Boonton

INSTRUCTION MANUAL

SGX1000 Series

RF Signal Generator

98409500B | Rev 20221121

Revision 20221121

P/N 98409500B

This manual covers the SGX1000 Series RF Signal Generators, serial numbers: 1001 and higher.

The SGX1000 Series application software used in this product is licensed by Boonton Electronics, a subsidiary of the Wireless Telecom Group, Inc.

SAFETY SUMMARY

The following general safety precautions must be observed during all phases of operation and maintenance of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. Boonton Electronics assumes no liability for the customer's failure to comply with these requirements.

DO NOT OPERATE THE INSTRUMENT IN AN EXPLOSIVE ATMOSPHERE
Do not operate the instrument in the presence of flammable gases or fumes.

DO NOT OPERATE THE INSTRUMENT OUTSIDE
This instrument is designed for indoor use only.

KEEP AWAY FROM LIVE CIRCUITS
Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made by qualified maintenance personnel. Do not replace components with the power cable connected. Under certain conditions dangerous voltages may exist even though the power cable was removed, therefore; always disconnect power and discharge circuits before touching them.

DO NOT SERVICE OR ADJUST ALONE
Service and adjustments should be performed only by qualified service personnel. Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

DO NOT POSITION THE INSTRUMENT SO THAT IT IS DIFFICULT TO OPERATE THE DISCONNECTION DEVICE
The main power disconnection switch is located on the rear panel.

DO NOT SUBSTITUTE PARTS OR MODIFY INSTRUMENT
Do not install substitute parts or perform any unauthorized modifications on the instrument. Return the instrument to Boonton Electronics for repair to ensure that the safety features are maintained.

SAFETY SYMBOLS

This safety requirement symbol has been adopted by the International Electro-technical Commission, Document 66 (Central Office) 3, Paragraph 5.3, which directs that an instrument be so labeled if, for the correct use of the instrument, it is necessary to refer to the instruction manual. In this case it is recommended that reference be made to the instruction manual when connecting the instrument.

The CAUTION symbol denotes a hazard. It calls attention to an operational procedure, practice, or instruction that, if not followed, could result in damage to or destruction of part or all of the instrument and accessories. Do not proceed beyond a CAUTION symbol until its conditions are fully understood and met.

The NOTE symbol is used to mark information that should be read. This information can be very useful to the operator in dealing with the subjects covered in this section.

The HINT symbol is used to identify additional comments that are outside of the normal format of the manual and provide users additional information about the subject.

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1 General Information

This instruction manual provides you with the information you need to install, operate, and maintain Boonton SGX1000 Series RF Signal Generators. Section 1 is an introduction to the manual and the instrument.

1.1 Organization

The manual is organized into five sections and two Appendices, as follows:

Section 1 - General Information presents summary descriptions of the instrument and its principal features, accessories, and options.

Section 2 - Installation provides instructions for unpacking the instrument, setting it up for operation, connecting power and signal cables, and initial power-up.

Section 3 - Getting Started describes the controls and indicators and the initialization of operating parameters. Several practice exercises are provided to familiarize yourself with essential setup and control procedures.

Section 4 - Operation describes the menus and procedures for operating the instrument locally from the front panel.

Section 5 – Maintenance contains procedures for maintaining SGX1000 series RF signal generators.

Appendix A - Warranty and Repair Policy states the policies governing the return and replacement of modules and instruments during and after the warranty period.

Appendix B - End User License Agreements

1.2 Description

The SGX1000 series of RF signal generators offer high performance signal generation with an easy-to-use interface in a compact form factor. The SGX1000 utilizes a proprietary blend of direct digital and direct analog synthesis to provide ultra-fine frequency resolution, lightning-fast frequency switching, ultra-low phase noise and jitter, and superior reliability.

1.3 Features

See SGX1000 series datasheets for a brief description of key features.

1.4 Accessories

See SGX1000 series datasheets for a complete list of accessories.

1.5 Optional Configurations

See SGX1000 series datasheets for a complete list of optional configurations.

1.6 Specifications

See SGX1000 series datasheets for the latest specifications.

2 Installation

This section contains unpacking and repacking instructions, power requirements, connection descriptions, and preliminary checkout procedures.

2.1 Unpacking & Repacking

The SGX1000 series RF signal generators are shipped complete and are ready to use upon receipt. Figure 2-1 shows you the various pieces included in the packaging and the order in which they are loaded into the container. Actual details may vary from the illustration.

Note

Save the packing material and container to ship the instrument, if necessary. If the original materials (or suitable substitute) are not available, contact Boonton Electronics to purchase replacements. Store materials in a dry environment.

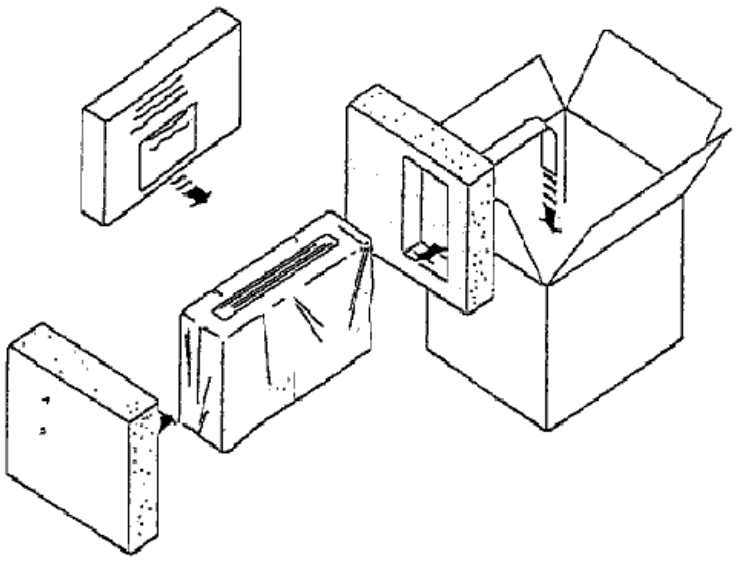


Figure 2-1. Packaging Diagram

Table 2-1. SGX1000 Series RF Signal Generator Packing List

SGX1000 series RF signal generator
Line Cord
Ethernet Cable
Information Card (describes where to download the latest manual, software, utilities)

For benchtop use, choose a clear, uncluttered area. Ensure that there is at least 2" of clearance at the fan air intake on the rear panel and the exhaust vents on the side panels. Pull-down feet are located on the bottom of the instrument. Rack mounting instructions are provided with the optional rack mount kit.

2.2 Power Requirements

The SGX1000 series is equipped with a switching power supply that provides automatic operation from a 90 to 264 VAC, 47 to 63 Hz single-phase, AC power source. Maximum power consumption is 70 VA. Connect the power cord supplied with the instrument to the power receptacle on the rear panel. See Figure 3-2.

Caution

Before connecting the instrument to the power source, make certain that a 1.0-ampere time delay fuse (type T) is installed in the fuse holder on the rear panel.

Before removing the instrument cover for any reason, position the input module power switch to off (0 = OFF; 1 = ON) and disconnect the power cord.

2.3 Connections

USB Two standard USB 2.0 Type A receptacles are located on the front and rear panels of the instrument and accept standard USB keyboards, mice, and flash drives.

RF OUT The RF output is available from a Type-N connector located on the front, or optionally on the rear panel of the instrument. A blue LED indicator is illuminated when the RF output is active.

Ref In BNC connector for 10 or 100 MHz reference input.

Ref Out BNC connector for 100 MHz reference output.

Trig In BNC input for connecting an external trigger signal to the signal generator.

Multi-I/O BNC connector reserved for future use.

LAN LAN/Ethernet connector for remote control. Allows DHCP or fixed (IP / Subnet) setting mode. In most cases, it will be necessary to configure the interface using the System→I/O Config menus.

Caution

The supplied Ethernet cable fitted with a ferrite core must be used for RF interference suppression. The end with the ferrite core should be connected to the SGX.

GPIB Optional 24-pin IEEE-488 General Purpose Interface Bus (GPIB) connector for remote control of the signal generator. GPIB parameters can be configured through the menu. In most cases, it will be necessary to configure the interface using the System→I/O Config menus.

2.4 Preliminary Check

The following preliminary check verifies that the instrument is operational and has the correct software installed. It should be performed before the instrument is placed into service. To perform the preliminary check, proceed as follows:

1. Press the lower half (marked "0") of the power switch on the left side of the power module on the rear panel.

2. Connect the AC (mains) power cord to a suitable AC power source; 90 to 264 VAC, 47 to 63 Hz. The power supply will automatically adjust to voltages within this range.

3. Press the upper half (marked "1") of the power switch on the left side of the power module on the rear panel, it will enter standby mode.

4. Press the ON/STBY key (marked with the international 0/1 on/standby symbol) on the front panel to turn the instrument on. The cooling fan and display backlight should turn on.

5. A bootup screen should appear that shows the boot status. After a self-check, the instrument will execute the application program. A screen like Figure 2-2 should be displayed.

Figure 2-2. Typical Power-On Display

6. On the front panel, press the ● key to bring up the on-screen menu. From the Main menu, use the touch screen or the ◄, ►, ▲, ▼, and ● keys on the front panel to browse to System→Reports and select Show. A display like Figure 2-3 should appear.

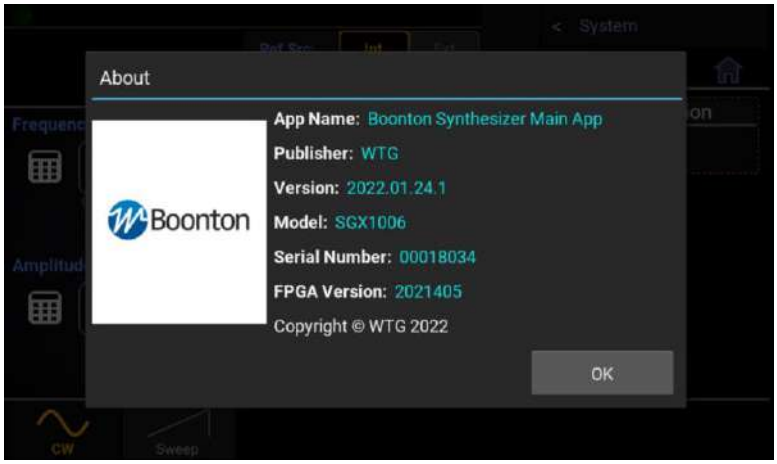


Figure 2-3. System > Configuration Report Display

7. Follow the steps in Section 3.4 to initialize the instrument.

3 Getting Started

This chapter will introduce the user to SGX1000 series RF signal generators. The chapter will identify objects on the front and rear panels, identify display organization, list the configuration of the instrument after initializing, and provide practice exercises for front panel operation. For additional information, see Section 4 "Operation."

3.1 Organization

Subsection 3.2 Operating Controls, Indicators, and Connections identifies the control features and connections on the front and rear panels.

Subsection 3.3 Touch Screen Display describes the data fields in the continuous wave (CW) and Sweep Mode displays.

Subsection 3.4 Initialization explains how to turn the instrument on for the first time, set the instrument up for operation, and initialize it to a known state. See Table 3-3 for initialized parameters and their values.

Subsection 3.5 Operating Modes describes the different operating modes for signal generation using the SGX1000 Series.

Note Available modes are CW, Step Sweep, and List Sweep.

3.2 Operating Controls, Indicators, and Connections

Figures 3-1 and 3-2 illustrate the controls, indicators, and connectors on the front and rear panels, respectively, of the standard instrument. Refer to Table 3-1 for a description of each of the illustrated items. The function and operation of all controls, indicators, and connectors are the same on the standard and optional models.

Figure 3-1. SGX1000 Series RF Signal Generator - Front Panel

Table 3-1. Operating Controls, Indicators, and Connections

Reference # Front	Rear	Nomenclature	Function
1	1	USB Ports	Two standard USB 2.0 Type A receptacles are located on the front and rear panels of the instrument and accept standard USB keyboards, mice, and flash drives.
2	2	RF Out	The RF output is available from a Type-N connector located on the front, or optionally on the rear panel of the instrument. A blue LED indicator is illuminated when the RF is active.
3		Display Screen	Color touch screen display for viewing and configuring the signal generator, screen menus, status messages, and help screens.
4		((•)) Key	Turns the RF output on or off. A blue LED indicator is illuminated when the RF is active.
5		♦ Key	Provides quick access to numeric keypad dialogs for modifying the RF output frequency and amplitude for CW mode.
6		▲, ▼, ◄, and ► Keys	▲ and ▼ used for incrementing or decrementing numeric parameters or scrolling through multi-line or multi-page displays. ◄ and ► used to assist navigating between items on the display and in the menus. Unless the user is in digit editing numeric entry mode.
7		● Key	Selects an on-screen item or menu and toggles controls.
8		⏻ On/Standby Key	Toggles the instrument between “on” and “standby” modes.
9		Cooling Fan	Cooling air intake.

10	GPIB	24-pin GPIB (IEEE-488) connector for connecting the signal generator to the remote control General Purpose Interface Bus. GPIB parameters can be configured through the menu.
11	AC Line Input	A multi-function power input module is used to house the AC line input, main power switch, and safety fuse. The module accepts a standard AC line cord, included with the signal generator. The power switch is used to shut off main instrument power. The safety fuse may also be accessed once the line cord is removed. The instrument's power supply accepts 90 to 264 VAC, so no line voltage selection switch is necessary. **Caution** Replace fuse only with specified type and rating: 1.0A-T (time delay type), 250 VAC.
12	LAN	LAN/Ethernet connector for remote control. Allows DHCP or fixed (IP / Subnet) setting mode. LAN parameters can be configured through the menu.
13	Ref In	10 or 100 MHz reference input.
14	Ref Out	100 MHz reference output.
15	Trig In	BNC input for connecting an external trigger signal to the signal generator.
16	Multi I/O	BNC trigger output.

Figure 3-2. SGX1018 RF Signal Generator - Rear Panel

3.3 Touch Screen Display

The SGX1000 series RF signal generators can be completely controlled through the touch screen display and by use of the front panel buttons. Table 3-2 describes the different areas of the display layout of the SGX1000 series RF signal generators. Figure 3-3 shows the CW mode display of the instrument with the System menu exposed. Figure 3-4 shows the Step Sweep mode display with the menus hidden.

Figure 3-3. SGX1000 CW Display With System Menu Exposed

Table 3-2. CW Touch Screen Display Fields

Reference #	Field Name	Description
1	Reference Source	Displays and allows selection of the reference source for Internal or External.
2	Reference Frequency	Indicates the current frequency setting for the Reference Source.
3	Menu Bar	Select ≡ to show and > to hide the on-screen menus.
4	Menu Path	Used to navigate the menu structure. Shows the menu that will be displayed when selected.
5	Current Menu/Home	Displays the name of the current menu and provides a home shortcut to the top-level Main menu. When in the Main or top-level menu, this field is not available.
6	Frequency	Indicates the current frequency setting for the RF output.
7	Amplitude	Indicates the current amplitude setting for the RF output.

8	RF Output	Indicates the state of the RF output. A blue LED indicates the state.
9	Operation Mode	Indicates and allows selection of the current Operation mode in use. Modes available are CW, Step Sweep and List Sweep.

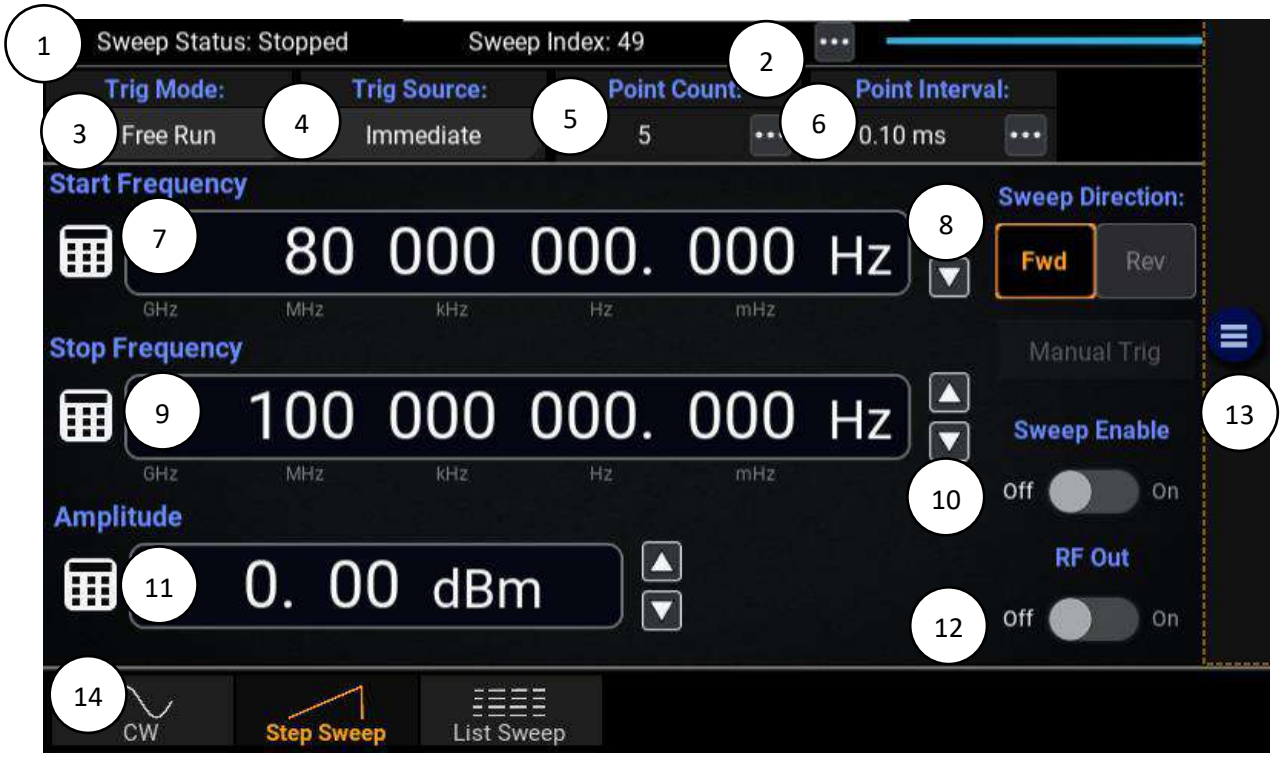


Figure 3-4. SGX1000 Sweep Display Using Default Settings With Menus Hidden

Table 3-3. Sweep Mode Touch Screen Display Fields

Reference #	Field Name	Description
1	Sweep Status	Indicates the current sweep state of the instrument.
2	Sweep Indicator	Progress bar indicating the current step number of the sweep.
3	Trigger Mode	Shows and allows selection of the sweep trigger type. Available triggers are Free Run, Sweep, and Point.
4	Trigger Source	
5	Point Count	Indicates the number of steps from the start to the stop frequency for the current sweep.
6	Dwell/Interval Time	Used to control the time each frequency step is generated before moving to the next point.
7	Start Frequency	Displays the start frequency for a sweep.

8	Sweep Direction	Displays and allows selection of the sweep direction to be Forward or Reverse.
9	Stop Frequency	Displays the stop frequency for the sweep.
10	Sweep Enable	Sets and Indicates the sweep run state. When set to On, the sweep progresses based on the trigger setting regardless of the RF OUTPUT state.
11	Amplitude	Indicates the current amplitude setting for the RF output during the sweep.
12	RF Output	Indicates the state of the RF output. A blue LED indicates the state.
13	Menu Bar	Select to show and to hide the on-screen menus.
14	Operation Mode	Indicates and allows selection of the current Operation mode in use. Modes available are CW and Sweep.

3.4 Initialization

The steps shown here will initialize SGX1000 series RF signal generators and prepare them for normal operations. Step 2 should only be performed when you wish to set the instrument operations to a known state. This is typically done when you first power on the instrument or at the start of a new test.

STEP PROCEDURE

1. If the main power is off, press the power switch located on the rear panel. See Figure 3-2. Press the On/Standby key. See Figure 3-1. After a self-check, the instrument will execute the application program. There will be a momentary dialog indicating application initialization. After the dialog, the main screen will be on the display.

2. Use the ◄, ►, ▲, ▼, and ● keys to navigate to and select or touch the icon to show the menus. From the Main menu, select *Preset*. This will load the default operating parameters listed in Table 3-3. This table only shows the parameters that are affected by initialization.

Table 3-4. Initialized Parameters

Parameters Related to the CW Operation Mode	
Frequency	100 MHz
Amplitude	00.00 dBm
Reference Source	Internal
Reference Frequency	100 MHz
RF Out	Off
Parameters Related to the Step Sweep Operation Mode	
Sweep Direction	Forward
Sweep Point Count	5
Trigger Mode	Free Run

Trigger Source	Immediate
External Trigger Slope	Positive
Point Interval/Dwell	0.1 ms
Start Frequency	80 MHz
Stop Frequency	100 MHz
Amplitude	0.00 dBm
RF Out	Off
Sweep Enable	Off

Parameters Related to the List Sweep Operation Mode

Sweep Direction	Forward
Trigger Mode	Free Run
Trigger Source	Immediate
External Trigger Slope	Positive
RF Out	Off
Sweep Run	Off

3.5 Operating Modes

The SGX1000 can be setup in CW mode to generate a CW signal at a user-specified frequency and amplitude, in Step Sweep mode to step up or down through a set number of frequencies at a specific amplitude with a settable dwell time, or in List Sweep Mode to step through a user defined list of frequencies and amplitudes with settable dwell times for each step in the list. The frequency at each step in Step Sweep mode is determined by the start/stop frequencies and the sweep point count settings.

3.5.1 CW Mode

The CW operation mode is used to view and adjust CW signal generation at a user defined frequency and amplitude, select a reference source and frequency, and to turn ON/OFF the RF output. A blue LED indicator is illuminated when the RF output is active.

Frequency - The CW output frequency of the generator is adjustable from GHz down to mHz resolution.

Amplitude - The power level of the RF output is adjustable down to 0.1 dBm resolution.

Reference Source - The Reference source of the generator can be set to use an internal reference or for a user provided external source.

Reference Frequency - The reference frequency is selectable between 10 MHz and 100 MHz for an external source and fixed at 100 MHz for an internal source

RF Out - The RF Output state can be toggled ON or OFF. There is an LED indicating the state.

Figure 3-5 shows the CW display while generating a 100 MHz signal at 0 dBm using the internal reference.

Figure 3-5. SGX1000 CW Operation Mode Generating a 100 MHz signal.

3.5.2 Step Sweep Mode

The Step Sweep operation mode is used to view and setup an RF output that can be swept up or down between the start and stop frequency points with a user-defined number of points and dwell or interval time

Step Sweep enables the user to enter start and stop frequencies and execute an ascending or descending ramp over a given number of points at equal intervals.

Figure 3-6. Step Sweep Screen Showing a Sweep From 80 MHz to 100 MHz

Sweep Status – Indicates if the current sweep is Armed, Running, or Stopped.

Sweep Index – Shows the current position/index in the sweep.

Trig Mode- The sweep trigger can be selected for Free Run, Sweep, or Point triggering.

Trig Source – The trigger source used to start and step through each point in a sweep can be set to Bus to trigger from a remote command, Immediate to begin sweeping immediately when the sweep is enabled, External to use an external trigger signal, and Key to manually interact with the GUI.

Point Count - The number of steps to use in the sweep is viewed and entered here.

Point Dwell - The dwell time is viewed and entered here and controls the time to remain at each step in the sweep after initial settling.

Point Interval – The interval time is viewed and entered here and controls the time to remain at each step in the sweep including the settling time

Sweep Direction - The direction of the sweep is selectable and can execute in forward or reverse order.

Start Frequency - The frequency to start the sweep at is adjustable from GHz down to mHz resolution.

Stop Frequency - The frequency to stop the sweep at is adjustable from GHz down to mHz resolution.

Sweep Enable – Sets the state of the sweep. When set to On, the sweep is moving through each frequency step based on the trigger setting and continues to run until set to Off.

RF Out - The RF Output state can be toggled ON or OFF. There is an LED indicating the state.

NOTE: Sweep only executes when BOTH Sweep Enable and RF Output are set to ON.

For further information please refer to Section 4.4, Menu Reference.

3.5.3 List Sweep Mode

The List Sweep operation mode is used to view and setup a user defined list of RF output frequencies, amplitudes and dwell or interval times for each list point for the SGX to generate.

The List Sweep operation mode allows users to enter frequencies and amplitudes at customizable intervals in nonlinear, linear, ascending, descending, or random order. Users can edit the current List Sweep values and save/load List Sweep data as a CSV formatted file to a USB storage device. The current list may also be saved to an internal storage location. Dwell or interval times, level, and frequency settings may be set as default values and are editable at each point.

Figure 3-7. List Sweep Screen

Sweep Status – Indicates if the list sweep is Armed, Running, or Stopped.

Sweep Index – Shows the current position/index in the list sweep.

Trig Mode- The list sweep trigger can be selected for Free Run, Sweep, or Point triggering.

Trig Source – The trigger source used to start and step through each point in a sweep can be set to Bus to trigger from a remote command, Immediate to begin sweeping immediately when the sweep is enabled, External to use an external trigger signal, and Key to manually interact with the GUI.

List Length - The number of points to use in the list sweep is viewed and entered here.

Default Dwell - The default dwell time is viewed and entered here and controls the dwell time used for newly added list points.

Default Interval – The default interval time is viewed and entered here and controls the interval time to remain at each point in the list including the settling time for newly added list points.

Default Frequency - The default frequency is viewed and entered here and controls the default frequency to use for newly added list points.

Default Level - The default level is viewed and entered here and controls the default power level to use for newly added list points.

Sweep Enable – Sets the state of the sweep. When set to On, the sweep is moving through each frequency step based on the trigger setting and continues to run until set to Off.

RF Out - The RF Output state can be toggled ON or OFF. There is an LED indicating the state.

NOTE: Sweep only executes when BOTH Sweep Enable and RF Output are set to ON.

Refer to Section 4.4, Menu Reference, for more information.

3.5.3.1 List Sweep Editing Operations

There are several options for building and editing a list. Enter a list length value to create a list using the default values for frequency, level, and dwell or interval times.

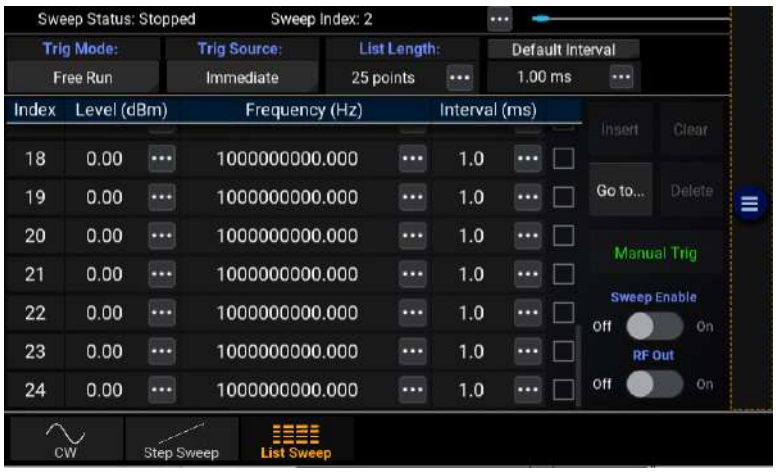


Figure 3-8. Newly Created List

The list indices can be manually scrolled through to view and edit. Edit an entry by using the ellipsis (…) to edit values for frequency, level, and dwell or interval times in the resulting numeric entry dialog.

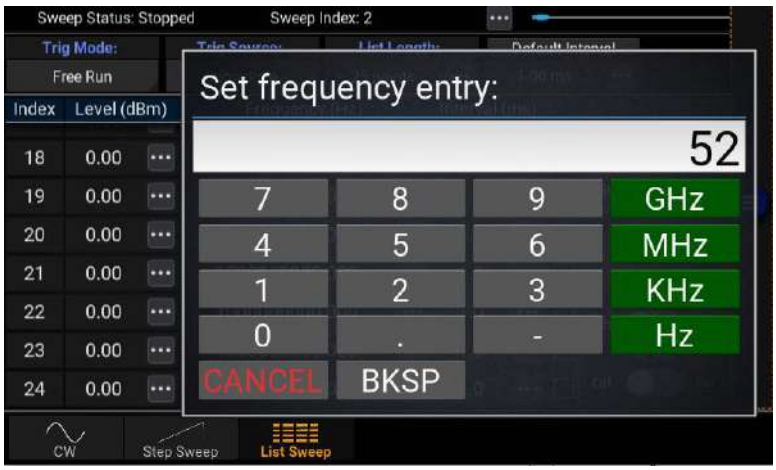


Figure 3-9. Edit List Index Frequency

Figure 3-10. List Index 21 Showing New Frequency

A user may scroll through the list, select one or more points using the check box to delete them or select a single point and insert a specified number of new list points above the selected point using the default settings for frequency, level, and dwell or interval times.

To Delete one or more rows, check the boxes to the right and select the “Delete” button.

Figure 3-11. Selecting Rows For Deletion

To Insert one or more rows, check the box to the right of the row you want to insert new indices at and select the “Insert” button to bring up the dialog. Enter the number of rows to insert before the selected row.

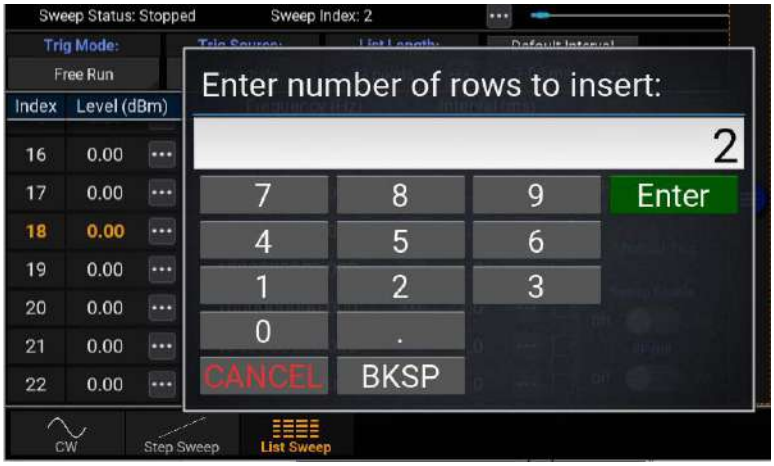


Figure 3-11. Inserting Rows

3.5.3.2 List Sweep Mode CSV File Operations

Lists may be stored and loaded from internal storage and exported and imported as CSV files to external USB storage from the MAIN→List/Sweep→Store/Load menu.

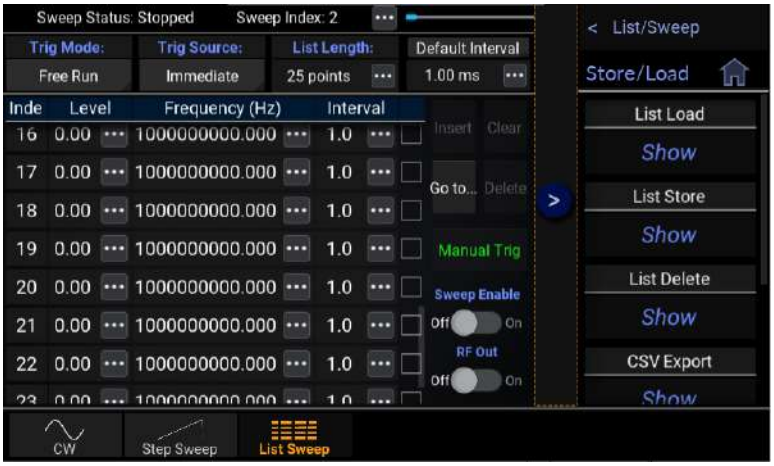


Figure 3-12. Store/Load Menu

A properly formatted CSV file will have 3 columns labeled as “frequency”, “level”, and “dwell” with each row being a single list index.

	A	B	C
1	frequency	level	dwell
2	1E+09	18	0.001
3	1E+09	-40	0.001
4			

Figure 3-13. List Sweep Mode CSV File Displayed in Excel

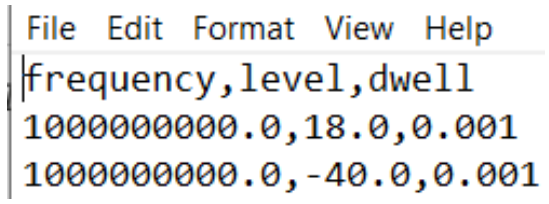


Figure 3-14. List Sweep Mode CSV File Displayed in Notepad

3.5.3.2.1 Export a CSV File to a USB Drive

1. In the hamburger menu, navigate to **Main > List/Sweep > Store/Load > CSV Export**.
2. When the wizard appears, select the drive you wish to export to and select Next.
3. Using the on-screen keyboard, type a name for the CSV file and select Save.

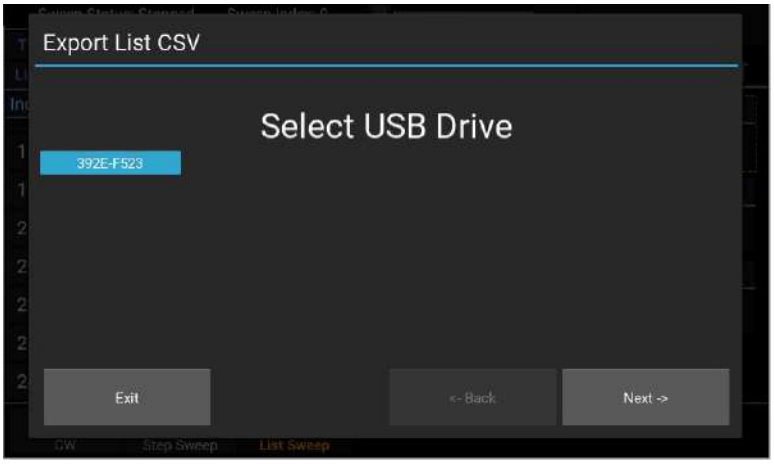


Figure 3-15. USB Drive Selection Dialog for Export

Figure 3-16. File Save Dialog

3.5.3.2.2 Import a CSV File from a USB Drive

1. In the hamburger menu, navigate to **Main > List/Sweep > Store/Load > CSV Import**.
2. When the wizard appears, select the drive you wish to import from and select Next.
3. A list of CSV files available will appear. Choose the one you wish to import and select Finish.

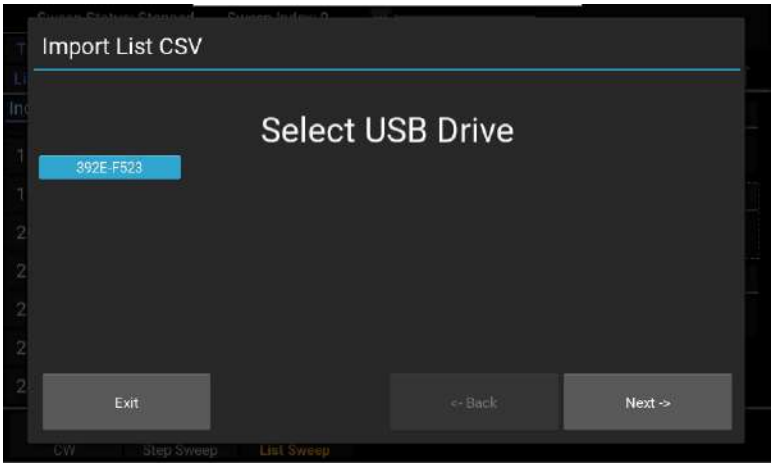


Figure 3-17. USB Drive Selection Dialog for Import

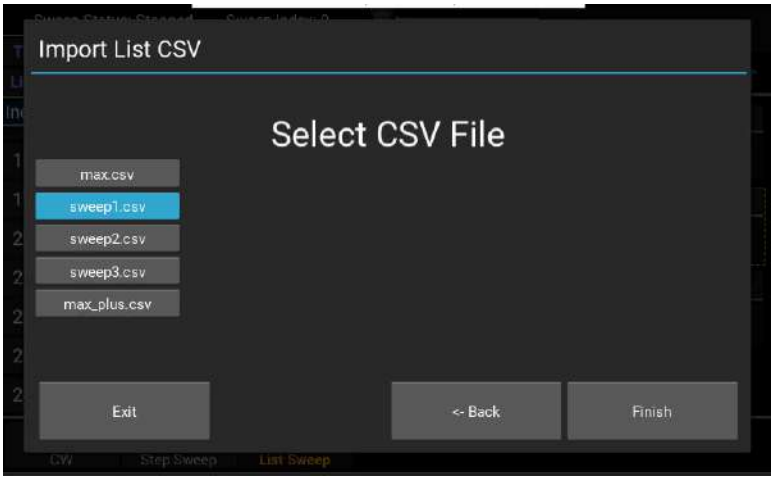


Figure 3-18. File Import Dialog

4 Operation

This section presents the control menus and procedures for manual operation of the SGX1000. All the menus that control the instrument are illustrated and accompanied by instructions for using each menu item.

4.1 Manual Operation

In the manual mode, the instrument is controlled from the front panel by selecting items from a system of displayed menus. To properly input commands and data using these menus, you should be familiar with the menu conventions described in the next section.

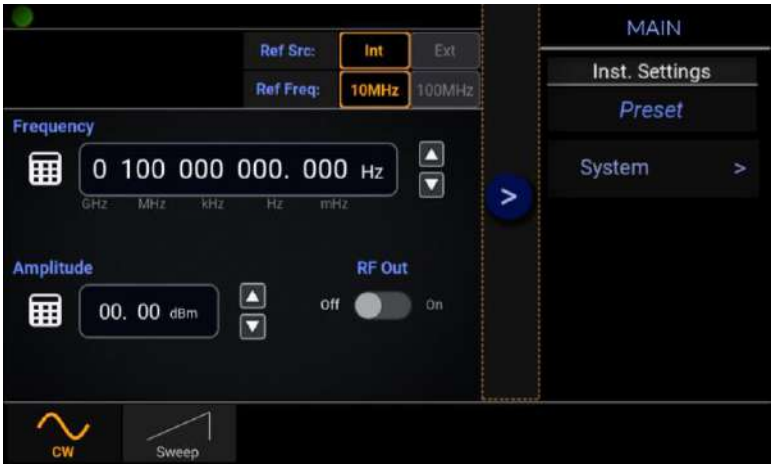


Figure 4-1. CW Mode Main Menu

4.2 Control Menus

The menus that control SGX1000 series RF signal generators are accessed from the top-level MAIN menu. Display the MAIN menu by selecting the icon on the display. The MAIN menu structure for CW mode operation is illustrated in Figure 4-1.

Controls and parameters may be selected by using the front panel ◄, ►, ▲, ▼ keys to browse and using the ● key to select the entry or toggle the control, or by use of the touch screen.

4.2.1 Navigating and Editing Numeric Fields

The active digit in the numeric fields can be incremented/decremented using the and soft arrows. To edit a digit using the, ▲, ▼ keys, move the dashed box with the ◄, ► keys and activate the digit by pressing the ● key. Once activated the dashed box turns into a solid box. Press the ● key again to de-activate the digit for editing and navigating away.

4.3 Parameter Data Entry and Selection

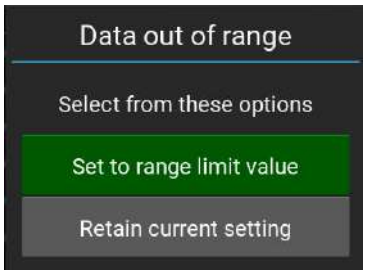
The SGX1000 series RF signal generator parameters can be changed in various ways depending on the type of parameter being addressed.

4.3.1 Numerical Data Entry

Numerical data is entered by touching the ellipsis icon ··· or the numeric pad icon next to the parameter to be changed. Selecting the icon brings up an on-screen numeric keypad similar to the one shown in Figure 4-2.

Figure 4-2. Sweep Mode Start Frequency Numeric Keypad

If numeric values entered are outside of the permissible range for a parameter, the following pop-up will appear. Simply select the desired action to continue.



4.3.2 Parameter Pick-List Selection

Some parameters use a menu or pick-list of settings to choose from. The Trigger setting in Sweep Mode seen in Figure 4-3 is an example of a pick-list. Touch the setting to bring up the list and select the setting to use. The top of the list shows the currently selected setting.

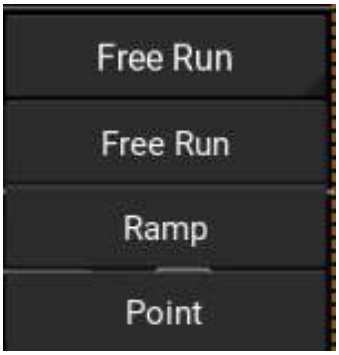


Figure 4-3. Sweep Mode Trigger Pick-List

4.4 Menu Reference

4.4.1 Main Menu

The Main Menu shown in Figure 4-4 is the topmost menu level from which all other menus originate.

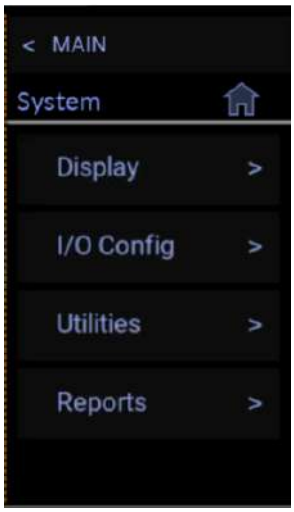
Figure 4-4. The MAIN Menu

4.4.2 MAIN

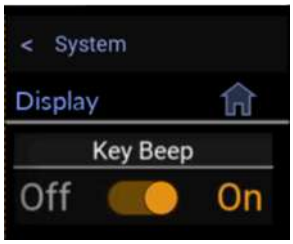
Inst. Settings: Selecting Preset will load the default operating parameters listed in Table 3-3. Only the settings shown in the table are affected and all others remain in their current state.

4.4.3 MAIN→System

The System menu displays the available system-level features and functionality.



4.4.4 MAIN→System→Display

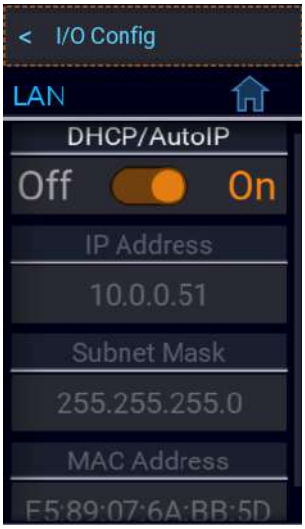


Key Beep: Enables and disables the audible key beep.

4.4.5 MAIN→System→I/O Config

GPIB Address: Set and View the current GPIB address in use for instruments equipped with GPIB option.

4.4.6 MAIN→System→I/O Config→LAN



DHCP/AutoIP: Set the state of DHCP/AutoIP system for the Ethernet port.

If DHCP/AutoIP is enabled (On), the instrument will attempt to obtain its IP Address and Subnet Mask, a DHCP (dynamic host configuration protocol) server on the network. If no DHCP server is found, the instrument will select its own IP Address and Subnet Mask values using the AutoIP protocol.

If DHCP/AutoIP is disabled (Off), the instrument will use the IP Address and Subnet Mask values that have been set by the user.

IP Address: Set the Internet Protocol (IP) address of the Ethernet adapter. If DHCP/AutoIP mode is enabled, this menu is read-only.

Subnet Mask: Set the subnet mask for the Ethernet adapter. If DHCP/AutoIP mode is enabled, this menu is read-only.

MAC Address: Displays the MAC address for the Ethernet adapter. This menu item is read-only.

4.4.7 MAIN→System→Utilities

The Utilities menu displays the system utilities available.

4.4.8 MAIN→System→Utilities→Exit

Exit To Desktop: Exits the SGX1000 Signal Generator Main application and allows access to OS Desktop.

Shut Down: Shuts down power to the SGX1000 putting the generator in standby mode and is the same as pressing the ON/Standby button on the front panel.

4.4.9 MAIN→System→Utilities

Update Software: Select Go to search the connected USB drive for the *.tar software update file and update or re-install the version found. If no valid file is found, the dialog in Figure 4-6 appears and the SGX1000 does nothing.

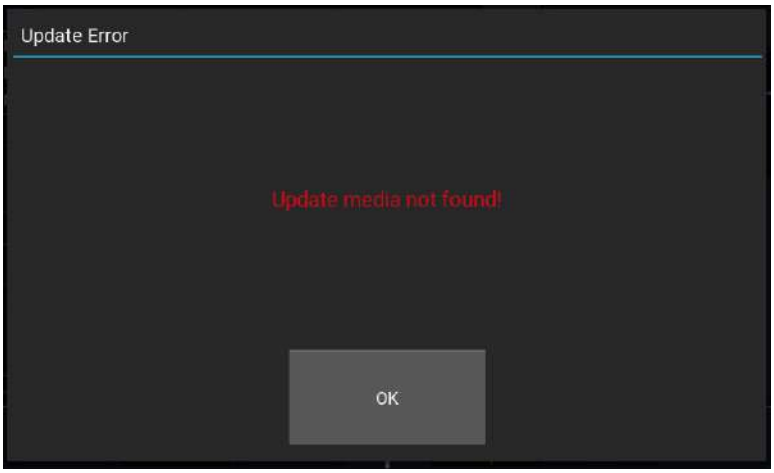


Figure 4-6. Update Error Dialog

4.4.10 MAIN→System→Reports

Configuration: Select Show to display an "About" dialog with configuration information for the SGX1000 like that shown in Figure 2-3.

4.4.11 MAIN→List/Sweep

The List/Sweep menu displays settings available for List and Step Sweep modes.

Sweep Retrace: When Sweep Retrace is enabled (On), a List Sweep or Step Sweep that has reached the last point will return to the start.

When Sweep Retrace is disabled (Off), a List Sweep or Step Sweep that has reached the end will remain at the last point when completed.

Sweep Direction: Select the direction for the Step Sweep or List Sweep to execute in.

Point Mode: Select Interval to set the time between signal settling and incrementing to the next point. Use this setting when guaranteed time at settled frequency or amplitude is required. Point-to-point time may vary due to variations in settling time.

Select Dwell to set the time interval between points. Use this setting when consistency of point-to-point timing and/or time to execute complete sweep is required.

If the source needs to be settled for a minimum time period and point-to-point consistency is required, "Point-Interval" value must be set to max settling time + desired minimum required settled time.

Blanking: Select Blanking to be on or off during transition times between points.

When Blanking is turned ON the RF transients are reduced when frequency and amplitude changes are made. This applies in all modes (CW, Step Sweep, List Sweep).

4.4.12 MAIN→List/Sweep→Trigger

The List/Sweep Trigger menu displays the available trigger settings for Step Sweep and List Sweep mode operation.

Trig Source: Select the trigger source used to generate events to start and/or step through each point in the List Sweep or Step Sweep.

Set to Bus to trigger from a remote command, Immediate to begin sweeping immediately when the sweep is enabled, External to use an external trigger signal, and Key to manually interact with the GUI.

Trig Mode: Use the trigger mode to set how a list or sweep will progress on a trigger event.

Selecting Freerun will cause the list to begin at index 0 and step through each point. When the end is reached the list will recommence at index 0.

Select Sweep to cause the list to begin at index 0 and step through each point. When the end is reached the List Sweep will pause at that index (or index 0 if Retrace is set to ON) and await the next trigger event before continuing at index 0.

Select Point to use a trigger event to increment from index “n” to “n+1” in a list.

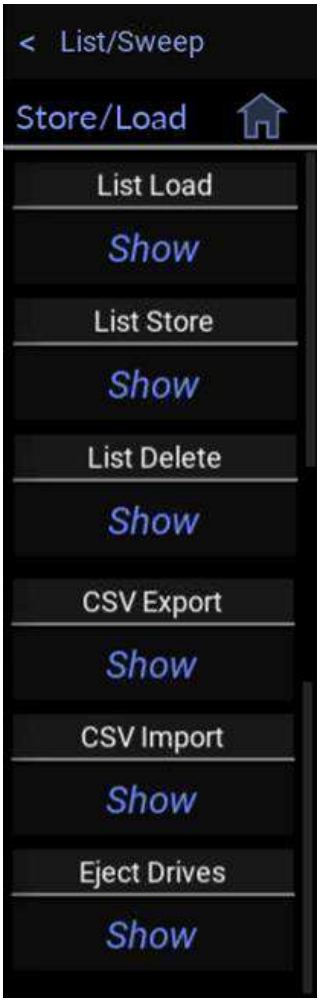
Ext. Trig Slope: Select whether the positive or negative slope of the external trigger input will generate a trigger event.

Trig Out Mode: Select how the trigger output is generated.

Selecting OFF disables the trigger output. Settled causes a trigger output for every point in the sweep at the transition from switching to the start of the dwell time. Sweeping will cause an output when a sweep is running. Done will generate a trigger when a sweep has reached the final point in the list. Start will cause a trigger output each time a sweep begins generating the first point in the sweep.

Trig Out Slope: Select whether the trigger output has a positive or negative slope.

4.4.13 MAIN→List/Sweep→Store/Load



The List/Sweep Store/Load menu contains the available methods for storing and loading lists to internal storage and to an external USB device.

List Load: Select Show to view and select an internally stored list.

List Store: Select Show to enter a name and save a list to internal storage.

List Delete: Select Show to view and select an internally stored list to delete from internal storage.

CSV Export: Select Show to view and select an external USB device to store a list sweep CSV file. Refer to “Export a CSV file to a USB drive” for details.

CSV Import: Select Show to view and select an external USB device and then elect a list sweep CSV file to import for use. Refer to “Import a CSV file from a USB drive” for details.

Eject Drives: Select to view a list of connected USB drives to select one for removal.

5 Maintenance

This section presents procedures for maintaining SGX1000 series RF signal generators.

5.1 Safety

Although SGX1000 series RF signal generators have been designed in accordance with international safety standards, general safety precautions must be observed during all phases of operation and maintenance. Failure to comply with the precautions listed in the Safety Summary located in the front of this manual could result in serious injury or death. Service and adjustments should be performed only by qualified service personnel.

5.2 Cleaning

Painted surfaces can be cleaned with a commercial spray-type window cleaner or a mild detergent and water solution.

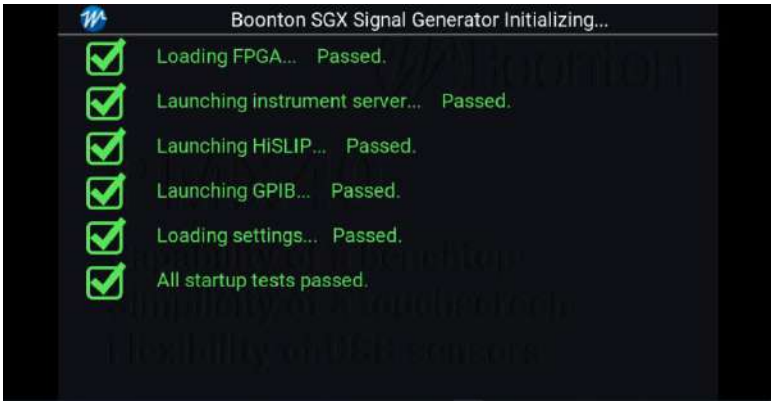
Caution

When cleaning the instrument, do not allow cleaning fluid to enter the fan intake and exhaust vents. Avoid using chemical cleaning agents that can damage painted or plastic surfaces.

5.3 Inspection

If SGX1000 series RF signal generators malfunction, perform a visual inspection of the instrument. Inspect for signs of damage caused by excessive shock, vibration, or overheating. Inspect for broken or loose electrical connections, or accumulations of dust or other foreign matter.

Correct any problems you discover, reboot the instrument, and observe the self-test results (see Figure 5-1). If the malfunction persists or the instrument fails the performance verification, contact Boonton Electronics for service.



Caution

When loading new software into SGX1000 series RF signal generators, some or all stored instrument configurations and preset operating selections may be lost. Contact Boonton Electronics for information on which files may be affected.

Appendix B - End User License Agreement

Available upon written request.

-- END --
SGX1000 Series RF Signal Generators
INSTRUCTION MANUAL