

# R&S® Spectrum Rider FPH

## Release Notes

### Firmware Version V2.10

These Release Notes are for following models of R&S®FPH Spectrum Rider:  
R&S®FPH, order no. 1321.1111.02, R&S®FPH, order no. 1321.1111.52,  
R&S®FPH, order no. 1321.1111.06, R&S®FPH, order no. 1321.1111.56,  
R&S®FPH, order no. 1321.1111.13, R&S®FPH, order no. 1321.1111.63,  
R&S®FPH, order no. 1321.1111.26, R&S®FPH, order no. 1321.1111.76

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

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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 V2.10:

Version	Function
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

### New Functions of earlier Firmware versions:

Version	Function
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
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
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
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 Functions

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

### Modified Functions of Firmware V2.10:

Version	Function
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

### Modified Functions of earlier Firmware versions:

since	Function
V2.00	Boot up screen is updated
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 points 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 V2.10:

None

#### Improvements of earlier Firmware versions:

since	Function
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

You can download the latest manual from the R&S®Spectrum Rider FPH 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 V2.10 corresponds to R&S®InstrumentView V2.4.1, 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 V2.10, 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.bmp
```

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.
6. 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 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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