R&S®NRP-Z81/-Z85/-Z86
Wideband Power Sensor
Release Notes
Firmware Version 01.37

Muehldorfstr. 15, 81671 Munich, Germany
Phone: +49 89 41 29 - 0
Fax: +49 89 41 29 12 - 164
E-mail: mailto:info@rohde-schwarz.com
Internet: http://www.rohde-schwarz.com

The following abbreviations are used throughout this document:
R&S®NRP-Z81/-Z85/-Z86 is abbreviated as R&S NRP-Z81/-Z85/-Z86

ROHDE&SCHWARZ
Test & Measurement
PAD-T-M: 3574.3288.02/02.00/CI/1/EN

Contents

1 Information on the Current Version and History

1.1 Version 01.37

Released: April 2016

New Functionality

- The new command “SERVice:BYPass” is now supported. If the sensor is connected to an NRP2 it is possible to send sensor commands which are not supported by the NRP2 directly to the sensor.

Fixed Issues

- It was fixed that a horizontal line was presented as a trace measurement result. This line occurred in certain cases in traces mode with enabled equivalent time sampling.
- Fixed measurement noise in timeslot mode. When using the sensor in timeslot mode and the average count was set to 1the measurement noise was too high.
- Fixed calculation of trigger delay limits. When the sensor was used in conjunction with the NRP2 it was possible to configure a negative delay that was out of limit. In this case the NRP2 reported a “sensor communication error”
- Fixed necessary trigger count. If the sensor’s trace mode was configured with a very large number of samples per timeslot, it could happen that some trigger events were missed
- Fixed handling of the NRPxxS command “CALibration:USER:DATA <caldata>. If this originally unsupported command is used it will empty the USB queue and return an error.

1.2 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

1.3 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 Continous Average mode is configured greater than 500 ms.
- The sensor performs now an “Average Reset” after setting the TRIGger:DELay parameter.

1.4 Version 01.32a

Released: October 2011

Fixed Issues

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

1.5 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.

1.6 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.

1.7 Version 01.28

Released: April 2010

New Functionality

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Fixed Issues

- Changed limits for the noise test during self test
- Lower default value for **trigger:delay** has been changed to -51.1875 µs.
- 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

1.8 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 01.37 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 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 https://www.rohde-schwarz.com/software/nrp-toolkit/.

2.3 Hardware and Software Requirements

The system requirements to perform a firmware update are as follows:

- PC with USB and either NRP-Z3, NRP-Z4 or NRP-Z5
- Operating system Windows™ 7 or Windows™ 8
- The R&S NRP-Toolkit software must be installed on your PC. The Firmware Update is part of the NRP-Toolkit.
- A Rohde & Schwarz update file (*.nrp) for the sensor must be available.

The update files are available in https://www.rohde-schwarz.com/firmware/nrpz81/

2.4 Updating the Application Firmware

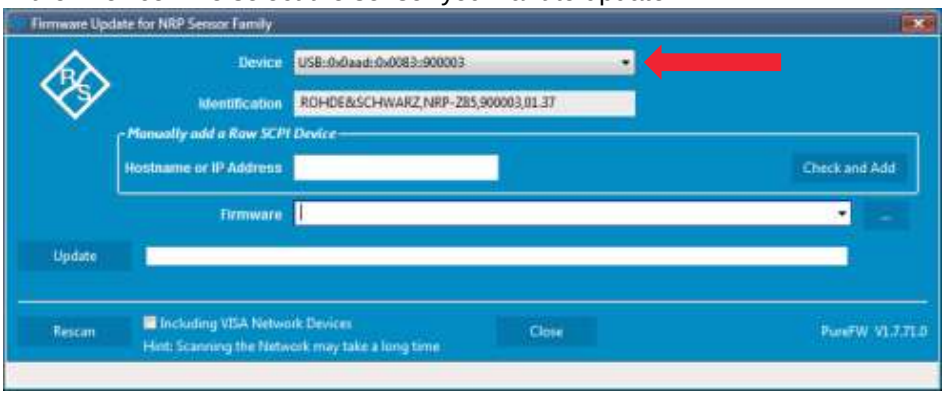
To perform a firmware update:

1. Start the Firmware Update program via "Start menu > NRP-Toolkit > Firmware Update". The following window should appear:

The program automatically starts scanning for R&S NRP-Zxx power sensors. When the scan is completed, all recognized power sensors are listed in the "Device" dropdown control.

If the sensor you want to update is not listed in the "Device" dropdown control, press "Rescan" to search for attached sensors.

3. In the "Device" line select the sensor you want to update.



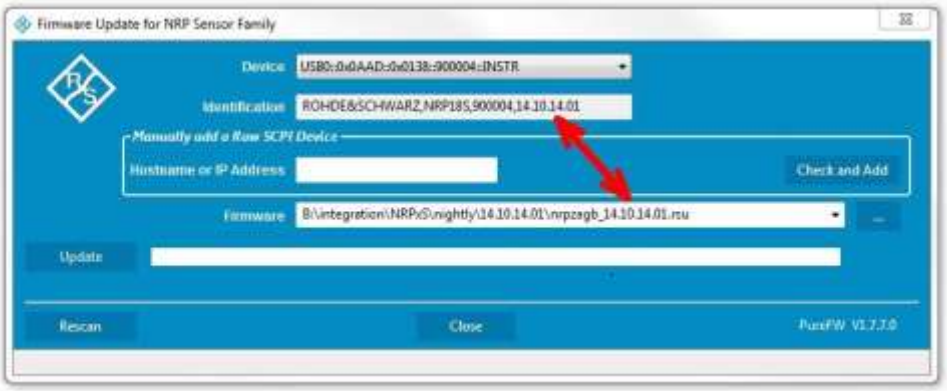
The "Hostname or IP Address" field is not used during this procedure and should therefore be left empty.

4. In the "Firmware" field enter the full path and file name of the update file or press the ellipsis button to browse the file system for it. New firmware for the R&S NRP-Zxx power sensors generally has an *.nrp extension.

5. Click on the "Update" button to download the new firmware and program it into the flash memory of the sensor.

During the update process the progress is shown through a progress bar. The update sequence may take a couple of minutes, depending on the sensor model and the size of the selected file.

6. Check if the update was successful. This is the case if the firmware version in the "Identification" field is the same as the one you loaded in the "Firmware" field.



Potential damage to the firmware of the device

Disconnecting the power supply while an update is in progress may lead to missing or faulty firmware.

Special care must be taken on not disconnecting the power supply while the update is in progress. Interrupting the power supply during the firmware update will most likely lead to an unusable device which needs to be sent in for maintenance.

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.

Europe, Africa, Middle East
Phone +49 89 4129 12345
customersupport@rohde-schwarz.com

North America
Phone 1-888-TEST-RSA (1-888-837-8772)
customer.support@rsa.rohde-schwarz.com

Latin America
Phone +1-410-910-7988
customersupport.la@rohde-schwarz.com

Asia/Pacific
Phone +65 65 13 04 88
customersupport.asia@rohde-schwarz.com

China
Phone +86-800-810-8828 / +86-400-650-5896
customersupport.china@rohde-schwarz.com