R&S® Power Meter NRP2 Release Notes Firmware Version 07.13

The following abbreviations are used throughout this document:
R&S® PowerMeter NRP2 is abbreviated as R&S NRP2.

Table of Contents

1 Information on the Current Version and History

1.1 Version 07.13

Firmware package contents

Component	FW version
Application	07.13
Boot Loader	07.11
Keyboard Controller	03.30

New Functionality

- Support of R&S NRP8S(N), NRP18S(N), NRP33S(N) power sensors

Fixed Issues in Firmware Application

- Discrepancy between marker settings and marker measurement after recall of saved settings
- N1912 emulation: get measurement values from sensor A when reading sensor B
- Minor bug fixes

1.2 Version 07.11

Firmware package contents

Component	FW version
Application	07.11
Boot Loader	07.11
Keyboard Controller	03.30

New Functionality

- Overload message can be minimized in order to allow changes in the device configuration.
- Volatile mode: if activated in the boot loader, changes in the device configuration are not made persistent in the nonvolatile memory (except for the LAN settings).

Fixed Issues in Firmware Application

- Entering the Ethernet configuration menus was not possible in certain cases
- Pulse analysis: Calculation of Over- and Undershoot in Voltage corrected.
- Gate length can't become negative any more.
- Reading 8192 trace points via remote control fixed for binary format.
- Lost data in buffered ContAv fixed.
- Improved USBTMC handling.
- The restauration of instrument parameters for (p)reset, save/recall and standard recall was reworked.
- Minor bug fixes

New Functionality in Bootloader

- Volatile mode can be activated and password protected.

1.3 Version 07.09.001

Firmware package contents

Component	FW version
Application	07.09.001
Boot Loader	07.09
Keyboard Controller	03.30

New Functionality

- Support of NRP-B7 implemented.
- Progressbar in Sensor-Selftest.
- N432-Emulation implemented.

Fixed Issues in Firmware Application

- Fixed hanging boot process after firmware update, which could only be solved by erasing the nonvolatile memory.

Fixed Issues in Bootloader

- Fixed hanging boot process, when the NRP2 was receiving ethernet data while booting (e.g. ping requests).

1.4 Version 07.07.003

Firmware package contents

Component	FW version
Application	07.07.003
Boot Loader	07.07
Keyboard Controller	03.30

Fixed Issues

- Fixed a timing problem that occurred with new RAMs and occasionally resulted in self-rebooting devices.

1.5 Version 07.07

Firmware package contents

Component	FW version
Application	07.07
Boot Loader	07.07
Keyboard Controller	03.30

New Functionality

- Trace 1 can be deactivated.
- Remote commands now support trace lengths of up to 8192 points.
- The offset menu now shows the calculated offset.
- Horizontal positioning of traces with cursor keys now snaps to the grid.
- New remote commands for reading the trace marker positions:
  ```
  calculate<[1]..8>:trace:marker:xdelta?
  calculate<[1]..8>:trace:marker:ydelta?
  calculate<[1]..8>:trace:marker$2$:xposition[?]
  calculate<[1]..8>:trace:marker$2$:yposition?
  ```

Fixed Issues

- Missing marker line in statistics mode.
- Inconsistencies in save/ recall.
- The initialization of the keyboard controller failed, when a button was pressed during the boot sequence after a firmware update.
- The two DA converter channels influenced each other due to wrong timing settings.

- USBTMC: Intermittent spikes in trace measurement values.
- USBTMC: Instable remote connections have been observed with some USB-Hubs.

Known Issues

- The power must not be switched off during a firmware update of the keyboardcontroller. This restriction does not apply to the update of the bootloader or the firmware application.
- USBTMC: The RQS/MSS-Bit is not compliant to the IEEE 488.2 standard.

1.6 Version 07.05

Firmware package contents

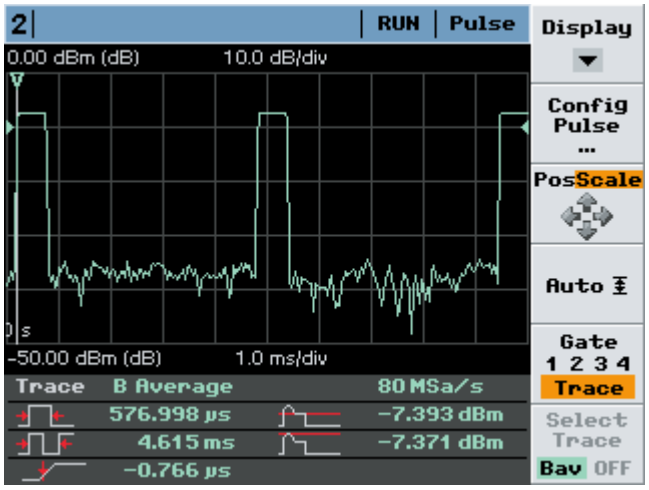
Component	FW version
Application	07.05
Boot Loader	07.05
Keyboard Controller	03.27

New Functionality

- Multitrace support for statistics measurements: Two trace graphs in one display.
- AWGN (Additional White Gaussian Noise) reference trace.
- Tabular presentation of statistics measurements.
- Graphical display in halfsize windows is colored and shows all measurement types, that are available in fullsize windows:
  - Trace,
  - Gates,
  - Marker,
  - Pulse,
  - T'Slot and
  - Stat's
- New remote control emulation mode for R&S®NRVD.

Fixed Issues

- Pulse analysis: RelatedTo-setting (power / voltage) is taken into account for the calculation of overshoot and undershoot values.
- Pulse analysis: After a PRESET (manual control) or *RST (remote control) the following measurements are preselected:



- Pulse Width
- Pulse Period
- Start Time
- Top Power
- Max (Peak)

Known Issues

- The power must not but switched off during a firmware update of the keyboardcontroller. This restriction does not apply to the update of the bootloader or the firmware application.
- USBTMC: The RQS/MSS-Bit is not compliant to the IEEE 488.2 standard.
- USBTMC: Instable remote connections have been observed with some USB-Hubs. This may also happen, if the NRP2 is directly connected to a PC.

1.7 Version 07.03

Firmware package contents

Component	FW version
Application	07.03
Boot Loader	07.07
Keyboard Controller	03.27

New Functionality

- Multitrace support: Two trace graphs in one display.
- Calculation function X/Y for trace measurements.
- Remote control emulation modes supported by R&S®NRP2:
  - Talker mode for HP 436/437/438 (reading measurement results without query commands)
  - Improved emulation of Agilent E4418B/E4419B
  - Emulation of Agilent E1911/12
- New remote command `OUTPut[1]:TRIGger:STATe ON|OFF`.

Fixed Issues

- Emulation of Agilent E4418B/19B:
  The format of the `*IDN?` answer was changed by Agilent. The emulation was brought into line with the latest version of the Agilent E4418B/19B.
- Emulation of HP436A:
  Output format of measurement results was corrected in the 3rd place (specification of power unit). dB was denoted as dBm.
- Emulation of HP437B/HP438A:
  Trigger modes TR1 and TR3 now behave properly.
- Messages in the firmware update tool now correctly displayed, when the NRP2 is updated. The NRP2 can be rebooted, when the message

```
Resetting device...
Waiting for device reset...
*** Do not unplug the device ***
Device <NRP2> serial <900002> is active
Programming finished!
It is now safe to unplug the device
```

  appears.

1.8 Version 07.01

Firmware package contents

Component	FW version
Application	07.01
Boot Loader	07.03
Keyboard Controller	03.27

New Functionality

- Support of the color display

- Support of the automatic pulse analysis feature of the R&S NRP-Z8x wideband power sensors. The configurable window displays up to six selectable pulse parameters
- Enhanced trigger functionality supports master-slave triggering with the R&S NRP-Z8x wideband power sensors
- Remote control emulation modes supported by R&S®NRP2:
  - R&S®NRP
  - HP 436A/437B/438A
  - Agilent E4418B/E4419B

Fixed Issues

- Update of keyboard controller had timeouts and NRP2 didn't shut down.

2 Modifications to the Documentation

None.

3 Firmware Update

3.1 Update Information

It is highly recommended to update the firmware of the sensors, too.

3.1.1 Installation of New Firmware

The current firmware versions can be downloaded from the R&S homepage on the Internet: http://www.rohde-schwarz.com/product/nrp.
Use the firmware update program PureFW to load new firmware for the R&S NRP2. The module is part of the R&S NRP Toolkit that can also be downloaded from the R&S homepage on the Internet.

3.1.2 Hardware and software requirements

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

- PC with free USB port.
- Standard USB Cable.
- Operating system Windows™ 7 or Windows™ 8.
- The R&S NRP Toolkit software must be installed on your PC (includes firmware update program).

3.1.3 Connection between PC and R&S NRP2s

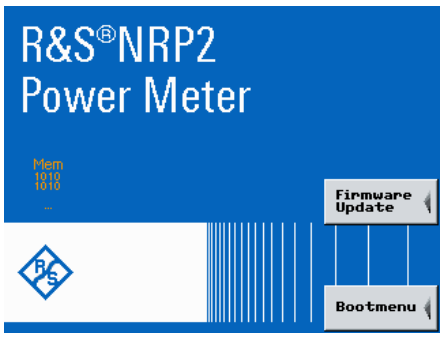
For the connection between the PC and the R&S NRP2, use a standard USB cable.

3.2 Updating the Firmware

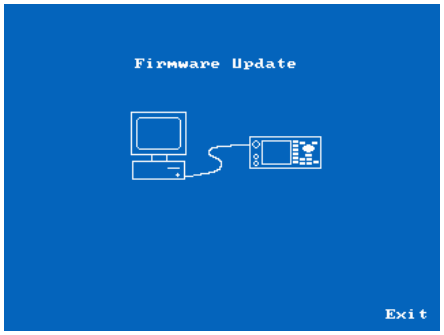
- Preparation
  Install the R&S NRP toolkit software prior to operation of the instrument.

- Connection
  - ✓ Connect the R&S NRP2 to the PC by means of the USB cable.
  - ✓ Make sure that the R&S NRP2 is AC powered during the update process. Switch the R&S NRP2 off.
  - ✓ Unplug any other R&S NRP2 base unit or R&S NRP power sensor from the PC.

Start of the update procedure from a firmware version 06.05 or later:



- ✓ Switch on the R&S NRP2. The boot menu appears on the display only for a short time (2 sec.) before it continues with the normal start-up process.
- ✓ To switch to the Firmware Update mode, the soft key “Firmware Update” in the boot menu has to be pushed.



- ✓ While the Firmware Update mode is active, the picture opposite can be seen on the display.

If you forgot to install the R&S NRP Toolkit software beforehand, Windows will try in vain to find a USB driver for the R&S NRP2. If this happens, the R&S NRP2 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.*
  Then manually assign the USB driver from the toolkit to the R&S NRP2.
- ➢ *Go to Control Panel – Add/Remove Hardware and start the hardware assistant to search for new components.*
- ➢ Mark the R&S NRP2 in the list of hardware components and complete the driver installation.
- ➢ Switch off the R&S NRP2 and back on.

- Updating the boot loader, if your current version is 07.02. If not, you may proceed to the next step: Updating the firmware for the keyboard controller

Attention!
The former version 07.02 had problems updating the keyboard controller. Please make sure you update the bootloader to version 07.11 before updating the keyboard controller.

The boot loader update is similar to the update of the application firmware (see above).

✓ Instead of the application, however, you must load the new boot loader named

openbios_07.11.nrp

- Updating the firmware for the keyboard controller

This update is similar to the update of the application firmware (see above).

✓ Instead of the application, however, you must load the new controller firmware named

keyb_03.30.nrp

Attention!
At the end of the update process of the keyboard controller, the R&S NRP2 goes into the standby state and has to be switched on again manually. This is not an error.

- Updating the boot loader

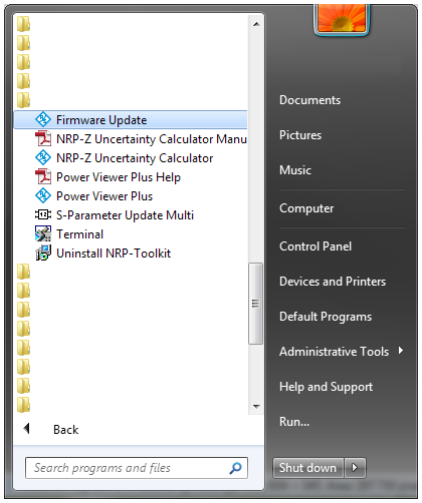
✓ The latest version of the boot loader is 07.11. You may skip this step if your boot loader is already up to date. In this case proceed with "Updating the firmware for the keyboard controller".

The boot loader update is similar to the update of the application firmware (see above).

✓ Instead of the application, however, you must load the new boot loader named

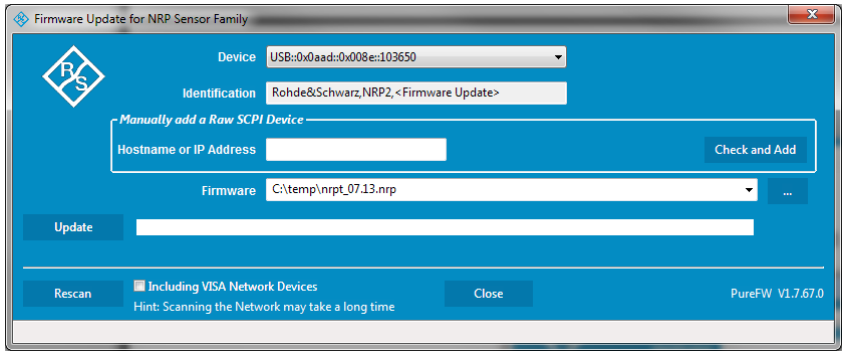
openbios_07.11.nrp

- Updating the application firmware

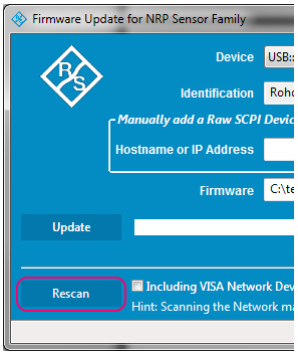


✓ Start the update program PureFW by double-clicking the PureFW.exe or via "Startmenu > NRP-Toolkit > Firmware Update ".

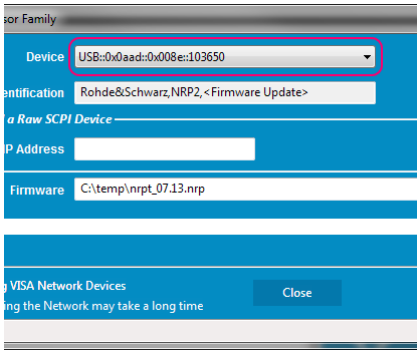
The following window should appear:



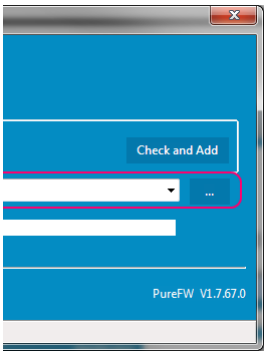
The program automatically starts scanning for R&S NRP2. When the scan is completed, all found NRP2 are enrolled in the "Device" dropdown control.



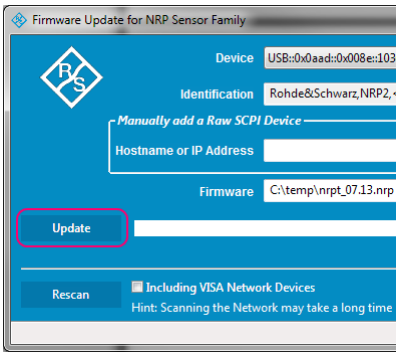
✓ If the R&S NRP2 you want to update is not listed in the "Device" dropdown control, perform a “Rescan”.



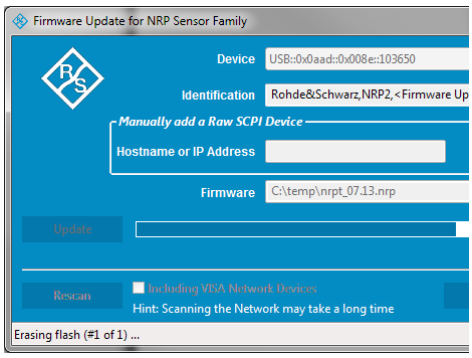
✓ In the "Device" line select the sensor you want to update (“USB::0xaad::0x008e::<serial_number>”).



✓ 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 NRP2 generally has an *.nrp extension.



✓ Click the Update button to start the file transfer, which is performed automatically.



✓ During the update process the progress is shown through a progress bar. The update sequence may take a couple of minutes.

✓ Then disconnect the R&S NRP2 from the PC and press the exit button or switch it off and back on.

Potential problems

✗ Error in the compatibility and consistency checks

In this case, the update is aborted and an error message is output.

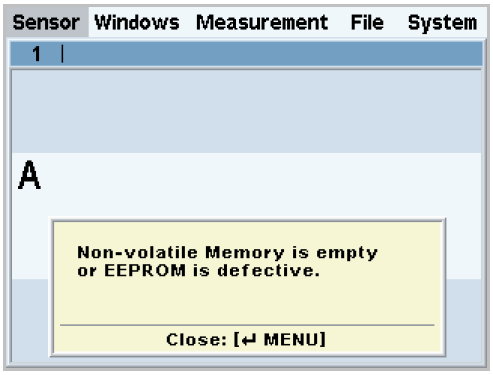
✓ Switch the R&S NRP2 off and back on and start the update again.

It is recommended to erase the nonvolatile data after the firmware update.

✓ Switch the R&S NRP2 off and back on and start the update again.

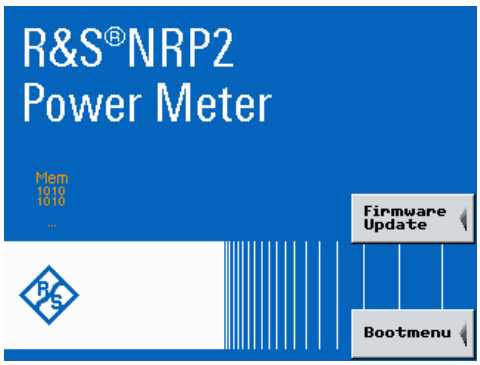
- Warning message after restart

  If the following message appears after a firmware update, it likely, that the nonvolatile database became incompatible and was reset to the factory default. The message always appears, when the nonvolatile memory was erased at startup of the NRP2 (see next paragraph).



- Erasing the nonvolatile memory

In rare cases, the NRP2 fails to update the nonvolatile database. The device might behave incorrectly, if this happens.
In this case, you have to reset the saved data to the factory defaults. All saved parameters including frequency offset tables and device setups will be lost.



✓ When booting, press the (PRE)SET ((PRE)SET) button, while the hardware checks ("Mem" to "Net") are performed.

✓ Wait for the "Recall Factory Preset!" menu.

✓ Press MENU (←MENU) in order to erase the nonvolatile memory.

4 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