

# R&S<sup>®</sup>SMC100A

## Release Notes

### Firmware Version 3.01.134.28

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The firmware of the instrument makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" on the user documentation CD-ROM (included in delivery).

The following abbreviations are used throughout this document: R&S<sup>®</sup>SMC100A is abbreviated as R&S SMC100A.

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# 1 Information on the Current Version and History

## General information

This document describes the procedure to apply a firmware update to the R&S@SMC100A Signal Generator. It furthermore describes the differences between the several firmware versions. The most current firmware version can be obtained from [www.rohde-schwarz.com](http://www.rohde-schwarz.com).

## Instruments covered

This firmware version is suitable for instruments of type R&S@SMC100A, including all module revisions and options.

## Identify current firmware version

The current instrument firmware revision is displayed during the startup sequence of the instrument. In addition, it is provided in the SETUP Software/Options dialog and it is part of the SCPI \*IDN instrument identification string.

## NOTICE

### Potential malfunction of assembly!

It is strongly recommended to **do no firmware downgrade below** the version the device was originally delivered with. Improved module revisions as well as modified structure of calibration data may not be supported by previous firmware versions.

### Special hint for instruments equipped with firmware prior to 2.20.155.20

Please first upgrade to 2.20.155.20 before upgrading the device to 3.01.134.22. Afterwards, do not downgrade instruments to firmware versions prior to 2.20.155.20.

### Special hint for instruments equipped with initial firmware 2.05.170

An intermediate update to 2.10.116.15 is required. Please contact Rohde&Schwarz.

## 1.1 Version 3.01.134.28

Released February 2016

Fixed Issues	Ref-No
Sometimes unexpected error message regarding reference oscillator during self test or when switching reference between intern and extern	

## 1.2 Version 3.01.134.22

Released: January 2014

New Functions	Ref-No
Support of power sensors NRP-Z211 and NRP-Z221	12380
Lower limit of RF frequency reduced to 8kHz to cover new ITU frequency range.	12210
In Power Viewer, aperture time now can be set	11838
*TST now executes and reports selftest	11165
In security menu, "Write Nonvolatile Memory" setting empowers user to disable any attempt of writing to internal mass memory.	11078
New emulations for SME02/03/06	10660
New emulation for Panasonic PA8303	10394
Firmware update via LAN: Future firmware updates can be applied via LAN	10350
Additional emulations for SMT models	10314
New Sweep Mode "Retrace" provides reset to start value for SINGLE modes	10160
In security menu, LAN services can be enabled and disabled individually	9987
Support of IVI-6.1 High Speed LAN Instrument Protocol (HISLIP)	9937
Behavior of step attenuator during RF OFF can be configured (RF OFF MODE)	9749
Power Control via NRP-Z power sensors	9557
New Parameter "Multiplier" for RF frequency, in addition to "Offset"	9536

Modified Functions	Ref-No
Info Messages will not be printed to SCPI Error/Message queue any more in order to simplify SCPI error handling on customer site	11153
Sweep resets to start value when changing sweep mode	10390
Improved throughput and stability for USB-TMC	10178
NRP-Z Power viewer: Lower frequency limit reduced to 0 Hz	10098
SCPI emulations: SYST:LANG settings now available in most emulations to avoid unexpected error messages	10080
Improved handling of rotary knob	9666

Fixed Issues	Ref-No
Unexpected message "PEP value greater than defined limit" if AM has been active	12207
Improper behavior of viClear over USB-TMC	12187
After applying Factory Preset, a subsequent firmware restart via (SYST:REST) fails. Device key is not found, connections via GPIB, USB and SOCKET do not work and power sensors are not enumerated.	12169
	12144
	12043
Under several circumstances, e.g. if an NRP-Z21 sensor is connected, the device key may not be found after power on.	12120
Unexpected message "OVERVOLTAGE at external modulation input..." under some circumstances	12078
GPIB driver hangup after GET	11879
MMEM:CDIR? does not report the correct path	11538
Sometimes unexpected error message after applying PRESET while RF is set to values less than 23MHz	11315

Fixed Issues	Ref-No
No RF signal at specific pulse generator settings	10934
Using VXI11 and USB-TMC, &GTP does not work when instrument is in RWCS State	10549
GPIB: GTL does not work as expected after LLO	10392
SCPI Error Queue contains info messages starting with 0, "No error.."	10338
Wrong SCPI error message when parameter is missing	10295
Selftest fails when power limit value is too low.	10061
Unapplicable message "PEP value greater than defined limit"	10010
*CLS does not clear error queue	9678
Bit 6 of ESR is not set on Go to Local	9594

### 1.3 Version 2.20.155.20

Released: June 2011

New Functions	Ref-No
Support of multi-language user interface. This feature requires installation of a separate language pack after upgrading the firmware. Language can be selected in SETUP Display Settings.	9402
Emulation of Agilent ESG 4421 / 4422B	8736
Frequency and Level displays can be annotated in SETUP Security	8201
Support of NRP-Z Peak Power Sensors	7313
New attenuator modes "Low Noise" and "Low Distortion"	7075

Modified Functions	Ref-No
Exporting and importing lists does not require absolute pathnames any more	9037
*RST does not close user interface dialogs any more	8749
NRP-Z Power Viewer is enabled automatically	8649
*RST performance improved when powers sensors are connected	8646
Sweep Dwell Time can be set up to 100 seconds	8635
Support of wildcards '*' and '?' in mass memory system MMEM	8371
EMF setting is saved during power cycle and reset via Factory Preset	8141
Directory /var/user, which is intended for user data storage, is no longer used by some instrument files. Former instrument directories like "Lists" may be removed if appropriate.	7189

Fixed Issues	Ref-No
Ethernet socket connection may lose packages	9168
Import/Export dialogs do not show .csv files	8781
User step variation of level: Step size issue when level unit other than dBm	8697
Disabling screensaver via remote control fails to reactivate screen	8640
Keys '0', '.' and '-' not working properly when used in text mode	8343

Fixed Issues	Ref-No
CORR : CSET : DATA : SENS : POW : SONC does not work	8323
Telnet connection did not reconnect after interruption	8284
Ethernet Raw connection did not reconnect after interruption	8228
Attenuator Fix setting lost during power down	8151
SYSTem : PRESet did not work	7436

## 1.4 Version 2.10.116.15

Released: January 2010

New Functions	Ref-No
Keyboard can be deactivated to prevent unauthorized modification of instrument settings. Configuration in SETUP Security or by <code>SYSTem:KLOCK ON OFF</code>	7882
Display can be deactivated to hide instrument settings. Configuration in SETUP Security or by <code>SYSTem:DLOCK ON OFF</code> .	7882

Modified Functions	Ref-No
HP8643 Emulation: Added FM-Preemphasis and LF-Source	8073
Level Unit is saved and restored at power on	7957
Revised and simplified configuration of emulation settings in Remote Channel Settings dialog	7894
Level Limit setting not affected by PRESET to protect devices under test	7801
Revised and simplified network settings dialog including connection state indicator	7781
Firmware of R&S NRP-Z Power Sensors can be updated via R&S@SMC100A	7697

Fixed Issues	Ref-No
Some front panel keys not working as expected under seldom circumstances	8223
<code>SYSTem:KLOCK ON OFF</code> not working	7966
SCPI command <code>PM:SOUR INT,EXT</code> not working as expected	7908
IP Addresses with less than 3 digits require leading zeros, causing unintended octal interpretation.	7799
Network settings (e.g. IP-Address) were lost when configured while no network is attached	7761
Missing error message when attempting to disable USB mass storage while storage is attached	7695
Pulse generator: PRESET values lead to settings conflict after enabling double pulse	7638
Several minor issues when modifying sweep settings	6282
Mouse pointer disappears even if wheel is handled	6277

## 1.5 Version 2.10.001.14

Released: May 2009

New Functions	Ref-No
Instrument now can be remote controlled via RS232 by means of a standard external USB to RS232 adaptor. Settings are located in SETUP / Remote Channel Settings	7387
Remote emulation: Support of arbitrary *IDN and *OPT strings.	7334
New remote emulation modes Aeroflex 2023/2040/2050	7301
Instrument can be switched off by remote: SYSTem:SHUtdown	7214
External keyboards: Support of national keyboard layouts	7133
Current remote emulation mode is displayed in info-line	7121
Support of up to three NRP-Z Power Sensors	7098
APIPA/Zeroconf to support automatic configuration in networks without DHCP	6854
Device can be configured to suppress RF level when external reference is out of range	6830

Modified Functions	Ref-No
Performance of PRESET and *RST improved	7699
USB Resource String: Product ID displayed as HEX-value	7635
Improved frequency offset setting	7496
Improved Security concept (menu SETUP Security Settings)	7449
To avoid unintentional instrument settings, values entered by keyboard or front panel will be discarded when input is aborted without confirmation by ENTER or unit key	7383
Level sweep step resolution improved to 0.01dB	7031
New SETUP / NRP-Z Info dialog provides information of attached power sensors	7010
User Correction: Warning if frequency is out of bounds	6889
In case of external reference, internal adjustments are performed using this reference	6697
Several improvements regarding SML compatibility	6494
NRP-Z Power Sensor: New error message in case of power sensor overload	6275
Improved file selector and file manager	5996
Run status of sweep now can be queried: [:SOURce]:SWEep[:FREQuency]:RUNning?	5900
Instrument firmware can be restarted remotely using SYSTem:REStArt	5863

Fixed Issues	Ref-No
Remote Control: Sporadic locks in raw-ethernet channel	7612
Enabling Attenuator Fix Mode during RF OFF locks unexpected attenuator setting	7599
Internal reference frequency off by some Hz after performing internal adjustments	7558
Emulation of HP8648C: Error regarding *RST followed by SYST:ERR?	7504
Several issues regarding SCPI MMEM subsystem	7488
Firmware restarts when executing READ:POW? while no sensor is connected	7454
Front panel key ENTER / x1 does not work in help system	7430
Unintentional update of a specific system file during boot sequence. Risk of instrument malfunction in case of sudden power loss (e.g. "Device Key missing").	7390



Fixed Issues	Ref-No
Coincidental mapping of power sensors in Power-Viewer dialog	7294
“Device key missing” after power on under rare conditions	7222
User correction not effective after power off/on cycle	7206
Storing files using MMEM instructions failed if file already exists (affects *SAV/ *RCL)	7197
Screen Saver: Backlight has not been switched off	7117
UNIT : POW did not work as expected	7105
Some issues regarding PULM : TRIG : EXT remote commands	7092
PULSE EXT input unintentionally has been synchronized to internal 100MHz reference	7067
Pulse Modulation not effective when activated while RF is OFF	7022
Sometimes LAN not available after power on due to failing DHCP	6728
Subtle USB problems under rare conditions due to improper CPU cache coherency	6341
Values of 0.0 sometimes displayed with too much digits and improper unit	6271

## 1.6 Version 2.05.170

Released: July 2008

Initial R&S@SMC100A firmware version.

## 1.7 Modifications to the Documentation

The operating manual corresponding to the current firmware is provided under [www.rohde-schwarz.com/product/smc100a](http://www.rohde-schwarz.com/product/smc100a).

## 2 Firmware Update

### 2.1 Update Information

The update procedure requires that the instrument is operational. There is no need to uninstall the current firmware. If the instrument contains valuable user data it is recommended to save them before applying a new firmware. The data is not erased explicitly, but in case of modifications of internal data structures user data might become inaccessible.



To perform this procedure, USB Device must be enabled in security settings. Press the SETUP key, select 'Security' and check 'USB Device' setting

### 2.2 Updating the Firmware

#### 2.2.1 Required equipment

Software:     Firmware update file SMC\_3.01.134.22.rsu  
                  Optional language pack SMC\_3.01.134.langpack.rsu

Hardware:     USB memory stick with enough free space to accommodate the update files (about 60 - 90 MByte).

The memory stick does not need to be bootable and previous data on the stick is not affected. Several update files may reside on the stick in parallel. During update procedure the stick is not modified by the instrument.

#### 2.2.2 Prepare Memory Stick

1. Download update file and corresponding language pack (if desired) to a PC.
2. Connect USB stick to PC and copy the update files into the root directory.
3. Wait until copy procedure has finished and remove USB stick.

#### 2.2.3 Install new firmware on R&S®SMC100A

1. Switch on instrument.
2. Wait until instrument is operational.
3. Connect USB stick to instrument.

4. Wait a few seconds until message box appears. Confirm by pressing the rotary knob.
5. Select firmware version using the arrow keys and press knob to start update.
6. Wait until "Software update successful" message box appears. This may take several minutes. Remove USB stick.
7. Press any front panel key to shutdown or restart instrument (depends on previous firmware version).
8. In case of shutdown, restart instrument by pressing the power button.

#### 2.2.4 Execute internal adjustments

Internal adjustments will automatically be performed during first power on after firmware update. So no further action is required. However, to initiate internal adjustments manually perform the following steps:

1. Press the PRESET key on the instrument front panel.
2. Press the SETUP key, select 'Internal Adjustments' and execute 'Adjust All'.

Adjustments requiring external measurement equipment are not affected by the firmware update.

#### 2.2.5 Install language pack on R&S®SMC100A

The instrument can optionally be equipped with a separate language pack . The language pack enables the user to choose between several user interface languages. To install the language pack, perform the following steps while instrument is operational:

1. Connect USB stick to instrument.
2. Wait a few seconds until message box appears. Confirm by pressing the rotary knob.
3. Select language pack using the arrow keys and press knob to start update.
4. Wait until "Software update successful" message box appears.
5. Remove USB stick and power cycle the instrument.
6. To set language, press the SETUP key, select 'Display Settings' and choose language by means of 'Gui Language'.

## 2.3 Alternative update procedures

Depending on the current firmware version additional methods for updating the firmware are available:

- **Apply USB memory stick while instrument is powered on**

The previously described firmware update procedure can also be initiated by applying the USB memory stick while instrument is powered on. In this case the update procedure is triggered during startup sequence right after the operating system is ready but before the instruments firmware starts. So this procedure is recommended if for some reason the instruments firmware is not operational.

- **Update firmware by means of the maintenance system**

The R&S@SMC100A is equipped with a maintenance system which does not rely on the instruments operating system and firmware. It can be activated by holding the rotary knob pressed while instrument is powered on. Enter security key if requested (Default is '123456'), select option "Install Firmware Package" and follow instructions. This procedure reinitializes instruments mass memory storage, so **user data is irretrievably lost**. After reboot execute **SETUP Factory Preset** to complete instrument initialization.

- **Apply firmware update via network**

Starting with firmware version 3.01.134.22, subsequent updates can be applied via LAN. To perform this, create a directory **/var/user/update** on the instrument and copy the update file into, e.g. using the FTP protocol. Update procedure starts immediately.

To prevent undesirable firmware updates, this feature is controlled by the switch **Software Update** located in the menu **SETUP/Security.../LAN Services**.

- **Recover factory firmware version**

The factory firmware configuration of the instrument can be recovered using the "Factory Recover" option of the maintenance system. **User data is irretrievably lost**. After reboot execute **SETUP Factory Preset** to complete instrument initialization.

## 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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