R&S®FSVA3000/FSV3000 Signal and Spectrum Analyzer Release Notes

Firmware Version 2.20SP1

These Release Notes apply to the following models of the R&S®FSV3000 and R&S®FSVA3000 Signal and Spectrum Analyzers:

R&S®FSV3004	order no. 1330.5000K04
R&S®FSV3007	order no. 1330.5000K07
R&S®FSV3013	order no. 1330.5000K13
R&S®FSV3030	order no. 1330.5000K30
R&S®FSV3044	order no. 1330.5000K43
R&S®FSV3050	order no. 1330.5000K50
R&S®FSVA3004	order no. 1330.5000K05
R&S®FSVA3007	order no. 1330.5000K08
R&S®FSVA3013	order no. 1330.5000K14
R&S®FSVA3030	order no. 1330.5000K31
R&S®FSVA3044	order no. 1330.5000K44
R&S®FSVA3050	order no. 1330.5000K51

1178.9378.02 | Version 07 | R&S®FSVA3000/FSV3000 |

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®FSVA3000/FSV3000 is abbreviated as R&S FSVA3000/FSV3000.

PAD-T-M: 3574.3288.02/04.00/CI/1/EN

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Contents

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 functions of firmware V2.20:

Version	Function
V2.20	Supports Windows 10 IoT Enterprise LTSC 2021. Hint: Instruments shipped with this Windows 10 version require FSV/A3000 firmware version 2.20 or higher. Older firmware versions do not support Windows 10 IoT Enterprise LTSC 2021.
V2.20	R&S FSV3-B21: The IF and LO frequency are now shown in the external mixer dialog (Input / Output -> Input Source Config -> External Mixer) in I/Q mode.
V2.20	Supports R&S FSV3-B601 and R&S FSV3-B1001: Enabling up to 1000 MHz analysis bandwidth on RF input for frequencies below 7.5 GHz.
V2.20	Supports new software options: R&S FSV3-K147C: 5GNR Combined Multi Carrier Measurements. R&S FSV3-K575: I/Q noise cancellation (EVM enhancement through wideband receiver noise reduction) supported in R&S FSV3-K91, R&S FSV3-K144 and R&S FSV3-K145. I/Q Analyzer is supported by using SCPI commands.
V2.20	R&S FSV3-K8: Supports "Header Info (Packet header and PDU header information)" for BR/EDR and LE supported packet types. Supports HVx, AUX, POLL, FHS packets for BR. Supports relative channels numbers in IBSE. Supports LE channel numbers in IBSE. Supports CTE in LE1M and LE2M. LE2M IBSE is now measured over full bandwidth.
V2.20	R&S FSV3-K18: Power unit is now selectable between Watt and dBm. Frequency domain resolution is now configurable by selecting a resolution bandwidth (RBW). Option K18M now also supports the generalized memory polynomial DPD (GMP). Both generalized and standard memory polynomial DPD now support loading coefficients from file and applying them to any given waveform.
V2.20	R&S FSV3-K30: Supports external frontends as input source. Supports new displays and measurement results for P Hot and P Cold.

	Adds new DUT modes: System Downconverter Fixed LO and System Downconverter Fixed IF.
V2.20	R&S FSV3-K60: FM video filter bandwidth is now continuously adjustable.
V2.20	R&S FSV3-K70: DVB-RCS2 configuration tool offers the selection of the Tx filter roll-off factor (0.05 / 0.1 / 0.2).
V2.20	R&S FSV3-K91: Supports "Smart Auto Level" for improved EVM performance at center frequencies < 7.5 GHz also for R&S FSV3-K575 I/Q noise cancellation.
V2.20	R&S FSV3-K144: Adds limit check for EVM PDSCH 1024QAM.
V2.20	R&S FSV3-K144/K145: Supports R&S FSV3-B271 Analog baseband inputs.
V2.20	In I/Q analyzer, R&S FSV3-K144/K145, R&S FSV3-K100/K104 and R&S FSV3-K7 the I/Q data export now supports the following additional data formats: .iqw, .csv, .mat (Matlab v4 and Matlab v7.3), .aid.
V2.20	R&S FSV3-K144/-K145/-K147/-K148/-K171/-K175: Supports "Smart Auto Level" for improved EVM performance now for all 3GPP test models and arbitrary 5G signals at center frequencies < 7.5 GHz. Supports "Smart Auto Level" also for improved EVM performance with R&S FSV3-K575 I/Q noise cancellation.
V2.20	R&S FSV3-K171: Supports channel bandwidth 3 MHz for 3GPP release 18. Supports 3GPP test models for FR2-2.
V2.20	R&S FSV3-K175: Supports additional ORAN test cases 3.2.6.1.1-5 for FR2 and 50/200/400MHz channel bandwidth.
V2.20	R&S FSV3-K553: Supports "Zero Span" based measurement modes. Supports "FFT Sweep" based measurement modes.
V2.20	Supports R&S NRP18P/40P/50P and NRP90S[N] power sensors.
V2.20	Supports R&S RT-ZM130 and RT-ZM160 probes.

New functions of firmware V2.10:

Version	Function
V2.10	Supports R&S FSV3-B271 Analog Baseband Inputs with 200 MHz analysis bandwidth for I and for Q Input each. Available in IQ Analyzer and R&S FSV3-K91 (WLAN) application.

Version	Function
V2.10	Supports new software option R&S FSV3-K96: Vector signal analysis software for generic OFDM signals.
V2.10	Supports display and control of video bandwidth Lin/Log State in the user interface.
V2.10	Additional 51 kHz, 150 kHz, 250 kHz, 400 kHz, 450kHz 3dB Gauss filter available for spectrum analyzer mode. These bandwidths can only be selected by entering the numeric values directly.
V2.10	Supports R&S FS-SNS90/SNS110: Smart noise sources for noise figure and gain measurement.
V2.10	Supports selection of input optimization Low Noise or Low Distortion. This setting is available for R&S FSV3-B271 Analog Baseband Inputs and for R&S FSV3-B200/B400 Bandwidth Extension.
V2.10	R&S FSV3-K7: Supports Online demodulation signal output to Video Out connector.
V2.10	R&S FSV3-K18: New feature: FFT parameters for all frequency domain displays are now configurable.
V2.10	R&S FSV3-K40: Supports Online IQ mode.
V2.10	R&S FSV3-K91: Supports "Smart Auto Level" for improved EVM performance at center frequencies < 7.5 GHz. FSV3-K91AX/BE: Supports 'AM/AM', 'AM/PM', 'AM/EVM'. FSV3-K91/N/AC/N/AX/BE: Supports 'Amplitude Tracking vs Symbol' result. FSV3-K91/N/AC/N/AX/BE: 'Tracking/Channel Estimation' dialog provides 'I/Q Mismatch Compensation Per Subcarrier' feature.
V2.10	R&S FSV3-K144/-K145/-K147/-K148/-K171/-K175: Supports "Smart Auto Level" for improved EVM performance for FR1 3GPP test models. Supports more than 8 component carriers in multi carrier ACLR. Evaluates Bit/s in bitstream. K148: N_ID^1 for the sequence generation of PDSCH/PUSCH DMRS. K171: Automatic determination of capture time in FR2-2. K171: UL FR1: EVM calculation for reported transient period. K175: Supports test model 3.2.5.1.1 in UL.
V2.10	R&S FSV3-K553: Supports LO IN/OUT settings of external frontend.

New functions of firmware V2.00:

Version	Function
V2.00	Supports preamplifier (1330.4049.49) for R&S FSV3050 and R&S FSVA3050.
V2.00	R&S FSV3-K553 External frontend control: Support for manual attenuation setting of the base instrument analyzer with active external frontend input.

	Firmware version V2.00 includes the external frontend microcontroller firmware V2.1.15. Please note: If the firmware versions installed on the analyzer and the external frontend are incompatible, connection to the external frontend is rejected. In this case, update the external frontend firmware (Input Source Config > External Frontend > Global Config > FW Update dialog). Supports new revisions of External Frontend frontend boards: • FE50DTR_Frontend A/B, part number 1347.4476.02, revision >= 4.00 See table "Setup – System Config -> Hardware Info", column "Rev".
V2.00	Supports new software options: R&S FSV3-K175: O-RAN measurements in line with O-RAN.WG4.CONF.0-v05.00. R&S FSV3-K8: Bluetooth®/EDR measurements. R&S FSV3-K60P: Transient phase noise measurements.
V2.00	R&S FSV3-K144/-K145/-K147/-K148/-K171: Signal demodulation and analysis in line with TS38.211 V17.3.0. Time Alignment, Transmit On/Off Power, ACLR, SEM measurements in line with TS38.141-1/2 V17.6.0, TS38.521-1 V17.5.0 and TS38.521-2 V16.12.0. PN sequence can optionally be generated for only DL symbols. Evaluation of maximum crest factor over multiple frames. Visualization of boosted / de-boosted allocations in constellation diagram. Allocation specific color coding in constellation diagram is now supported.
V2.00	R&S FSV3-K18: Amplifier measurements: New results "AM/AM and AM/PM curve width peak-peak".
V2.00	R&S FSV3-K70: LSB first bit ordering is now supported as demodulation parameter.

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	Sweep time has been improved when using MIL 6dB filters
V2.20	If the last self-alignment is older than [X] days (default: 30), an info message is shown. A SCPI command and status bit was added accordingly.
V2.20	R&S FSV3-K100/K104: Feature improvement for "Custom Sync Weight" with multiple frames. CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:NOFRame CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:FHFRame{fr}:REAL <numeric> CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:FHFRame{fr}:IMAGinary <numeric> CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:SHFRame{fr}:REAL <numeric> CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:SHFRame{fr}:IMAGinary <numeric>
V2.20	R&S FSV3-K144/-K145: Selected Frame button in Result Summary table header is now enabled in multi component carrier case for view mode All.

Modifications of firmware V2.10:

Version	Function
V2.10	R&S FSV3-K18: Additional synchronization step "2nd stage Synchronization" synchronizes even in sparsely allocated conditions.
V2.10	R&S FSV3-K18M: Memory polynomial coefficients: scaling changed.
V2.10	R&S FSV3-K54: The status bar warning "Increase sweep points" is now displayed if less than 2 sweep points cover the resolution bandwidth. 2 sweep points within the resolution bandwidth is still according to EMI standards. The limit has former been at 3 sweep points.
V2.10	R&S FSV3-K144/-K145: For multi carrier measurements, the calculation of the nominal channel spacing was adapted according to 38.104 V17.7.0. For MC ACLR / CACLR / MSEM, the SCS input setting has been removed and the sub-block gap calculation was adapted accordingly.
V2.10	R&S FSV3-K145: In UL TP, the value range of the decoding parameter I_MCS is extended.

| V2.10 | R&S FSV3-K171:
For FR2-2, the default value for the number of slots per frame to analyze is adapted to 80 according to 38.141-2 V17.9.0. |

Modifications of firmware V2.00SP1:

Version	Function
V2.00SP1	Modified YIG preselector centering algorithm for production reasons.

Modifications of firmware V2.00:

Version	Function
V2.00	Measurements in FFT Mode have been optimized: especially measurements with larger spans are significantly faster now.
V2.00	R&S FSV3-K171: Updated available number of resource blocks per SCS and bandwidth part for FR2-2 according to 38.101-2 v17.6.0.
V2.00	R&S FSV3-K70: Predefined digital standards for Bluetooth® now set the bit ordering to LSB first.
V2.00	Updated NGINX to version 1.20.2.
V2.00	R&S FSV3-K144: For NR-TM 3.3 and 3.2, the n_RNTI=0,2 PDSCH allocation is no longer taken into account for the EVM calculation.

1.3 Improvements

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

Improvements of firmware V2.20SP1:

since	Function
V2.20	When switching the power off using the front panel power key or "Power"->"Restart" in the Windows "Start" menu, the instrument firmware was terminated without storing its recent settings. On the next start the instrument firmware restored older settings or the instrument default settings. This issue is solved.

Improvements of firmware V2.20:

since	Function
V2.00	Using external generator control FSV3-B10 with active YIG-Preselector resulted in level variances for measurement frequencies above 7.5 GHz. This issue is solved.
V2.00	In certain FFT based measurements there was a slight level variance (still within specifications) in the first single sweep after a continuous measurement. This issue is solved.
V1.10	It was not possible to change the number block behavior to numerical ([SETUP]->System Config -> Config -> „Number Block Behavior"). This issue is solved.

Improvements of firmware V2.10:

since	Function
V1.90	In Spectrum Emission Mask measurements for specific measurement configuration, some results were not displayed. This issue is solved.
V1.10	R&S FSV3-K91AX/BE: For HETB, EHTTB PPDUs reduced EVM variance.
V2.00	R&S FSV3-K100: Custom sync weight can be set per antenna in MIMO configuration. CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:FHFRame:REAL <numeric> CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:FHFRame:IMAGinary <numeric> CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:SHFRame:REAL <numeric> CONFigure[:LTE]:DL[:CC{cc}]:SYNC:CSWeight:ANTenna{ant}:SHFRame:IMAGinary <numeric>
V2.00	R&S FSV3-K144: When the signal configuration was modified after a test model was loaded, the former test model name was still displayed in the signal configuration dialog. The issue is solved.

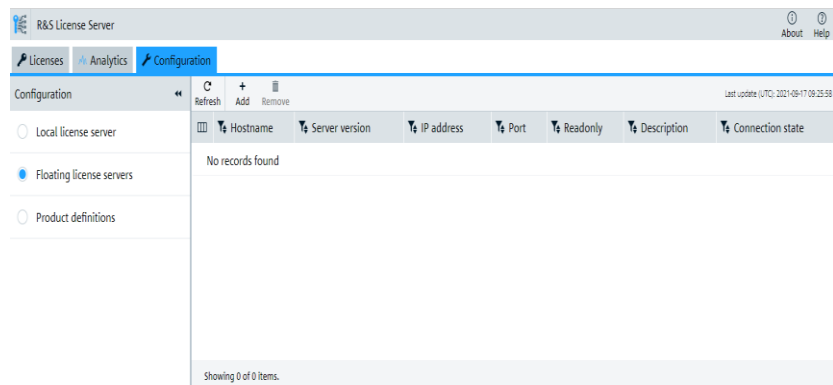| V2.00	R&S FSV3-K144: In 5G MC ACLR, the response to the remote query of the result summary (e.g. CALCulate1:MARKer1:FUNCtion:POWer1:RESult:DETails? GACLr) was missing separating commas. The issue is solved.
V2.00	R&S FSV3-K144: In 5G ACLR, the ASCII trace export did not work via the trace dialog. The issue is solved.
V2.00	R&S FSV3-K144: The EVM vs. Symbol X Carrier results could not be exported in binary format. The issue is solved.

Improvements of firmware V2.00:

since	Function
V1.90	R&S FSV3-K18: Amplifier measurements: Phase display provides unwrapping. The display is now additionally updated after changing the phase unit. K18M modelling algorithms have been optimized for highly non-linear DUTs.

1.4 Known issues

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

since	Function
V2.20	Clicking on the Config tab (Setup -> System Config -> Config) with the "Help Pointer" will show an empty help page.
V2.20	On Windows 10 IoT Enterprise LTSC 2021, the "File Explorer" button in file dialogs (e.g. File -> Recall -> File Explorer; File -> Save -> Save -> File Explorer) is disabled.
V2.20	R&S FSV3-K171: PBCH decoding performance reduced for 3 MHz channel bandwidth.
V1.70	R&S FSV3-B10: With R&S SMBV100A firmware version < 4.70.108.41 the TTL synchronization via handshake might lead to an TTL handshake error. In this case, upgrade the R&S SMBV100A firmware to version 4.70.108.41 or higher.
V1.70	R&S FSV3-K18: Zeroing, Meas->Ref, and Unit settings are currently not available in power sensor mode.
V1.60	R&S FSV3-K980: For very large HUMS database sizes, the remote command DIAGnostic:HUMS[:ALL]? may fail. In this case, use SNMP or REST (Representational State Transfer).
V1.60	The floating license server has to be configured by the instrument's webpage with firmware version 1.60 or above. Open the license server web page with your own browser with the instrument's IP address followed by a colon and the number 9444, e.g. http://10.11.12.13:9444", select tab "Configuration – Floating license servers" and enter the related data. Changing the configuration by using the instrument's dialog will show an error message.
V1.60	R&S FSV3-K553: When trying to connect to an external frontend providing an invalid host name or aborting (e.g. setting connection state to OFF) an ongoing connection attempt, the application becomes unresponsive for a few seconds.
V1.60	R&S FSV3-B21: Firmware version V1.60 and above fully support the following applications: • Spectrum • I/Q Analyzer • R&S FSV3-K7 – Analog Modulation Analysis • R&S FSV3-K18 – Amplifier Measurements • R&S FSV3-K60 – Transient Measurements

- R&S FSV3-K70 – Vector Signal Analysis
- R&S FSV3-K144 "3GPP 5G NR DL Measurements".
- R&S FSV3-K145 "3GPP 5G NR UL Measurements".

Although activation dialogs for external mixers may be accessible in other applications, this feature is not yet fully supported and tested in these applications.

V1.30	**R&S FSV3-B1000:** Trigger Output types "Trigger Armed" and "Device Triggered" are not working in IQ-mode for RF Input with analysis bandwidths > 40 MHz and for Analog Baseband Input R&S FSV3-B271.

V1.30	**R&S FSV3-K6:**
	
	When applying a trigger offset, the selected analysis bandwidth may be wider than expected:
	
	    -200 MHz in case that the bandwidth was set to 160 MHz
	    -400 MHz in case that the bandwidth was set to 320MHz or 250 MHz
	Other analysis bandwidth settings are not affected.
	
	There are two possibilities to avoid this issue:
	
	    - adjust the trigger offset before setting the analysis bandwidth.
	
	    set the trigger offset in two steps: set it first to any value ≠ 0 s (example 100 ns) and in a second step to the desired value.

V1.10	For Spectrum Emission Mask (SEM) and Spurious Emissions measurements: In cases where FFT sweep is forced (in SEM, select FFT in Sweep Config->Sweep Mode, or when external frontends R&S FSV3-K553 are active), the RBW filter types "RRC" and "5pole" are not available. Nevertheless, in the sweep list they can be selected. The measurement is performed with 3dB Gauss Filter instead, but no warning is displayed.
V1.10	Changing the configuration of the hard key number block (Setup-> System Config -> Number Block Behavior) to numeric does not work.
V1.10	In rare cases the Selftest of the device does not finish. If this happens, abort and restart the Selftest.
V1.10	For IQ-Export > 600 Mio. Samples no Iq.tar preview is available and a Windows message warning about low memory may be displayed. This issue only occurs with option R&S FSV3-B114 Enhanced Computing Power.
V1.10	R&S FSV3-K91/n/ac/ax: The R&S FSV3-K91 does not yet support the Auto Reference Level functionality. Before using remote control scripts developed for other R&S spectrum analyzers, the SCPI command [:CONF:POW:AUTO] must be commented out.
V1.10	A message box "Warning: Missing smartcard or smartcard not initialized" may appear during startup of the instrument in rare cases. In this case, please switch the instrument off and on using the power switch on the rear side of the instrument or disconnect/reconnect the power line to solve this issue.

1.5 Optimizing 10 Gbit LAN Speed (R&S FSV3-B6)

To obtain optimum LAN speed performance using the R&S FSV3-B6 (10Gbit/s LAN Interface), driver settings have to be adjusted. Here is a recommendation on how to adjust the settings for optimized speed:

1. Open Windows "Start Menu".

2. Search for "Network and Sharing Center".

3. Select "Network and Sharing Center".

4. Select "Change adapter settings".

5. Select "Ethernet 3 – Intel® Ethernet Converged Network Adapter X550-T1"

6. Select "Configure"

7. Select Tab "Advanced"

8. Adjust the following settings:

   — "Interrupt Moderation" > Value: "Enabled"
   — "Jumbo Packet" > "9014 Bytes"
   — "Maximum Number of RSS Queues" > "16 Queues"
   — "Performance Options" > "Properties"
   — "Interrupt Moderation Rate" > "Off"
   — "Receive Buffers" > "4096"
   — "Transmit Buffers" > "16384"

1.6 Windows 10

The R&S FSV3000/R&S FSVA3000 uses the Windows 10 IoT Enterprise LTSB/LTSC operating system, which is the embedded version of Windows 10 with long term support for Windows patches.

2 Modifications to the documentation

The current documentation is up-to-date.

3 Firmware update

3.1 Validity information

The R&S FSV3000 installer is valid for:

Device	Order Number
R&S®FSV3004	1330.5000K04
R&S®FSV3007	1330.5000K07
R&S®FSV3013	1330.5000K13
R&S®FSV3030	1330.5000K30
R&S®FSV3044	1330.5000K43
R&S®FSV3050	1330.5000K50
R&S®FSVA3004	1330.5000K05
R&S®FSVA3007	1330.5000K08
R&S®FSVA3013	1330.5000K14
R&S®FSVA3030	1330.5000K31
R&S®FSVA3044	1330.5000K44
R&S®FSVA3050	1330.5000K51

3.2 Update information

The firmware update file for the R&S FSVA/R&S FSV is one file including the firmware version number e.g. FSV3000_V1.30.exe. It is referred to as FSV3000Setup.exe later in the text. The file can be found on the Rohde & Schwarz web page https://www.rohde-schwarz.com.

3.3 Performing the Firmware Update on the Instrument

There are three ways to make the FSV3000Setup.exe setup file visible to the device:

Using a memory stick:

1. Copy the file to a directory of the memory stick.
2. Insert the memory stick into one of the USB sockets of the R&S FSV3000.

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

1. Connect the R&S FSV3000 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. The IP address consists of 4 numbers between 0 and 255.
   (To get the TCP/IP address of the R&S FSVA/R&S FSV, press the "Setup" key, then select "Network + Remote".)
4. Ensure that the "local resources" > "drives" option is selected.
5. Press the "Connect" button.
6. Log on to the instrument (user name: "instrument" and default password "894129").
7. Copy the FSV3000Setup.exe from your PC to a new folder, e.g. C:\FWUpdate.
8. You can now access this directory with the FSV3000Setup.exe from the R&S FSVA/R&S FSV analyzer firmware.

Using a network drive:

1. Connect your R&S FSVA/R&S FSV to your LAN and establish a connection to one of your servers. (Ask the local IT administrator for support.)
2. Copy the FSV3000Setup.exe from your PC to a directory on this server.
3. You can now access the directory with the FSV3000Setup.exe file from the R&S FSVA/R&S FSV analyzer firmware.

Performing the update on the instrument:

Update the firmware by performing the following steps:

1. Switch the instrument on and wait until the analyzer has resumed operation.
2. Press the "SETUP" key, then select "System Config" > "Firmware Update" tab.
3. A file browser is displayed to select the proper FSV3000*.exe setup file.
4. 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).
5. Select "Install" to close the dialog.
6. Select "Next" to display the selection of the firmware packages. By default, all applications are installed. Ensure that the required applications are selected.
7. Select "Install".
8. 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.
9. Press the "SETUP" key, then select "Alignment" > "Start Self Alignment" to invoke the alignment procedure.

3.4 Performing the Firmware Update from a Windows PC

The R&S FSVA/R&S FSV 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 `FSV3000Setup.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 `FSV3000Setup.exe` communicates with the instruments via LAN. Therefore, the `FSV3000Setup.exe` file must pass the firewall. Add it to the firewall rules, then restart the scan using "Rescan".
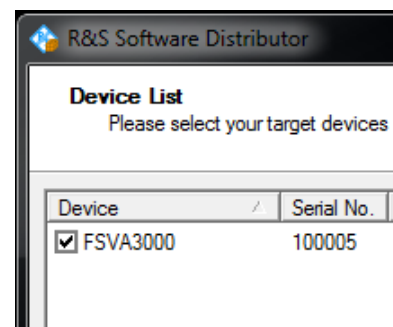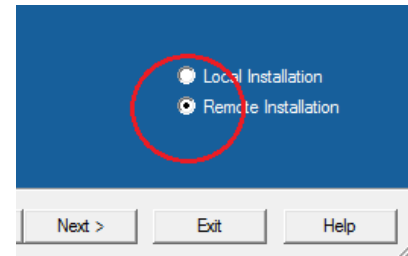
6. The setup procedure scans your LAN subnet and displays all found instruments

7. Select the instruments you want to update.

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!
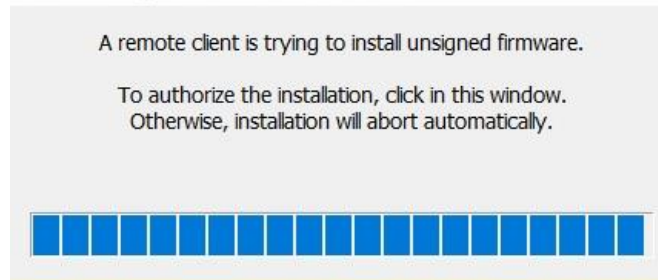

Select "Help" to display additional help.
Select "Install" to start the installation.

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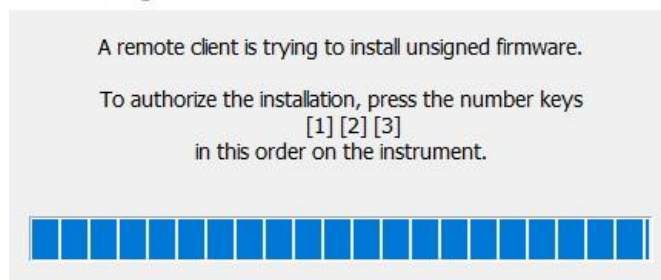
After starting the remote installation, the following message is shown on the device.

Notice: Unsigned Firmware installation

A remote client is trying to install unsigned firmware.

To authorize the installation, click in this window.
Otherwise, installation will abort automatically.

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

Notice: Unsigned Firmware installation

A remote client is trying to install unsigned firmware.

To authorize the installation, press the number keys
[1] [2] [3]
in this order on the instrument.

b) Press the keys 1,2,3.
   If you do not confirm the installation on the device, it is aborted.

8. Confirm the message to reboot the instrument to activate the firmware update.
   The instrument then restarts automatically.

9. After the restart, the firmware installation is complete and the "UNCAL" flag
   appears. A self alignment is necessary.

10. Press the "SETUP" key, then select "Alignment" > "Start Self Alignment" to invoke
    the alignment procedure.

3.5 Installing firmware options

3.5.1 Firmware options included in basic instrument

The R&S FSV3-K7, R&S FSV3-K9, R&S FSV3-K33, R&S-K553, R&S FSV3-K544,
R&S FSV3-K703 and R&S FSV3-K980 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 FSV3000setup.exe File

The R&S FSV3-K6, R&S FSV3-K8, R&S FSV3-K10, R&S FSV3-K18, R&S FSV3-K30, R&S FSV3-K40, R&S FSV3-K60, R&S FSV3-K70, R&S FSV3-K72/73, R&S FSV3-K91, R&S-K96, R&S FSV3-K100/101/102/104/105/106, R&S FSV3-K144/145/147/147C/148/171/175 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.

NOTICE

The functionality of R&S FSV3-K18D, R&S FSV3-K18F, and R&S FSV3-K18M is integrated within R&S FSV3-K18 and is activated by its own key code.
The functionality of R&S FSV3-K70M, R&S FSV3-K70P are integrated within R&S FSV3-K70 and are activated by their own key code.
The functionality of the R&S FSV3-K91P, R&S FSV3-K91N, R&S FSV3-K91AC, R&S FSV3-K91AX and R&S FSV3-K91BE are integrated within R&S FSV3-K91 and are activated by their own key code.
The functionality of the R&S FSV3-K60C, R&S FSV3-K60H and R&S FSV3-K60P are integrated within R&S FSV3-K60 and are activated by their own key code.

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.

If an 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. Open a Remote Desktop Connection to the instrument via ethernet or connect an external monitor and keyboard/mouse]
2. Select "SETUP".
3. Go to the tab "Versions + Options"
4. Press the button "Install Option".
   A dialog box is displayed.
5. Enter the option key number using the keypad.
6. Press "ENTER".
   After a successful validation the message "Option Key valid" is displayed. If the validation failed, the option software is not installed.
7. Reboot the device.

Installation of options via XML-file

1. Open a Remote Desktop Connection to the instrument via ethernet or connect an external monitor and keyboard/mouse]
2. Select "SETUP".
3. Go to the tab "Versions + Options"
4. Press the button "Install Option by XML".
    A file browser is displayed.
5. Select the path to the XML file (e.g. network drive or USB stick)
6. Press "Select".
    After a successful validation the message "Option Key valid" is displayed. If the validation failed, the option software is not installed.

6. Reboot the device.

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:

QR code to the Rohde & Schwarz support page