narda SignalShark 3320 Remote Unit User Guide

narda Safety Test Solutions

SignalShark seven senses for signals

SignalShark 3320 Remote Unit
Quick start guide

Contents

SignalShark 3320 Remote Unit

Narda Safety Test Solutions GmbH
Sandwiesenstraße 7
72793 Pfullingen, Germany
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Our normal terms of warranty and delivery apply.
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About this guide

Following instructions are supplied with the device:

- This Quick Start Guide: These instructions offer a quick introduction on how to use the product. The Quick Start Guide does not replace the detailed operation manual.
- Online help: The complete operation manual can be found on the device (see Operating the SignalShark 3320 on page 34) and on the enclosed USB device.
- General safety instructions: The enclosed document Narda General Safety Instructions (3300/98.10) contains important information on how to avoid injury from incorrect use and on the correct handling of the product.
  ⇒ Be sure to read the Quick Start Guide and the General safety instructions before operating the device and follow all instructions provided there.
  ⇒ Store both documents with the device and make them available to all users.
  ⇒ When transferring the device to third parties, also forward these instructions to them.

About this product

The SignalShark 3320 Remote Unit exists in different module versions which are adapted for remote control applications. It can be used as a stand-alone unit for desktop (optionally with equipment feet) and system

operation. Narda also offers the SignalShark 3320 as modular units for installation in a 19” rack.
All SignalShark types support the same GUI. The SignalShark 3320 can be operated via a remote desktop connection or by using an external monitor, a keyboard and a mouse. The SCPI command reference and VITA 49 compliant I/Q streaming allow easy integration into any software environment.
The SignalShark 3320 features a highly sensitive and dynamic RF front-end with four switchable RF inputs. The spectrum analyzer works ultrafast in scan mode (40 MHz real-time bandwidth). It calculates FFTs of up to 16,384 points with at least 75% overlap.
There is also an independent receiver path (40 MHz real-time bandwidth). The center frequency and the channel bandwidth are freely selectable. The path allows you to perform channel level measurements, modulation analysis, audio demodulation, and I/Q streaming.
The SignalShark 3320 supports the automatic direction finding antennas from Narda. Bearing cycles down to 1.2 ms are possible. The integrated map and localization software allow reliable localization, even in urban environments.
Due to its precise time stamp synchronization and Vita 49 I/Q streaming, the SignalShark 3320 offers an excellent TDOA-based localization system. As reference clock, you can select the PPS signal of the internal GNSS receiver, or that of the ADFA’s GNSS receiver, or from a dedicated PPS input.
The CPU of the SignalShark 3320 is designed to run third-party software and scripts. This allows you to easily extend its capabilities or build your customized stand-alone system.

Unpacking

3.1 Packaging

The packaging is designed to be re-used if it has not been damaged during previous shipping. Please keep the original packaging and use it again whenever the device is shipped.

3.2 Package contents

The package contents are listed on the delivery note. Please check that you have received all the items listed. Contact your supplier if anything is missing.

3.3 Checking the device for shipping damage

After unpacking, check the device and all accessories for any damage that may have occurred during shipping. Damage may have occurred if the packaging itself has been clearly damaged. Do not attempt to use a device that has been damaged.

3.4 Recovery after shipping and storage

Condensation can form on a device that has been stored or shipped at a low temperature when it is brought into a warmer environment. To prevent damage, wait until all condensation on the surface of the device has evaporated. The device is not ready for use until it has reached a temperature that is within the guaranteed operating range. For temperature ranges see the corresponding datasheet (**https://www.narda-sts.com**).

Device overview

The technical specifications may change due to product developments. The latest technical specifications can be found in the datasheet of the product.
The datasheet can be downloaded from the Narda website **www.narda-sts.com** under the corresponding product page.

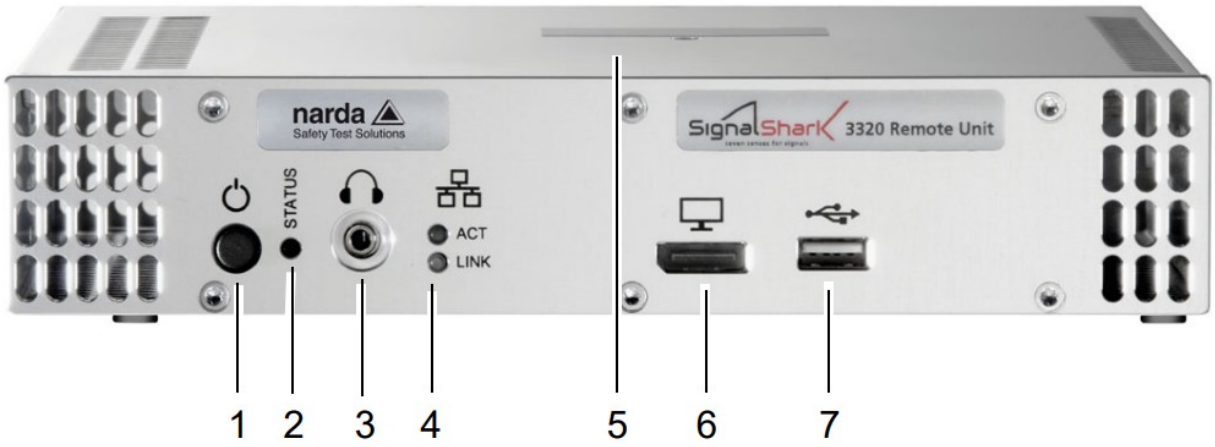


Figure 1: Overview of the SignalShark 3320 front panel

Front panel

1	ON/OFF button The device starts automatically when connected to the power supply
2	LED to indicate the operating status of the device For more information, refer to Displaying the operating status on page 32
3	stereo jack, 3.5 mm headphone jack
4	LEDs indicating the status for remote control and I/Q streaming For more information, refer to Display the LAN interface status: on page 33
5	Product description on the top of the device QR codes including P/N, S/N, Mac address, etc.
6	Display port
7	USB 2.0 connection

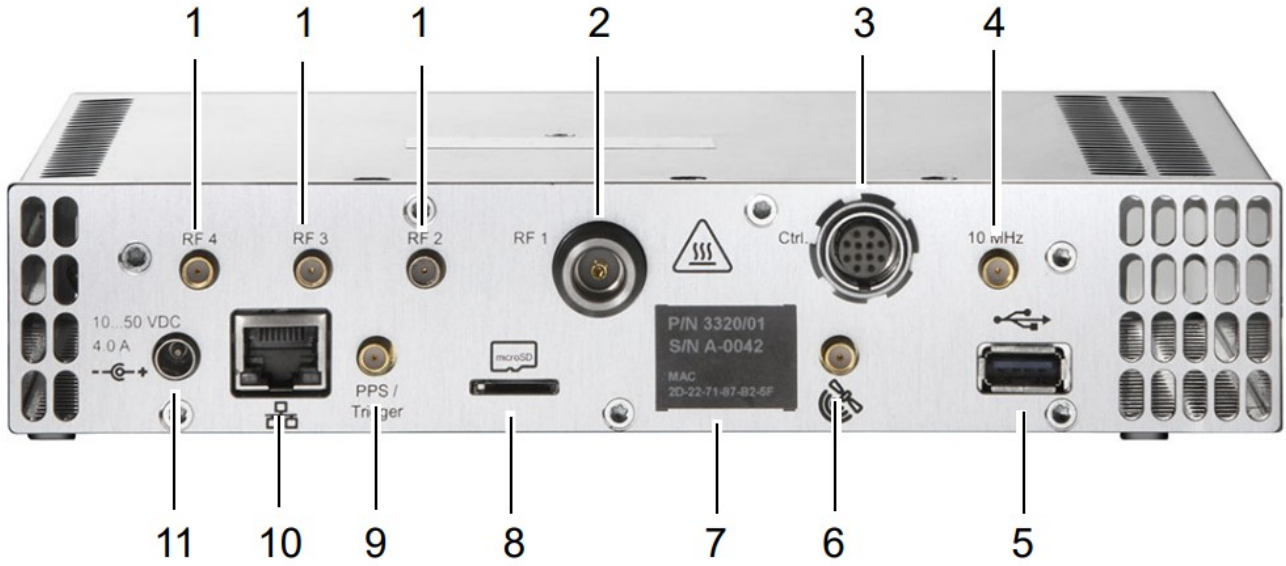
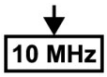
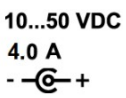


Figure 2: Overview of the SignalShark 3320 back panel

Back panel

1 	3 x RF SMA(f) input
2 	RF N(f) input
3 	12-pin jack for connecting the antenna control cable
4 	10 MHz Ref SMA(f) input, 600 Ω
5 	USB 3.0 connection
6 	External GNSS SMA(f) input, 50 Ω DC voltage for active antenna is supplied
7	Product description including P/N, S/N, Mac address
8 	Micro SD card slot (microSDXC)
9 	PPS/trigger SMA(f) input, 100 kΩ
10 	1 GigE connector For remote control, I/Q streaming, and network connection, e.g. the Internet access for Wi n10
11 	DC input

Assembling the SignalShark 3320

NOTICE
Overheating
Overheating of the device due to poor air circulation (i.e., as a result when the ventilation slots of the device are covered) can lead to malfunctions and damage.
⇒ Make sure that the device is operated within the ambient temperature range stated in the specifications of the datasheet.
⇒ Make sure that there is adequate space around the device and that there is sufficient ventilation.
⇒ Do not cover the ventilation slots on the front and back (and, if possible, also not on the top and bottom).

5.1 Stand-alone operation
The SignalShark 3320 can be used as a stand-alone unit. For desktop use, the device can be mounted with equipment feet to ensure surface protection.
⇒ Mount the enclosed equipment feet to the intended mounting positions on the bottom of the SignalShark 3320.

5.2 Modular operation

The SignalShark 3320 can be used as modular units in a 19“ rack. The modular system is available in both single (Figure 3) and dual (Figure 4) versions and are supplied with mounted front panel.

Figure 3: Single device (SignalShark 3320/02, 1 x 19“)

Figure 4: Dual device (SignalShark 3320/03, 2 x 19“)

Mounting the SignalShark 3320 in the rack:

1. Place the SignalShark 3320 in the intended compartment.
2. Screw the SignalShark 3320 to the rack using the holes in the front panel (see arrows in Figure 3 and Figure 4).

Installing connections

6.1 Power supply

The SignalShark 3320 is operated via an AC/DC adapter.

⇒ Connect the AC/DC adapter to the DC power input of the SignalShark 3320. If you use a screw connection, you must screw the cable connector to the power input to ensure a reliable power supply.

The device starts automatically when connected to the power supply.

6.2 Connecting RF connectors

Use the RF inputs (three RF SMA inputs + one RF N input) located on the back of the SignalShark 3320 to connect RF connectors.

When using an RF SMA input:

⇒ Connect the SMA plug to the SMA socket (see Figure 2: caption 1) and carefully tighten the SMA connection with a torque wrench.

NOTICE

Exceeding the maximum torque

The SMA connection may be damaged, when exceeding the maximum torque.

⇒ Do not exceed the maximum torque of 0.6 Nm.

⇒ Do not tilt and turn the cable while screwing.

6.3 Installing the Narda automatic DF antennas

The SignalShark 3320 is intended for use with the automatic DF antennas. For the use of other Narda antennas as well as cables and antennas from other manufacturers, refer to the operation manual. The operation manual can be found on the USB device or in the SignalShark online help (for details on how to access the online help, refer to Operating via the graphical user interface (GUI) on page 34).

A detailed procedure on how to replace the RF cable on the Automatic DF Antenna can be found in the Narda Automatic DF Antenna Handling and Safety Instructions (3360/98.12).

Connecting the RF cable to the SignalShark 3320

The RF cable has two connections:

- Control connection (1): for power supply as well as for the transmission of compass data and control signals
- N connection (2): for transmitting the RF signal

Figure 5: Connecting RF cable: Control connection **(1)** and N connection **(2)**

Connecting the RF cable:

1. Place the control cable plug of the RF cable on the control connector of the basic unit (1), so that the red marking on the plug points downwards and forms a line with the slot in the control connector.
2. Press the plug with the locking bush into the connection until the plug lock is engaged.
3. Place the N connector plug of the RF cable on the N connector of the basic unit (2) and screw down carefully the union nut and without tilting.

NOTE: Make sure that the cable does not turn while screwing. Otherwise, the electrical properties of the high-quality coaxial cable could be impaired by tor- sional forces. If you notice any resistance when tightening, the union nut must be loosened, cleaned and
tightened again. Approx. 4 rotations are necessary to create a tight connection.

Unscrewing the plug:

1. Unscrew the union nut (2) at the N connection.
2. Pull the control cable connector (1) on the ribbed plug head backwards until the lock disengages.

6.4 Setting up the device control

The SignalShark 3320 can be connected in the following ways:

Connecting the SignalShark 3320 to a network

This is the standard connection type. The default setting of the SignalShark 3320 is DHCP = On. The SignalShark 3320 can then be operated via remote commands or remote desktop.

1. Connect the SignalShark 3320 to a network using a standard Ethernet cable (patch cable).
2. Configure your network. For more information, refer to Setting up the network configuration on page 32.

Connecting a monitor and accessories to the SignalShark 3320

This type of connection allows you to operate the SignalShark 3320 without a network. In this way you can, for example, assign an IP address manually if no DHCP server is available.

1. Connect a monitor to the display port (see Figure 1, caption 6).
2. Connect a keyboard and a mouse to the USB ports (see Figure 1: caption 7, and Figure 2: caption 5).

Starting up the SignalShark 3320

7.1 Switching the device on and off

✓ Make sure that all the connections have been made properly (see Installing connections on page 29).

⇒ Connect the AC/DC adapter to the DC power input of the device.

⇒ The device turns on automatically.

⇒ To switch the unit off, press the ⏻ key for at least 0.5 second. For a hard shutdown, press the key for several seconds (5–10 seconds).

⇒ To restart the device, press the ⏻ key again.

Displaying the operating status

The LED light (see Figure 1: caption 2) indicates the operating status:

- LED lights up green: Device is operational
- LED lights up red: Device is in initialization phase or an error occurred

7.2 Setting up the network configuration

For details on the possible connection types, refer to Setting up the device control on page 31.

Automatic configuration

✓ The SignalShark 3320 is connected to a network using a DHCP server.

✓ The configuration parameter DHCP is set to ON by default.

↳ The IP address is automatically assigned to the SignalShark 3320 by the DHCP server.

Manual configuration
NOTE: Changing the network settings requires admin privileges.

✓ The SignalShark 3320 is connected to a network.

✓ The SignalShark 3320 is running on the same subnetwork and there are no firewalls or network gateways, etc., that prevent data communication.

✓ A monitor, keyboard and mouse are connected to the SignalShark 3320 (for more information, refer to Connecting a monitor and accessories to the SignalShark 3320 on page 31).

Set the network parameters on the SignalShark 3320:

1. Tap  > Network.
2. Set DHCP to OFF.
3. Enter the IPv4 address and Subnet mask (if already defined for the SignalShark 3320 in the network server).
4. Tap Accept Settings.
5. In the confirmation dialog, enter your password and confirm.

Set the network parameters on the network server:

1. Enter the IPv4 Address assigned to the SignalShark 3320 (if not already assigned).
2. Enter the Mac address of the SignalShark 3320 if required. You can find the Mac address on the label on the back (see Figure 2: caption 7) of your SignalShark 3320 or in the network settings menu.

7.3 Checking the remote interface ready status

The Status LED glows green as soon as the boot process is completed, and the communication function is working for the remote interface. This process takes at least 20 seconds.

Display the LAN interface status:

The LED light (see Figure 1: caption 4) indicates the LAN interface status:

- LED LINK lights up orange: 100 Mbit
- LED LINK lights up green: 1 Gbit
- LED ACT lights up green: Traffic

To test the device connection:

✓ The LED LINK lights up green or orange.

1. Open a command-line program (cmd.exe) to execute commands in Windows.
2. Send a PING command to test the Ethernet link.

7.4 Operating the SignalShark 3320

The SignalShark 3320 can be operated in the following ways:

Operating via the graphical user interface (GUI)

⇒ To operate the SignalShark 3320 via the GUI, establish a remote desktop connection or connect a monitor, keyboard and mouse (for a detailed procedure, refer to chapter Setting up the device control on page 31).

For detailed information about how to operate the SignalShark 3320, refer to the SignalShark online help.

⇒ To access the online help, press the F1 key.

NOTE: The keys described in the online help are not available for the SignalShark 3320. In this case, you need to apply the appropriate keyboard shortcut. A list of all shortcuts can be found in the online help under Basic Operation > Keypad and Keyboard.

Operating via remote control commands
⇒ To operate the SignalShark 3320 via remote control commands, connect it to a network.
For a detailed list of commands for remote control of the SignalShark 3320, refer to the Command Reference Guide. You can access the Command Reference Guide via the online help or by downloading the PDF from the Narda website (customer login required) at **www.narda-sts.com**.

Cleaning

⇒ Please observe the information for cleaning in the Narda General Safety Instructions.

Calibration, repair, and modification

⇒ Please observe the information for calibration, repair, and modification in the Narda General Safety Instructions.

Declaration of conformity

CE Hereby, Narda STS declares that this equipment is in compliance with the directives 2014/30/EU, EN 61326-1:2013, 2014/35/EU, EN 61010-1:2010, and 2011/65/EU.
The full text of the EU declaration of conformity is available at **www.narda-sts.com**.

Proper disposal (EU only)

11.1 Disposal of used equipment

The crossed-out wheeled garbage can symbol indicates that this product is subject to the European WEEE Directive 2012/19/EU on the disposal of waste electrical and electronic equipment and must be disposed of separately from household waste in accordance with your national regulations.
In the European Union, all electronic measuring systems purchased from Narda after August 13, 2005 can be returned at the end of their useful life.
⇒ For more information, please contact your Narda distributor.

11.2 Disposal of removable batteries

Batteries must not be disposed of in household waste, but must be disposed of separately from the product in accordance with the applicable regulations. They can be returned free of charge to the appropriate collection points, your dealer or directly via Narda.
⇒ Please discharge the batteries before disposal.

11.3 Disposal of permanently installed batteries

Your instrument has permanently installed LiCF batteries, which cannot be removed non-destructively by the user. Non-destructive removal is only possible by Narda itself or by qualified personnel.
⇒ Instructions for non-destructive removal of the batteries can be found on the Narda website **www.narda-sts.com** under the corresponding product page.

11.4 Deleting private data

⇒ Make sure that you delete any stored private data before passing on or disposing of the device.

narda
Safety Test Solutions
SignalShark 3320 Remote Unit
Narda Safety Test Solutions GmbH
Sandwiesenstrasse 7
72793 Pfullingen, Germany
Phone +49 7121 97 32 0
info@narda-sts.com

Narda Safety Test Solutions
North America Representative Office
435 Moreland Road
Hauppauge, NY11788, USA
Phone +1 631 231 1700
info@narda-sts.com
Narda Safety Test Solutions GmbH
Beijing Representative Office
Xiyuan Hotel, No. 1 Sanlihe Road, Haidian
100044 Beijing, China
Phone +86 10 6830 5870
support@narda-sts.cn
www.narda-sts.com

Documents / Resources

	narda SignalShark 3320 Remote Unit [pdf] User Guide 3320-98.12, SignalShark 3320 Remote Unit, 3320 Remote Unit, Remote Unit

References

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Manuals+,