

R&S® Spectrum Rider FPH Release Notes

Firmware Version V2.33

These Release Notes are for following models of R&S® Spectrum Rider FPH:

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|------------|-------------------------|-------------------------|
| R&S®FPH02, | order no. 1321.1111.02, | order no. 1321.1111.52, |
| R&S®FPH06, | order no. 1321.1111.06, | order no. 1321.1111.56, |
| R&S®FPH13, | order no. 1321.1111.13, | order no. 1321.1111.63, |
| R&S®FPH26, | order no. 1321.1111.26, | order no. 1321.1111.76, |
| R&S®FPH23, | order no. 1321.1711.23, | |
| R&S®FPH36, | order no. 1321.1711.36, | |
| R&S®FPH44, | order no. 1321.1711.44, | |
| R&S®FPH54, | order no. 1321.1711.54 | |

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1320.8893.00 | Version 12 | R&S® Spectrum Rider FPH |

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

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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 in firmware V2.33:

None

New functions in earlier firmware versions:

| Version | Functions |
|---------|---|
| V2.30 | Supports EMF Measurement Application. Requires Option R&S®FPH-K105 |
| V2.20 | Support of new instrument models: R&S® FPH 5kHz to 13.6 GHz with tracking generator, order no. 1321.1711.23 R&S® FPH 5kHz to 26.5 GHz with tracking generator, order no. 1321.1711.36 R&S® FPH 5kHz to 44.0 GHz, order no. 1321.1711.44 R&S® FPH 5kHz to 44.0 GHz with tracking generator, order no. 1321.1711.54 |
| V2.10 | Added SCPI Commands to retrieve compass information obtained by FPH from HE400 antenna |
| V2.10 | Added SCPI Commands to retrieve GPS time obtained by FPH from the connected GPS mouse |
| V2.10 | Support for HE800-PA antenna in variant FPH .26 |
| V2.10 | Included ICNIRP Limit lines to default files in FPH |
| V2.00 | Supports Gated Trigger Measurements in SEM, ACLR and OBW Measurement modes. Requires Option R&S®FPH-K57 |
| V2.00 | Support for saving dataset in csv format (in Spectrum Analyzer mode only) |
| V2.00 | Support for explicit Horizontal and Vertical polarization in EIRP measurements |
| V2.00 | Added SCPI Command to read out Memory Trace |
| V1.90 | Support of -Marker Tracking in Spectrum Analyzer Application |
| V1.90 | EIRP measurement mode |
| V1.80 | Gated Trigger Support for Channel Power Measurement, Spectrogram and Spectrogram playback applications |
| V1.80 | Spectrum Analyzer frequency extension from 5 kHz down to 100 Hz for FPH models .06/.13/.26. Requires R&S®FPH-B29 |
| V1.80 | Audio tone function added to Spectrum Analyzer Application |

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| V1.70 | Support of digital demodulation (ASK/FSK) - requires R&S®FPH-K7 |
| V1.70 | Support for N-Type Connector in model R&S®FPH26 (Only at production in the factory) - requires R&S®FPH-B100 |
| V1.70 | High resolution frequency counter (up to 0.001 Hz) |
| V1.70 | Support of additional Power Meter units Vemf, dBuVemf, dBmVemf |
| V1.60 | Frequency extension up to 31 GHz (available on specific FPH variants) |
| V1.60 | Instrument Sanitization/Secure Flash Erase |
| V1.60 | Support of optical power sensor UPM100 from ODM Inc. (works with K9-Option) |
| V1.60 | Modulation Rate display in FM Demodulation (works with K7-Option) |
| V1.60 | Support for HE400BC and HE400MW Antenna |
| V1.50 | Support for Gated Sweep |
| V1.50 | Support for HE400 Antenna |
| V1.50 | Support for Trigger Delay in Video Trigger |
| V1.50 | Support for NRP6 and NRP6AN Power Sensors (only via USB interface) |
| V1.40 | Isotropic Antenna support for R&S®FPH-K43: Receiver Mode |
| V1.40 | Advanced Measurement Modes: OBW (Occupied Bandwidth), TDMA Power, SEM (Spectrum Emission Mask), ACLR (Adjacent Channel Leakage Ratio), Harmonic Distortion, AM Modulation Depth |
| V1.40 | Display Line for Spectrum Analyzer |
| V1.40 | Device Power ON after Power Restored Configurable |
| V1.40 | R&S®FPH-K16: Signal Strength Mapping Tone feature |
| V1.30 | R&S®FPH-K43: Receiver Mode |
| V1.30 | R&S®FPH-K15: Interference Analysis |
| V1.30 | R&S®FPH-K16: Signal Strength Mapping |
| V1.30 | Isotropic Antenna for Spectrum Analyzer Mode |
| V1.30 | Save on Event for Spectrum Analyzer, Maps and Receiver Mode |
| V1.30 | Channel Power Measurement in Spectrum Analyzer Mode |
| V1.30 | Transducers and dBuV unit support in Power Meter |
| V1.30 | New gestures for File Preview, skip Wizard Measurement step |
| V1.30 | New gestures hide/show Info-Bar in Spectrum Analyzer and Receiver Mode |
| V1.30 | Support for Yagi antennas HA-Z901 and HA-Z1900 (New Transducer files) |
| V1.20 | R&S®FPH-K7: Analog Modulation Analysis |

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| V1.20 | Wizard |
| V1.20 | Marker audio demodulation in zero span |
| V1.20 | Multiple languages: Support of 12 languages in user interface |
| V1.20 | GPS: Support of R&S®HA-Z340 |
| V1.20 | Disable and enable the touchscreen |
| V1.20 | File browser user interface improvement |
| V1.20 | Instrument- View: Support of remote display |
| V1.10 | R&S®FPH-K9: Power Sensor Support |
| V1.10 | R&S®FPH-K19: Channel Power Meter |
| V1.10 | R&S®FPH-K29: Pulse Measurements with Power Sensors |
| V1.10 | Marker: Added move marker position from touchscreen |
| V1.10 | File Manager: Added Recall-Screenshot preview function |
| V1.10 | Color Themes: Added Black & White and Printer Friendly UI themes |

1.2 Modified functionality

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

Modified functionality in firmware V2.33:

None

Modified functionality in earlier firmware versions:

| Version | Functions |
|---------|---|
| V2.30 | Default location for saving datasets upon pressing the screenshot button is changed to the folder named 'dataset' |
| V2.20 | Maps Application (R&S®FPH-K16): Indoor Position button is enabled only when a USB thumb drive is plugged in. |
| V2.10 | Maximum possible Sweep time in Spectrum Analyzer for zero span increased to 3000s |
| V2.10 | Speed improvements for FFT computation in Spectrum Analysis Application |
| V2.10 | Sweep Time calculations adjusted for better accuracy |
| V2.10 | Maps Application: Indoor Position is now enabled even when USB thumb drive is not plugged in |
| V2.00 | Boot up screen is updated |

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| V2.00 | Improved Booting time (roughly 2 seconds) |
| V2.00 | Improved Spur performance |
| V1.90 | SNR added to Analog Modulation Summary View |
| V1.90 | Support of HE400MW Antenna |
| V1.90 | Supports automatic reboot after firmware update from InstrumentView |
| V1.80 | Improved display of Power Level in Channel Power Measurement to two decimal point accuracy |
| V1.80 | Trace View Mode selection for Trace 2 in Spectrum Analyzer application |
| V1.80 | SCPI command to turn on high resolution frequency counter |
| V1.80 | Dataset and screen shot saving to non-default working directory |
| V1.60 | Channel Power Measurement in Maps |
| V1.50 | Smooth and faster Navigation in File Browser and in Setup Pages |
| V1.40 | R&S®FPH-K43: Receiver Mode 10.000 point support |
| V1.40 | R&S®FPH-K43: Receiver Mode RMS and Average detector support for longer measurement times |

1.3 Improvements

The following tables list the improvements and indicate since which version these improvements are available:

Improvements in firmware V2.33:

| Version | Improvements |
|---------|---|
| V2.33 | Improved noise floor level behavior at lower frequencies in variants R&S®FPH06, R&S®FPH13 and R&S®FPH26 |

Improvements in earlier firmware versions:

| Version | Improvements |
|---------|---|
| V2.32 | Spikes and dips could occur at certain frequencies in variant FPH.26 when RMS or sample detector is enabled. This issue is fixed. |
| V2.31 | Fix issue in installing Option R&S®FPH-B29 in models model's R&S®FPH.23, R&S®FPH.36, R&S®FPH.44 and R&S®FPH.54 |
| V2.30 | Sweep time Improvements with Tracking generator turned ON (Applicable only to models R&S®FPH.23, R&S®FPH.36 and R&S®FPH.54) |
| V2.20 | Corrected the Trace average calculation in Receiver Mode Application (R&S®FPH-K43) |

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| V2.00 | With Option R&S®FPH-B29 installed, the displayed Frequency extension value in Installed Options Page is corrected to 100Hz |
| V1.90 | Fixed Command [SENSE:]SWEep:POINts? In Spectrum Analyzer Mode |
| V1.90 | Fixed issue where MAC address is not visible when device is turned-on with no network cable connected |
| V1.90 | Missing parameters for K-29 Pulse Power Measurements are enabled back |
| V1.80 | Improved spurious performance in FPH models .06/.13/.26 |
| V1.70 | Improvement in (faster) detection of Power Sensors |
| V1.70 | Improved synthesizer settings in R&S®FPH26 |
| V1.50 | Improved Measurement Speed |
| V1.40 | R&S®FPH-K43: Receiver Mode improved scan startup time for scans with large number of points |
| V1.40 | Fix for GPS number of satellites always showing 12 |
| V1.20 | Fixed device unable to restart if date is 2002 or earlier |
| V1.10 | Localization: Chinese translations were improved |

1.4 Known issues

There are no known issues in this release

2 Modifications to the documentation

The latest manual from the R&S® Spectrum Rider FPH can be downloaded from the product web page at <http://www.rohde-schwarz.com/manual/fph>.

3 Firmware update

New firmware versions usually contain new features, improvements of existing functionality, bug fixes etc. When a new firmware version is available, it is recommended to replace the old firmware with the new one.

R&S®InstrumentView

Firmware release V2.33 corresponds to R&S®InstrumentView V2.90, which is available on the Rohde & Schwarz web page as a separate update package.

Although older versions of R&S®InstrumentView might be able to communicate with firmware release V2.33, an update of R&S®InstrumentView is highly recommended, as older R&S®InstrumentView versions might not support all functions included in the new firmware release.

Updating the firmware

The latest firmware version is available for download on the internet:

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



Before you update the firmware, you should make a backup of the data that you have stored on the R&S®Spectrum Rider FPH (datasets, screenshots, transducer factors etc.). You can make a backup with the tools available in the R&S®InstrumentView software package. The firmware update itself does not delete or modify that data, but it is recommended to perform a factory reset after the firmware update to update predefined limit lines, channel tables etc. The factory reset, however, does delete user data.

1. Download the firmware installer from the internet.
The firmware comes in a single `.exe` file.
2. Save the file to the root directory of a memory stick.
3. Run the `.exe` file to unpack the self-extracting zip archive.

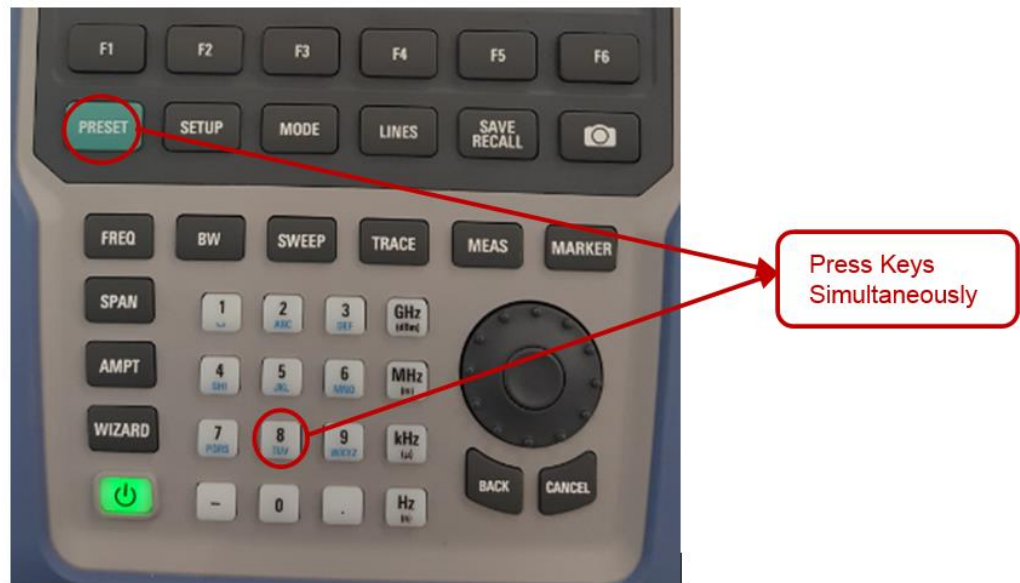
The following files are extracted.

```
FPH_<version>_bootloader_1.bin  
FPH_<version>_bootloader_2.bin  
FPH_<version>_bootloader_7.bin  
FPH_<version>_osimage.bin  
FPH_<version>_updater.bin  
FPH_<version>_xmegaloadfiles.bin
```

Make sure that only these files are present in the root directory of the memory stick.

4. Turn off the R&S®Spectrum Rider FPH Spectrum Analyzer.
5. Connect the memory stick to one of the USB interfaces of the R&S®Spectrum Rider FPH.

6. Press the "Preset" key and the number "8" key simultaneously.



7. Turn on the R&S®Spectrum Rider FPH and keep pressing the two keys for at least 5 seconds after the startup screen appears.
8. Release the keys.
The booting process continues. After a couple of seconds, the R&S®Spectrum Rider FPH asks you if you really want to update the firmware.
9. Press the "Enter" (Round button in the rotary) key to update the firmware. (You can cancel the firmware update with the "CANCEL" key.)

The firmware update takes several minutes. The R&S®Spectrum Rider FPH shows a message when the firmware update is done.

Note: Do not turn off the R&S®Spectrum Rider FPH during the firmware update.

10. Turn off the R&S®Spectrum Rider FPH.
11. Turn on the R&S®Spectrum Rider FPH.
The R&S®Spectrum Rider FPH boots with the new firmware version.
12. Optional: It is recommended to perform a **factory reset** after a firmware update to replace the predefined limit lines, channel tables and other data with the latest updates.

Note: Before you start a factory reset, make sure to make a backup of your data that you have saved on the R&S®Spectrum Rider FPH. Otherwise that data is deleted.

4 Firmware Options

You can equip the R&S® Spectrum Rider FPH with optional functionality or firmware options like the analog demodulation application or the receiver application. These firmware options expand the functionality of the R&S® Spectrum Rider FPH with new measurement functions settings etc.

Installing firmware options

To install a new firmware option, you have to enter a license key for validation.

The license key is included in the delivery of the firmware option.

1. Press the "Setup" key to enter the instrument setup menu.
2. Select the "Installed Options" menu item.
The R&S® Spectrum Rider FPH shows a list of all options that are currently installed on your R&S® Spectrum Rider FPH.
3. Select the "Install Option" button and press the "Enter" key.
The R&S® Spectrum Rider FPH opens an input field.
4. Enter the license key with the alphanumeric keys and confirm the entry with the "Enter" key.
5. The license key is a 32-digit number.

The R&S® Spectrum Rider FPH confirms a successful installation.

If the R&S® Spectrum Rider FPH shows an "Invalid Key Code" message, try to enter the license key again.

5 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 5-1: QR code to the Rohde & Schwarz support page