

Tektronix RSA306B Real Time Spectrum Analyzer



Tektronix RSA306B Real Time Spectrum Analyzer Installation Guide

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Tektronix RSA306B Real Time Spectrum Analyzer



Product Information

Specifications:

- Model: RSA306B
- Real-Time Spectrum Analyzer
- March 2024 Release
- Product Documentation: Installation and Safety Instructions, Help, Specifications and Performance Verification, Technical Reference, Programmer Manual

Product Usage Instructions

Safety Information:

It is crucial to follow the safety guidelines provided in the manual to ensure safe operation of the product.

Connecting and Disconnecting:

When connecting or disconnecting probes or test leads, ensure they are not connected to a voltage source to avoid potential hazards. Observe all terminal ratings and markings on the product.

Operating Conditions:

Avoid operating the product without covers or panels removed, as it may expose you to hazardous voltage. Do not touch exposed connections and components when power is present.

Product Inspection:

If you suspect any damage to the product, have it inspected by qualified service personnel. Do not operate the product if it is damaged or operates incorrectly.

Powering the Instrument:

Refer to the user manual for detailed instructions on how to power on and off the instrument safely.

Frequently Asked Questions (FAQ)

1. How can I access the product documentation?

To access the product documentation, visit [tek.com](https://www.tek.com), click on Download in the sidebar, select Manuals as the Download Type, enter your product model, and click Search. You can also find additional documentation on the Product Support Center and Learning Center links on the page.

2. **What should I do if I suspect a failure in the product?**

If you suspect a failure in the product, do not operate it. Have it inspected by qualified service personnel. Disable the product if it is damaged and do not use it until it has been checked by professionals.

This document provides RSA306B and RSA306B-SMA Real-Time Spectrum Analyzers safety and compliance information, powering the instrument, and introduces the instrument controls and connections. Review the SignalVu-PC Help for more detailed setup and operating information.

Documentation

Review the following user documents before installing and using your instrument. These documents provide important operating information.

Product Documentation

The following table lists the primary product specific documentation available for your product. These and other user documents are available for download from [tek.com](https://www.tek.com). Other information, such as demonstration guides, technical briefs, and application notes, can also be found at [tek.com](https://www.tek.com).

Document	Content
Installation and Safety Instructions	Safety, compliance, and basic introductory information for hardware products.
Help	In-depth operating information for the product. Available from the Help button in the product UI and as a PDF on tek.com .
Specifications and Performance Verification Technical Reference	Instrument specifications and performance verification instructions for testing instrument performance.
Programmer Manual	Commands for remotely controlling the instrument.

How to find your product documentation

1. Go to [tek.com](https://www.tek.com).
2. Click Download in the green sidebar on the right side of the screen.
3. Select Manuals as the Download Type, enter your product model, and click Search.
4. View and download your product manuals. You can also click the Product Support Center and Learning Center links on the page for more documentation.

Important safety information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition.

General safety summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future

reference. This product shall be used in accordance with local and national codes. For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual. The product is designed to be used by trained personnel only. Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment. This product is not intended for detection of hazardous voltages. While using this product, you may need to access other parts of a larger system. Read the safety sections of the other component manuals for warnings and cautions related to operating the system. When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of the system.

To avoid fire or personal injury

Connect and disconnect properly

Do not connect or disconnect probes or test leads while they are connected to a voltage source.

Observe all terminal ratings.

To avoid fire or shock hazard, observe all rating and markings on the product. Consult the product manual for further ratings information before making connections to the product. Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal. The measuring terminals on this product are not rated for connection to mains or Category II, III, or IV circuits.

Do not operate without covers

Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible.

Avoid exposed circuitry

Do not touch exposed connections and components when power is present.

Do not operate with suspected failures.

If you suspect that there is damage to this product, have it inspected by qualified service personnel. Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation. Examine the exterior of the product before you use it. Look for cracks or missing pieces. Use only specified replacement parts.

Do not operate in wet/damp conditions

Be aware that condensation may occur if a unit is moved from a cold to a warm environment.

Do not operate in an explosive atmosphere

Keep product surfaces clean and dry

Remove the input signals before you clean the product.

Provide proper ventilation.

Refer to the installation instructions in the manual for details on installing the product so it has proper ventilation.

Provide a safe working environment

Avoid improper or prolonged use of keyboards, pointers, and button pads. Improper or prolonged keyboard or pointer use may result in serious injury. Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries. Use only the Tektronix rackmount hardware specified for this product.

Terms in this manual

These terms may appear in this manual:



WARNING: Warning statements identify conditions or practices that could result in injury or loss of life.



CAUTION: Caution statements identify 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 an injury hazard immediately accessible as you read the marking.
- WARNING indicates an injury hazard not immediately accessible as you read the marking.
- CAUTION indicates a hazard to property including the product.

Symbols on the product

The following symbols(s) may appear on the product.

Compliance information

This section lists the safety and environmental standards with which the instrument complies. This product is intended for use by professionals and trained personnel only; it is not designed for use in households or by children.

Compliance questions may be directed to the following address:

Tektronix, Inc.
PO Box 500, MS 19-045
Beaverton, OR 97077, USA
tek.com

Safety compliance

This section lists the safety compliance information.

Equipment type

Test and measuring equipment.

Pollution degree description

A measure of the contaminants that could occur in the environment around and within a product. Typically the internal environment inside a product is considered to be the same as the external. Products should be used only in the environment for which they are rated.

- Pollution Degree 1. No pollution or only dry, nonconductive pollution occurs. Products in this category are generally encapsulated, hermetically sealed, or located in clean rooms.
- Pollution Degree 2. Normally only dry, nonconductive pollution occurs. Occasionally a temporary conductivity that is caused by condensation must be expected. This location is a typical office/home environment. Temporary condensation occurs only when the product is out of service.
- Pollution Degree 3. Conductive pollution, or dry, nonconductive pollution that becomes conductive due to condensation. These are sheltered locations where neither temperature nor humidity is controlled. The area is protected from direct sunshine, rain, or direct wind.
- Pollution Degree 4. Pollution that generates persistent conductivity through conductive dust, rain, or snow. Typical outdoor locations.

Pollution degree rating

Pollution degree 2 (as defined in IEC 61010-1). Rated for indoor, dry location use only,

Environmental compliance

This section provides information about the environmental impact of the product.

Product end-of-life handling

Observe the following guidelines when recycling an instrument or component:

Equipment recycling

Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product’s end of life. To avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.



This symbol indicates that this product complies with the applicable European Union requirements according to Directives 2012/19/EU and 2006/66/EC on waste electrical and electronic equipment (WEEE) and batteries. For information about recycling options, check the Tektronix Web site (www.tek.com/productrecycling).

Shipped accessories

The instrument ships with the following accessories.

Accessory	Tektronix part number
Printed Safety/Installation manual	071-3483-xx
USB 3.0 A-to-Micro-B cable, 1 M	174-6796-xx

Installation

This section provides instructions on how to install the software and hardware, and how to perform a functional check to verify system operation. Refer to the SignalVu-PC Help for more detailed operation and application information. Unpack the instrument and check that you have received all of the items marked in the table Shipped accessories on page 5 for your instrument configuration. All of the software required to operate the RSA from a PC is included on the flash drive that ships with the instrument. The RSA can be controlled with the Tektronix SignalVu-PC software, or you can control the instrument through the API. If you intend to use API control, you must still load the SignalVu-PC software to install the TekVISA driver and enable API control. Both SignalVu-PC and API control require a USB 3.0 connection for communication.

PC requirements

The RSA306B and RSA306B-SMA Spectrum Analyzers require a PC equipped with the following features:

- USB 3.0 port
- 64-bit Windows 7, 8, or 10 OS

For full performance of the real time features of the RSA, an Intel Core i7 4th generation processor and 8 GB RAM is required. Processors of lower performance can be used, with reduced real time performance. Storage of streaming data requires that the PC be equipped with a drive capable of streaming storage rates of 300 MB/sec.

Load the SignalVu-PC and TekVISA software

This software must be installed to control the instrument through the SignalVu-PC software.

1. Insert the flash drive included with the analyzer into the host PC. Windows File Explorer should open automatically. If it does not, open it manually and browse to the flash drive folder.
2. Select SignalVu-PC from the list of folders.
3. Select the Win64 folder.
4. Double-click Setup.exe and follow the on-screen instructions to install SignalVu-PC.
5. When the SignalVu-PC setup is complete, a TekVISA dialog box appears. Verify that the Install TekVISA box is checked. TekVISA is optimized for SignalVu-PC, especially for instrument searching, and is the recommended VISA application.

For information about option activation and operation, refer to the SignalVu-PC Help, located in the SignalVu-PC application under Help > User.

Load the API and USB driver software

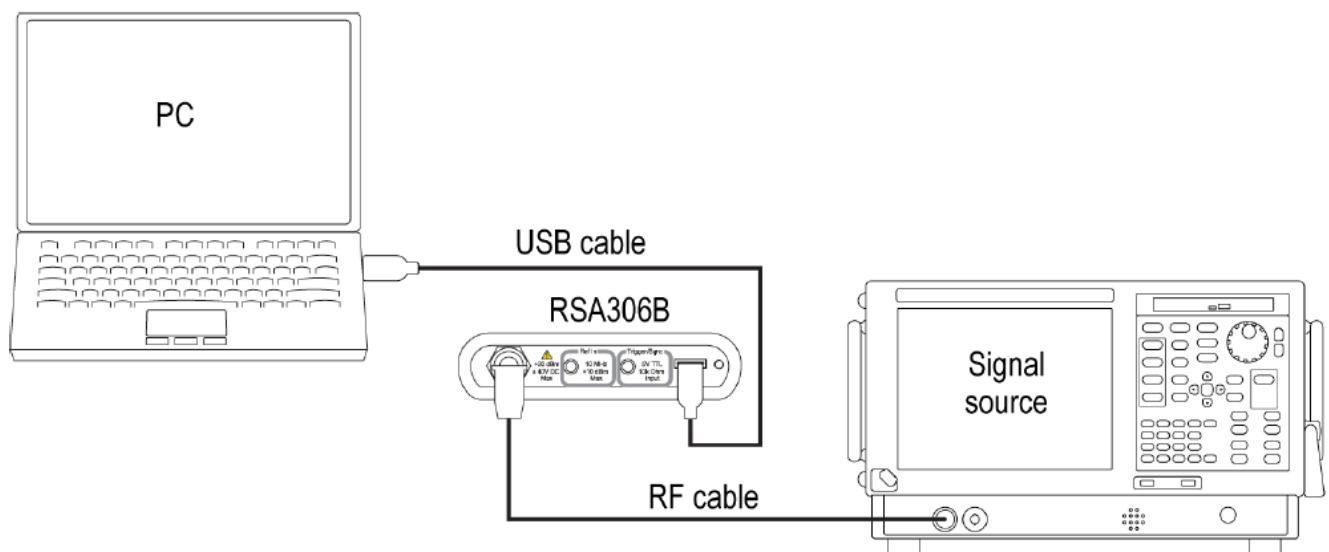
Load the software using the procedure below.

1. Insert the flash drive included with the analyzer into the host PC. Windows File Explorer should open automatically. If it does not, open it manually and browse to the flash drive folder.
2. Select RSA API and USB from the list of folders.
3. Double-click Setup.exe and follow the on-screen instructions to install the software.

Make the connections

Refer to the front panel illustration (Front-panel connections on page 7) for connector locations.

1. After the software has been installed, connect the USB cable included with the analyzer between the analyzer and the host PC.
2. Connect an RF cable between the RSA input and the signal source.



3323-002

Figure 1: Instrument connections

3. Start the SignalVu-PC application on your PC.
4. Click Connect on the menu bar to view the drop down menu.

5. Select Connect to Instrument. The USB-connected RSA appears in the Connect to Instrument list.
6. If you do not see the RSA, click Search for Instrument. TekVISA searches for the instrument, and a notification appears when the instrument is found. Check that the newly-found instrument now appears in the Connect to Instrument list.
7. Select the instrument. First time connection to the analyzer may take up to 10 seconds.
8. A Connect Status dialog appears to confirm that the instrument is connected.



Note: You can quickly verify connection status by looking at the Connection indicator square on the menu bar. It is green when an instrument is connected, and red when it is not. You can also view the name of the instrument that is connected by hovering the mouse indicator over the green indicator square.

Confirm operation

After you have installed the software and connected the system components, the spectrum trace will be active on your PC, confirming system operation. When you are ready to disconnect from the RSA, select Disconnect from Instrument to end the current connection.

Front-panel connections

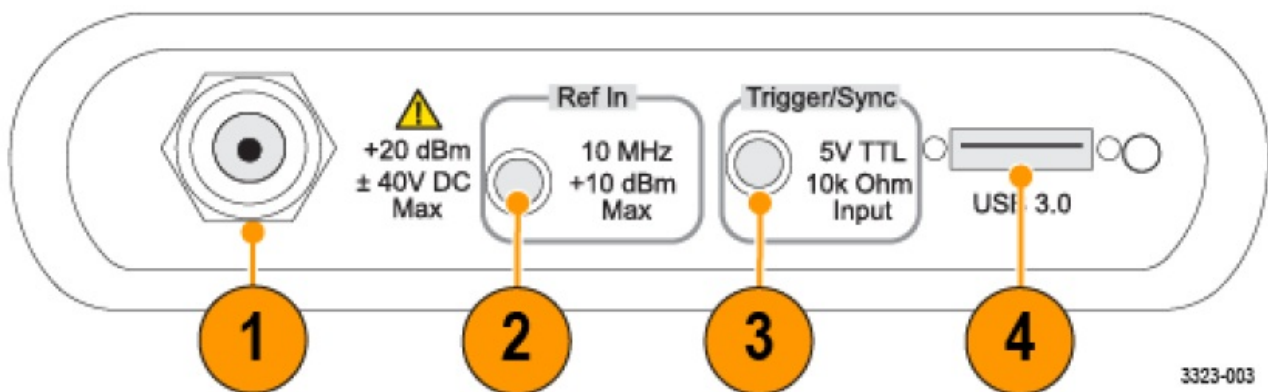


Figure 2: RSA306B front panel

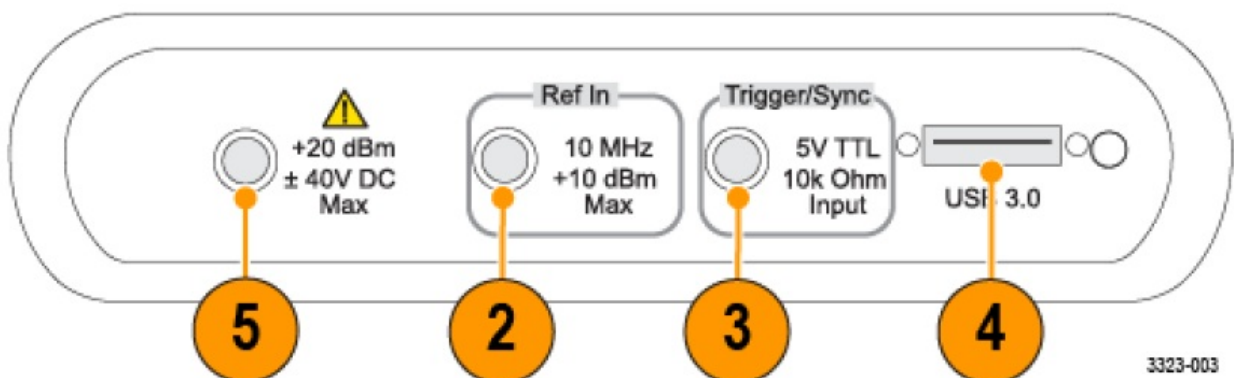


Figure 3: RSA306B-SMA front panel

1. N-type RF input connector

This N-type female connector receives the RF signal input, via cable or antenna. The input signal frequency range is 9 kHz to 6.2 GHz.

2. Ref In (external reference) connector

Use this SMA female connector to connect an external 10 MHz reference clock signal to the analyzer.

3. Trigger/Sync connector

This SMA female connector accepts TTL-level signals (0 – 5.0 V), and can be rising- or falling-edge triggered.

4. USB 3.0 connector

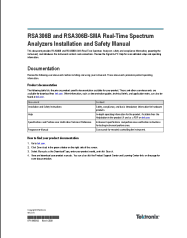
Use the USB 3.0 A-to-Micro B cable provided with the signal analyzer to connect the instrument to the USB 3.0 connection on the host PC. Finger tighten the USB cable thumbscrews to the RSA.

Note: Lock the USB cable to the instrument by carefully hand tightening the USB connector thumb screws to maintain a reliable connection. These screws can easily be misaligned and can damage the instrument if the screws are cross-threaded. To limit the exposure of cross-threading the screws, you can keep the USB cable attached to the RSA, even while moving or transporting the instrument.

5. SMA type RF input connector

This SMA female connector receives the RF signal input, via cable or antenna. The input signal frequency range is 9 kHz to 6.2 GHz.

Documents / Resources

	Tektronix RSA306B Real Time Spectrum Analyzer [pdf] Installation Guide RSA306B, RSA306B Real Time Spectrum Analyzer, Real Time Spectrum Analyzer, Spectrum Analyzer, Analyzer
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References

- [Test and Measurement Equipment | Tektronix](#)
- [Test and Measurement Equipment | Tektronix](#)
- [Product Support and Downloads | Tektronix](#)
- [Product Take-Back and Recycle Program | Tektronix](#)
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