

R&S®NRP-Z81/-Z85/-Z86

Wideband Power Sensor

Release Notes

Firmware Version 01.35

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81671 Munich, Germany

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The following abbreviations are used throughout this document:

R&S®NRP-Z81/-Z85/-Z86 is abbreviated as R&S NRP-Z81/-Z85/-Z86.

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1 Information on the Current Version and History

1.1 Version 01.35

Released: October 2012

Important Note

- A downgrade to an earlier Firmware Version is not recommended

Fixed Issues

- Default Value for SENSE:SGAMma:MAGNitude is set to 0.0 so an enabled and not configured source gamma correction does not affect the measurement result
- Fixed frozen measurements in Burst Mode. In some cases with a very low trigger level the burst measurement did not finish.
- Fixed Peak Value in Continuous Averaging Mode when Duty Cycle correction is used
- Fixed frequency correction of Peak Measurements in Continuous Averaging Mode. The peak value correction in contAv mode was different as in Trace Mode.
- Fixed Trigger Level setting when an S-Parameter Device is enabled

1.2 Version 01.33

Released: December 2011

Fixed Issues

- Fixed "Parameter Error" after Video Bandwidth change from 300 kHz to FULL
- Fixed "OVERLOAD ERROR" if High resolution Pulse Analysis is enabled
- Fixed Peak clipping to 0.0 W. In Trace peak measurements now also negative power results are possible.
- Fixed command SENS:TRAC:ESAM:AUTO on | off. After sending this command it was necessary to send another Trace command to activate / deactivate the Equivalent-Time-Sampling mode.
- Fixed gated pulse measurements. During pulse measurements the limits of the parameter SENSE:TRACe:MEASurement:OFFSet:TIME[?] were not synchronized with SENSE:TRACe:OFFSet:TIME[?].
- Fixed reconfiguration after selftest. The sensor did not start correctly after a self test in trace mode.

- Result synchronization with USB Host. If the USB Host cannot fetch the results from the sensor in time, the sensor decreases measurement speed automatically to enhance command response time.
- Increased response time if the aperture time in Continuous Average mode is configured greater than 500 ms.
- The sensor performs now an "Average Reset" after setting the TRIGger:DElay parameter.

1.3 Version 01.32a

Released: October 2011

Fixed Issues

- Fixed malfunction after `SENSe:FUNctIon` and `TEST:SENSor?` commands

1.4 Version 01.32

Released: March 2011

Fixed Issues

- Trace mode: Measurements with reduced video bandwidth in equivalent sampling mode are now displayed in a correct scaled X-Axis.
- The lower Limit of the Trigger Delay could be in some cases greater than zero
- The sensor now sends always results after an `init:cont on` command. In some cases (`system:rutime > 0` and sensor was IDLE for a long time) this did not work properly.
- Solved command errors in conjunction with trigger master and NRP2.
- In some cases the trace was not positioned on the correct position if pulse measurements were enabled
- Fixed Bug in timeslot automatic average: The reference slot parameter was not taken into account.

1.5 Version 01.31

Released: November 2010

New Functionality

- The pulse time parameters (rise time, fall time and pulse period) are now calculated with a time resolution up to approx. 100 ps by using an internal equivalent sampling algorithm.

For real time measurements it is possible to deactivate the equivalent sampling mode.

- New algorithm for the automatic pulse analysis:
SENSe:TRACe:MEASurement:ALGorithm PEAK always uses the pulse peak power to calculate the according pulse parameters

Fixed Issues

- USB.ORG compliance test passed
- **SYSTEM:INFO?** "CAL. S-Para" is working (older Versions only checked "CAL. S_Para").
- Fixed behaviour if **trigger:count** > 1 and automatic averaging was enabled
- Continuous Average measurements with an activated automatic averaging never exceed the **SENSe:AVERAge:COUNT:AUTO:MTIME** Timeout Parameter.
- In some cases the **SENSe:TIMing:EXCLude:STOP** Parameter was not taken into account
- Due to a rounding issue the CCDF curve data was not reaching zero
- Fixed Bug in Gamma Correction Algorithm

Known Issues

- Trace mode: Measurements with reduced video bandwidth in equivalent sampling mode are displayed in a wrong scaled X-Axis.

1.6 Version 01.28

Released: April 2010

New Functionality

- -

Fixed Issues

- Changed limits for the noise test during self test
- Lower default value for `trigger:delay` has been changed to -51.1875 μ s.
- Default of `trigger:dtime` is now 25 ns.
- The automatic averaging filter length was in some cases calculated too long in Version 01.20 or lower.
- Improved flash programming algorithm for calibration data update

1.7 Version 01.20

Released: November 2008

New Functionality (since 01.16)

- Automatic pulse analysis function added.
Now the NRP-Z81 can measure following parameters of a pulsed signal:
pulse duration
 - pulse period
 - duty cycle
 - rise time
 - fall time
 - pulse top level power
 - pulse base level power
- Automatic trigger level estimation (`TRIGGER:ALEVEL:STATE ON`) added
- Generation of trigger master signal also in **IDLE** mode (dependent on settings)
- External trigger for High-Resolution Scope-Mode (down to 200 ps per trace point) implemented

Fixed Issues

- Auto averaging in **REPEATing** mode: problem fixed
- The command **SYSTEM:INIT** does no longer Reset/Reload the zero offsets

- **PDF/CCDF:** measurements are now also possible with measurement times $> 53,7$ s
- **PDF/CCDF:** the reference level is now corrected by the offset value
- **ContAV, POWER:AVERAGE:** There is no longer the need to trigger all measurement sweeps separately. I.e. the internal/external trigger is now only used for the start of the measurement, the consecutive measurements are done automatically

2 Firmware Update

2.1 Important Notes

This package contains the firmware for the power sensor R&S® NRP-Z81/-Z85/-Z86. Each firmware update consists of one file: application firmware and boot loader are merged together. This file should be downloaded into the sensors to get the latest functionality. The firmware release 01.35 is suitable for all power sensors R&S® NRP-Z81/-Z85/-Z86 already delivered. The firmware for the R&S® NRP base unit as well as the firmware for other R&S® NRP-Zxx power sensors is available as a separate package.

2.2 Installation Software

Use the Firmware Update program tool from the R&S® NRP toolkit to load the new firmware for the power sensor R&S® NRP-Z81/-Z85/-Z86. The toolkit is supplied on a CD-ROM together with the sensors. It is also available on the internet under <http://www.nrp.rohde-schwarz.com>.

2.3 Prerequisites concerning the PC

Either Microsoft Windows 2000, Windows XP (32 Bit), Microsoft Windows Vista (32 or 64 Bit), Microsoft Windows 7 (32 or 64 Bit), or x86 Linux (with kernel 2.6.8 oder more recent) must be installed as the operating system of the PC. 64-bit versions of Microsoft Windows XP are not supported.

For the update process, one free USB port is required. The R&S® NRP toolkit needs about 23 MByte of free space on the hard disk and must be installed prior to the update process.

2.4 Connection between PC and R&S® NRP-Zxx

For the connection between the PC and the R&S® NRP sensor, use the R&S® NRP-Z3 active USB adapter or the R&S® NRP-Z4 passive USB adaptor.

2.5 Procedure of a firmware update

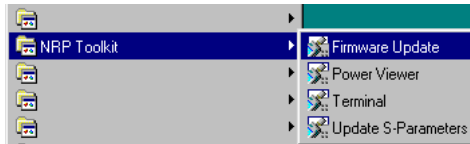
- Preparation
Install the R&S®NRP toolkit software onto the PC prior to operation of the sensor.
- Connection
 - ✓ Connect the R&S®NRP power sensor to the PC using either R&S®NRP-Z3 or R&S®NRP-Z4.
 - ✓ Unplug any other R&S®NRP power sensor or R&S®NRP base unit from the PC.
 - ✓ After connecting the power sensor, the PC should identify the new USB hardware and assign the appropriate device driver from the R&S®NRP Toolkit (brief message appears in a small window after first connect to the used PC).



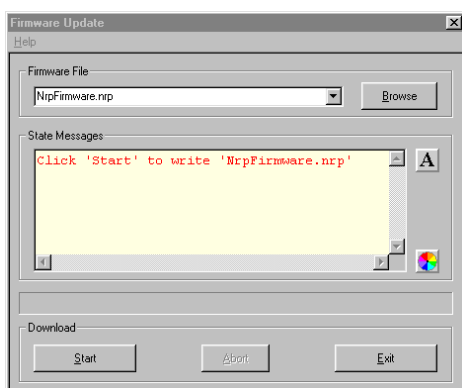
If you forgot to install the R&S®NRP Toolkit software beforehand, Windows will not succeed to find a USB driver for the power sensor. If this happens, the R&S®NRP-Zxx is highlighted by a yellow exclamation mark in the Windows device manager. In this case, proceed as follows:

- *Abort the dialog for driver installation.*
- *Install the R&S®NRP Toolkit from the CD-ROM.
Then manually assign the USB driver from the toolkit to the R&S®NRP.*
- *Go to Control Panel – Add/Remove Hardware and start the hardware assistant to search for new components.*
- *Select the R&S®NRP-Zxx in the list of hardware components and complete the driver installation.*
- *Unplug the power sensor and reconnect it.*

2.6 Updating the application firmware



- ✓ Start **NRP Toolkit – Firmware Update** from the Windows Start menu.



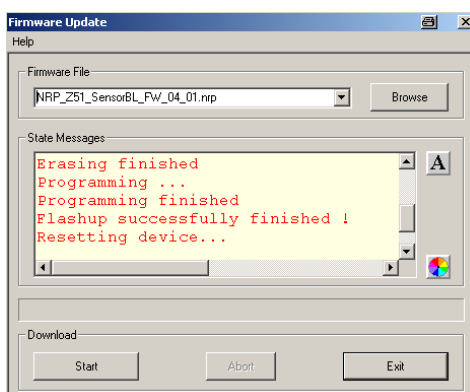
The dialog box on the left is displayed next.

- ✓ Search for the file named **NRP-Z81_SensorApp_01_35.nrp** by using the **Browse** button or enter the file name (including the directory path) of the application firmware in the **Firmware File** box
- ✓ Click the **Start** button to start the file transfer. The update is performed automatically.



Note:

- ✓ *Do not disconnect the power sensor from the PC.*
- ✓ *Neither connect nor disconnect the power supply for the active adapter R&S® NRP-Z3.*
- ✓ **Always wait until the reset of the device is finished!**
- ✓ *Exit the Firmware Update program only after it has been completely executed.*



- ✓ During the update process, the State Messages box informs you of the progress. The update has been completed successfully if the message **'Device <Type Designation><Serial Number> is active'** appears.
- ✓ After a successful update you can use the power sensor immediately for measuring.



Potential problems

- ✘ *Error in the compatibility and consistency checks*
In this case, the update is aborted and an error message is displayed.
 - *Unplug and reconnect the USB sensor*
 - *Restart the firmware update*
- ✘ *When performing the firmware upgrade the first time on a PC, the installation of the unknown USB device R&S NRPFU is required. The **Found New Hardware Wizard** opens:*
 - *Click the **Next** button*
 - *Click the **Finish** button*
 - *Abort and close the firmware update tool*
 - *Unplug and reconnect the USB sensor*
 - *Restart the firmware upgrade*



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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