE Select 0 as your desired duration for the pattern to be played continuously.

Creating a Sequence

The U8101A allows the creation of a sequence of patterns for display test. A sequence can be created from either the front panel or via the PC using SCPI commands. Each step specifies the output type, display format, image to be displayed, and the duration of the step. To create a sequence, proceed as follows.

1 Press Pattern to activate the Pattern menu.

2 Press **[Source]** to access the Source submenu.

3 See "Creating a Pattern" on page 36 to create a new pattern if there are no previous patterns available.

4 To insert a step, press **[Create]**. The new step is inserted after the previous step and becomes the selected step. This new step inherits the **Output**, **Format**, **Image**, and **Duration** properties from the previous step.

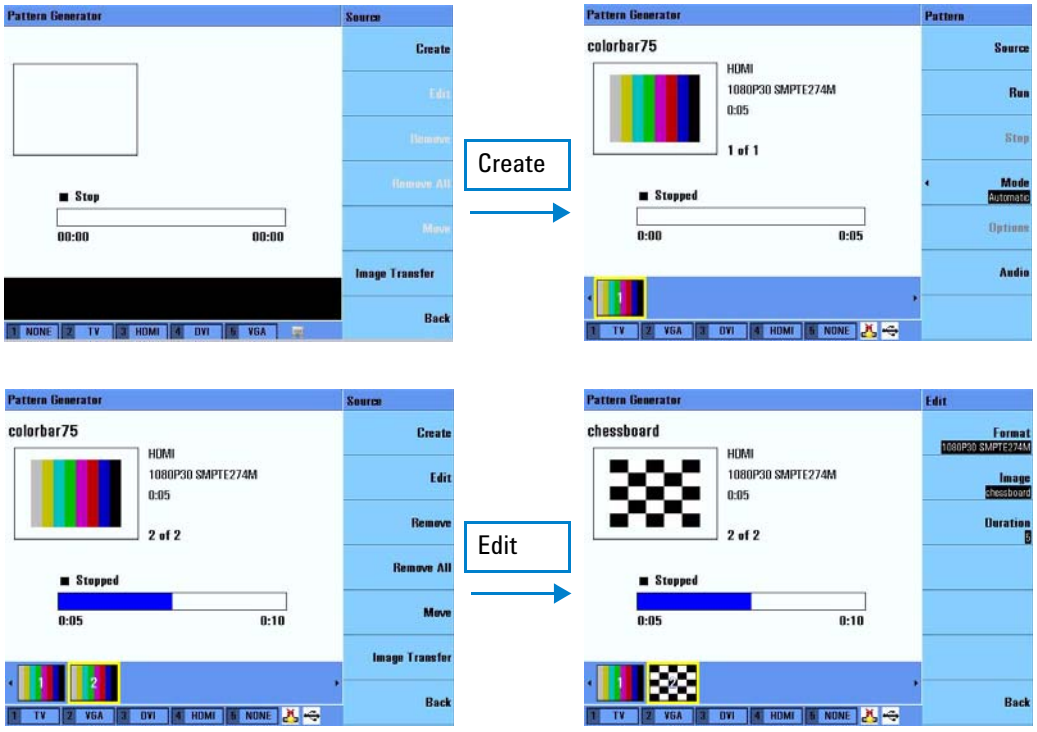


Figure 4-1 Inserting steps in a particular sequence

5 Press **[Edit]** to customize the properties of the new step. See "Selecting a format" on page 36, "Selecting an image" on page 37, and "Selecting the duration" on page 38 for more information.

6 To remove an existing step, select a step and press **[Remove]** in the Source submenu. To remove all steps in a sequence, press **[Remove All]** in the Source submenu.

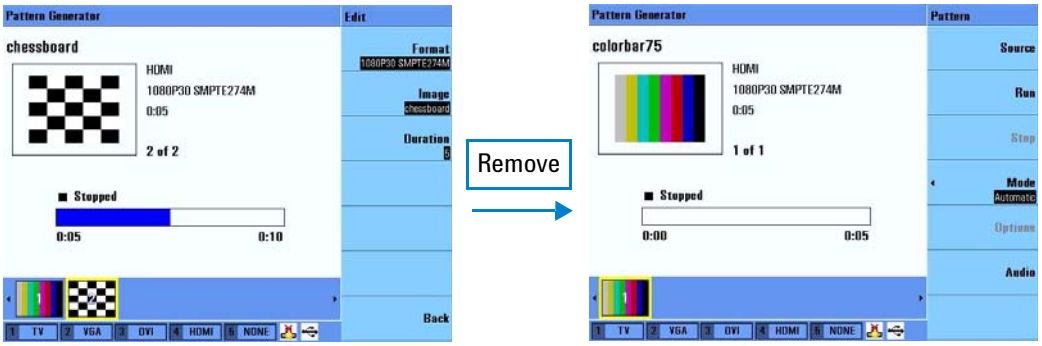


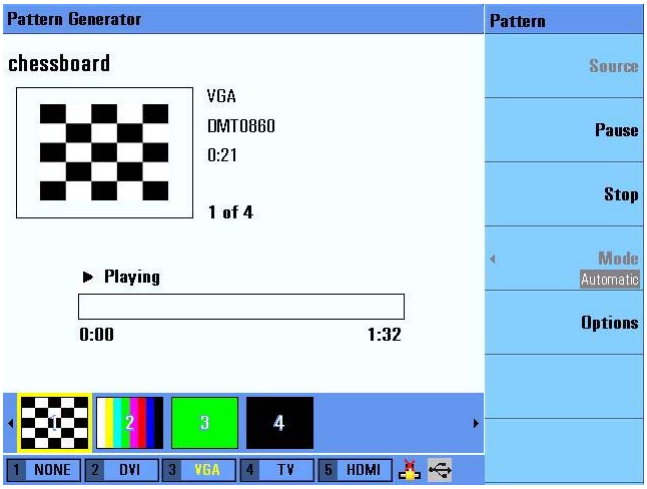
Figure 4-2 Removing steps in a particular sequence

Running a Sequence

Before you run a sequence, ensure that you have created or recalled a sequence. To run a sequence, proceed as follows.

1 Select a sequence and press Run/Pause or **[Run]**.

2 To run a specific part of a sequence, use the knob or arrow keys to select a specific step and press Run/Pause to run the sequence.



3 To pause a sequence, press Run/Pause or **[Pause]** when it is running.

4 Press Stop or **[Stop]** to stop a sequence when it is running.

Creating a Customized Image

The U8101A allows you to import your own customized images. To create your own customized image you can use any image editing tool, for example, Microsoft® Paint to create an image. To successfully create a U8101A compatible image, you must ensure that

- the resolution of the image created matches the U8101A compatible resolutions listed in Table 4-1, and
- the image file format is saved as a 24-bit Bitmap (BMP) file.

See "Import Image from External USB Flash Storage" on page 48 for more information on how to import your customized image to the U8101A.

Table 4-1 U8101A compatible resolutions

U8101A Compatible display resolutions	
1024 × 768	1920 × 1080
1152 × 864	1920 × 1200
1280 × 1024	640 × 350
1280 × 720	640 × 400
1280 × 768	640 × 480
1280 × 960	720 × 400
1360 × 768	720 × 480
1400 × 1050	720 × 483
1440 × 900	720 × 576
1600 × 1200	768 × 576
1680 × 1050	800 × 600
1920 × 1035	848 × 480

Testing Multiple Displays Simultaneously

The U8101A can be used to test multiple display devices simultaneously. In order to test the multiple devices simultaneously, the duration set for each pattern must be set to 0 seconds for each slot.

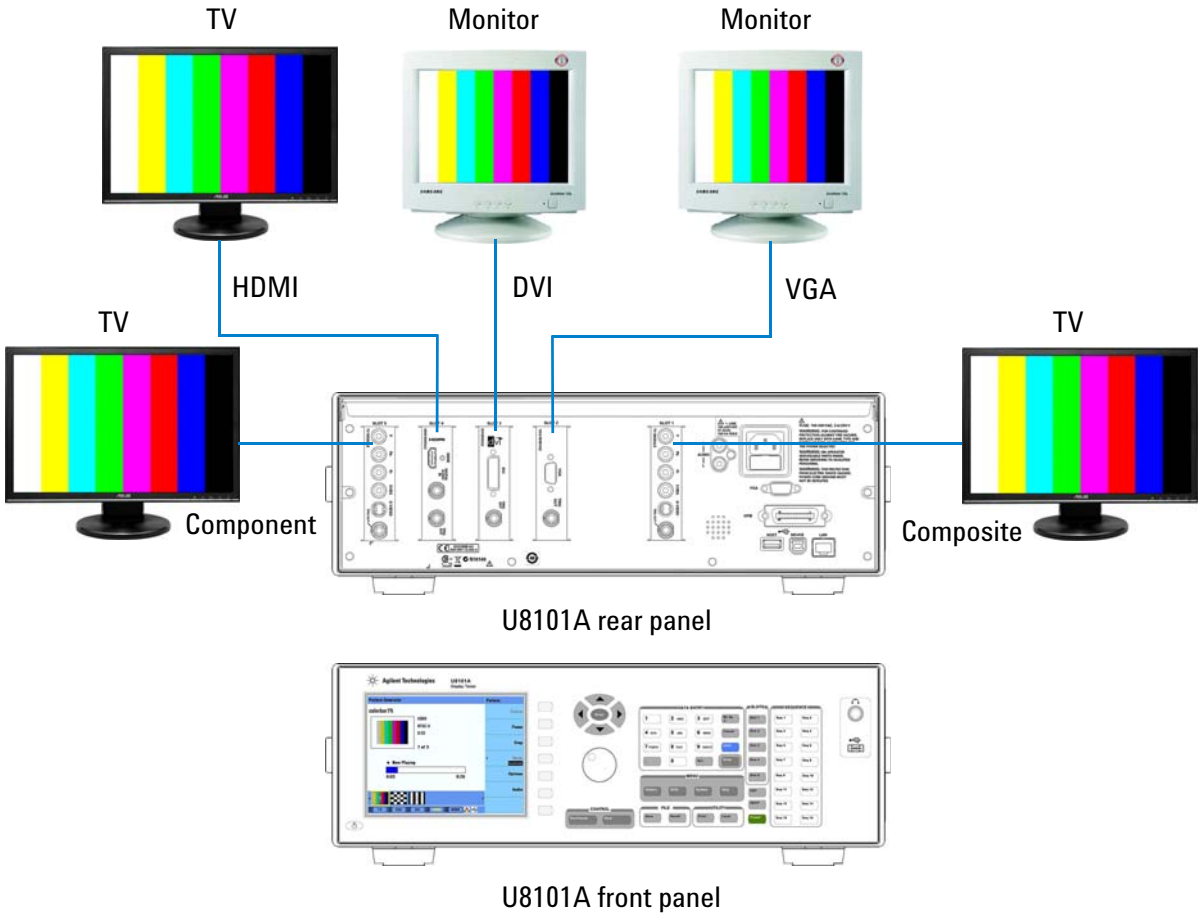


Figure 4-3 Simultaneous test setup example

In the example above, there are five cards available, where

- Slot 1 is fitted with a TV module card,
- Slot 2 with a VGA module card,
- Slot 3 with a DVI module card,
- Slot 4 with a HDMI module card, and
- Slot 5 with a TV module card.

To test the connected display devices simultaneously, proceed as follows.

Refer to “Creating a Pattern” on page 36 and “Creating a Sequence” on page 39 for more information on pattern and sequence creation.

1. Create a pattern (Pattern 1) from the Composite group and format with duration set to 0 seconds.
2. Create a pattern (Pattern 2) from the VGA group and format with duration set to 0 seconds.
3. Create a pattern (Pattern 3) from the DVI group and format with duration set to 0 seconds.
4. Create a pattern (Pattern 4) from the HDMI group and format with duration set to 0 seconds.
5. Create a pattern (Pattern 5) from the Component group and format with duration set to 0 seconds.

NOTE Selecting 0 as your desired duration will set the pattern to play continuously.

6. Press Run/Pause or **[Run]** to run the sequence. The connected display devices will be tested simultaneously.

5 File Maintenance

Export Image to External USB Flash Storage 46
Import Image from External USB Flash Storage 48
Export Sequence File/EDID Data 49
Import Sequence File/EDID Data 50

This chapter provides instructions on how to import and export customized images, EDID data, and test sequences into external USB flash storage devices.

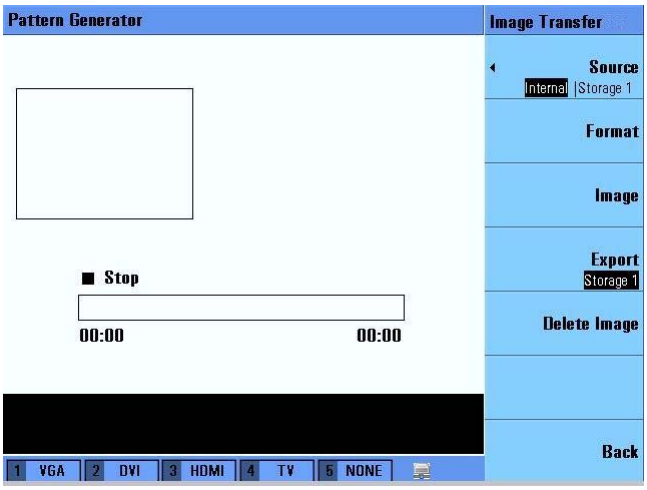
Export Image to External USB Flash Storage

To export an image from the U8101A to an external USB flash storage device, proceed as follows.

1 Press Pattern to activate the Pattern menu.

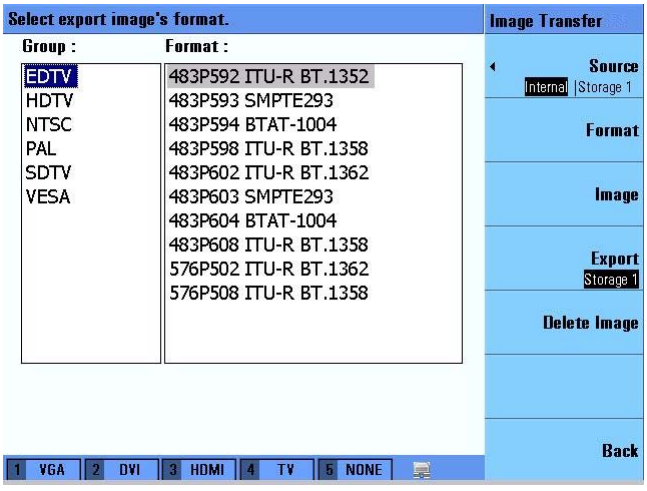
2 Press **[Source]** to access the Source submenu.

3 Press **[Image Transfer]** to access the Image Transfer submenu.

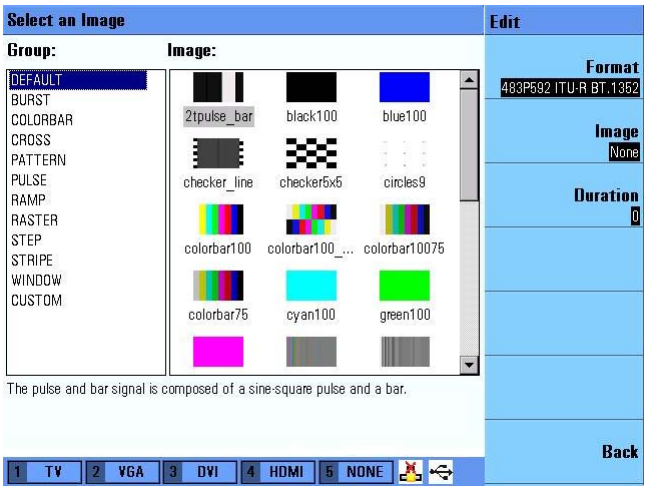


4 Press **[Source]** and select **[Internal]**.

5 Press **[Format]** to select the format of the image to be exported.



6 Press **[Image]** to select an image to be exported.



7 Press **[Export]** to export it to USB external flash storage.

NOTE You will need to insert your external USB flash storage device into the USB host interface in order to save or export a file. Press **Enter** to proceed if you observe a pop-up error message box.

8 The exported image will be saved as a Bitmap (BMP) format file.

Import Image from External USB Flash Storage

To import a user defined image from an external USB flash storage device to the U8101A, proceed as follows.

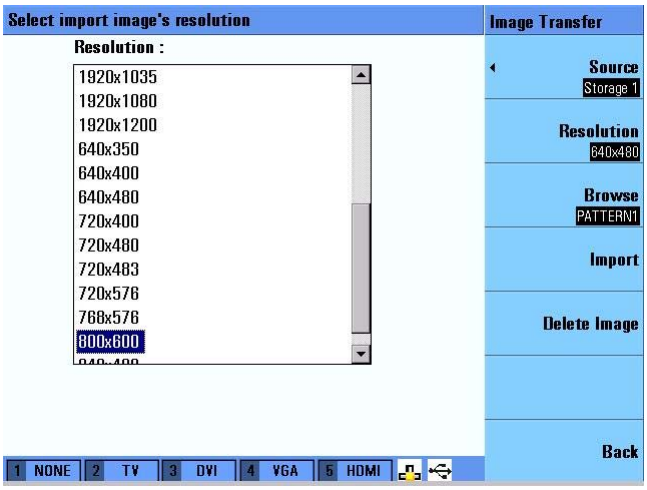
1 Press Pattern to activate the Pattern menu.

2 Press **[Source]** to access the Source submenu.

3 Press **[Image Transfer]** to access the Image Transfer submenu.

4 Ensure that your external USB flash storage device is connected to the U8101A. Press **[Source]** and select an appropriate external storage source.

5 Press **[Resolution]** to select the resolution of the Bitmap (BMP) file to be imported to the internal memory.



6 Press **[Browse]** to locate the Bitmap (BMP) file from your external USB flash storage device.

7 Press **[Import]** to import the Bitmap (BMP) file to the U8101A internal memory.

NOTE Only bitmap images located in the root directory of the external USB flash storage can be selected for import.

Export Sequence File/EDID Data

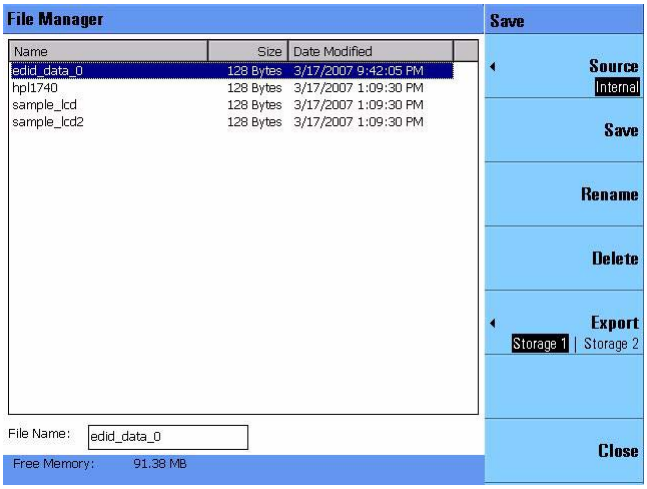
To export a sequence file or EDID data from the U8101A internal memory to an external USB flash storage device, proceed as follows.

1 In the Pattern or EDID menu, press Save or Recall to activate the File Manager.

2 Press **[Source]** and select **[Internal]** to select the U8101A internal memory.

3 Use the knob or arrow keys to select a specific file from the file list.

4 Press **[Export]** and select an appropriate external storage source to export the selected file.



5 The sequence file will be saved in an Extensible Markup Language (XML) file format while the EDID file will be saved in a Binary (.bin) file format.

Import Sequence File/EDID Data

To import a sequence file or EDID data from an external USB flash storage device to the U8101A internal memory, proceed as follows.

1. In the Pattern or EDID menu, press Save or Recall to activate the File Manager.
2. Press **[Source]** and select an appropriate external storage source.
3. Use the knob or arrow keys to select a specific file from the file list.
4. Press **[Import]** to import the selected file to the U8101A internal memory.

6
User Interface Connection

Interface Configuration 54
GPIB 54
LAN 54

This chapter provides instructions on how to configure LAN settings and GPIB address for remote control interface.

Interface Configuration

GPIB

1. Press System to activate the System menu.
2. Press **[I/O]** to access the I/O submenu.
3. Press **[GPIB]** to change the GPIB address.
4. Use the alphanumeric keys, knob, or arrow keys to select a new GPIB address.

LAN

1. Press System to activate the System menu.
2. Press **[I/O]** to access the I/O submenu.
3. Press **[LAN Settings]** to access the LAN Settings submenu.
4. Press **[Configure Mode]** and select **[Automatic]** or **[Manual].**
   - Select **[Automatic]** to allow the U8101A to automatically configure the LAN settings.
   - Select **[Manual]** to manually configure the LAN settings. Use the alphanumeric keys, knob, or arrow keys to select your new LAN settings.

NOTE USB host and interface settings requires no configuration.

www.agilent.com

Contact us
To obtain service, warranty or technical support assistance, contact us at the following phone numbers:

United States:
(tel) 800 829 4444 (fax) 800 829 4433
Canada:
(tel) 877 894 4414 (fax) 800 746 4866
China:
(tel) 800 810 0189 (fax) 800 820 2816
Europe:
(tel) 31 20 547 2111
Japan:
(tel) (81) 426 56 7832 (fax) (81) 426 56 7840
Korea:
(tel) (080) 769 0800 (fax) (080) 769 0900
Latin America:
(tel) (305) 269 7500
Taiwan:
(tel) 0800 047 866 (fax) 0800 286 331
Other Asia Pacific Countries:
(tel) (65) 6375 8100 (fax) (65) 6755 0042

Or visit Agilent worldwide web at:
www.agilent.com/find/assist

Product specifications and descriptions in this document are subject to change without notice. Always refer to Agilent web site for the latest revision.

© Agilent Technologies Inc., 2008, 2010

Second Edition, 19 April 2010

U8101-90002

Agilent Technologies