

# R&S®SMB100B

## Release Notes

**Firmware Version 5.10.121.40**

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1422.7950.02 | Version 09 | R&S®SMB100B |

The software makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" provided with the product.

The following abbreviations are used throughout this document: R&S®SMB100B is abbreviated as R&SSMB100B.

PAD-TM: 3574.3288.02/05.00/CI/1/EN



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# 1 Information on the current version and history

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## NOTICE

To ensure the R&S SMB100B remains highly secure when being updated, only signed updates will be released.

This will make it possible to detect all future unsigned or manipulated updates.

The instrument's behavior can also be configured via  
"Setup→Security→Security→General→Secure Update Policy".

These settings are password protected.

For more information, see the R&S SMB100B User Manual.

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## NOTICE

Specified frequency and level setting times for instruments with firmware version 4.90.049.57 and higher are increased by 0.1 ms.

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## NOTICE

Specified frequency setting times for instruments with firmware version 4.90.049.60 and higher are increased by 0.3 ms. Devices with IPM21 are not affected.

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## 1.1 Version 5.10.121.40

**Release: June 2022**

New Options
R&S® SMBB-K980 HUMS

## New Functionality / Changed Behavior

## Common

	Internal adjustments can be configured to start automatically after warm up period and switch off instrument after execution. This facilitates performing adjustments in absence of operator.	1042855
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## HUMS

	New option "Health and Usage Monitoring System" available	905693
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## Fixed Issues

## RF

	Error Message "Output unlevelled" occurs for some setting combinations with fixed attenuation	1103653
	Error Message "Output unlevelled" occurs with high AM modulation depth for frequency changes at 80 MHz and 3 GHz	1080664
	Signal to Noise is too low for ATT Fixed and low levels	1081106

## Analog Modulation

	Deviation of Path 2 is not set correctly	944326
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## Selftest

	Selftest for IPM20 fails	1040483
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## Known Issues

## External Reference

	In rare cases the error message 'RFB6.BB: Output unlevelled: Gain Control on Upper Limit' appears if the external reference frequency was switched from external to internal.	421671
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## Analog Modulation

	AM modulation depth is too low for modulation frequencies above 5 kHz	1019250
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## 1.2 Version 4.90.049.62

Release: December 2022

### New Options

None

### New Functionality / Changed Behavior

None

### Fixed Issues

	Wrong output level with setting "Att Fixed" for frequency changes from < 80 MHz to > 80 MHz	1011434
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### Known Issues

#### External Reference

	In rare cases the error message 'RFB6.BB: Output unlevelled: Gain Control on Upper Limit' appears if the external reference frequency was switched from external to internal.	421671
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## 1.3 Version 4.90.049.60

Released: October 2022

### New Options

None

### New Functionality / Changed Behavior

None

### Fixed Issues

#### Improvements for manufacturing

#### Phasemodulation

	A settings conflict (frequency vs. deviation vs. modulation) is shown falsely for certain phase modulation settings	979341
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Known Issues		
External Reference		
	In rare cases the error message 'RFB6.BB: Output unlevelled: Gain Control on Upper Limit' appears if the external reference frequency was switched from external to internal.	421671

## 1.4 Version 4.90.049.57

Released: December 2021

New Options		
None		

New Functionality / Changed Behavior		
RF		
	Improved level accuracy below 200 kHz	578281

Fixed Issues		
LF Generator		
	LF Generator shape "Square" does not work	637133
RF		
	Error message "Output unlevelled" might occur in some situations with level sweep and Settings Characteristics = Uninterrupted	612985

Known Issues		
External Reference		
	In rare cases the error message 'RFB6.BB: Output unlevelled: Gain Control on Upper Limit' appears if the external reference frequency was switched from external to internal.	421671

## 1.5 Version 4.70.128.48

Released: September 2020

New Options		
None		

New Functionality / Changed Behavior		
Common		

	Ca. 30% faster internal adjustments	662773
	Temperature Compensation for increased Level accuracy for temperatures below +18 °C and above +33 °C is active with datasheet Version higher than 6.0	365716

## Fixed Issues

### Common

	Touch operations improved	489016
	User Correction: Fill operation of table editor does not work	682122

## Known-Issues

### RF

	If no K31 is installed, an error message appears for levels > 20 dBm but does not disappear for levels < 20 dBm	735336
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### External Reference

	In rare cases the error message 'RFB6.BB: Output unlevelled: Gain Control on Upper Limit' appears if the external reference frequency was switched from external to internal.	421671
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## 1.6 Version 4.70.006.33

Released: February 2020

## New Options

None

## New Functionality / Changed Behavior

### Common

	Context menu can be accessed by pressing the rotary knob for some time.	362578
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## Fixed Issues

### Common

Hardcopy	By default, screen-shots are not saved to USB memory	550938
	Mouse operation disturbed after touching screen, remote control via VNC does not work as expected.	489231

### RF

	In rare cases the error message RFB6.BB: Output unlevelled: Gain Control on Lower Limit appears, if pulse modulation is active.	585193
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<b>AM Modulation</b>		
	The modulation depth didn't change the PEP value.	510310
<b>Stereocoder</b>		
	Direct mode read back does not work	597784
	Read back of PS does not work	599475
<b>Pulse Generator</b>		
	In rare cases the pulse train is wrong, if a zero pulse is added at the end of the pulse train.	426320

## Known-Issues

### External Reference

	In rare cases the error message 'RFB6.BB: Output unlevelled: Gain Control on Upper Limit' appears if the external reference frequency was switched from external to internal.	421671
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## 1.7 Version 4.60.112.22

Released: May 2019

### New Options

None

### New Functionality / Changed Behavior

<b>RF</b>		
Sweep	Sweep will be switched off in case of considerable overrun conditions.	456033
List Mode	List Mode will be switched off in case of considerable overrun conditions.	456033
LF Output	A new value "Load Impedance" in certain emulations	542234

### Fixed Issues

#### Common

General	Slide switches can be operated in remote state.	501226
Internal Adjustment	Improved Table Adjustment. Internal Adjustments have to be done.	562367
Remote Control	Error handling: SYSTEM:SERROR? delivers info-messages, different from SYSTEM:ERROR?	555983
Save Recall	Frequency is recalled even in case of "Exclude Frequency"	453572
<b>RF</b>		
AM modulation	The RF level is higher than expected.	510294
RF Level Sweep	In rare cases the level steps are different.	542768



Pulse Generator	The trigger mode 'Ext Single' doesn't work.	522691
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## 1.8 Version 4.50.074.45

Released: Dezember 2018

### New Options

None

### New Functionality / Changed Behavior

#### Common

	Support of Equipment Configuration Viewer.	431146
	Consecutive identical messages are bundled in info history and SCPI message queue.	455946

#### Remote Control Emulation

	Added Emulations for Keysight EXG Generators (N517x).	419485
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#### RF

General	Activated internal level limits for frequencies below 1 MHz.	465312
List Mode	The minimal dwell time has been reduced to 1 ms	455790
Sweep	The minimal dwell time has been reduced to 1 ms	455790

### Fixed Issues

#### Common

Remote Control	After viClear remote connection via USB not working.	380954
UCOR	After executing 'Fill UCOR data with sensor' error messages occurs twice.	422497
	The correction value doesn't have an effect.	458407

### Known-Issues

In rare cases the error message "RFB6.BB: Output unlevelled: Gain Control on Upper Limit" appears in the history.

## 1.9 Version 4.30.060.18

Released: June 2018

### New Options

R&S® SMBB-B101 Frequency Range: 8 kHz to 1 GHz
R&S® SMBB-B103 Frequency Range: 8 kHz to 3 GHz
R&S® SMBB-B106 Frequency Range: 8 kHz to 6 GHz
R&S® SMBB-B1 OCXO Reference Oscillator
R&S® SMBB-B1H OCXO Reference Oscillator, High Performance
R&S® SMBB-B3 100 MHz, 1 GHz Ultra Low Noise Reference Input/Output
R&S® SMBB-B5 Stereo/RDS Coder
R&S® SMBB-B32 Ultra High Output Power
R&S® SMBB-B86 Remote Control Interface (GPIB and USB)
R&S® SMBB-K22 Pulse Modulator
R&S® SMBB-K23 Pulse Generator
R&S® SMBB-K24 Multifunction Generator
R&S® SMBB-K27 Pulse Train
R&S® SMBB-K704 Flexible Reference Input from 1 MHz to 100 MHz
R&S® SMBB-K720 AM/FM/PhiM

### New Functionality / Changed Behavior

Initial firmware version for R&S® SMB100B

### Known-Issues

In rare cases the error message "RFB6.BB: Output unlevelled: Gain Control on Upper Limit" appears in the history.

## 2 Modifications to the documentation

The current documentation is up-to-date.

## 3 Firmware update

### 3.1 Validity Information

Device	Order Number
R&S® SMB100B RF Analog Signal Generator	1422.7950K02

### 3.2 Downgrade

Generally it is not recommended to use an earlier version than the latest version available. In some cases the older versions do not support the hardware used in your instrument. Before installing this firmware, check if this could happen:

- ▶ Start System Config→Setup→Instrument Assembly→Versions / Options  
In the tab "Firmware", you find the

#### Downgrade Info:

Package	Version
Factory Version	SMBB_4.30.005.10
Min. Version	4.15.009

- ▶ If the version to be installed is greater or equal than the "Min.Version", the hardware will be supported after downgrading. (However, this cannot be guaranteed for all software options)
- ▶ If the version to be installed is lesser than the "Min.Version", not all of the modules will be supported. **You instrument will not work after downgrading!**
- ▶ Downgrading may fail using standard rsu-Files (eg. due to changes in the instrument configuration file). In this case, press PRESET-Button during power-on or install ISO image available from service department.

### 3.3 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.

#### NOTICE

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

## 3.4 Updating the Firmware

### Required equipment

#### Software:

- Firmware update file **SMBB\_<version-number>.rsu**

#### Hardware:

- USB memory stick with enough free space to save the update file (about 420 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 file to a PC
- Connect USB stick to PC and copy the update file **to the root directory**
- Wait until copy procedure has finished and remove USB stick

### Install new firmware on R&S®SMB100B:

- Connect USB stick to instrument
- Switch on instrument, if instrument is powered off
- Wait a few seconds until "Process Software Update?" message box appears. Confirm by touching the YES Button or 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 touch the Reboot button
- The instrument now reboots.

### Execute internal adjustments (only if indicated)

Internal adjustments can be initiated manually (e.g. after warming up) by performing the followings steps:

- Press  on the instrument front panel.
- Press , select "Internal Adjustments..." and execute "Adjust All". This procedure updates all internal instrument adjustments and will take several minutes.

Adjustments requiring external measurement equipment are not affected by the firmware update and need not to be performed.

## 3.5 Alternative update procedures

The USB firmware update is recommended for most situations. However, alternative methods for updating the firmware are available:

### 3.5.1 Firmware update over LAN

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

- Get access to the file system of the instrument using ftp (other methods like samba share is also supported, see application note 1GP72 for details). Enter `ftp://<ip address or host name>` in the file manager
- Copy **SMBB\_<version-number>.rsu** to directory update
- The update procedure starts immediately
- Execute internal adjustments, if indicated

### 3.5.2 Firmware update using ISO image

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#### **NOTICE**

##### **Potential loss of data!**

User data and user specific instrument settings will be lost during this procedure. Instrument serial number, software license keys and all adjustments requiring external measuring equipment are not affected

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#### **Required equipment**

##### **Software:**

- ISO image for firmware update **SMBB\_<version-number>.iso**  
**Please contact the service department to get this file!**

##### **Hardware:**

- **External** USB CD or DVD ROM burner with USB cable.
- 1 CD Recordable.
- PC with burn program that can burn ISO images onto CD.

Or

- 1 USB-Stick formatted with FAT32 file system
- PC with a program for creating a bootable USB-Stick e. g. UNetbootin.

### About ISO image

This is a standardized file format for creating CD images. A CD image is a single file encapsulating the whole data of a CD including directories and files. Unpacking the image to a CD restores the original data. Almost any CD burning program is able to write CDs based on ISO images.

## Update procedure with external CD-ROM burner

### Burn ISO image onto CD

On most computers, burning an ISO image can be initiated by simply double clicking the ISO image file. If this is not the case, the manual procedure is similar to the following instructions. Nero Burning ROM (StartSmart) is used in this example.

- Connect the external USB CD/DVD drive to the PC
- Insert CD recordable
- Start Nero StartSmart
- Select medium „CD“
- Select „Create Data CD“
- From the **Files menu**, open file **SMBB\_<version-number>.iso**
- Click "Burn"
- When finished, close Nero and disconnect external USB CD/DVD drive

### Install new firmware on R&S®SMB100B

- Instrument must be switched off
- Connect the external USB CD/DVD drive to the R&S®SMB100B
- Switch on Instrument
- The instrument boots from external drive
- Follow the instructions on screen
- Disconnect the external USB device
- Reboot instrument
- Execute internal adjustments, if indicated

## Update procedure with external CD-ROM burner

UNetbootin is used for this example

- Format an USB stick with FAT32
- Download the unetbootin Windows application from the web  
<https://unetbootin.github.io/>
- Start the UNetbootin application
- Select the **SMBB\_<version-number>.iso** and your USB stick
- Press OK. The bootable stick is prepared now
- Insert the prepared stick to the USB port on the rear side of the SMB100B
- Power on the SMB100B
- Select 'installer' in the UNetbootin menu



- The ISO is now copied to the SMB100B
- Start the installation

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**NOTICE**

If the CD refuses to boot please ensure that you have burned the ISO-image as an "image" and not as a single file. Check the CD regarding presence of several files.

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## 4 Customer support

### Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz product, contact our customer support center. A team of highly qualified engineers provides support and works with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz products.

### Contact information

Contact our customer support center at [www.rohde-schwarz.com/support](http://www.rohde-schwarz.com/support) or follow this QR code:



Figure 4-1: QR code to the Rohde & Schwarz support page