



**ROHDE & SCHWARZ**

Test and Measurement  
Division

## Release Notes

## Firmware

# R&S<sup>®</sup> SMB100A

# Version 2.05.47.26

Printed in the Federal Republic of Germany

Dear Customer,

throughout this manual, R&S SMB is generally used as an abbreviation for the Signal Generator R&S<sup>®</sup> SMB100A.

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# 1 General information

This document describes the procedure required to apply a firmware update to the Rohde&Schwarz SMB100A Signal Generator. It further describes the differences between the several firmware versions.

## CAUTION



### 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.

## 2 Firmware update procedure

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.

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

### 2.1 Required equipment

#### Software:

- Firmware update file SMB\_2.05.47.26.rsu

#### Hardware:

- USB memory stick with enough free space to save the update file (about 30 - 50 MByte).

The 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 Update procedure

#### Prepare Memory Stick

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

### Install new firmware on SMB100A:

- 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.
- Remove USB stick and press any front panel key to shut down instrument.
- Restart instrument by pressing the power button.

### Execute internal adjustments

Beginning with version 2.05.47.26 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 (e.g. in case of a firmware downgrade) 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.

## 3 Modifications in Current Version

Due to customer demands, starting with firmware version 2.05.47.26 **the reference oscillator settings are moved out of the scope of PRESET and \*RST**. This change has been made since the reference oscillator loop takes several seconds to synchronize and unintentional modification following \*RST leads to long measurement times and disturbance of other instruments relying on the reference.

In general the focus of \*RST is to reset states regarding internal instrument operation while leaving settings which are associated to the measurement and remote control environment.

So in addition to the reference oscillator the following settings are out of the scope of \*RST:

- GPIB address
- Network settings
- Emulation settings
- Keyboard and Screen Saver settings
- Start / Stop GUI update
- Power On settings
- Security settings

With exception of the security settings these settings can easily being reset to factory values by means of the new function **Factory Preset**, located at the bottom of the SETUP Menu. Factory Preset includes PRESET. Security settings (passwords and enable/disable states of USB and LAN) are not affected to maintain instrument security. For remote operation the command **SYST:FPPreset** ist provided. Be aware that executing this command likely terminates the remote connection.

Furthermore, beginning with Version 2.05.47.26 the behavior of the keys **DIAGR** and **WINBAR** has been changed. **DIAGR** now toggles between the block diagram, the previous open dialogs and an enlarged frequency and level view. This enlarged view improves readability of the main instrument settings out of greater distance or under difficult environment conditions like bright daylight.

**WINBAR** now directly toggles between the open setting dialogs. It is not necessary to service the rotary knob.

Starting with version 2.05.47.26 the SMB provides a maintenance system. It is activated by pressing and holding the rotary knob during power on. Among several maintenance operations (see local help) a **sanitizing procedure** according **DOD 5220.22-M [NISPOM 8-306]** is available. It removes user data irretrievably to support operation in sensitive areas.

Altogether the new firmware offers the following functional improvements:

### 3.1 Version 2.05.47.26

Emulation of HP-8642 / 8634 / 8644	6378
Emulation of HP-8657	6381
<b>Frequency resolution improved to 1mHz, available in frequency dialog and sweep</b>	6357
<b>Significantly reduced jitter of instrument setting times, including Frequency and Level</b>	6276
New function "Factory Preset" (Setup-Menu) resets settings not covered by PRESET key	6223
<b>PRESET (*RST) does not effect reference oscillator settings</b>	6210
File manager now available	6198
Large Frequency and Level view	6139
Added Maintenance System	6011
<b>NRP-Z Power Viewer: Build-in support of NRP-Z series power sensors</b>	6010
<b>Automatic user correction with NRP-Z power sensors (UCORR Fill With Sensor)</b>	6107
Improved Frequency and Level setting times	5989
<b>Support of USB TMC. SMB can be remote controlled via USB device connection</b>	5956
Sanitizing of internal FLASH memory according to DOD 5220.22-M [NISPOM 8-306]	5566
<b>Support of up to four USB mass memory devices (e.g. USB sticks) for user data</b>	5440

### 3.2 Version 2.04.303.07

Improved level precision in Sample & Hold modes	6039
Significantly reduced drops in output level during frequency and level settings	6027
User programmable *IDN? response string to improve compatibility to other signal generators	5869

### 3.3 Version 2.04.303.01

Added system console	5992
Improved setting times for frequency and level	5987
SML compatibility	5706

### 3.4 Version 2.04.271.02

Initial SMB firmware version

## 4 Problems eliminated

### 4.1 Version 2.05.47.26

Several error messages were not removed even if reason disappeared	6330
No '-' character in hostname	6327
Display of current user correction value did not work	6278
<b>SAV/RCL did not work since file selector didn't recognize settings file extension</b>	6256
Dialogs minimized to WINBAR could not be made visible again	5525
Unintended error message "Synthesizer unlocked" when crossing the 23,4375 MHz boundary	6046

### 4.2 Version 2.04.303.07

Sometimes level overshoot when switching pulse modulation on and off	6100
Output frequency restricted to 10..65MHz and 180..1500MHz under rare circumstances	6051
External triggered sweeps: Error message "reduce external frequency..." even at low trigger rates	6041
Aberrant behavior due to internal communication problems in rare occasions	6040
Corrupt characters when editing string parameters longer than input field	6039
Malfunction of instrument trigger after power off/on cycle	6017
Sometimes warning "Unhandled Interrupt..." during power on	6016
Missing output level on rare occasions	6015
Failing self-check of VCO module on some devices due to too narrow tolerance bounds	5962
Unintended phase jump at "Reset Delta Phase Display" in Phase Settings	5632
Crash during "Create new directory" in file manager	5482

### 4.3 Version 2.04.303.02

Sometimes inaccurate level in Sample&Hold mode (ALC OFF)	5982
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### 4.4 Version 2.04.303.01

Update process changed hostname	5993
RF blanking in list mode was inaccurate	5991
Missing Operation Time and Power On Count in 'Hardware Config' menu	5986

## **4.5 Version 2.04.271.04**

LF generators of some instruments violated distortion specs due to critical timing in FPGA 5880

## **4.6 Version 2.04.271.02**

Initial SMB firmware version

## 5 Open Source Acknowledgement

This instrument firmware makes use of the operating system LINUX® and other valuable open source software packages. The most important of them are listed below together with their corresponding open source license. The verbatim license texts are provided in the following chapters.

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busybox	<a href="http://www.busybox.net/">http://www.busybox.net/</a>	GPL 2
OpenSSL	<a href="http://www.openssl.org/">http://www.openssl.org/</a>	OpenSSL / SSLeay
XFree86	<a href="http://www.xfree86.org/">http://www.xfree86.org/</a>	XFree86

The Signal Generator includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>). It includes cryptographic software written by Eric Young (eay@cryptsoft.com) and software written by Tim Hudson (tjh@cryptsoft.com).

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