SALUKI TECHNOLOGY CSA2026 CSA Series Signal Analyzer User Manual

CSA Series Signal Analyzer
User Manual

Saluki Technology Inc.

The document applies to the signal analyzer of the following models:

- CSA2026 Signal Analyzer (100 kHz – 26.5 GHz) Standard pack and accessories:
- 1 × Signal Analyzer Host
- 1 × USB Power Adapter
- 1 × Power Cord
- 1 × USB Cable (USB3.1, Type-C to USB-A)
- 1 × U Disk (Software & User Manual)
- 1 × Certificate of Calibration
- 1 × Carrying Case

Options of the CSA series signal analyzer:

Module No.	Item	Description
P26	Pre-amplifier	/
B40	40MHz Analysis Bandwidth	To output real-time signal acquisition data through optical fiber and support signal data output with maxim um 40MHz bandwidth.
HAS	High-Resolution Step Attenuator	0-50dB, 2dB step
PFR	Precision Frequency Reference	/
RTA	Real-Time Analysis	/

Preface
Thank you for choosing Saluki Technology Products.
We devote ourselves to meeting your demands, providing you with high-quality measuring instruments and the best after-sales service. We persist with “superior quality and considerate service”, and are committed to offering satisfactory products and service for our clients.

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Saluki Technology

Document Authorization

Product Quality Assurance
The warranty period of the product is three years from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period.
Product Quality Certificate
The product meets the indicator requirements of the document at the time of delivery. Calibration and measurement are completed by the measuring organization with qualifications specified by the state, and relevant data are provided for reference.

Quality/Settings Management
Research, development, manufacturing, and testing of the product comply with the requirements of the quality and environmental management system.

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Safety Notice

	The instrument casing can prevent users from touching the internal parts of the instrument, but the ca en liquid enters the interior.
	The produce has fans inside to stabilize the inner temperature, please do not block the ventilation wi alled in an enclosed space, please keep the air circulation in the enclosure to ensure the stability of the instrument's performance.
	The RF input port on the front panel can withstand a maximum AC signal power of +27dBm or a DC the limit may cause the internal circuit damaged and device malfunction.

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Overview

The CSA series signal analyzer meets your signal observation and analysis needs in the 100 kHz to a maximum 26.5 GHz frequency range. You can use it to measure and observe a variety of signal characteristics for manufacturing, R&D, repair service, and education. The highlights of the product are as follows:

- The modular instrument, taking into account both performance and portability
- Support firmware online upgrade, easily software update
- Temperature calibration range 0-50°C, wide temperature version is available
- Multi-function: spectrum analysis mode, IQ analysis mode, phase noise measure mode
- Many measurement components are available
- The remote control interface is compatible with most instruments
- The confidence level of 99% specification guarantee
- Analysis bandwidth 25M/40MHz Optional

- Fast scroll frequency sweep technology

This manual is written according to CSA2026 and its software kit A1000A version A27.28. Since we are constantly updating the product software to better meet your demands, please download the latest user manual on the Saluki website (**www.salukitec.com**) in time.

Start To Use

2.1 Software Installation

The CSA series signal analyzer itself do not have a display interface, and the parameter settings and display function are provided by the A1000A software running on a PC. The software that controls this product needs to be installed on the PC before use. You can download or run the installer on the CD-ROM from the Saluki website. This software installation package runs on Microsoft Windows systems, 32-bit and 64-bit versions are all available.

⚠ The installation files provided on the CD-ROM only support Windows XP sp1 and above operating systems. If you use another version of the operating system, please contact your Saluki dealer or FAE service for further information. Run the installer by double click, specify the installation location, and select Install. The installer will automatically complete the installation steps.

The installation will launch the USB driver installation automatically. Please follow the installation prompts to install the USB driver, as shown in Fig. 1.

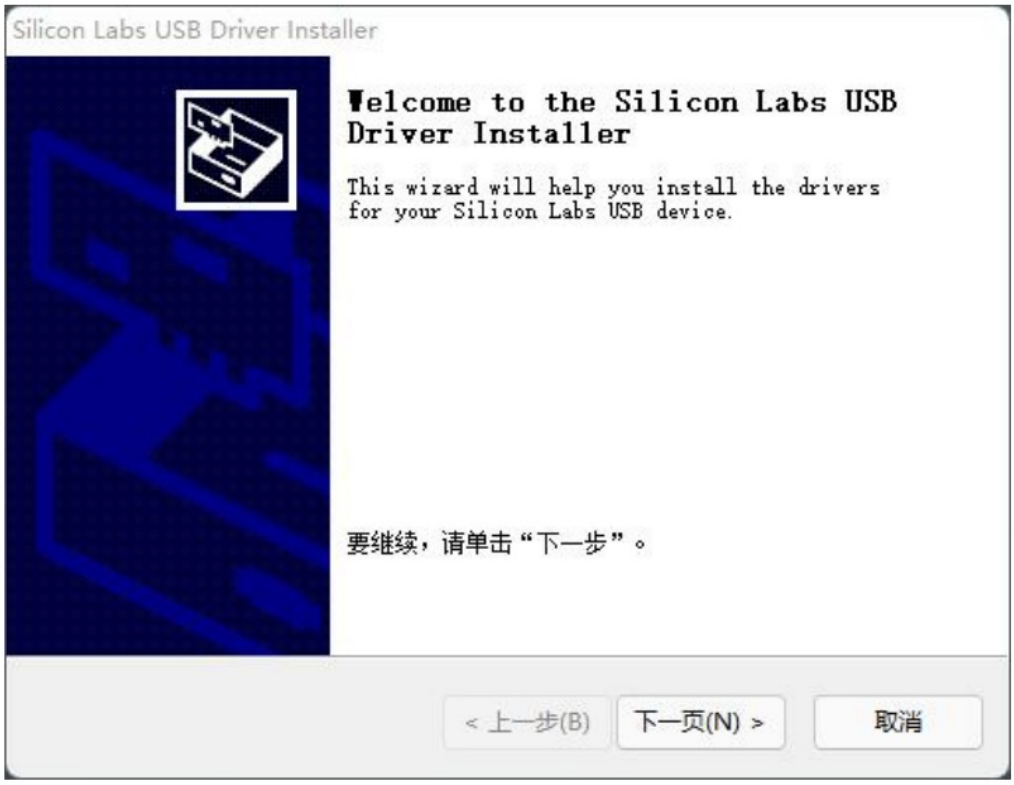

Fig. 1 Install the USB driver

After the installation of the USB driver, the installer will launch of Microsoft .Net Framework installation, as shown in Fig. 2. If your computer already has a correct version of .Net Framework, Windows will prompt you not to need to install it. Follow the system prompts.

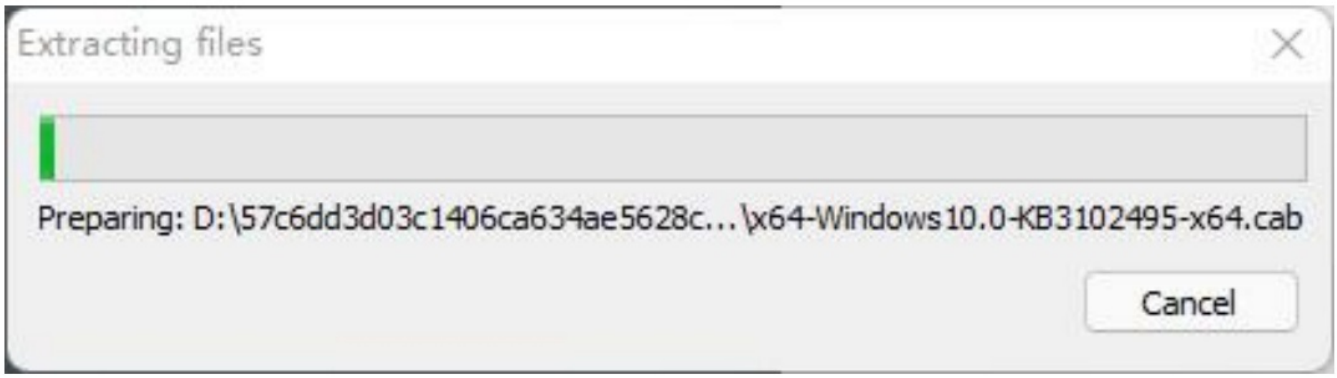

Fig. 2 Install .Net Framework

After the steps all above, the installer will prompt that the installation is complete. Click Finish to complete the installation.

2.2 Hardware Connection

Insert the USB cable's Type-C plug into (1) and insert the AC/DC power adapter's DC plug into (3) on the rear panel. If the power is OK, the indicator button (2) LED light will light up for 3 seconds. then goes out, indicating the device is in standby mode. The specification of the power adapter is 220VAC-12VDC/10A. The USB cable is a Type-C to USB-A cable with locking screws, which meets the USB3.0 standard.

The AC to DC adapter in accessories is 220VAC-12V/10A. The DC socket is a LEMO FGG.1B.302 fast-lock connector. The USB cable is a Type-C to USB-A cable with locking screws. The cable meets the transfer rate requirement for the USB3.1 standard.

Fig. 3 Connect the Power Adapter and USB Cable

⚠ If you need the CSA2026 to share the ground with the AC power supply system, you need to connect your ground wire to the metal part of the CSA2026 case.

⚠ Please be sure to fasten the Type-C locking screws. Mass of tests shows that the plug-in force of a Type-C socket cannot guarantee a stable connection in various situations. Please make sure that the USB port of the PC meets the USB3.0 specification. An unstable connection will cause the software fails to work.

2.3 Confirmation of Connection Status

After connecting the PC correctly, enter the "Device Manager" of the Windows Control Panel to check whether the

CSA2026 is recognized by the system. Three devices should be recognized and work properly, namely Cypress FX3 USB Device, Generic USB Hub, and USB Mass Storage Device, as shown in Fig. 4.

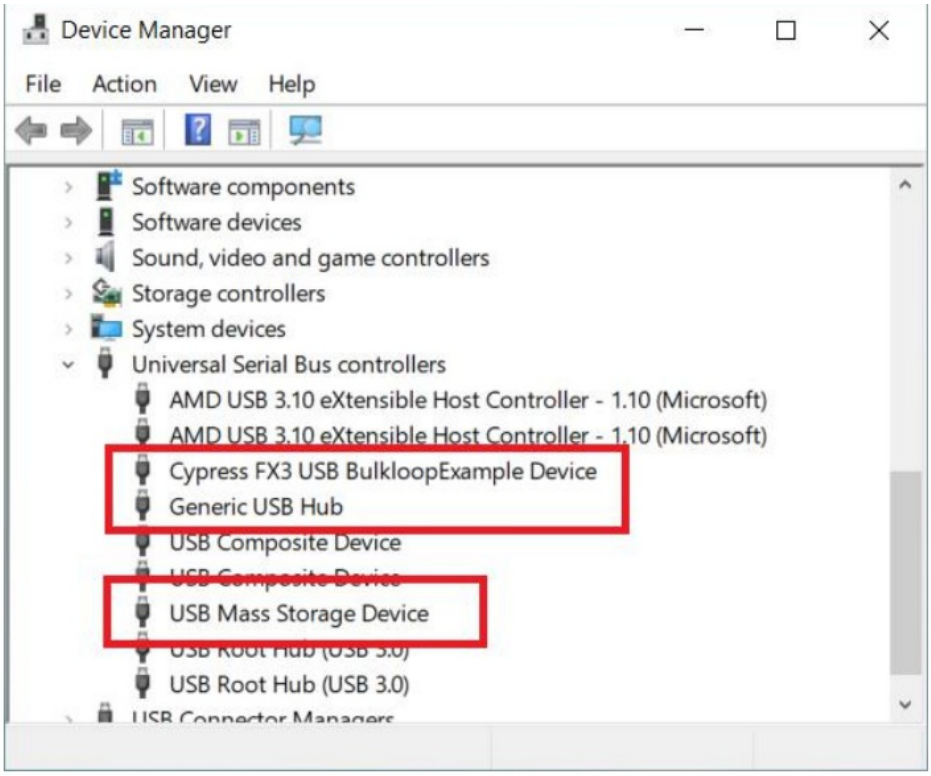

Fig. 4 Check whether CSA2026 is correctly identified in “Device Manager”

⚠ The CSA2026 has a 32GB built-in Flash memory to store the copy of the CSA software A1000A. Users can run this copy directly without installing the software(For Windows10 and later versions). Users can also use this Flash memory for other purposes.

Double-click the software icon to launch the A1000A software. For the first time connecting, the software will automatically check whether the USB driver is updated and install the correct version. Please wait for the system prompt to complete the driver update until you see the prompt of the wizard (as shown in Fig. 5). This step will not be repeated after a first-time connection.

Fig. 5 The USB driver is automatically installed (when connecting for the first time)

The software will automatically complete the initialization, read the device calibration and configuration data and enter the working state. During initialization, you will see a boot screen (.as shown in Fig. 6 , left). When you see the software working interface (.as shown in Fig. 6 , right), it proves that the USB connection and hardware status are correct.

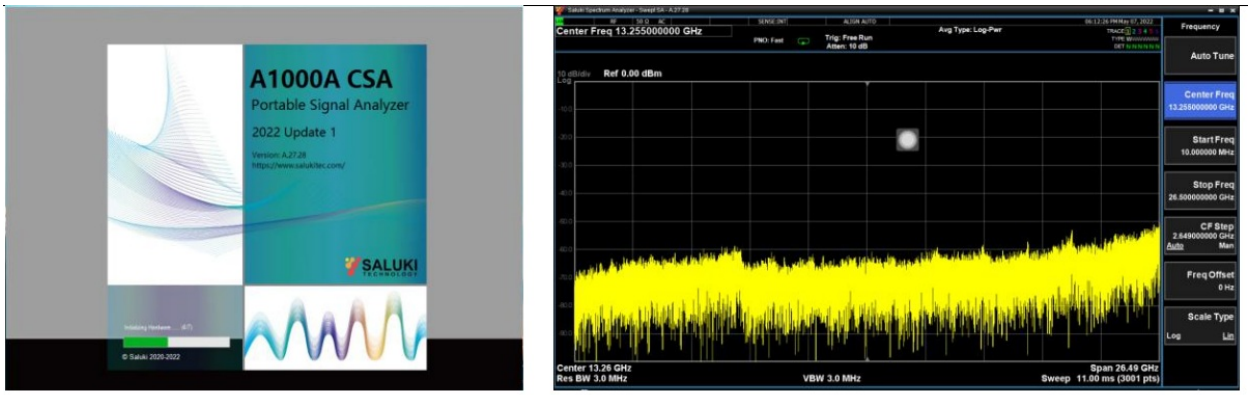

Fig. 6 Boot screen (left). Work mode interface(right)

2.4 Front Panel Description

The front panel is shown in Fig. 7. The function of each element is described below:

Fig. 7 Elements in front panel

1. RF Input — 2.92-K type steel connector, 50 ohm matched impedance.
2. Status Indicator — Orange: Standby mode. Green: Working mode. Red: Hardware error.
3. Intermediate frequency output — SMA type interface, the analog intermediate frequency signal output port.
4. Trigger input1 — SMA type interface, the trigger signal 1 input, 0~5V input voltage range.
5. Trigger input2 — SMA type interface, the trigger signal 1 input, 0~5V input voltage range.
6. Reference input — SMA type interface, Connect to 10 MHz external reference source for reference synchronization.
7. Reference source output — SMA type interface, 10 MHz internal reference signal output for reference synchronization.

2.5 Rear Panel Description

The rear panel is shown in Fig. 8. The function of each element is described below:

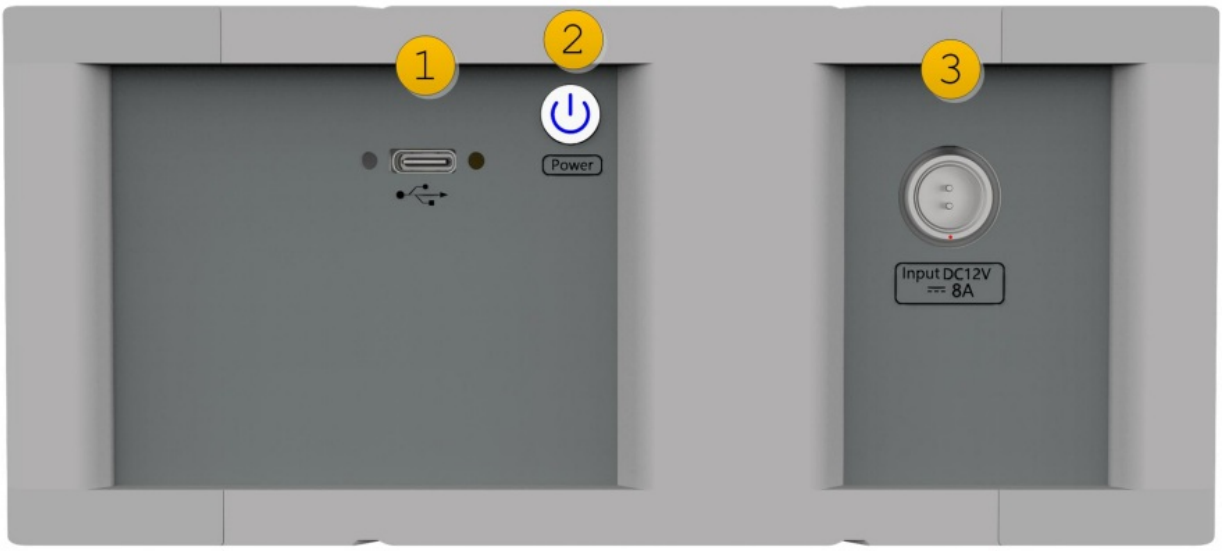

Fig. 8 Elements in rear panel

1. USB socket: USB3.0, Type-C interface.
2. Power off button: Long press of the button for power off, which is used to reduce power consumption after closing the software. During the working mode, the button is in blue light.
3. DC power input: 12V DC input, the maximum working current of the device is 6.5A. This is a LEMO FGG.1B.302 t fast-lock connector.

⚠ The CSA2026 enters the standby mode after power-up. When the software begins to initialize, it will make CSA2026 into a full power state and turn on the internal temperature control fans. When software exits, the CSA2026 still maintains part of the power consumption and keeps the fans working, thus it can quickly enter the working mode when software restarts. Long press the power off button(3) to make the hardware enter the standby mode. Normally it is not necessary to use this button to turn off the device.

Software Function Description

The software operation is almost the same as the traditional desktop spectrum analyzers. The function items are shown in Fig. 9.
The functions of each item are described as follows:

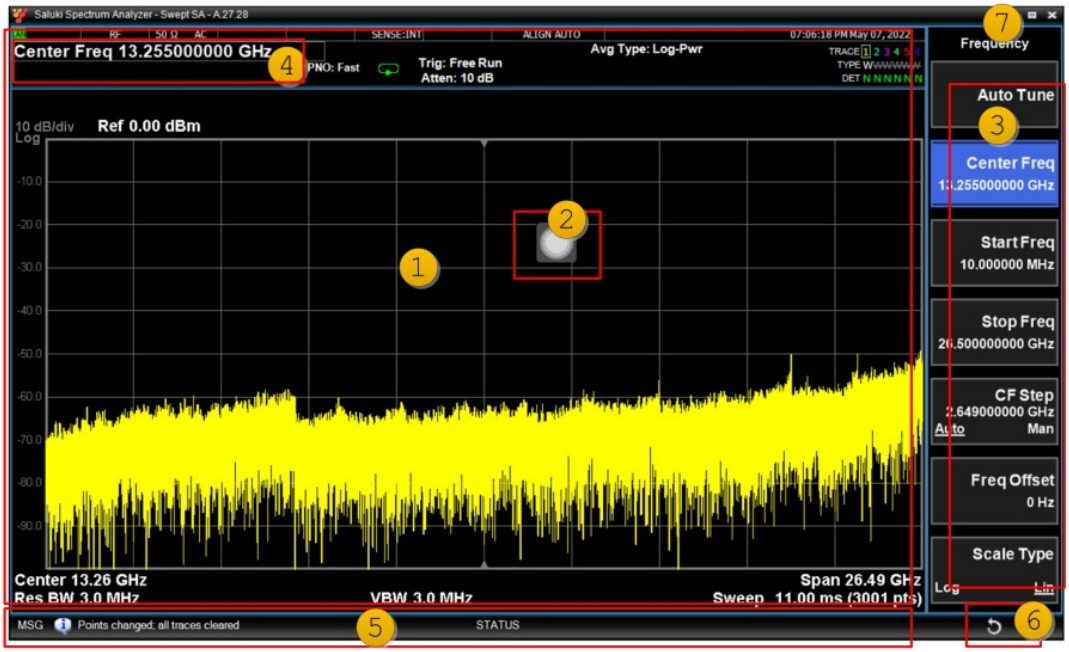

Fig. 9 GUI Division

1. Real-time display area

The real-time measurement results are displayed in this area. The content is displayed differently in different measurement modes. Note that many measurements need to be displayed in separate windows, and two cascade windows are supported at most. The user can drag the window edges to resize the two windows. At the same time, this area also displays the parameter settings related to the current measurement, such as trigger status, curve quantity, BW value, SWEEP time, sweeping mode (SWEEP/FFT), local control/remote control status, and other important information.

2. Function button/Function Panel

Click the function button to call up the function panel pop-up box(as shown in Fig. 10). All instrument functions and parameters settings can be done through the function panel, such as setting frequency range, amplitude reference, cursor, change measurement mode, change display mode, etc. Click anywhere outside the popup to hide the popup window.

Fig. 10 Function panel popup

3. Menu

The menu panel co-operates with the function panel (Fig. 10) to complete the measurement settings. Click menu items to make a selection, or go to the next menu level.

If the menu item requires numeric input, a soft keyboard will automatically pop up to enter digits. After the input is completed, press the “Enter” key on the soft keyboard to confirm the input. For example shown in Fig. 11, the soft keyboard will automatically pop up when you select the “starting freq” item. Physical keyboard input is also supported.

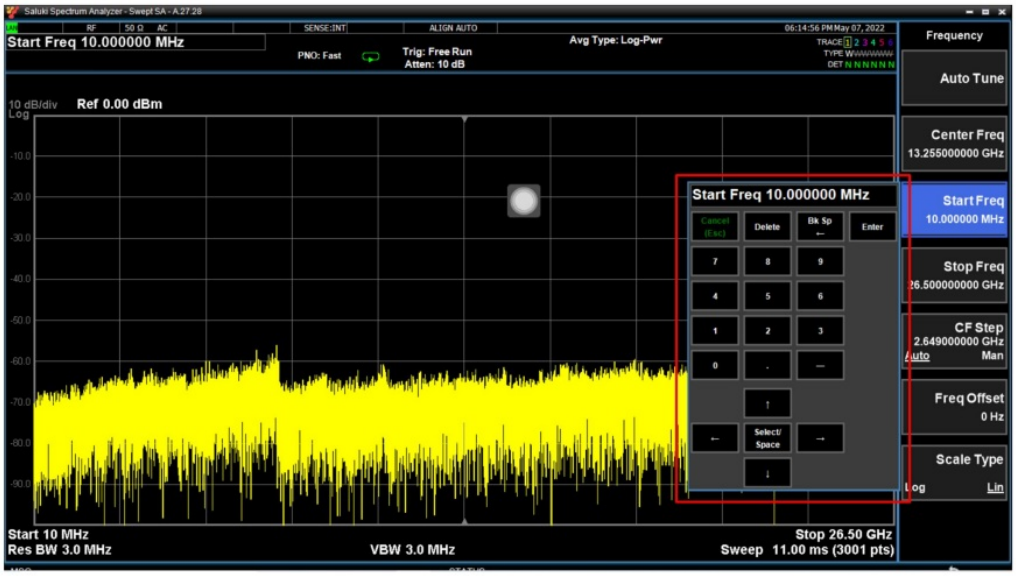

Fig. 11 Numerical input for menu selection

As shown in Fig. 9, The menu page has 7 cells. In a few cases, the menu item exceeds 7, the last item is “More..”, click this item to change the page.

4. Digital input

Click this area, and a soft keyboard if pops up for numeric input. This is mainly used for fast setting for Markers,

Traces, etc. Fig. 12 shows an example of when you want to quickly set the frequency point of Marker1.

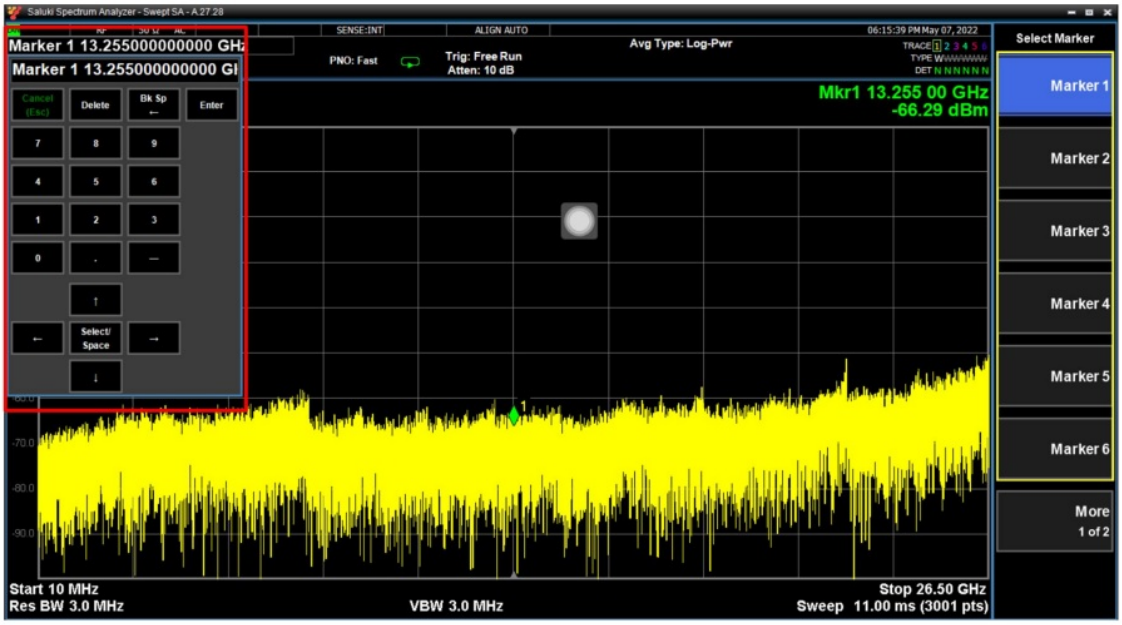

Fig. 12 Digital input

5. Status information

The device's working status is displayed here, including system prompts and error messages. Please pay special attention to the system information displayed here when you are using the CSA series signal analyzer, because errors may lead to wrong measurement results (such as amplitude is incorrect when there's an "ADC Overload" warning).

6. Back(Esc) button

Shortcut for Esc operation, use this button to quickly go back to the previous menu or cancel the current input.

7. Windowed/full-screen select

Click here to switch between full screen/window to suit different monitor sizes and resolutions. Note that at lower resolutions (eg 1366×768) full-screen mode may not be displayed fully if scaling is turned on. At this point, you need to switch to windowed mode. The aspect ratio of windowed mode can be changed by dragging to fit some monitors with a special aspect ratio.

Remote Control

CSA series signal analyzer supports remote control via SCPI commands. This chapter explains how to control the product remotely via SCPI. For more detailed SCPI command set details, please refer to "Programming Manual". The remote control host controls the signal analyzer via communicating with the A1000A software. For the hardware connection method, see Fig. 13. Details are as follows:

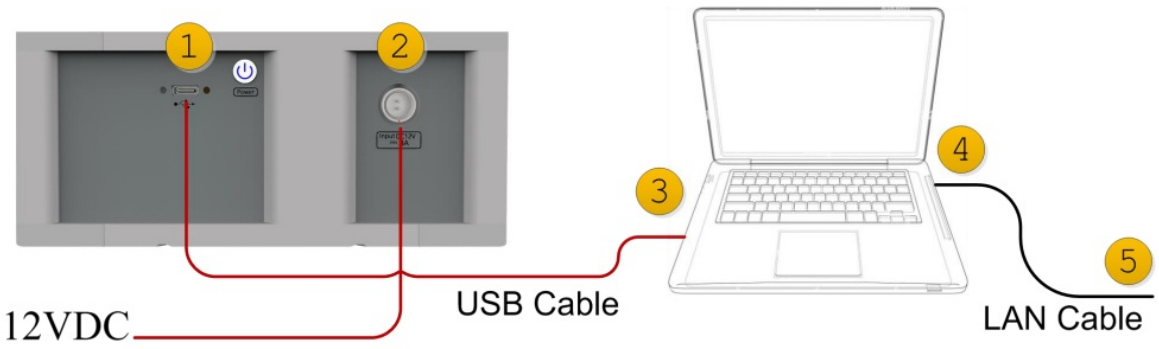

Fig. 13 Hardware configuration for remote control

1. Connect signal analyzer with PC

Use the attached USB cable to connect the Type-C port (1) and the USB3.0 port (3) of the PC. Please ensure a stable USB3.0 connection (see chapter 6.2).

CSA2026 power supply port (2) is connected to a 12VDC power supply, please confirm whether the power supply

is sufficient (minimum requirement is 12V6.5A);

2. Connect PC and remote control terminal

Connect the LAN port (4) of the PC to the remote control host (5) (if your remote control program is running on this PC, no connection is needed);

3. Set up and run

Set the PC's IPv4 address for the LAN port;

Set the PC's IPv4 settings and firewall settings to ensure that the remote control host can access the PC (usually use the "ping" command for the test); Launch the A1000A software on PC and wait for the initialization to complete;

4. Verify

Send SCPI commands through Telnet or Socket on the remote control host and you will get the reply message from the signal analyzer. For command details, please refer to "Programming Manual".

Instrument IP address: the IP address of the PC;

Telnetport: 5023;

Socketport: 5025;

The port settings of the instrument can be viewed in the function panel – System – I/O Config – SCPI LAN.

— END OF DOCUMENT —

Documents / Resources

	SALUKI TECHNOLOGY CSA2026 CSA Series Signal Analyzer [pdf] User Manual CSA2026, CSA Series, Signal Analyzer, CSA Series Signal Analyzer, CSA2026 Signal Analyzer, CSA2026 CSA Series Signal Analyzer

References

- Saluki \| Signal Analyzer \| Signal Generator \| Network Analyzer \| SSPA \| Calibration Kit \| Electronic Design - SALUKI