

# R&S®Cable Rider ZPH

## Release Notes

### Firmware Version V2.10

These Release Notes are for following models of R&S®Cable Rider ZPH:  
R&S®ZPH, order no. 1321.1211.02, order no. 1321.1211.52,  
R&S®ZPH, order no. 1321.1211.12

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1320.9077.00 | Version 09 | R&S®Cable Rider ZPH |

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 V2.10:

| Version | Contents   |
|---------|--|
| V2.10   | Support for R&S@NRPxxP Pulse Power Sensor. Requires option R&S®ZPH-K09, R&S®ZPH-K19 or R&S®ZPH-K29 (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1) |

### New functions in earlier firmware versions:

| Version | Functions   |
|---------|---|
| V2.00   | Supports reset of "Max Hold" Trace in Spectrum Analyzer Mode (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)  |
| V2.00   | Added steps for Compass Calibration for HE400 Antenna under Antenna Service Menu (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)                        |
| V2.00   | Display measured power value in Occupied Bandwidth Measurement Mode (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)                                     |
| V1.90   | Supports EMF Measurement Application. Requires Option R&S®ZPH-K105 (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)                                      |
| V1.80   | Added SCPI Commands to retrieve compass information obtained by ZPH from HE400 antenna (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)                  |
| V1.80   | Added SCPI Commands to retrieve GPS time obtained by ZPH from the connected GPS mouse (available only on R&S®ZPH model .12 and requires R&S®ZPH-K1)                   |
| V1.80   | Included ICNIRP Limit lines to default files in ZPH (available only on R&S®ZPH model .12 and applicable when R&S®ZPH-K1 is installed)                                 |
| V1.70   | Supports Gated Trigger Measurements in SEM, ACLR and OBW Measurement modes. Requires Option R&S®ZPH-K57 (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1) |
| V1.70   | Support for saving dataset in csv format for Spectrum Analyzer Mode (available only on R&S®ZPH model .12 and requires R&S®ZPH-K1)                                     |
| V1.70   | Support for explicit Horizontal and Vertical polarization in EIRP measurements (available only on R&S®ZPH model .12 and requires R&S®ZPH-K1)                          |
| V1.70   | Added SCPI Command to read out Memory Trace in Spectrum Analyzer Mode (available only on R&S®ZPH model .12 and requires R&S®ZPH-K1)                                   |

|       |   |
|-------|---|
| V1.60 | Supports loading and saving 1 port S-parameters in touchstone format (s1p). These files can be used for User Calibration  |
| V1.60 | Tracking Generator/ Signal Source activity indicator in top right corner  |
| V1.60 | Enabled Filter bandwidth measurement (only available on R&S®ZPH model .12)  |
| V1.60 | Support of Marker Tracking in Spectrum Analyzer Application (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)   |
| V1.60 | EIRP measurement mode (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)   |
| V1.50 | Support for full 2-port Calibration with ZN-Z103 (only available on R&S®ZPH model .12)  |
| V1.50 | Enabled Marker Tracking in CAT Application  |
| V1.50 | Enabled Support for internal DC Bias voltage at RF out port in Spectrum Analyzer application (only available on R&S®ZPH model .12, requires R&S®ZPH-K1)                         |
| V1.50 | Gated Trigger Support for Channel Power Measurement, Spectrogram and Spectrogram playback applications (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)            |
| V1.50 | Audio tone function added to Spectrum Analyzer Application (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)  |
| V1.41 | Support for internal DC Bias voltage at RF out port (only available on R&S®ZPH model .12)   |
| V1.41 | Support for Spectrum Analyzer Mode and Spectrum Analyzer Applications (only available on R&S®ZPH model .12- requires R&S®ZPH-K1 and R&S®ZPH-K7/-K15/-K16/-K7/-B22 respectively) |
| V1.41 | Support for Independent Tracking Generator (only available on R&S®ZPH model .12 - requires R&S®ZPH-K1)  |
| V1.30 | Instrument Sanitization/Secure Flash Erase  |
| V1.30 | Support of optical power sensor UPM100 from ODM Inc. (requires R&S®ZPH-K9)  |
| V1.20 | Electrical Length, Electrical Length Offset and Auto Length functionality   |
| V1.20 | Configurable Calibration Kit, plus pre-loaded Calibration Kit files   |
| V1.20 | User Calibration can be enabled/disabled  |
| V1.20 | Default Calibration can be performed on user side.<br>Warning: This will erase previous Default Calibration.  |
| V1.10 | Distance To Fault Split Screen Feature  |
| V1.10 | Support for R&S®ZN-Z103 Calibration Unit  |
| V1.10 | Localization: Multi-Language Support  |
| V1.10 | Cable Models folder grouping  |

## 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 V2.10:

| Version | Functions  |
|---------|--|
| V2.10   | Support added for R&S HA-Z340 GPS receiver accessory variant |

### Modified functionality in earlier firmware versions:

| Version | Functions  |
|---------|--|
| V2.00   | Following improvements done in EMF measurement application (only applicable to R&S®ZPH model .12 and requires R&S®ZPH-K105)<br><ul style="list-style-type: none"> <li>- Displays the remaining time to complete the ongoing EMF Measurement</li> </ul> Default Unit is changed to dBuV/m |
| V1.90   | Added SCPI commands for configuration of user defined Cable Model  |
| V1.90   | Added SCPI commands for Control of Bias Voltage (only applicable to R&S®ZPH model .12)   |
| V1.90   | Default location for saving datasets upon pressing the screenshot button is changed to the folder named 'dataset'  |
| V1.80   | Maximum possible Sweep time in Spectrum Analyzer for zero span increased to 3000s (only applicable to R&S®ZPH model .12 and requires R&S®ZPH-K1)   |
| V1.80   | Speed improvements for FFT computation in Spectrum Analysis Application (only applicable to R&S®ZPH model .12 and requires R&S®ZPH-K1)   |
| V1.80   | Sweep Time calculations adjusted for better accuracy (only applicable to R&S®ZPH model .12 and requires R&S®ZPH-K1)  |
| V1.80   | Maps Application: Indoor Position is now enabled even when USB thumb drive is not plugged in (only applicable to R&S®ZPH model .12 and requires R&S®ZPH-K1 and R&S®ZPH-K16)  |
| V1.70   | Boot up screen is updated  |
| V1.70   | Unified Marker setting for better readability in RL+Trans mode (only available on R&S®ZPH model .12)   |
| V1.70   | Improved Booting time (roughly 2 seconds)  |
| V1.60   | SNR added to Analog Modulation Summary View (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)  |
| V1.60   | Support of HE400MW Antenna (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)   |

|       |  |
|-------|--|
| V1.60 | Supports automatic reboot after firmware update from InstrumentView                            |
| V1.30 | Side bar text Color in Black & White mode is changed for better readability in bright ambience |
| V1.30 | Prompt for User to change Cable model in Wizard is now supported                               |
| V1.20 | Increased resolution to two decimal points for SWR marker.                                     |

### 1.3 Improvements

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

#### Improvements in firmware V2.10:

| Version | Improvements   |
|---------|--|
| V2.10   | Fixed issue of randomly showing up HE400-NO MODULE or HE400-UNKNOWN and automatic saving of GPS positions in Maps Application when HE400 antenna is connected. |
| V2.10   | Fixed shadow signal in the trace observed at a specific center frequency in Spectrum Analyzer mode   |
| V2.10   | Improved Spur performance in Spectrum Analyzer mode  |

#### Improvements in earlier firmware versions:

| Version | Improvements   |
|---------|--|
| V2.00   | Fixed Azimuth value not displayed in Triangulation mode when HE400MW antenna is used (Only applicable to R&S®ZPH model .12 and requires R&S®ZPH-K15 /-K16) |
| V2.00   | Fix missing trace at certain configurations when Isotropic Antenna is enabled (only applicable to R&S®ZPH model .12 and requires R&S®ZPH-K1)               |
| V2.00   | Change of status bar display to "Start/Stop" frequency when changing either Start or Stop frequency in DTF.  |
| V1.90   | Fixed unresponsive mode button for language setting other than English   |
| V1.90   | Fixed Transmission Normalization is not functioning  |
| V1.90   | Improved Spurious performance  |
| V1.60   | Fixed Command [SENSe:]SWEep:POINts? In Spectrum Analyzer Mode (only available on R&S®ZPH model .12 and requires R&S®ZPH-K1)                                |
| V1.60   | Fixed issue where MAC address is not visible when device is turned-on with no network cable connected  |
| V1.60   | Missing parameters for K-29 Pulse Power Measurements are enabled back  |

|       |  |
|-------|--|
| V1.50 | Improved display in CAT mode when interference suppression is switched off   |
| V1.50 | Fixed various bugs concerning SCPI commands  |
| V1.50 | Corrected instrument ID via USB: R&S® InstrumentView V2.00 required for USB connection   |
| V1.30 | Fix for the Cable Loss, "Open/Short" Mode to Normal Mode   |
| V1.30 | Fix for the Cable Loss, "Open" and "Short" Traces scaling  |
| V1.30 | Fix for Config Overview tabbing using the rotary; "Done" button can now be selected  |
| V1.30 | Fix for CAT application, measurement mode headers  |
| V1.30 | Fix for Power Meter, erroneous display of power level at -0.99 to -0.01  |
| V1.30 | Fix for Power Meter, reading fluctuations when using the wizard  |
| V1.30 | Fix for Wizard, wizard does not progress when transitioning from Power meter measurement to CAT measurement  |
| V1.30 | Fix for Configuration Overview, number of data point is not set correctly when using the unit keys and/or pressing "DONE"  |
| V1.30 | Fix for Keypad, space in the "1" key is now working  |
| V1.30 | Fixes for running Wizard   |
| V1.30 | Fix on sweep doesn't complete on certain combinations of span and number of points (i.e. 1MHz span, 102 points)  |
| V1.30 | Fixed issue: Marker unit label goes to dBm when calibration status is "uncal"  |
| V1.20 | Ref Position Bug; Ref Position can now be adjusted in Phase Measurement, and Cable Loss  |
| V1.20 | Fix the electrical length bug in the default calibration. A default cal needs to be run again using the correct calibration kit file for the cal kit being used. |
| V1.20 | Fix the electrical length bug in calibration with the R&S®ZN-Z103.   |
| V1.20 | Fix auto scale bug for DTF-SWR split screen.   |
| V1.20 | Fix DTF bug when changing number of points and frequency span.   |
| V1.20 | Fix the Cable Loss marker bug  |
| V1.10 | Display Line: Display line is now deactivated with a Preset  |

## 1.4 Known issues

There are no known issues in this release

## 2 Modifications to the documentation

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



## 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 V3.2, 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://http://www.rohde-schwarz.com/firmware/zph>



Before you update the firmware, you should make a backup of the data that you have stored on the R&S®Cable Rider ZPH (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.

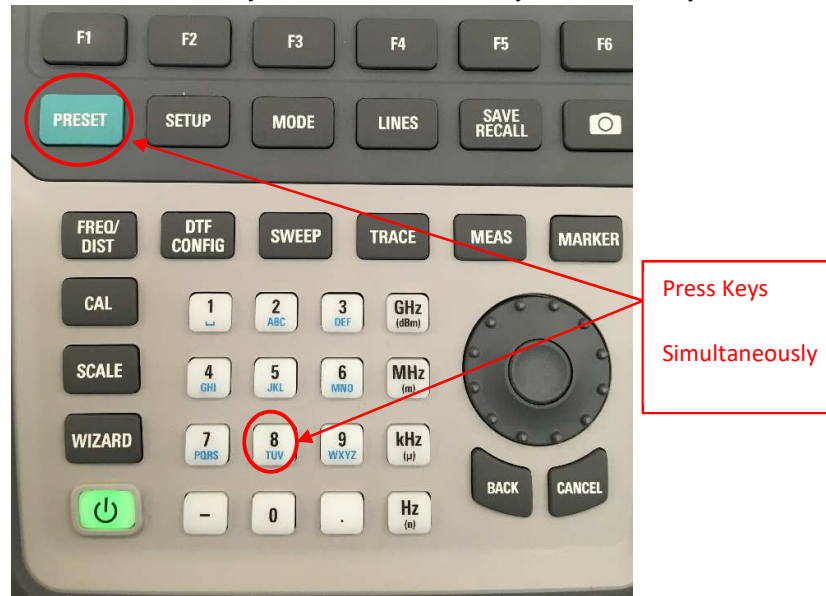
The following files are extracted.

```
ZPH_<version>_bootloader_1.bin  
ZPH_<version>_bootloader_3.bin  
ZPH_<version>_osimage.bin  
ZPH_<version>_updater.bin  
ZPH_<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®Cable Rider ZPH Cable and Antenna Analyzer.
5. Connect the memory stick to one of the USB interfaces of the R&S®Cable Rider ZPH.

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



7. Turn on the R&S®Cable Rider ZPH 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®Cable Rider ZPH 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®Cable Rider ZPH shows a message when the firmware update is done.

**Note:** Do not turn off the R&S®Cable Rider ZPH during the firmware update.

10. Turn off the R&S®Cable Rider ZPH.

11. Turn on the R&S®Cable Rider ZPH.

The R&S®Cable Rider ZPH 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®Cable Rider ZPH. Otherwise that data is deleted.

## 4 Firmware Options

You can equip the R&S®Cable Rider ZPH 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®Cable Rider ZPH 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®Cable Rider ZPH shows a list of all options that are currently installed on your R&S®Cable Rider ZPH.
3. Select the "Install Option" button and press the "Enter" key.  
The R&S®Cable Rider ZPH 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 30-digit number.
6. The R&S®Cable Rider ZPH confirms a successful installation.  
If the R&S®Cable Rider ZPH 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](http://www.rohde-schwarz.com/support) or follow this QR code:



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