

R&S®FPL1000 Spectrum Analyzer Release Notes

Firmware Version V2.20

These Release Notes are for following models of the R&S®FPL1000 Spectrum Analyzer:

R&S® FPL1003, order no. 1304.0004K03

R&S® FPL1007, order no. 1304.0004K07

R&S® FPL1014, order no. 1304.0004K14

R&S® FPL1026, order no. 1304.0004K26

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Muehldorfstr. 15, 81671 Munich, Germany

Phone: +49 89 41 29 - 0

E-mail: info@rohde-schwarz.com

Internet: <http://www.rohde-schwarz.com>

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1178.6510.02 | Version 22 | R&S®FPL1000 Spectrum Analyzer |

The software makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" provided with the product.

The following abbreviations are used throughout this document: R&S®FPL1000 Spectrum Analyzer is abbreviated as R&SFPL1000 Spectrum Analyzer.

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Contents

1	Information on the current version and history	3
1.1	New functions	3
1.2	Modified functions	4
1.3	Improvements	5
1.4	Known issues.....	6
2	Modifications to the documentation	7
3	Firmware update	8
3.1	Validity information	8
3.2	Update information	8
3.3	Performing the firmware update on the instrument.....	8
3.4	Performing the firmware update from a Windows PC	9
3.5	Installing firmware options	11
3.5.1	Firmware options included in basic instrument.....	11
3.5.2	Other firmware options within the FPL1000Setup.exe file.....	12
3.5.3	Enabling options by entering option key codes	12
4	Customer support.....	14

1 Information on the current version and history

1.1 New functions

The following table lists the new functions and indicates the version in which the new function was introduced:

New function of firmware V2.20:

Version	Function
V2.20	SCPI recorder available on FPL.
V2.20	Gapless measurement in zerospan under certain conditions.
V2.20	B33 USB mass memory write protection supported.
V2.20	B12 external generator control supported.
V2.20	R&S FPL1-K30: New displays and measurement results for P Hot and P Cold.
V2.20	R&S FPL1-K30: New DUT mode added: System Downconverter Fixed LO.

New function of firmware V2.10:

Version	Function
V2.10	Support of R&S®FS-SNS90 and R&S®FS-SNS110 Smart noise sources for noise figure and gain measurement.
V2.10	R&S FPL1-K70: LSB first bit ordering is now supported as demodulation parameter.
V2.10	R&S FPL1-K30: Added SCPI command for frequency readout.
V2.10	R&S FPL1-K30: Added uncertainty calculation for models FPL1014 and FPL1026.
V2.10	R&S FPL1-K30: Trace export now supports .csv format. Loss tables support .s2p format: Files of .s2p format can be read in and converted into a loss table that can be used for K30.
V2.10	R&S FPL1-K40: Trace export now supports .csv format.
V2.10	Firmware supports Windows 10 IoT Enterprise LTSC 2021 operating system.

New function of firmware V2.00:

Version	Function
V2.00	R&S FPL1-K7: Support of Settling Time Measurements.

V2.00	New result window "Phase vs Time" (unit rad) in I/Q Analyzer available.
V2.00	Trace colors of active traces are indicated in the trace config dialog.

New function of firmware V1.90:

Version	Function
V1.90	R&S FPL1-K54: Supports logarithmic axis with all detectors (standard and CISPR).
V1.90	R&S FPL1-K7: SAW filter can be switched off for analog demodulation measurements.

New function of firmware V1.81:

Version	Function
V1.81	Support of new instrument models FPL1014 and FPL1026
V1.81	Support of new option R&S FPL1-B11

1.2 Modified functions

The following table lists the modified functions and indicates the version in which the modification was carried out:

Modifications of firmware V2.20:

Version	Function
V2.20	As of Version V2.20, not only the Setup EXE file is signed, but also the individual MSI files inside the Setup EXE file, making the firmware installer even more secure.
V2.20	Bandwidth extension to 28MHz for statistical measurements.

Modifications of firmware V2.10:

Version	Function
V2.10	R&S FPL1-K70: Predefined digital standards for Bluetooth now set the bit ordering to LSB first.
V2.10	R&S FPL1-K54: The status bar warning message regarding the amount of sweep points is now based on RBW/2 instead of RBW/3.

Modifications of firmware V2.00:

Version	Function
V2.00	Improved readability of selftest and self alignment results.

Modifications of firmware V1.90:

Version	Function
V1.90	R&S FPL1-K54: EMI measurement FFT sweep: Sweep times leading to interruption in signal acquisition within one FFT segment are not possible anymore.

1.3 Improvements

The following tables list the improvements and indicate since which version the issue could be observed:

Improvements of firmware V2.10 SP1:

since	Function
V2.10 SP1	Improvements in the self-alignment algorithm.

Improvements of firmware V2.10:

since	Function
V2.10	Improved level accuracy with self-alignment on microwave devices.
V2.10	Improved trigger delay compensation.

Improvements of firmware V2.00SP1:

since	Function
V2.00SP1	Problems with self alignment on FPL1003. This issue is solved.

Improvements of firmware V2.00:

since	Function
V2.00	Improved level accuracy with self-alignment.
V2.00	Visible quantization steps on video output of additional interface. This issue is solved.
V2.00	Incorrect representation of the video output signal on the additional interface when reducing the range below 92dB. This issue is solved.

Improvements of firmware V1.90 SP1:

since	Function
V1.90 SP1	Recording of dynamic YIG correction values failed on FPL1014. This issue is solved.

Improvements of firmware V1.90:

since	Function
V1.90	File upload on the R&S web control failed for file sizes > 8 MB. This issue is solved.
V1.90	Vertical separator between windows was not functional. This issue is solved.
V1.90	Limit Line vanished after Autolevel, when using Quick-Save-Set in EMI-mode. This issue is solved.
V1.90	R&S FPL1014 and R&S FPL1026: Yig filter positioning in sweep mode not optimal. This issue is solved.

Improvements of firmware V1.81 SP1:

Since	Function
V1.81 SP1	Production related changes.

Improvements of firmware V1.81:

since	Function
V1.80	The option R&S®FPL1-B22 RF Preamplicifier with material numbers 1323.1702 and 1323.1777 could only be activated with a demo key code. Other types of option key codes did not enable the R&S®FPL1-B22 functionality. This issue is solved.

1.4 Known issues

The following tables list the known issues and indicate since which version the issue could be observed:

since	Function
V2.00	Self alignment aborts within FPL1003. This issue is fixed in the FW version V2.00SP1.
V1.90	The fan control was not working correct since the FW V1.90. The issue is fixed in the FW version V2.00.

2 Modifications to the documentation

The current documentation is up-to-date.

3 Firmware update

3.1 Validity information

The firmware is referring to the following model numbers:

Device	Order Number
R&S® FPL1003	1304.0004K03
R&S® FPL1007	1304.0004K07
R&S® FPL1014	1304.0004K14
R&S® FPL1026	1304.0004K26

3.2 Update information

The firmware update file for the R&S FPL1000 is one file including the main firmware version number e.g. FPL1000Setup_V1.60.exe. It is referred to as FPL1000Setup.exe throughout the text. You can find the file on the Rohde & Schwarz web page:

<http://www.rohde-schwarz.com/firmware/fpl1000>

3.3 Performing the firmware update on the instrument

There are three ways to provide access to the FPL1000Setup.exe for the R&S FPL1000.

Using a USB storage device:

1. Copy the file to a directory of the storage device.
2. Insert the storage device in one of the USB connectors of the R&S FPL1000.

Using the remote desktop:

1. Connect the R&S FPL1000 to your LAN.
2. Start the remote desktop on your PC (C:\winnt\system32\mstsc.exe or C:\windows\system32\mstsc.exe).
3. Enter the required connection settings: TCP/IP address of the instrument you want to update. To get the TCP/IP address of the R&S FPL1000, select [Setup] > "Network + Remote". The IP address consists of 4 numbers between 0 and 255.
4. Enable the "local resources" > "drives" option.
5. Select "Connect".
6. Log in to the instrument using the user name: "instrument" and the default password "894129".

7. Copy the FPL1000Setup.exe from your PC to a new folder, e.g. C:\FWUpdate.
8. You can now access this directory with the FPL1000Setup.exe from the R&S FPL1000 firmware.

Using a network drive:

1. Connect the R&S FPL1000 to your LAN and establish a connection to one of your servers. (Ask the local IT administrator for support).
2. Copy the FPL1000Setup.exe from your PC to a directory on this server.
3. You can now access the directory with the FPL1000Setup.exe from the R&S FPL1000 firmware.

Performing the update on the instrument:

Update the firmware by performing the following steps:

1. Switch on the instrument and wait until the analyzer is ready for operation.
2. If a measurement is running, stop it by pressing the highlighted [Run Cont] or [Run Single] key. Do not update the firmware during a running measurement.
3. Select [Setup] > "System Config" > "Firmware Update" tab.
4. In the file selection dialog box, select the FPL1000Setup.exe file from the prepared storage location.
"File Explorer": Instead of using the file manager of the R&S FPL1000 firmware, you can also use the Microsoft Windows File Explorer to manage files.
5. Select "Install".
6. Select "Next". A selection list of the available firmware packages is displayed.
7. By default, all applications are installed. Make sure the required applications are selected.
8. Select "Install" to start the update.

After the firmware update, the R&S FPL1000 reboots automatically.

Depending on the previous firmware version, a reconfiguration of the hardware can be required during the first startup of the firmware. The reconfiguration starts automatically, and a message box informs you about the process. When the reconfiguration has finished, the instrument again reboots automatically.

Note: Do not switch off the instrument during the reconfiguration process!

Now the firmware update is complete.

9. After the firmware update, the "UNCAL" status is displayed in the status bar. A self-alignment is necessary.
10. Perform a self-alignment ([SETUP] > "Alignment" > "Start Self Alignment").

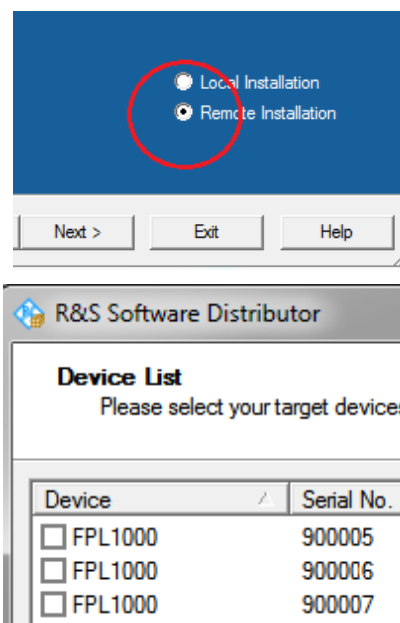
3.4 Performing the firmware update from a Windows PC

You can also update the firmware using a LAN connection between the instrument and a Windows PC.

1. Run FPL1000Setup.exe on your PC.
2. Select "Remote Installation".
3. Select "Next".
4. Select the packages to install.
5. Select "Next".

Note:

FOR FIREWALL USERS: The FPL1000Setup.exe communicates with the instrument via LAN. Therefore, the FPL1000Setup.exe file must pass the firewall. Add it to the firewall rules, then restart the the scan using "Rescan".



6. The setup procedure scans your LAN subnet and displays all found instruments
7. Select the instruments you want to update. You can select up to 5 instruments to update in parallel.

NOTICE

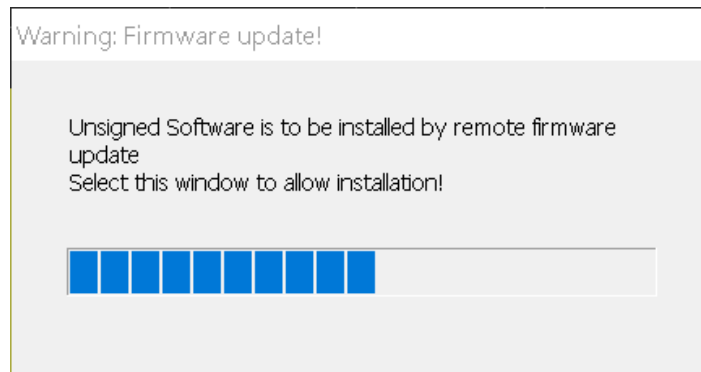
Be careful and check twice if you have selected the correct instruments. Depending on your company's network structure, also instruments of other departments are included!

8. If necessary, select "Help" to display additional help. Select "Install" to start the installation.

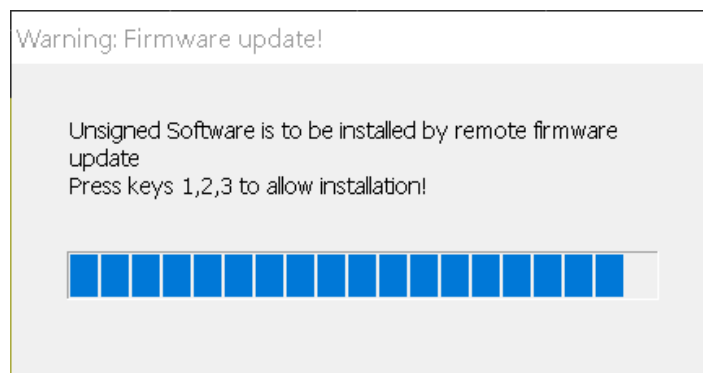
Note on package signing

MSI package signing of setups is a security feature that was added as of firmware version V2.20. It prevents man-in-the-middle attacks with manipulated MSIs during remote firmware installation. After installing a setup file with signed MSI files, installing a setup file whose MSI files are not signed requires an additional step, if you perform the installation from a remote PC. For example, when you downgrade the firmware to a version prior to 2.20. In this case, you must confirm the less secure installation on the device.

After starting the remote installation, the following message is shown on the device.



Tap the message box on the device, or click on it via Remote Desktop.
The following message is shown on the device.



Press the keys 1,2,3.

If you do not confirm the installation on the device, it is aborted.

9. Confirm the message to reboot the instrument to activate the firmware update. The instrument restarts automatically.
10. After the firmware update, the "UNCAL" status is displayed in the status bar. A self-alignment is necessary.
11. Perform a self-alignment ([SETUP] > "Alignment" > "Start Self Alignment").

3.5 Installing firmware options

3.5.1 Firmware options included in basic instrument

The R&S®FPL1-K7 and R&S®FPL1-K54 application software packages are included in the basic instrument firmware. Therefore, they do not have a separate item in the installer to be selected.

3.5.2 Other firmware options within the FPL1000Setup.exe file

The following optional application software packages have their own installation items and are therefore added to the selection list during the firmware update. Ensure that the checkbox is checked if the installation is requested.

- R&S®FPL1-K30 Noise figure measurements
- R&S®FPL1-K40 Phase noise measurement application
- R&S®FPL1-K70 Vector signal analysis

3.5.3 Enabling options by entering option key codes

NOTICE

Skip this section if the option key was entered once.

To activate application software packages, you must enter a license key for validation. You only have to enter the option key once per option.

If an XML-file with an option key was sent to you, see the installation description below.

The license key is in the device certificate or delivered as a part of the software package.

To enable an option using an option key

1. Select [SETUP] > "System Config" > "Versions + Options" tab.
2. Select "Install Option".
A dialog box is displayed.
3. Enter the option key number using the keypad.
4. Press [ENTER].

After a successful validation, the "Option Key valid" message is displayed. If the validation fails, the option software is not installed.

5. Repeat the activation process for all options you want to install.
6. Reboot the device.
7. Check whether the options are available on the instrument ([SETUP] > "System Config" > "Versions + Options" tab).

To enable options via an XML-file

1. Select [SETUP] > "System Config" > "Versions + Options" tab.
2. Select "Install Option by XML".
A file browser is displayed.
3. Select the path to the XML file (e.g. network drive or USB storage device).
4. Press "Select".

After a successful validation, the "Option Key valid" message is displayed. If the validation fails, the option software is not installed.

5. Repeat the activation process for all options you want to install.
6. Reboot the device.
7. Check whether the options are available on the instrument ([SETUP] > "System Config" > "Versions + Options" tab).

4 Customer support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz product, contact our customer support center. A team of highly qualified engineers provides support and works with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz products.

Contact information

Contact our customer support center at www.rohde-schwarz.com/support or follow this QR code:



Figure 4-1: QR code to the Rohde & Schwarz support page