

SSA3000X

SSA3000X Plus

SSA3000X-R

SVA1000X

Spectrum Analyzer



Quick Guide

QG0703P-E02D



SIGLENT TECHNOLOGIES CO.,LTD

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SIGLENT guarantees this product conforms to the national and industrial standards in China as well as the ISO9001: 2008 standard and the ISO14001: 2004 standard. Other international standard conformance certification is in progress.

General Safety Summary

Carefully read the following safety precautions to avoid any personal injury or damage to the instrument and any products connected to it. To avoid potential hazards, please use the instrument as specified.

Use Proper AC Power Line

Only the power cord designed for the instrument and authorized by local country should be used.

Ground the Instrument

The instrument is grounded through the protective earth conductor of the power line. To avoid electric shock, please make sure the instrument is grounded correctly before connecting its input or output terminals.

Connect the Probe Correctly.

If a probe is used, do not connect the ground lead to high voltage since it has isobaric electric potential as the ground.

Look Over All Terminals' Ratings

To avoid fire or electric shock, please look over all ratings and sign instruction of the instrument. Before connecting the instrument, please read the manual carefully to gain more information about the ratings.

Use Proper Overvoltage Protection

Make sure that no overvoltage (such as that caused by a thunderstorm) can reach the product, or else the operator might be exposed to danger of electrical shock.

Electrostatic Prevention

Operate the instrument in an electrostatic discharge protective area environment to avoid damages induced by static discharge. Always ground both the internal and external conductors of the cable to release static before connecting.

Maintain Proper Ventilation

Inadequate ventilation may cause increasing of the instrument's temperature, which will eventually damage the instrument. So keep well ventilated and inspect the intake and fan regularly.

Avoid Exposed Circuit or Components

Do not touch exposed contacts or components when the power is on.

Do Not Operate Without Covers

Do not operate the instrument with covers or panels removed.

Use proper Fuse.

Use only the specified fuse.

Keep Product Surfaces Clean and Dry.

To avoid the influence of dust and/or moisture in the air, please keep the surface of the device clean and dry.

Do Not Operate in Wet Conditions.

In order to avoid short circuiting to the interior of the device or electric shock, please do not operate the instrument in a humid environment.

Do Not Operate in an Explosive Atmosphere.

In order to avoid damage to the device or personal injury, it is important to operate the device away from an explosive atmosphere.

Safety Terms and Symbols

Terms in this Manual. These terms may appear in this manual:

**WARNING**

Warning statements indicate the conditions or practices that could result in injury or loss of life.

**CAUTION**

Caution statements indicate the conditions or practices that could result in damage to this product or other property.

Terms on the product. These terms may appear on the product:

DANGER Indicates direct injuries or hazards that may happen.

WARNING Indicates potential injuries or hazards that may happen.

CAUTION Indicates potential damages to the instrument or other property that may happen.

Symbols on the product. These symbols may appear on the product:



Hazardous
Voltage



Protective Earth
Terminal



Warning



Test
Ground



Power Switch

General Inspection

Inspect the shipping container

Keep the damaged shipping container or cushioning material until the contents of the shipment have been completely checked and the instrument has passed both electrical and mechanical tests.

The consigner or carrier will be responsible for damages to the instrument resulting from shipment.

SIGLENT will not provide free maintenance or replacement.

Inspect the instrument

If the instrument is found to be damaged, defective or fails in electrical or mechanical tests, please contact SIGLENT.

Check the accessories

Please check the accessories according to the packing list. If the accessories are incomplete or damaged, please contact your SIGLENT sales representative.

Preparing for Use

Appearance and Dimension

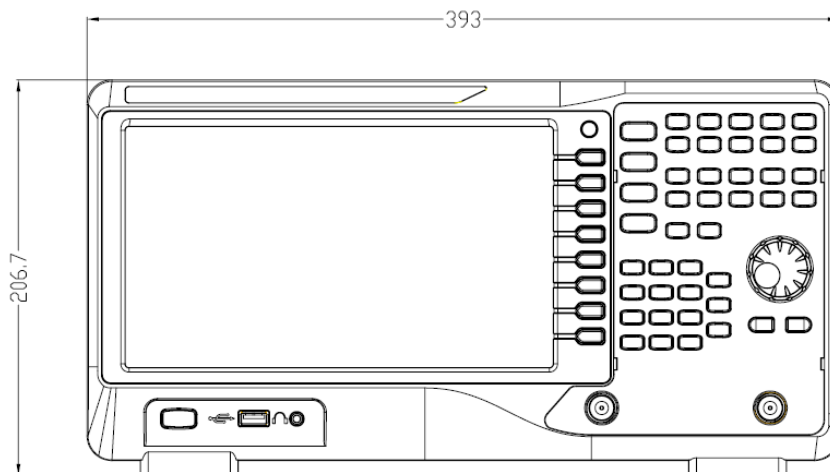


Figure 1 Front View

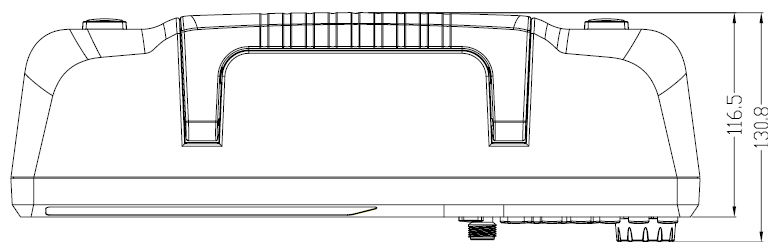


Figure 2 Top View

Adjust the Supporting Legs

Adjust the supporting legs properly to use them as stands to tilt the analyzer upwards for stable placement as well as easier operation and observation of the instrument display.

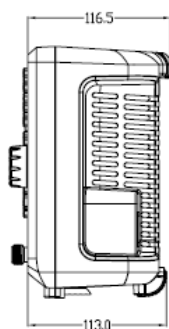


Figure 3 Before Adjusting

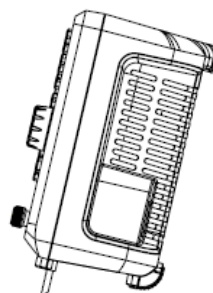


Figure 4 After Adjusting

Connect to AC Power Supply

The analyzer accepts 100-240V, 50/60Hz or 100-120V 400Hz AC power supply. Please use the provided power cord to connect the instrument to the power source as shown in the figure below. Before powering on, make sure the analyzer is protected by a fuse.

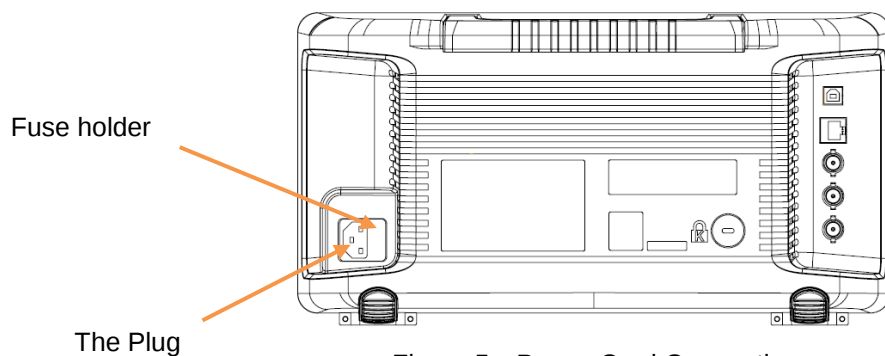


Figure 5 Power Cord Connection

Front Panel



Figure 6 Front Panel

Table 1 Front Panel Description

NO.	Description	NO.	Description
1	User Graphical Interface, touch support	7	RF Input, VNA port 2(SVA)
2	Menu Control Keys	8	TG Output, VNA port 1(SVA)
3	Function Keys	9	3.5 mm Earphone interface
4	Knob	10	USB Host
5	Numeric / Letter Keyboard	11	Power Switch
6	Arrow Keys		

Front Panel Function Keys

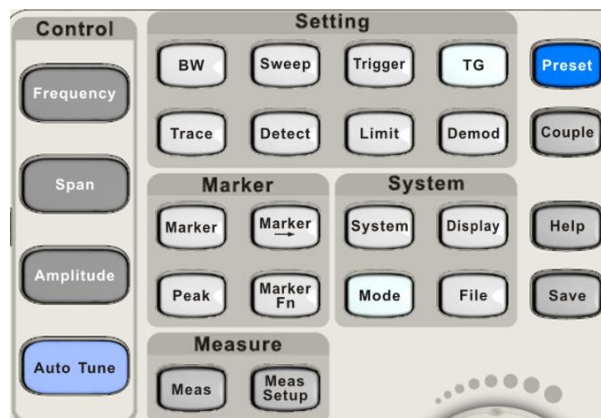


Figure 7 Function Keys area

Table 2 Function keys description (For Spectrum Analyzer Mode)

Control Keys	Description
Frequency	Set the parameters of frequency, and Peak→CF, CF→Step.
Span	Set the parameters of span, and X-scale (Log-Linear) setup.
Amplitude	Set the parameters of amplitude, including Ref Level, Attenuator, Preamplifier, etc.; and Correction setup.
Auto Tune	Scan the full span rapidly and move the biggest signal to center freq, and automatically sets the optimal parameters according to the signal.
Setting Keys	Description
BW	Set the parameters of RBW and VBW, Average Type (Log power, Power, Voltage).
Trace	Select Trace, Trace setup and Trace math.
Sweep	Set the parameters of sweep, and EMI QPD Dwell Time.
Detect	Select the detector type for each trace independently.
Trigger	Select triggers in Free Trigger, Video Trigger and External Trigger.
Limit	Set the Pass\Fail Limit.
TG	Set the parameters of tracking generator. Including TG Level, TG Level offset Normalization setup. The backlight LED is on when TG source is working.
Demod	Set the demodulation parameters of the AM and FM for audio listening.
Marker Keys	Description
Marker	Set the Markers and Marker Table.
Marker->	Set other system parameters on the basis of the current marker value.
Marker Fn	Special functions of the marker such as noise marker, N dB bandwidth measurement and frequency counter.
Peak	Search for the peak signal, peak search configuration and peak table.
Meas Keys	Description
Meas	In spectrum analyzer mode, selects the Advanced Measurement function. In non-spectrum analyzer mode, select corresponding settings.
Meas Setup	Set the measurement parameters.
System Keys	Description
System	Set the system parameters.
Mode	Select the working mode between spectrum analyzer and other modes.
Display	Set the display parameters.
File	Use the file system and files.
Shortcut Keys	Description
Preset	Sets the system to certain status.
Couple	Set the parameters of some functions between auto and manual.
Help	Turn on the built-in help.
Save	Save Shortcut Key.

Front Panel Key Backlight

The on/off state and the color of the backlights of some keys at the front panel indicate the working state of the analyzer. The states are as listed below.

1. Power Switch

Constant on: indicates the instrument is in normal operating state.

2. Mode

When the function is **Spectrum Analyzer**, the backlight turns off. When in another mode, the backlight turns on.

3. TG

When the **TG** source is on, the backlight of **TG** turns on. When the TG is output is disabled the backlight is off.

Using the Numeric Keyboard

The analyzer provides a numeric keyboard at the front panel. The numeric keyboard supports English uppercase/lowercase characters, numbers and common symbols (including decimal point, #, space and +/-) and are mainly used to edit file or folder names and set parameters.



Figure 8 Numeric Keyboards

1.

In the number input mode, this key sets the sign of number. In file input mode, this toggles the character type between numbers and letters.

2.

In the number input mode, this key enters the number "1". In file input mode, this toggles the between upper and lowercase letters.

3.

In number input mode, this key enters a decimal point. In English input mode, this key enters special characters (!, -, (, etc..).

4. **Back**

In parameter editing, press this key to delete the character to the left of the cursor.

5. **Esc**

- ◆ During the parameter editing process, press this key to clear the inputs in the active function area. Press again to exit parameter input mode.
- ◆ When the instrument is in remote mode (being controlled by a computer), use this key to return to local mode. This will unlock the front panel.

6. **Enter**

In parameter editing, the system will complete the input and insert a default unit for the parameter.

Front Panel Connectors



Figure 9 Front Panel Connectors (1)

1. **Power Switch**

Power on / Power down the instrument

2. **USB Host**

- ◆ The analyzer can serve as a “host” device to connect an external USB devices, such as USB storage devices, the SIGLENT USB-GPIB adapter, wireless or wired mouse and keyboard.
- ◆ Save or recall functional files into/from an external USB storage device, such as saving the currently screenshot in .png or .jpg or .bmp format.

3. **Earphone Jack**

The analyzer can demodulate AM and FM signals. Insert a 3.5 mm earphone into to the jack to acquire the audio output of the demodulated signal. You can turn on or off the earphone output and adjust the volume via **Demod** -> **Volume**.



CAUTION

Protect your hearing. Please turn the volume down to zero before using the earphone. Gradually turn the volume up to a comfortable level after putting in the earphone.

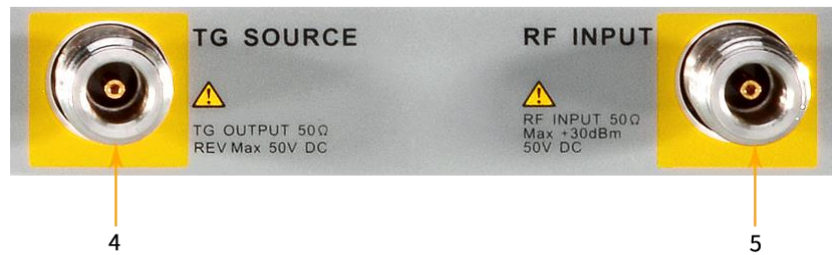


Figure 10 Front Panel Connectors

4. TG SOURCE, VNA PORT 1

- ◆ The **TG SOURCE** can be connected to a device-under-test (DUT) through a cable with a male N-type male connector.
- ◆ In the VNA mode, this port is used as the single port of S11 and the output port of S21.



CAUTION

To avoid damage to the tracking generator, the reverse DC voltage cannot exceed 50 V

5. RF INPUT, VNA PORT 2

- ◆ The RF INPUT can be connected to the DUT through a cable with a male N-type connector
- ◆ In the VNA mode, this port is used as the input port for S21 measurements.



CAUTION

To avoid damage to the instrument, the DC voltage component and the maximum continuous power of the AC (RF) signal component cannot exceed 50 V and +30 dBm respectively.

Rear Panel



Figure 11 Rear Panel

1. Handle

Pull up the handle vertically for easy carrying of the instrument.

2. USB Device Interface

Through this interface, the analyzer can be connected to PC for remote control.

3. LAN Interface

Through this interface, the analyzer can be connected to the LAN for remote control.

4. REF IN 10 MHz

The analyzer can use the internal or an external reference source.

- ◆ When a 10 MHz external clock signal is received through the **[10 MHz IN]** connector, this signal is used as the external reference source and “**Ext Ref**” is displayed in the status bar of the user interface. When the external reference is lost or not connected, the instrument switches to its internal reference source automatically and “**Ext Ref**” on the screen disappears.
- ◆ The **[10 MHz IN]** and **[10 MHz OUT]** connectors are usually used to build synchronization among multiple instruments.

5. REF OUT 10 MHz

The analyzer can use the internal or an external reference source.

- ◆ When an internal reference source is used, the **[10 MHz OUT]** connector can output a 10 MHz clock signal generated by the analyzer. This signal can be used to synchronize other instruments.
- ◆ The **[10 MHz OUT]** and **[10 MHz IN]** connectors are usually used to build synchronization among multiple instruments.

6. Trigger in

In external trigger mode, the analyzer will update the trace scan after the Trigger In connector receives an external trigger signal that meets the trigger input specifications.

7. Security Lock Hole

If needed, you can use a security lock(purchased separately) to lock the analyzer to a desired location. Align the lock with the lock hole and plug it into the lock hole vertically, turn the key clockwise to lock the analyzer and then pull the key out.

8. AC Power Supply

The analyzer accepts 100-240V, 50/60Hz or 100-120V 400Hz AC power supply. Please use the power cord provided as accessories to connect the instrument.

9. Fuse

Before power on, make sure the analyzer is protected by the proper input fuse.

User Interface

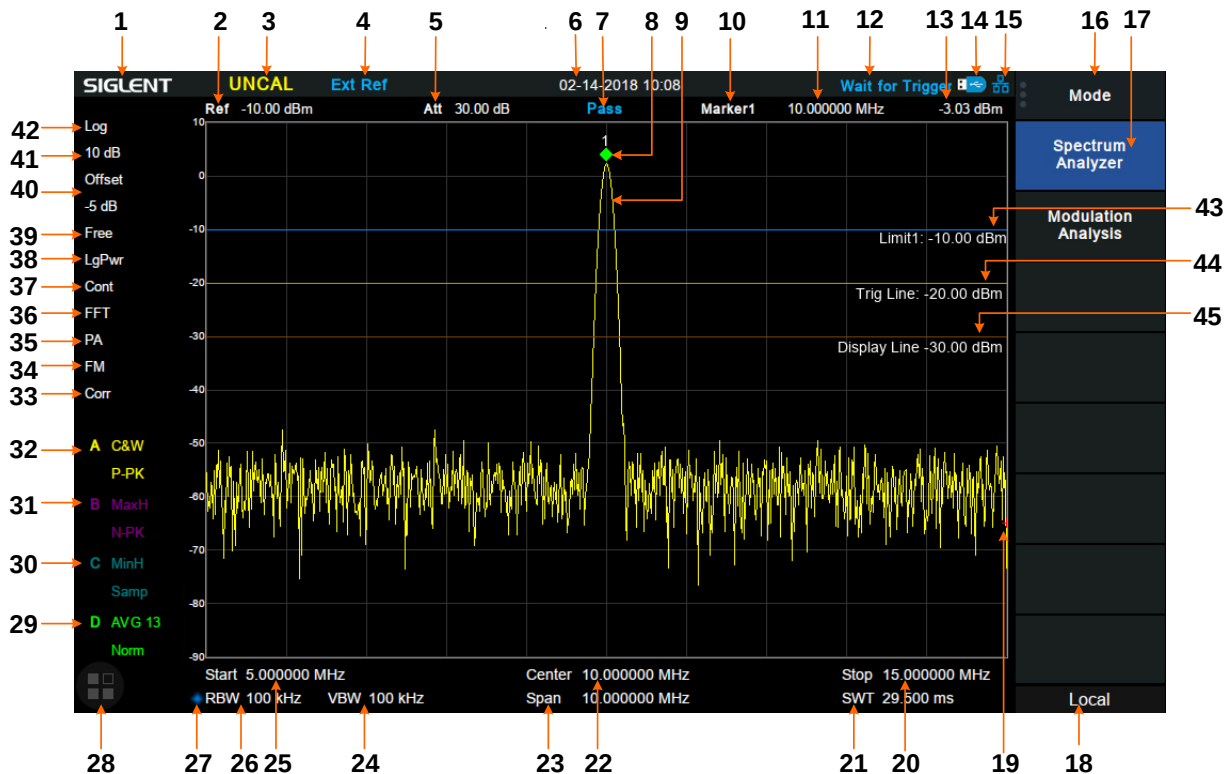


Figure 12 User Interface of Spectrum Analyzer Mode

Table 3 Spectrum Analyzer Mode User Interface labels

NO.	Name	Description
1	SIGLENT	SIGLENT logo
2	Ref	Reference level
3	UNCAL	Instrument setup is out of measurement calibration.
4	EXT REF	Valid Ext 10 MHz reference clock detected indicator
5	Att	Attenuator Value
6	Day and time	System time
7	Pass/Fail status	Limit Pass/Fail status
8	Marker	Current active marker
9	Trace	Active trace
10	Marker instruction	current marker, touch to open a new marker
11	Marker x value	Unit: frequency, frequency delta or time
12	State indication	Auto Tune: Automatically sets the optimal parameters according to the characteristics of input signal Waiting for Trigger: waiting for trigger
13	Marker y value	Amplitude value or amplitude delta value
14	USB identification	Displayed when an USB storage device is inserted
15	LAN identification	Displayed when a LAN cable is inserted

16	Menu title	Function of the current menu.	
17	Menu items	Menu items of the current function. Front panel key menus may be different in different modes.	
18	Operation status	Local is local mode, Remote is remote mode, Upgrade means the instrument is upgrading	
19	Sweep progress	Indicates the currently scanned frequency position	
20	Stop frequency	Stop frequency value	
21	Sweep time	Time duration of a single sweep	
22	Center frequency	Center frequency value	
23	Span	Span value	
24	VBW	Video bandwidth	
25	Start frequency	The first frequency of a sweep	
26	RBW	Resolution bandwidth	
27	Manually instructions	When it appears, this parameter is not automatically coupled but manually configured	
28	Touch assistant	Click to open the commonly used functions for measurement, such as peak search.	
29 30 31 32	Trace A/B\C\D status	Trace type: C&W: Clear Write MaxH: Max Hold MinH: Min Hold View: View AVG: Video average and times.	Detect type: P-PK: Positive peak N-PK: Positive peak Samp: Sample Norm: Normal AVG: average Q-PK: Quasi-peak
33	Correction	When present, indicates that there is a user-configured amplitude correction table being mathematically applied to the displayed trace data	
34	AM or FM	AM or FM demodulation activated	
35	PA	Enable or disable the Preamplifier	
36	FFT	Sweep mode is FFT	
37	Single or Continue	Sweep mode single or continuous	
38	Average type	Log power\Power\Voltage power	
39	Trigger type	Free\Video\External trigger	
40	Ref offset	34: Ref offset identification; 35: Ref offset value	
41	Scale/Div	Scale value	
42	Scale type	Logarithm or linearity	
43	Limit line	Limit Pass/Fail level	
44	Trigger level	Video trigger level	
45	Display line	Reference display line	

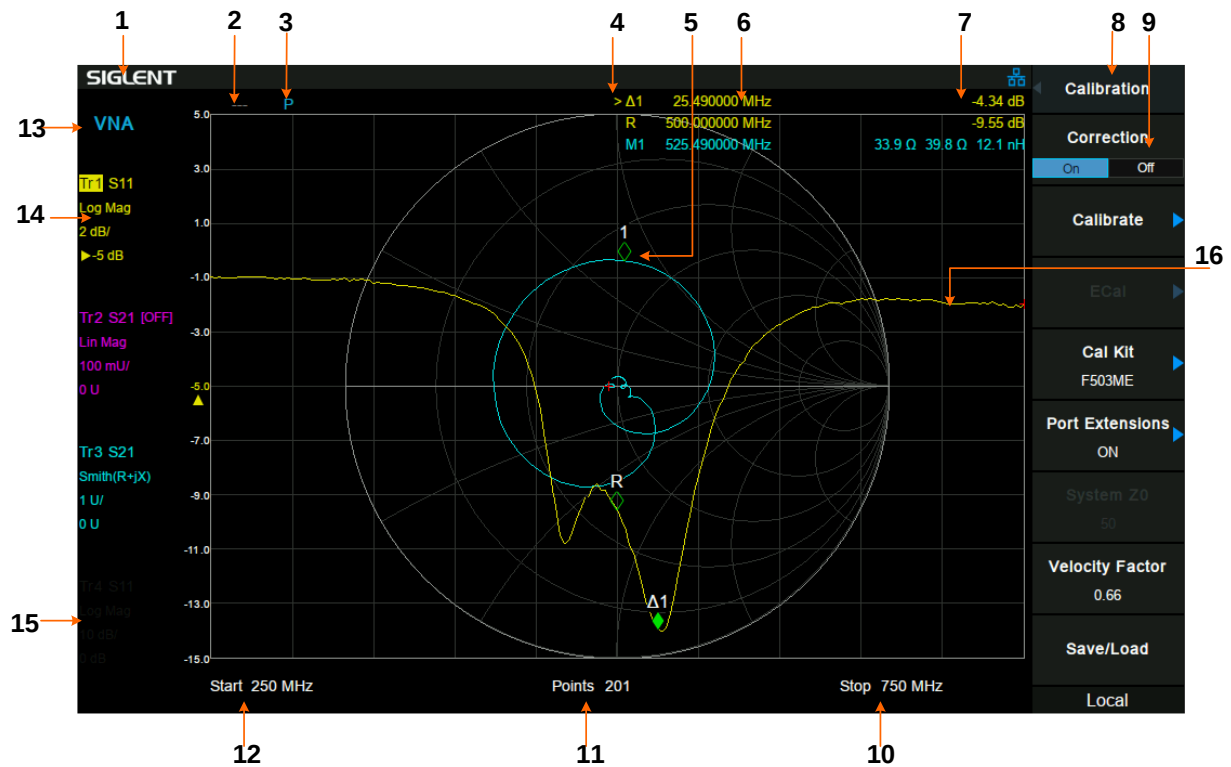


Figure 13 User Interface of Vector Network Analyzer Mode

Table 4 Vector Network Analyzer Mode User Interface labels

NO.	Name	Description
1	SIGLENT	SIGLENT logo
2	Calibration Status	Cor: Calibrated; Off : Correction Off; C?: Need to re-calibrate;
3	Port Extensions	P: Port Extensions is On
4	Marker Table	Active Marker indication, every trace 6 markers
5	Marker	Current trace active marker
6	Marker x value	Marker frequency
7	Marker y value	Unit depend on trace format
8	Menu title	Function of the current menu.
9	Menu items	Menu items of the current function
10	Stop frequency	Stop frequency value
11	Points	Measurement points number, 101~751
12	Start frequency	The first frequency of a sweep
13	Mode	Mode indication
14	Trace active	Highlight active trace indication depend on trace format
15	Trace deactive	Gray indication
16	Trace	Active trace

Mode

The analyzer offers a variety of operating modes that can be purchased separately. They can be selected via the **Mode** key:

◆ **Spectrum Analyzer Mode**

The default mode of the analyzer. It offers a general-purpose spectrum analyzer with a tracking generator, and some advanced measurement.

◆ **Vector Network Analyzer Mode**

In this mode, the analyzer offers a vector network analysis function and operation UI. It is able to measure full 1 port S11 and single direction S21 parameters.

This mode is only available on SVA1000X series.

◆ **Distance-To-Fault Mode**

It is a performance verification and failure analysis tool, used for antenna and transmission line service and maintenance. It returns VSWR versus distance, to show the effects of poor connections, damaged cables, or faulty antennas.

This mode is only available on SVA1000X series.

◆ **Modulation Analyzer Mode**

In this mode, the analyzer offers analog signal analysis (AM/FM) and digital vector signal analysis (ASK/FSK/PSK/MSK/OAM) functions. The original RF data can also be recorded to PC, from EasyVSA software.

◆ **EMI Measurement Mode**

In this mode, the analyzer provides the EMI pre-compatibility measurement function, including a sequence test, a CISPR EMC filter and QP detector, and a set of EMC limit standard lines.

◆ **Real-Time Spectrum Analyzer Mode**

In this mode, the analyzer offers real-time spectrum analysis with density, 3D, spectrogram, PvT, etc. from multi-views and dimensions to monitor complex signals.

This mode is only available on SSA3000X-R series.

Front panel key menus may be different in different modes. Different modes have their own Preset function.

Refer to User Manual for more details about Mode.

Firmware Operation

Check System Information

Users can get the system information by press **System**->“**System Info**”, including

- ◆ Product Model, Serial and Host ID
- ◆ Software Version and hardware Version
- ◆ Option Information

Load Option

Refer to the procedures below to activate the options you have purchased.

1. Press **System**->“**System Info**”->“**Load Option**”
2. Enter the license key in the onscreen window. Press **Enter** to confirm your input and terminate the license key input. Or
3. Load the .lic file provided by pressing **File** ->“**Load**” from internal memory or USB stick.

The option will be enabled after rebooting.

Firmware Upgrade

Follow this procedure to update the instrument firmware:

1. Download the firmware package from an official SIGLENT website.
 2. Extract and copy the .ADS file into the root directory of an USB storage device.
 3. Plug the USB stick into the USB Host connector. Press **System**->“**System Info**”-> “**Firmware Update**”; find the .ADS file in USB storage device.
 4. Press the ‘**Load**’, the analyzer will perform the update process automatically.
- ◆ The upgrade process will take several minutes. When the upgrade is completed, the machine will reboot.
 - ◆ Any interruption during the update process will result in update failure and system data loss. This is **not covered under the warranty** and the user will bear repair costs and shipping.
 - ◆ Do not remove the USB storage device until the update is finished.

Remote Control

The analyzer supports communication with computers via USB, LAN, and GPIB-USB interfaces. By using these interfaces, in combination with programming languages and/or NI-VISA software, users can remotely control the analyzer based on a SCPI (Standard Commands for Programmable Instruments) compliant command set, Labview and IVI (Interchangeable Virtual Instrument), to interoperate with other programmable instruments.

You can also remote monitor and control the analyzer in Web Browser or EasySpectrum.

For more details, refer to the “Programming Guide” or contact your nearest SIGLENT office.

Touch Operation

The analyzer has a 10.1 inch multi-touch screen and supports various gesture operations. Including:

- ◆ Press or click on the upper-right-corner of the screen to enter the main menu
- ◆ Swipe up and down or left and right in the waveform area to change the X-axis center coordinate or Y-axis reference level
- ◆ Perform two-points scaling in the waveform area to change the X-axis span
- ◆ Click on a screen parameter or menu for parameter selection or editing;
- ◆ Open and drag the marker;
- ◆ Use auxiliary shortcuts to perform common operations.

You can turn the touch screen function on and off via **Display**->'Touch Settings'.

Using Built-in Help

The built-in help system provides information about every function key at the front panel and every menu soft key.

- ◆ Press **Help** and the embedded help would show up.
- ◆ Click on the items in the contents tree on the left to navigate to any topics interested.
- ◆ Click the back or forward arrow to go to the contents just read.
- ◆ Click the close sign button in the top right corner or press the Esc front-panel key to quit the help system.

Service and Support

SIGLENT warrants that the products that it manufactures and sells will be free from defects in materials and workmanship for a period of three years (accessories for a period of one year) from the date of shipment from an authorized Siglent distributor.

If the product proves defective within the respective period, SIGLENT will provide repair or replacement as described in the complete warranty statement. To arrange for service or obtain a copy of the complete warranty statement, please contact your nearest Siglent sales and service office. Except as provided in this summary or the applicable warranty statement, SIGLENT makes no warranty of any kind, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. In no event shall SIGLENT be liable for indirect, special or consequential damages.

Troubleshooting

Before calling **SIGLENT**, or returning an analyzer for service, perform the quick checks listed below. This check may eliminate the problem.

If the problem remains still, please contact **SIGLENT** and provide your device information in the back of the analyzer.

1. The Power Switch is still dark after power on:

- (1) Check that the power is correct / working.
- (2) Check the power cord has been connected correctly
- (3) Check the power fuse. If a new fuse needs to be installed, please use a specified fuse.

2. The analyzer's screen is still dark (no display) after power on:

- (1) Check whether the fan is running while the screen is dark, maybe the LCD cable is loose?
- (2) Check whether the fan is not running while screen is dark, maybe it has failed to start up?

Do not disassemble the instrument by yourself and contact **SIGLENT**.

3. The control panel is unresponsive or gives a wrong response:

- (1) Press all the keys at the front panel to check if all of them are normal after power on.
- (2) Press **System** -> **Self Test** -> **Key Test** to check if all the keys are working properly.
- (3) If all the keys are not working, the numeric keyboard connection might be loose or the numeric keyboard is broken.
- (4) If the touch screen is not working, check if the Touch is ON in **Display** -> Touch Settings menu.
- (5) Check whether the analyzer is locked in a remote control; if so, press **Esc** to unlock it.

Do not disassemble the instrument by yourself and contact **SIGLENT**.

4. The traces on the screen do not update for a long period of time:

- (1) Check whether the traces are in View or other status; if so, change to Clear&Write to activate it.

- (2) Verify whether all the trigger conditions have been met and whether there is a valid trigger signal inputting.
- (3) Check whether the analyzer is in a Limit test.
- (4) Check whether the analyzer is in a single sweep.
- (5) Check whether the current sweep time is too long.
- (6) Check whether the analyzer is in a Demod listening and the Demod time is too long.
- (7) Check whether the analyzer is in a EMI measurement mode, and the Sequence is not in a Scan status.

5. Wrong measurement results or poor precision:

To calculate the system errors and check the measurement results and precision, refer to the introductions in “**Specifications**”. To reach these specifications, please:

- (1) Check whether all the external devices are successfully connected and are working normally.
- (2) Get some knowledge of the signal under measurement and set appropriate instrument parameters.
- (3) Make measurements under proper conditions, for example:

Warm-up the instrument appropriately and operate the instrument under the specified environment temperature;

Check if the Correction is ON in SA or VNA mode.

- (4) Calibrate the instrument regularly to reduce or avoid errors that might occur over time.

If you need a specific calibration after the stated calibration period, contact **SIGLENT** or get paid service from authorized measurement agencies.

6. System Message:

The instrument may display prompt messages, error messages or state messages according to the current working status. These messages are displayed to help you to use the instrument correctly and are not instrument failures.

User system message	Message on screen
System message description (1~199)	
SWT_OOR (1)	Sweep time out of range
RBW_OOR(2)	RBW out of range
SWT_CCOFM(3)	Can't change the sweep time in FFT mode
MRKT_UNDEF(4)	Undefined marker type
MRKFT_UNDEF (5)	Undefined marker function type
MRKDT_UNDEF (6)	Undefined marker delta pair type
MRKRT_UNDEF (7)	Undefined marker read out type
TRCT_UNDEF (8)	Undefined trace type
DETT_UNDEF (9)	Undefined detect type
SCA_CSWL (10)	Can't set the Scale/Div with linear
MRKT_IOFF (11)	The marker type is OFF, please open the current marker
MRK_NDELT (12)	The marker type is not Delta
MRKRT_MBST (13)	The marker read out type must be set time

MATHT_UNDEF (14)	Undefined math type
XML_ANIE (15)	Xml attribute node import error
XSCA_MBSLIZS (16)	X Scale must be set liner in zero span
TG_AXIS_XSCA (17)	The Scale type must be logarithm when normalize
SCALE_TG_AXIS (18)	Scale type cannot be changed to linear while nomalize on
PEAK_UNFOUND (19)	No peak found. Please change the search setting
IMD_FREQ_OOR (20)	Frequency of intermodulation products out of range
AUTO_FAIL (21)	Auto tune process failed
EXT_REF_PLUG_IN (22)	EXT ref plug in
EXT_REF_PLUG_OUT (23)	EXT ref plug out
REF_PLL_UNLOCK (24)	Ref pll unlock
SIG_NOT_STB (25)	Signal is not stable enough to track
QP_RBW_OOR (26)	RBW out of range when do quasi peak scan
LAN_PLUG_IN (150)	Ethernet cable plug in
LAN_PLUG_OUT (151)	Ethernet cable plug out
IP_CONFLICT (152)	IP address conflict
IP_INVALID (153)	IP address invalid
NETM_INVALID (154)	Netmask address invalid
GWAY_INVALID (155)	Gateway address invalid
S21_NORMALIZE_DONE (183)	Normalization of S21 done
VNA_AUTO_CAL_DONE (184)	Auto calibration of VNA done
Execution error (400~599)	
LCF_DTFERR (400)	Load configurations failed, due to file error
Device error (600~799)	
FUF_DTVERR (600)	Firmware upgrade failed, due to the version error
FUF_DTRERR (601)	Firmware upgrade failed, due to the ram error
FUF_DTFERR (602)	Firmware upgrade failed, due to the file error
FUF_DTFVERR (603)	Firmware upgrade failed, due to verify the file error
FUF_DTUZFERR (604)	Firmware upgrade failed, due to unzip the file error
LIC_INVALID (605)	License is invalid!
ADC_ERROR (606)	Warning, ADC Overload!



About SIGLENT

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of electronic test & measurement instruments.

SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, isolated handheld oscilloscopes, function/arbitrary waveform generators, RF/MW signal generators, spectrum analyzers, vector network analyzers, digital multimeters, DC power supplies, electronic loads and other general purpose test instrumentation. Since its first oscilloscope was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement.

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