

# R&S®FSWP

## Phase Noise Analyzer

### Release Notes

### Firmware Version V1.92SP1

**These Release Notes are for following models of the R&S®FSWP Phase Noise Analyzer:**  
**R&S® FSWP8, order no. 1322.8003.08,**  
**R&S® FSWP26, order no. 1322.8003.26,**  
**R&S® FSWP50, order no. 1322.8003.50,**

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The following abbreviations are used throughout this document:  
R&S®FSWP is abbreviated as R&S FSWP.

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# 1 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 functions of Firmware V1.92:

Version	Function
V1.92	Phase Noise: Support for external trigger to start phase noise measurement.
V1.92	Phase Noise: Introduced possibility to change color of spur lines.
V1.92	Phase Noise: Introduced Capture Range 40 MHz to measure DUTs swept from -40 MHz to +40 MHz relative to center frequency.
V1.92	Phase Noise: Support for ultra-small resolution bandwidths down to 0.0003%. Using ultra-small RBWs goes along with very long measurement times, which may be wrongly interpreted as freezing of the instrument.
V1.92	Support for R&S FSWP-K19 Noise Power Ratio (NPR) measurement.
V1.92	R&S FSWP-K6: Increased numerical resolution of marker display for Parameter Trend and Parameter Distribution displays.
V1.92	R&S FSWP-K30: ENR measurements inside the option.
V1.92	R&S FSWP-K30: Saving and recalling calibration results.
V1.92	R&S FSWP-K50: Supports saving predicted spurs list.
V1.92	R&S FSWP-K50: Supports user defined tolerance for frequency plan.
V1.92	R&S FSWP-K70: Support for R&S FSWP-K70M Multi-Modulation Analysis.
V1.92	R&S FSWP-K70: Support for R&S FSWP-K70P BER PRBS Measurements.
V1.92	R&S FSWP-K70: New predefined digital standard: DMR (Digital Mobile Radio).
V1.92	R&S FSWP-K70: Support of "RF Power"-Trigger.
V1.92	R&S FSWP-K70: Improved burst search for low reference levels.
V1.92	R&S FSWP-K70: Improved coarse synchronization for 64APSKs.
V1.92	Support for Thermal Power Sensor R&S NRP90T, order no. 1424.6473.02. Thermal Power Sensor R&S NRP90TN, order no. 1424.6480.02. Three-Path Diode Power Sensor R&S NRP67S, order no. 1424.6396.02. Three-Path Diode Power Sensor R&S NRP67SN, order no. 1424.6409.02.

## 1.2 Modified Functions

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

### Modified functions of Firmware V1.92SP1:

Version	Function
V1.92SP1	VCO Characterization: Smoothing added for frequencies below 8 GHz.

### Modified functions of Firmware V1.92:

Version	Function
V1.92	Phase Noise: Transient Measurement: Renamed to PN Transient Measurement.
V1.92	R&S FSWP-B1: Zero span: the same x-axis scaling algorithm is now used for traces and diagram graticule.
V1.92	R&S FSWP-B320: Improvement of external trigger accuracy.
V1.92	R&S FSWP-K7: Option renamed to AM/FM/PM Modulation Analysis.
V1.92	R&S FSWP-K30: Option renamed to Noise Figure in Mode dialog.
V1.92	R&S FSWP-K50: Option renamed to Fast Spur Search in Mode dialog
V1.92	R&S FSWP-K70: Preview windows have been removed to allow for more compact dialogs.
V1.92	R&S FSWP-K70: In order to better visualize the symbol transitions, the sample points are now connected in the density trace mode for result type 'Vector I/Q'.
V1.92	R&S FSWP-K70: After preset and for the predefined standard 3G_WCMA.xml, the trace in the constellation diagram in window 1 is now a "Density" trace and no longer a "Clear Write" trace. This only affects the coloring of the trace. The trace values remain the same.

## 1.3 Improvements

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

### Improvements of Firmware V1.92:

Version	Function
V1.92	Phase Noise: Trace smoothing is now disabled for integrated measurements.
V1.92	Phase Noise: Optimized IF frequency setting at RF 52 MHz.
V1.92	Phase Noise: Improvements to Keysight E5052 compatibility mode.
V1.92	Phase Noise: Improved leveling during auto search.
V1.92	Baseband Noise: Units dBV/√Hz and dBμV/√Hz are renamed to dBV/√Hz and dBμV/√Hz, respectively. For compatibility, old units are used in SCPI, Limit Line files and Trace Export files.
V1.92	Baseband Noise: Remote Control: Resolution increased for unit V/√Hz.
V1.92	PN Transient Measurement: In rare cases, the frequency deviation marker was invalid. This issue is solved.
V1.92	R&S FSWP-B21: In Phase Noise, improved sideband selection.

## 1.4 Known Issues

The following table lists the known issues and indicates since which version the issue could be observed:

since	Function
-	<p>For devices including the patch "Apply MS17-010 to prevent WannaCrypt attacks" - Microsoft Patch KB4012212: When starting the self-alignment or self-test, the corresponding result dialog is hidden. The measurements themselves are performed correctly in the background. Workaround: Select the orange colored "Alignment" or "Service+Support" softkeys or simply touch the screen. The result dialogs appear again.</p>
V1.92	<p>Phase Noise: Ultra-small resolution bandwidths:</p> <ul style="list-style-type: none"> <li>• If function is enabled, and function is enabled in an instrument saveset, recall of the saveset fails.</li> <li>• If function is enabled in saveset used for startup recall, every second preset acts as if startup recall had been disabled.</li> </ul>
V1.80	<p>License key installation via the R&amp;S License Manager webpage often shows a red error message in the last line. Nevertheless, the license key is properly installed on the device, which can be seen after the reboot.</p>
V1.70	<p>R&amp;S FSWP-K6P Pulse Stability measurements: Bandwidths below 400 kHz (Gauss) and 2 MHz (Flat) are not supported with the Low Noise digitizer mode.</p>
V1.70	<p>Persistence Mode in Phase Noise measurements and Transient Analysis measurement: The persistence trace is cleared when the diagram Y-axis scaling parameters change. This may be the case in diagram scale mode "auto". To prevent this behavior, set the diagram scale mode to "manual".</p>
V1.20	<p>R&amp;S FSWP-K6:</p> <ul style="list-style-type: none"> <li>• After recalling a Pulse channel that was saved after a RUN SINGLE operation, the RUN SINGLE button is lit but no measurement is running.</li> <li>• The "view" trace behaves like a "clear write" trace.</li> <li>• After aborting a measurement via SCPI (:ABORt) the status bar still shows "Measuring...".</li> </ul>

## 1.5 Windows 10

FSWP running operation system Windows 10 are using Windows 10 IoT Enterprise LTSC. (IoT stands for Internet of Things and is the embedded version of Windows 10. LTSC stands for Long Term Servicing Branch, which means a long support period of Windows patches.)

## 1.6 “Missing smartcard” message

For FSWP phase noise analyzer produced November 2017 or later, the message “Missing smartcard or smartcard not initialized” may appear after starting the device. This only happens if a firmware below V1.60 is used. Either because a downgrade to a version below V1.60 had been performed, or the solid state drive was exchanged with a version below V1.60.

Solution: Please install firmware V1.60 or higher. The device will boot as usual.

## 1.7 Modifications to the Documentation

The latest documentation is available for download from the Rohde & Schwarz website at:

<http://www.rohde-schwarz.com/manual/fswp/>

## 2 Firmware Update

The firmware update file for the R&S FSWP is one file including the main firmware version number e.g. FSWPSetup\_V1.92SP1.exe. It will be referred as FSWPSetup.exe later in the text. The file can be found on Rohde & Schwarz web page at

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

### 2.1 Performing the Firmware Update on the Instrument

There are three ways to make the setup FSWPSetup.exe visible to the device:

#### Using a memory stick:

1. Copy the file to a directory of the memory stick and insert the memory stick into one of the USB sockets of the R&S FSWP.

#### Using the remote desktop and copying the installation files to a directory of the instrument:

1. Connect the R&S FSWP to your LAN.
2. Start the remote desktop on your PC (C:\winnt\system32\mstsc.exe).
3. Enter the TCP/IP address of the instrument you want to update. Ensure that the "local resources" > "drives" option is selected and press the "Connect" button. (To get the TCP/IP address of the R&S FSWP press the hard key "Setup" and then the soft key "Network + Remote". The IP address consists of 4 numbers between 0 and 255.
4. Log in to the instrument (user name: "instrument" and default password "894129").
5. Copy the FSWPSetup.exe from your PC to a new folder e.g. C:\FWUpdate.
6. You can now access this directory with the FSWPSetup.exe from the R&S FSWP analyzer firmware.

#### Using a network drive:

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

#### Performing the update on the instrument:

The firmware update process is performed by the following steps:

1. Switch the instrument on and wait until the Analyzer has resumed operation.
2. Press the "SETUP" key, then "System Config", and select the "Firmware Update" tab.



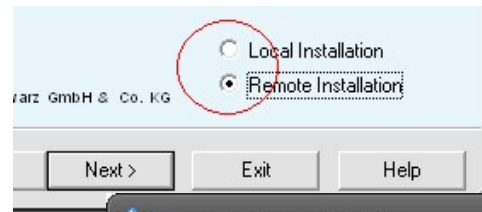
A file browser is displayed to select the proper FSWP\*.exe setup file. Change the path to the drive and directory which you prepared in the step before (USB stick directory, remote PC directory or directory on a server) and close the dialog with the "Install" button.

3. Press the "Next" button to come to the selection of the firmware packages. By default all application should be installed. Ensure that the required applications selected.
4. Press the "Install" button.  
The firmware is stopped and the installation starts. After a few minutes the system restarts automatically. After the restart the firmware installation is complete. After the firmware update the "UNCAL" flag appears. A self alignment is necessary.
5. Press the "SETUP" key, select "Alignment" and then "Start Self Alignment" to invoke the alignment procedure.

## 2.2 Performing the Firmware Update from a Windows PC

The new firmware can also be uploaded without using a memory stick or a network drive. Just a LAN connection from the instrument and a Windows PC is necessary.

1. Run FSWPSetup.exe on your PC.
2. Select "Remote Installation" and then "Next".



3. Select the packages to install and then "Next".  
HINT FOR FIRE WALL USERS: The FSWPSetup.exe communicates with the instruments via LAN. Therefore it is necessary that the FSWPSetup.exe may pass the fire wall. After adding it to the fire wall rules, restart the scan by clicking on "Rescan".



4. After scanning your LAN subnet all found instruments are listed. Select the instruments you want to update.  
It is possible to select up to 5 instruments for updating 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 will show up!

5. Select "Help" to display additional help.

6. Select "Options" for further options.
7. Select "Install" to start the installation.
8. Confirm that you want to reboot the instrument in order to activate the firmware update (the instrument then restarts automatically)

## 2.3 Operation with and without Administrator Rights

The analyzer may be operated with or without administrator rights. Some administrative tasks (e.g. LXI functions or network configuration) do require administrator rights. A firmware update is also possible without administrator rights.

In the default configuration, auto-login is enabled, and the "Instrument" account with administrator rights is active. This means that no password is required, and the full functionality of the analyzer is available. An additional user account (user name "NormalUser" with default password "894129") is pre-defined. Use standard Windows functionality if you wish to deactivate the auto-login mechanism and activate the "NormalUser" account. Please refer also to the R&S FSWP Getting Started Manual.

## 2.4 Installing Firmware Options

### 2.4.1 Firmware Options Included in Basic Instrument

The R&S FSWP-K7 and R&S FSWP-K33 application software package is included in the basic instrument firmware. Therefore, they do not have a separate item in the installer to be selected.

### 2.4.2 Other Firmware Options within the FSWPSetup.exe File

The R&S FSWP-K6/S/P, R&S FSWP-K30, R&S FSWP-K50, R&S FSWP-K60/C/H and R&S FSWP-K70/M/P application software packages have their own installation item and are therefore added to the selection list during the firmware update. Ensure that the checkbox is checked  if the installation is requested.

Note: The functionality of FSWP-K6S is integrated within FSWP-K6 and is activated by its own key code. The functionality of the FSWP-K60C and FSWP-K60H are integrated within FSWP-K60 and are activated by their own key code.

### 2.4.3 Enabling Options by Entering Option Key Codes

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**NOTICE**

This section can be skipped if the option key was entered once.

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To activate application software packages, you must enter a license key for validation.

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

The license key is in the device certificate or delivered as a part of the software package. The process is performed in the following steps:

1. Press the "SETUP" key.
2. Go to the "Versions + Options" tab.
3. Press the "Install Option" button.  
A dialog box is displayed.
4. Enter the option key number using the keypad.
5. Press "ENTER".  
After a successful validation the "Option Key valid" message is displayed. If the validation failed, the option software is not installed.
6. Reboot the device.

#### Installation of options via XML-file

1. Press the "SETUP" key.
2. Go to the "Versions + Options" tab.
3. Press the "Install Option by XML" button.  
A file browser is displayed.
4. Select the path to the XML file (e.g. network drive or USB stick)
5. Press "Select".  
After a successful validation the "Option Key valid" message is displayed. If the validation failed, the option software is not installed.
6. Reboot the device.

## 3 Customer Support

### Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz equipment, contact one of our Customer Support Centers. A team of highly qualified engineers provides telephone support and will work with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz equipment.

### Up-to-date information and upgrades

To keep your instrument up-to-date and to be informed about new application notes related to your instrument, please send an e-mail to the Customer Support Center stating your instrument and your wish. We will take care that you will get the right information.

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