R&S®SMC100A
Signal Generator
Release Notes
Firmware Version 2.20.155.20

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

Test and Measurement

Release Notes

Table of Contents

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**.

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.

1.1 Version 2.20.155.20

Released: June 2011

New Functionality

Topic	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 Functionality

Exporting and importing lists does not require absolute pathnames any more	9037
*RST doest 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 not longer used by some instrument files. Former instrument directories like "Lists" may be removed if appropriate.	7189

Fixed issues

Ethernet socket connection may loose 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
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
SYST:PRESET did not work	7436

1.2 Version 2.10.116.15

Released: January 2010

New Functionality

Keyboard can be deactivated to prevent unauthorized modification of instrument settings. Configuration in SETUP Security or by SYSTem:KLOCk ON|OFF	7882
Display can be deactivated to hide instrument settings. Configuration in SETUP Security or by SYSTem:DLOCk ON|OFF.	7882

Modified Functionality

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 NRP-Z Power Sensors can be updated via R&S®SMC100A	7697

Fixed issues

Some front panel keys not working as expected under seldom circumstances	8223
SYSTem:KLOCk ON|OFF not working	7966
SCPI command PM:SOUR INT,EXT 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

1.3 Version 2.10.001.14

Released: May 2009

New Functionality

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 Functionality

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
NPR-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

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
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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
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“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
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UNIT:POW did not work as expected	7105
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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

1.4 Version 2.05.170

Initial R&S®SMC100A firmware version

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. Instrument settings are preserved during the update, including user data and network settings.

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

Required equipment

Software: Firmware update file **SMC_2.20.155.20.rsu**
Optional language pack **SMC_2.20.155.01langpack.rsu**

Hardware: USB memory stick with enough free space to accommodate the update files (about 50 - 70 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.

Prepare Memory Stick

- Download update files to a PC.
- Connect USB stick to PC and copy the update files **into the root directory**.
- Wait until copy procedure has finished and remove USB stick.

Install new firmware on R&S®SMC100A

- Switch on instrument.
- Wait until instrument is operational.
- Connect USB stick to instrument.
- Wait a few seconds until message box appears. Confirm by pressing the rotary knob.
- Select firmware version using the arrow keys and press knob to start update.
- Wait until ”Software update successful“ message box appears. This may take several minutes.
- Press any front panel key to shut down instrument and remove USB stick.
- Restart instrument by pressing the power button.

Execute internal adjustments

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

- Press the PRESET key on the instrument front panel.
- Press the SETUP key, select **Internal Adjustments** and execute **Adjust All**.

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

Install language pack on R&S®SMC100A

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

- Connect USB stick to instrument.
- Wait a few seconds until message box appears. Confirm by pressing the rotary knob.
- Select language pack using the arrow keys and press knob to start update.
- Wait until ”Software update successful“ message box appears.
- Remove USB stick and power cycle the instrument.
- 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. User data is preserved.

- **Update firmware be means of the maintenance system**
  The R&S®SMC100A is equipped with a maintenance system which does not relay 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.

- **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 Open Source Acknowledgement

This instrument firmware makes use of valuable open source software packages. The most important of them are listed together with their corresponding open source license information in a separate Open Source Acknowledgement document. This document also contains the verbatim license texts and can be downloaded from www.rohde-schwarz.com.

The OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/). includes cryptographic software written by Eric Young (eay@cryptsoft.com) and software written by Tim Hudson (tjh@cryptsoft.com).
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Rohde & Schwarz would like to thank the open source community for their valuable contribution to embedded computing.

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