R&S®SMBV100B VECTOR SIGNAL GENERATOR



Perfect combination of performance and usability



Product Brochure Version 07.01



ROHDE&SCHWARZ

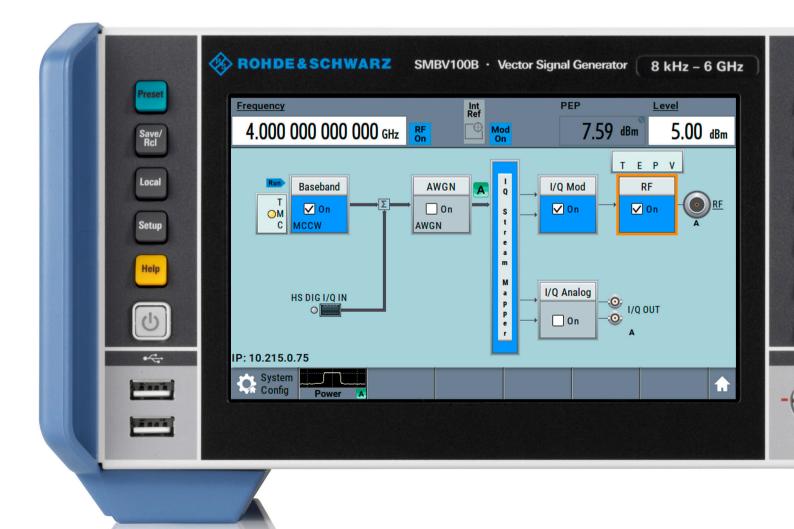
Make ideas real

AT A GLANCE

The state-of-the-art R&S[®]SMBV100B vector signal generator sets standards in its class. Ultra high output power, fully calibrated wideband signal generation and intuitive touchscreen operation make the R&S[®]SMBV100B ideal for all kinds of applications.

The R&S[®]SMBV100B vector signal generator combines superior performance characteristics such as high output power, wide modulation bandwidth and excellent signal quality. With a frequency range from 8 kHz to 6 GHz, the instrument covers all important RF bands for digital wireless communications. The wide RF modulation bandwidth of up to 500 MHz satisfies the challenging requirements of fourth and fifth generation communications standards. In A&D applications, the wide bandwidth allows the generation of complex pulsed signals. In many test setups, such as for RF component verification, it is important to provide signals at high power levels. The R&S[®]SMBV100B offers best-in-class signal quality up to very high power levels. No extra amplifier is needed, which simplifies the test setup.

The R&S[®]SMBV100B has an intuitive touchscreen GUI and is therefore very ergonomic and practical to use. The customizable instrument is also prepared to meet future requirements. Options can be added via software keycodes, making it easy to enhance the instrument with additional functionality, e.g. by extending frequency, bandwidth and output power.



Key facts

- ► Frequency range from 8 kHz to 3 GHz or 6 GHz
- ► Ultra high output power up to +33 dBm
- ► 500 MHz modulation bandwidth with perfect accuracy
- Excellent EVM and ACPR results up to high power levels
- Internal signal generation for all major digital communications standards, incl. 5G NR, LTE and WLAN
- ► Fully-fledged GNSS simulator for GPS, GLONASS, Galileo, BeiDou, IRNSS and QZSS/SBAS
- Convenient operation via 7" touchscreen



BENEFITS

Perfect for signal quality

► page 4

Perfect for output power

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Perfect for use

► page 8

Perfect for upgrading

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Perfect for GNSS testing

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APPLICATIONS

Simplify your envelope tracking system page 13

GNSS testing ► page 14

PERFECT FOR SIGNAL QUALITY

When developing electronic products, it is very important to choose the right test instruments.

For all key RF parameters, the R&S[®]SMBV100B offers outstanding specifications that clearly outperform the values of typical DUTs. This ensures that measurement results are not influenced by the signal generator. The instrument serves as a "golden reference", providing a dependable signal for all receiver tests.

Engineers can focus on core development tasks without having to worry about the performance of their signal generator.

Real-time, user-defined frequency response correction to compensate for the effect of test fixtures

As with almost any other test instrument, the reference plane of the R&S[®]SMBV100B is at the RF connector. This means that the specifications for all parameters apply at this point. In most cases, however, there are also cables and other components (e.g. amplifiers) connected between the generator and the DUT. Especially when working with wide bandwidths, these test fixtures influence the modulated signal, degrading the amplitude and phase accuracy at the DUT input.

To take the influence of an external test fixture into account, the fixture can be characterized in terms of amplitude and phase, and the results can be saved to a Touchstone[®] .s2p file.

With the R&S[®]SMBVB-K544 option, this information can be used to precorrect the generator signal in real time to

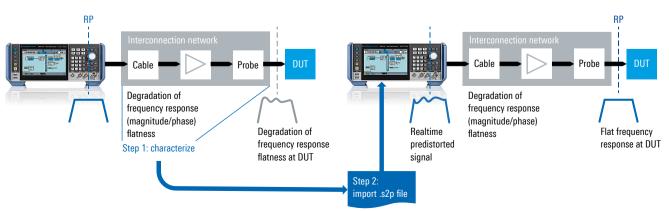
compensate for the influence of the external test fixture. This method provides the user with a test solution that delivers an extremely precise measurement signal at the DUT input, unaffected by the test setup used between the generator and the DUT.

Very low single-sideband (SSB) phase noise

SSB phase noise is a key parameter when it comes to RF generator signal quality. This parameter is not only important in CW applications such as LO substitution, it also plays a significant role in the case of digitally modulated signals as it has a direct influence on the error vector magnitude (EVM).

The R&S[®]SMBV100B exhibits very low SSB phase noise of < -134 dBc (measured) at 1 GHz and 20 kHz offset. The close-in SSB phase noise can be reduced using the R&S[®]SMBVB-B1 OCXO option. The option reduces the phase noise from < -37 dBc (1 Hz) at 1 GHz and 1 Hz offset by 13 dB to < -50 dBc (1 Hz). Using the R&S[®]SMBVB-B1H high performance OCXO option, the close-in SSB phase noise can be further reduced by more than 20 dB compared with the standard instrument specifications, resulting in a value of < -65 dBc (1 Hz).

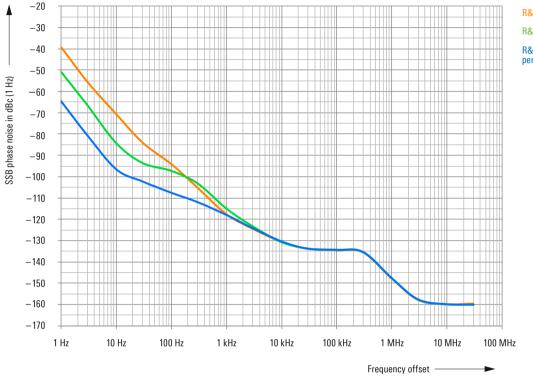
In addition, the R&S[®]SMBVB-B1 and R&S[®]SMBVB-B1H options significantly improve long-term stability for the reference frequency and mitigate the generator's frequency temperature drift.



Principle of user-defined frequency response correction with R&S®SMBVB-K544 option

Wide modulation bandwidth with perfect accuracy

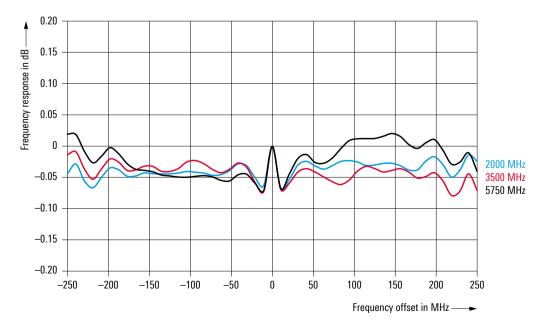
To satisfy the need for higher modulation bandwidths, the R&S[®]SMBV100B is equipped with a high performance baseband. Thanks to the generator's intelligent internal real-time frequency response correction, an extremely high amplitude flatness of < 0.3 dB (measured) is achieved across the entire bandwidth of 500 MHz.



Single-sideband phase noise (1 GHz, 1 Hz, measured)

R&S*SMBV100B standard R&S*SMBVB-B1 0CX0 option R&S*SMBVB-B1H high performance 0CX0 option

Measured frequency response across maximum RF modulation bandwidth of 500 MHz at different carrier frequencies



Excellent EVM and ACPR up to high power levels

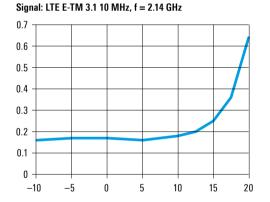
A receiver's data throughput is directly influenced by the input signal quality. As a result, a good EVM value for the test signal is an important prerequisite in order to reliably assess the performance of a DUT.

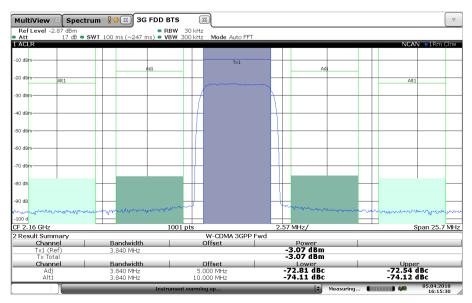
The R&S[®]SMBV100B combines large RF bandwidth and excellent signal quality and is therefore ideal for testing and characterizing wideband receivers and multicarrier amplifiers. With measured EVM values of less than 0.2% for LTE signals and less than 0.4% for 160 MHz IEEE802.11ac signals, the R&S[®]SMBV100B offers far better EVM performance than is required for measuring a DUT.

A feature unique to the R&S[®]SMBV100B is its excellent EVM performance even at high output power levels. An EVM value of less than 0.4% is achieved for an LTE signal with +18 dBm (RMS) output power. The R&S[®]SMBV100B thus outperforms conventional signal generators in terms of EVM, while at the same time simplifying the test setup since in most cases no extra amplifier is needed.

The R&S[®]SMBV100B was designed with a focus on delivering a practically distortion-free signal in addition to good EVM performance. This is a prerequisite for achieving a good adjacent channel power ratio (ACPR). The R&S[®]SMBV100B attains impressive values of < -72 dB ACPR (WCDMA test model 1, 64 DPCH, measured).

Measured EVM performance vs. RMS level (R&S[®]SMBV100B equipped with R&S[®]SMBVB-K31 and R&S[®]SMBVB-B32 options)





Measured ACPR for WCDMA test model 1, 64 DPCH

PERFECT FOR OUTPUT POWER

Many applications call for very high output powers. This means that in many cases an amplifier is required in addition to the signal generator. Here, the R&S[®]SMBV100B offers a better alternative. The ultra high output power option provides users with a calibrated test solution, saving space and money, all in a single box.

Ultra high output power

When equipped with the appropriate options, the R&S[®]SMBV100B can produce output power of up to +33 dBm at 1 GHz and up to +31 dBm at 6 GHz (measured values). In addition, the specified level increases to +25 dBm across almost the entire frequency range.

Excellent level accuracy for CW and modulated signals

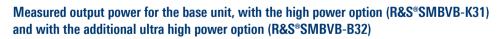
To describe the nonlinear characteristics of amplifier circuits (e.g. to determine the 1 dB compression point), the signal source must exhibit very high level accuracy. In many cases, the overall system is calibrated prior to the measurements to take into account the influence of test fixtures connected between the generator and the DUT. After calibration, it is critical that the generator sets the level values for each test sequence repeatedly and with high precision. Here, the R&S[®]SMBV100B delivers top performance with a measured level repeatability of < 0.09 dB.

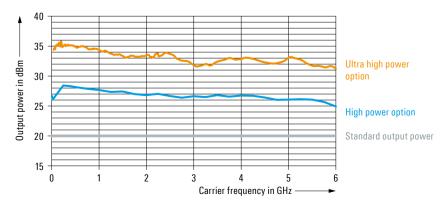
Another critical parameter is level linearity. It is crucial for the generator to keep deviation from nominal values extremely low across a wide amplitude range. With an accuracy of < 0.2 dB (measured), the R&S $^{\circ}$ SMBV100B excels also in this respect.

The generator's very high level accuracy simplifies the calibration procedure, enabling the generator to deliver extremely precise measurements.



Measured level linearity for an internally generated LTE downlink signal at various test frequencies





PERFECT FOR USE

Its intuitive operating concept makes the R&S[®]SMBV100B very ergonomic and practical to use. The customizable instrument is also prepared to meet future requirements.

Convenient operation via 7" touchscreen

The R&S[®]SMBV100B has a clearly structured graphical user interface with a high-resolution 7" touchscreen for efficient, intuitive operation. The functional block diagram of the R&S[®]SMBV100B provides a clear overview at all times. The user can immediately see the signal flow and the status of all inputs and outputs. The built-in graphics function displays the generated signals in real time.

Automation made easy with context-sensitive help system and SCPI recording

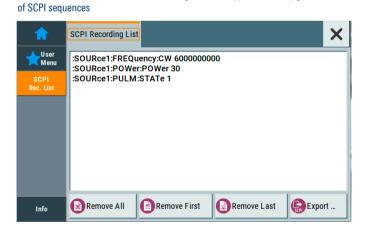
Context-sensitive online help offers comprehensive information. It describes each parameter and setup menu in detail, states the setting range and shows the associated remote control commands. Moreover, users can search for specific parameters in the user manual installed on the instrument. The R&S[®]SMBV100B helps users quickly and correctly create remote control programs. The instrument's built-in SCPI macro recorder with code generator can automatically record all manual settings and create an executable MATLAB[®] script. The R&S[®]SMBV100B therefore helps minimize the time required for test automation, saving development resources.

Internal real-time signal generation

The internal baseband of the R&S[®]SMBV100B offers impressive real-time capabilities. Users can generate signals for all major digital communications standards right on the instrument – no external signal generation software is needed. This simplifies operation of the instrument and helps to speed up measurement tasks.

Protecting user data

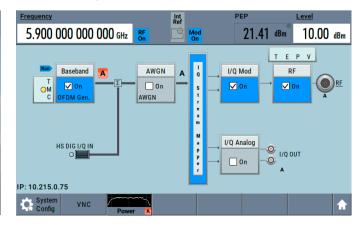
To meet requirements for secured areas, the R&S®SMBV100B can be configured to prevent user data from being saved to the instrument's nonvolatile memory. An easy-to-use erasure and sanitizing procedure is also available that removes user data from the instrument. Furthermore, the R&S®SMBV100B can be equipped with a removable solid-state drive (R&S®SMBVB-B80 option). A dedicated password can be used to disable the LAN and USB ports. The display can be disabled as well. These precautions ensure that no sensitive data will leave secured areas.



The built-in SCPI macro recorder and code generator support fast, easy generation

SCPI Recording Export X Code Template ... User Menu Format MATLAB Predefined Code Generator SCPI File .. Rec. List Export Reload test [status, InstrObject] = rs_connect('visa', 'ni', 'TCPIP::10.215.1.79::INSTR') if(~status) disp(['Instrument connection failed: ' num2str(status)]); return; end while(1) [status, result] = rs_send_query(InstrObject, ':SOURce1:FREQuency:CW Info

Functional block diagram of the R&S®SMBV100B



PERFECT FOR UPGRADING

The R&S®SMBV100B is a flexible platform that can be custom-tailored to specific needs at any time.

Easy upgrading of instrument at user premises via software keycodes

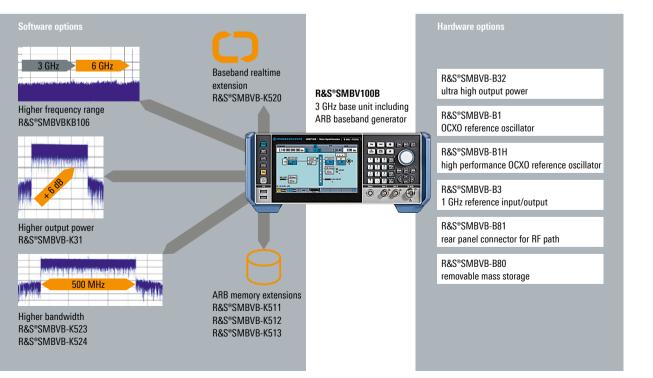
As to the instrument's hardware configuration, only a few decisions need to be made. Six hardware options are available. Software options can be added at the user premises via keycodes. The instrument is fully calibrated at the factory. There is no downtime for servicing the instrument after an upgrade, e.g. after an extension of the frequency range, bandwidth or output power. This flexibility minimizes investment risks, saves time and maximizes system uptime.

Time-limited licenses and waveform package for software options

If specific functions are not permanently needed, users can acquire licenses for R&S®SMBV100B software options for a limited period of time (e.g. 1 month or 6 months). This alternative is offered for all of the R&S®SMBV100B software options. It allows users to configure their R&S®SMBV100B platform as needed for the project at hand.

Characterizing DUTs often requires using test signals from a number of different standards. The waveform package is the ideal solution when it comes to inexpensively providing a signal for each standard. A waveform package for five signals, for example, can license one WCDMA and LTE signal and three different 5G NR signals.

Overview of important software and hardware options



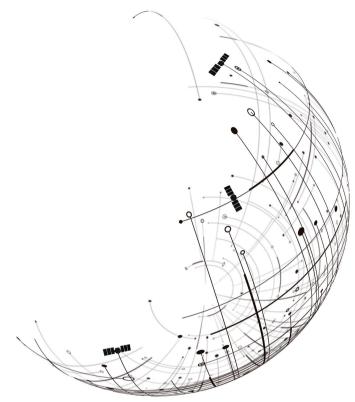
PERFECT FOR GNSS TESTING

The R&S[®]SMBV100B can be equipped with a multitude of GNSS options, turning the instrument into a full-featured GNSS constellation simulator.

Take control over your GNSS scenarios

Using signal generators for GNSS testing has some major advantages over using a live GNSS signal. When using live signals, test conditions are expected to change permanently and unpredictably, so that it is very unlikely that two successive test runs can be performed under identical conditions. Repeatable testing – maybe the most critical test requirement – is impossible when using live GNSS signals.

With the R&S[®]SMBV100B, GNSS simulations can be performed under well-defined, controlled and realistic conditions. It offers fully customizable and repeatable scenarios, so that one and the same test scenario can be replayed as often as needed and produce the same signals with the same characteristics.



Application fields/modes of operation

Constellation simulation

In this mode, the R&S[®]SMBV100B simulates a realistic constellation of GNSS satellites with correct Doppler shifts and ICD-compliant signals. This includes realistic modeling of GNSS orbits, signal propagation effects and system errors like orbit and clock errors.

Receiver prototyping and production testing

Instead of being used as a GNSS constellation simulator, the R&S[®]SMBV100B can also be operated in a mode that is based on static (nonmoving) satellites. The signals generated this way do not exhibit any signal dynamics. Alternatively, constant Doppler shifts or customizable Doppler profiles can be applied to the signals.

Hardware in the loop (HIL) operation

Externally generated trajectory data can be streamed in real time to the R&S[®]SMBV100B. By using a special set of SCPI commands, vehicle position, velocity, acceleration and vehicle attitude data can be fed to the instrument. This makes it possible to operate the R&S[®]SMBV100B in a hardware in the loop environment with high update rates and low latencies.

Automated GNSS testing

Together with the test sequencer software R&S[®]CMWrun, the R&S[®]SMBV100B can be turned into a fully automated test system for verifying the positioning performance of eCall and ERA-GLONASS modules against the test cases defined in the standards EU2017/79/Annex VI (eCall) and GOST 33471 (ERA-GLONASS).

Signals and systems

The R&S[®]SMBV100B supports signal generation for all global satellite navigation systems as well as for satellitebased augmentation systems. Key capabilities are:

- Support of GPS, GLONASS, BeiDou, Galileo, SBAS and QZSS, including GPS P-Code
- Simultaneous signal generation in the GNSS frequency bands L1, L2 and L5 with up to 102 GNSS channels

Scenario configuration made easy

The R&S[®]SMBV100B comes with an integrated GNSS simulation software, which allows user-friendly simulation configuration, monitoring and interactive control using the instrument's large touch screen. No external PC is required for scenario configuration. Scenario generation can be fully automated making use of the extensive remote control capabilities of the R&S[®]SMBV100B.

Realistic GNSS scenarios

All GNSS signals are generated in real-time taking into account signal propagation, user environment and system characteristics like:

- Orbit errors, clock errors, atmospheric effects
- Signal obscuration and multipath
- Antenna gain and phase patterns
- ► Vehicle motion and vehicle attitude
- Pseudorange steps/ramps for RAIM testing

GNSS plus interferer in one box

The R&S[®]SMBV100B can be equipped with an internal noise generator adding well-defined noise or a CW interferer to the GNSS signals. This allows to test the receiver's resilience against unwanted interference or jamming attacks.



R&S[®]LegacyPro REFRESH YOUR T&M EQUIPMENT

Replace your legacy signal generators

For older test systems, obsolescence is a common topic. When individual pieces of equipment become obsolete before the entire ATE system does, regular calibration and repair of obsolete equipment is an expensive, timeconsuming and challenging task. Replacing obsolete test equipment with equivalent, state-of-the-art instruments should be straightforward and require minimal hardware and software changes. The R&S[®]SMBV100B with R&S[®]LegacyPro code emulation fulfills these requirements, reducing the workload and eliminating risks. R&S[®]LegacyPro enables the R&S[®]SMBV100B to reliably emulate a wide range of legacy generators from vendors such as Keysight, Agilent, HP, Aeroflex, Anritsu and Rohde&Schwarz. As a result, the R&S[®]SMBV100B can be deployed in legacy ATE systems without major software changes, effectively increasing uptime, lowering the cost of ownership and extending the test system's useful life.

Enjoy plug&play replacement of your legacy signal generators with R&S[®]LegacyPro and the R&S[®]SMBV100B.

Emulation of legacy generators from Rohde & Schwarz and other vendors

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SIMPLIFY YOUR ENVELOPE TRACKING SYSTEM

An increasing number of power amplifiers support envelope tracking (ET) in order to reduce power consumption and improve efficiency, for example in smartphones and tactical radios. Typical test setups for measuring power amplifiers comprise at least one signal generator and one spectrum analyzer. Envelope tracking requires an additional generator to deliver the envelope signal for the DC modulator.

RF and envelope signal out of one box

Equipped with the R&S®SMBVB-K540 envelope tracking option, the R&S[®]SMBV100B generates both the RF signal and the corresponding envelope signal. The envelope signal is generated from the baseband signal in real time. This means that any user-specific I/Q signals and any supported wireless communications signals, such as LTE or wireless LAN, can be used.

Generating the RF signal and the envelope signal in a single instrument makes it possible to precisely adjust the delay between the two signals.

The R&S®SMBV100B adjusts the delay in picosecond steps in real time, meeting tight requirements, for example accuracy better than 1 ns for a 20 MHz LTE signal.

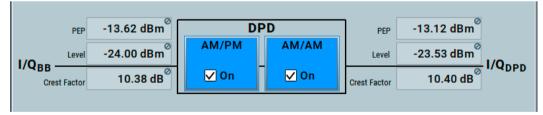
The envelope signal is shaped to optimize the power amplifier for efficiency or linearity. The R&S®SMBV100B offers various shaping methods, such as look-up table

and polynomial, which are applied in real time. For power sweeps, the R&S[®]SMBV100B automatically calculates the amplitude of the envelope signal, eliminating time-consuming manual calculations. It is also possible to adjust additional parameters, such as the gain and impedance of the DC modulator.

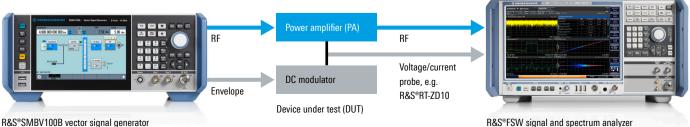
Real-time digital predistortion

With envelope tracking, the amplifier is operated close to or even in saturation, causing distortion at the amplifier output. To compensate for this effect, envelope tracking is often used in combination with digital predistortion (DPD). Equipped with the R&S[®]SMBVB-K541 digital predistortion option, the R&S®SMBV100B can apply real-time amplitude and phase correction to each complex I/Q sample using the values in the DPD tables. As a result, users can guickly verify the effect of predistortion, even for different power levels, without having to manually calculate the original waveform.

Digital predistortion user interface with the R&S®SMBVB-K541 option



Compact Rohde & Schwarz setup for power amplifier tests including envelope tracking



R&S®SMBV100B vector signal generator

GNSS TESTING

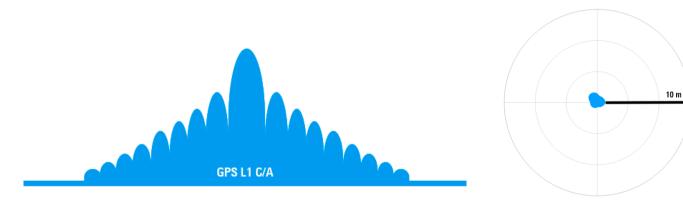
The extensive GNSS simulation capabilities of the R&S[®]SMBV100B make it possible to cover a multitude of single- and multi-frequency GNSS applications.

Typical GNSS tests include the determination of the receiver's time to first fix, acquisition and tracking sensitivity, reacquisition time or its ability to provide an accurate positioning solution for both static and moving receivers. In addition to these standard tests, it is often required to test the receiver's performance under special

conditions such as interference or in the presence of multipath. Other applications include RAIM (receiver autonomous integrity monitoring) testing, ionospheric monitoring or atmospheric sounding.

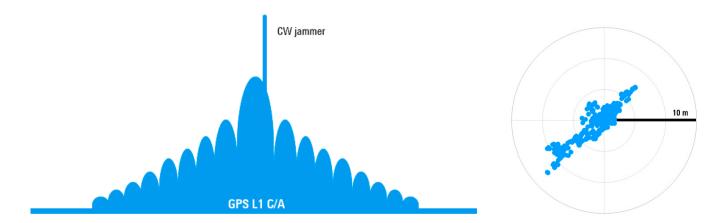
Positioning accuracy

Determination of the receiver's ability to provide an accurate navigation solution for both static and moving receivers under ideal conditions.



Positioning accuracy in the presence of a jammer

Determination of the receiver's ability to provide a navigation solution in the presence of a jammer.



Positioning accuracy in the presence of multipath

Determination of the receiver's positioning performance when multipath is present.

GNSS: Ei	nvironment C							_ ×
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Simulation of multipath propagation for SV 1 with the R&S®SMBV100B. In addition to the line of sight, three reflections with different relative delays, relative amplitudes and relative Doppler shifts are present

RAIM testing

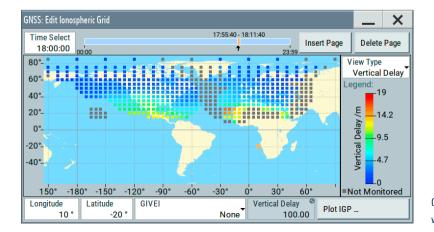
Receiver autonomous integrity monitoring is a special feature that allows a GNSS receiver to check whether the computed position is influenced by unusually high ranging errors. The objective of such tests is to verify that a DUT is able to identify affected observations and exclude them from the position solution.



Simulation of a pseudorange ramp for SV 3 with the R&S®SMBV100B for testing the RAIM capabilities of a GNSS receiver

lonospheric monitoring

Monitoring ionospheric conditions like total electron content (TEC) or anomalies caused by scintillation based on multi-frequency GNSS observations.

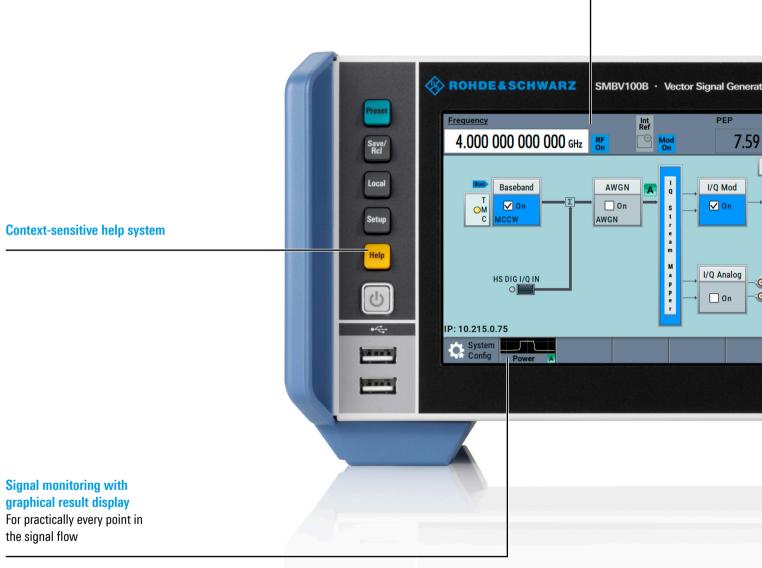


Configuration and simulation of ionospheric path delays with the R&S[®]SMBV100B

STATE-OF-THE-ART USER INTERFACE

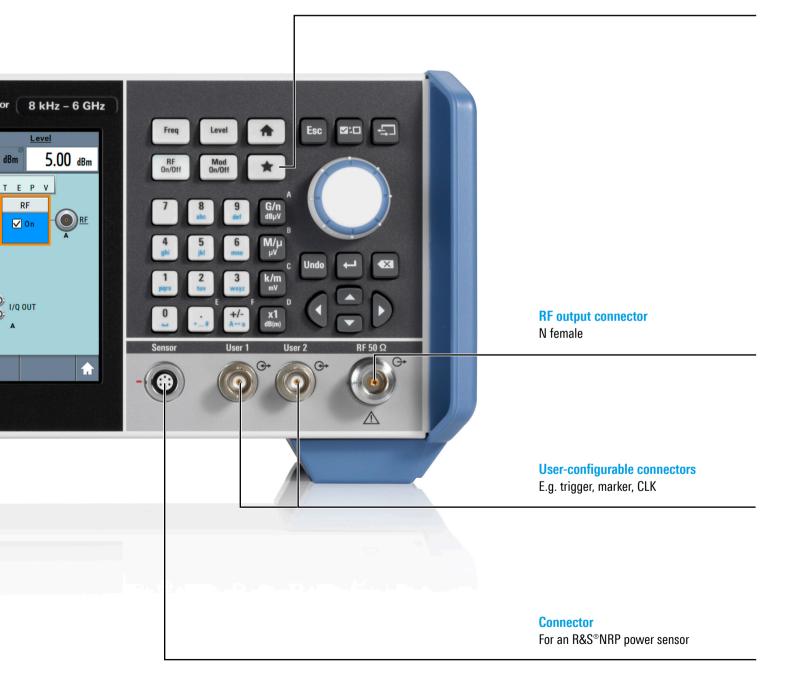
High-resolution touchscreen

With easy-to-use graphical user interface and block diagram



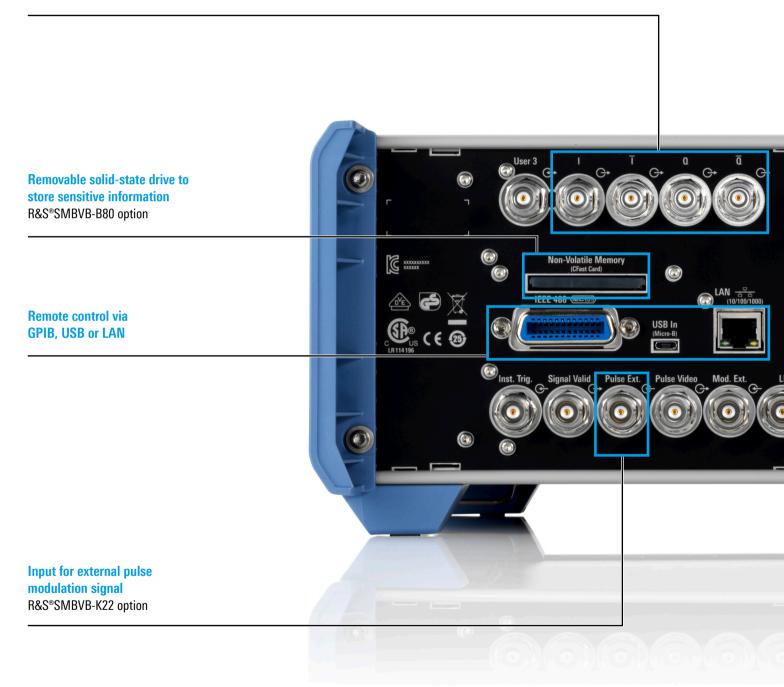
Favorite key

For simplified and fast operation via customizable user menu

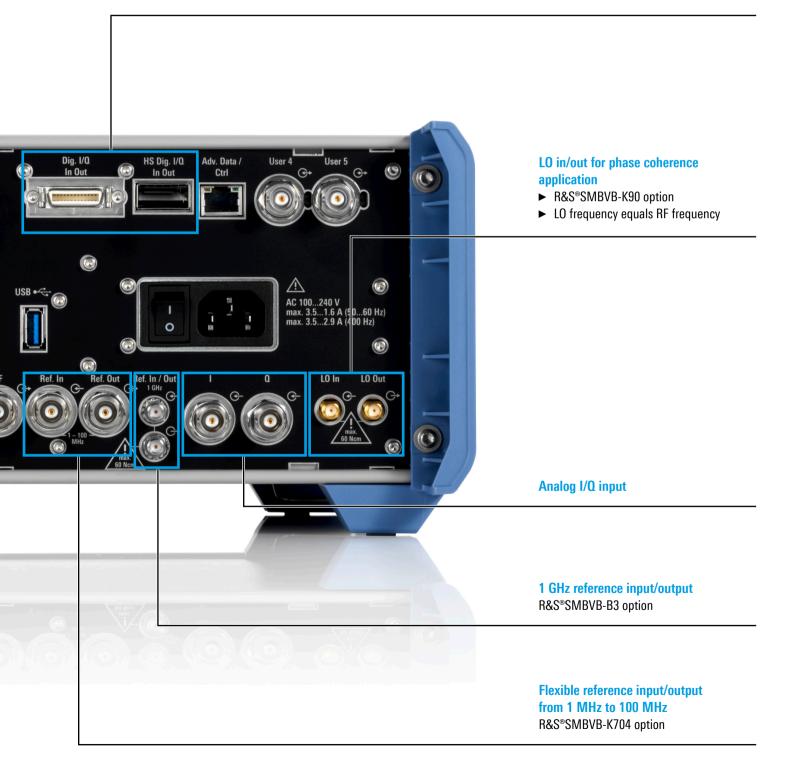


REAR PANEL CONNECTIONS

Single-ended and differential analog I/Q outputs R&S®SMBVB-K17 option



Standard and high-speed digital I/Q interfaces (I/Q in/out) R&S®SMBVB-K19 option



SPECIFICATIONS IN BRIEF

Findpuncty range885"MEVP-8103ImageCW mode1 Mitz to 3 GrizImageCW mode1 Mitz to 3 GrizImageR85"SMEVP-8103 and R25"SMEVPR8100ImageWo mode1 Mitz to 3 GrizImageWo mode1 Mitz to 3 GrizImageStandaut	Specifications in brief			
ICO modeI Mitz to 3 GH2IRAS*SMUSU B103 and IRAS*SMUSUBCI06CV mode8 Hz to 6 GHzIzevel rangepeak envelope prover (PFP)RAS*SMUSUB-F103XKB1065 tenderdIzevel rangepeak envelope prover (PFP)RAS*SMUSUB-F103XKB1061 MHz < f 5 G GHz	Frequency range	R&S®SMBVB-B103		
Image: SMEWER-B103 and R8STSMEWER106 EV CV mode B kt/z to 6 GHz I/C mode 1 MHz to 6 GHz Level range pask envelope power (PEP) R8STSMEWE B103/KB106 standard 1 MHz < 1 & 6 GHz		CW mode	8 kHz to 3 GHz	
CW mode 8 kHz to 8 GHz W0 mode 1 MHz to 8 GHz Level range peek envelops prover (PEP) R3S*SMBVB-B103/KB106 standard I MHz r f s 6 GHz -127 dBm to +21 dBm VI MR SS*SMBVB-S31 option -127 dBm to +21 dBm VI MR SS*SMBVB-S31 option -127 dBm to +21 dBm VI MR SS*SMBVB-R31 and R8S*SMBVB-R32 options -127 dBm to +21 dBm Spectral purity -127 dBm to +21 dBm SSB phase noise f = 1 GHz c1 s 6 GHz -127 dBm to +20 dBm SSB phase noise f = 1 GHz c2 kl c offsat -127 dBm to +20 dBm SSB phase noise f = 1 GHz, call c offsat -70 dBc Analog modulation <-127 dBm to +20 dBm		I/Q mode	1 MHz to 3 GHz	
NO mode NM mode 1 MHz to 6 GHz Level range pask envelope prover IPEP		R&S [®] SMBVB-B103 and R&S [®] SMBVBKB106		
Level range peak envelope power (PEP) R&S*SMBVB B103/KB106 standard 1 Milz < 1 & G G1/z		CW mode	8 kHz to 6 GHz	
R85"SMBVB-B103KB106 standard -127 dBm to +18 dBm 1 MHz < f ± 6 GHz		I/Q mode	1 MHz to 6 GHz	
1 MHz < 1 s 6 GHz	Level range	peak envelope power (PEP)		
with R&S*SMBVB-K31 option -127 dBm to +21 dBm 1 MHz +1 s 4 GHz -127 dBm to +21 dBm 4 OHz <1 s 6 OHz	R&S [®] SMBVB-B103/KB106	standard		
111 <th< td=""><td></td><td>$1 \text{ MHz} < f \le 6 \text{ GHz}$</td><td>–127 dBm to +18 dBm</td></th<>		$1 \text{ MHz} < f \le 6 \text{ GHz}$	–127 dBm to +18 dBm	
4 GHz < 1 ≤ 6 GHz		with R&S [®] SMBVB-K31 option		
with R&S*SMBVB-K31 and R&S*SMBVB-B32 optionsID MHz < 1 s 6 GHz-127 dBm to +25 dBmSpectral puritySE phase noise1 = 1 GHz, 20 kHz offset, 1 Hz measurement bandwidth<-126 dBc, -132 dBc (typ.)Harmonics1 MHz < 1 s 6 GHz, level 31 dBm<-30 dBcNonharmonicsf = 1 GHz, level > +10 dBm, offset > 10 kHz<-76 dBcAnalog modulationsupported analog modulation modesWith R&S*SMBVB-K22 optionpulse modulationVO modulationwith R&S*SMBVB-K22 optionpulse modulationI/O modulationI MHz < 1 ≤ 1000 MHz±25% of carrier frequencyI/O modulation1 MHz < 1 ≤ 1000 MHz±25% of carrier frequencyI/E modulation frequency response in specified RF modulation frequency response in specified potimization mode: high quality<		$1 \text{ MHz} < f \le 4 \text{ GHz}$	–127 dBm to +21 dBm	
In the second		$4 \text{ GHz} < f \le 6 \text{ GHz}$	-127 dBm to +20 dBm	
Spectral purity		with R&S [®] SMBVB-K31 and R&S [®] SMBVB-B32 optic	ons	
SSB phase noise f = 1 GHz, 20 kHz offset, 1 Hz measurement bandwidth < -126 dBc, -132 dBc (typ.)		$10 \text{ MHz} < f \le 6 \text{ GHz}$	-127 dBm to +25 dBm	
SSB phase hoise 1 Hz measurement bandwidth < <120 GBC, -132 GBC (typ.)	Spectral purity			
Harmonics 1 MHz < 1 ≤ 0 GHz evel ≤ 10 Bm	SSB phase noise		< -126 dBc, -132 dBc (tvp.)	
Nonharmonicsf = 1 GHz, level > +10 dBm, offset > 10 kHz<-76 dBcAnalog modulationsupported analog modulation modesAM, FM, ϕ Mwith R8S*SMBVB-K22 optionAM, FM, ϕ MWith R8S*SMBVB-K22 optionpulse modulationI/Q modulationinternal baseband I/Q, I/Q wideband on1I/R modulation bandwidthvith internal baseband I/Q, I/Q wideband on±25% of carrier frequencyf > 1000 MHz±25% of carrier frequency±250 MHzi/M = x f ≤ 1000 MHz±25% of carrier frequency±25% of carrier frequencyi = 1 MHz ≤ f ≤ 4 GHz±1 GHzwith internal I/Q inputs, I/Q wideband oni/M = x f ≤ 4 GHz±1 GHz±1 GHzModulation frequency response in specificawith internal baseband I/Q, I/Q wideband on, optimization mode: high quality< 1.0 dB, < 0.3 dB (meas.)				
Analog modulation supported analog modulation modes with R&S*SMBVB-K720 option AM, FM, qM with R&S*SMBVB-K22 option pulse modulation I/O modulation with RS*SMBVB-K22 option pulse modulation RF modulation bandwidth with internal baseband I/O, I/O wideband on ±25% of carrier frequency I MHz < f ≤ 1000 MHz		,		
with R&S*SMBVB-K720 option AM, FM, qM With R&S*SMBVB-K22 option pulse modulation I/Q modulation			< -/6 dBc	
with R&S*SMBVB-K22 optionpulse modulationVO modulationwith internal baseband I/Q, I/Q wideband on±25% of carrier frequencyRF modulation bandwidth1 MHz < f ≤ 1000 MHz	Analog modulation			
I/Q modulation with internal baseband I/Q, I/Q wideband on RF modulation bandwidth with internal baseband I/Q, I/Q wideband on 1 MHz < f ≤ 1000 MHz				
RF modulation bandwidth with internal baseband I/Q, I/Q wideband on 1 MHz < f ≤ 1000 MHz		with R&S [®] SMBVB-K22 option	pulse modulation	
I MHz < f ≤ 1000 MHz±25% of carrier frequencyf > 1000 MHz±250 MHzwith external I/Q inputs, I/Q wideband on1 MHz ≤ f ≤ 4 GHz1 MHz ≤ f ≤ 4 GHz±25% of carrier frequencyf > 4 GHz±1 GHzModulation frequency response in specified RF modulation bandwidthwith internal baseband I/Q, I/Q wideband on, optimization mode: high qualityI/Q baseband generator< 1.0 dB, < 0.3 dB (meas.)				
Image: standardsf > 1000 MHz±250 MHzwith external I/Q inputs, I/Q wideband on1 MHz ≤ f ≤ 4 GHz±25% of carrier frequency1 MHz ≤ f ≤ 4 GHz±1 GHzModulation frequency response in specified RF modulation bandwidthwith internal baseband I/Q, I/Q wideband on, optimization mode: high quality< 1.0 dB, < 0.3 dB (meas.)	RF modulation bandwidth			
initial standardswith external I/Q inputs, I/Q wideband on 1 MHz ≤ f ≤ 4 GHz±25% of carrier frequencyI1 MHz ≤ f ≤ 4 GHz±1 GHzModulation frequency response in specified RF modulation bandwidthwith internal baseband I/Q, I/Q wideband on, optimization mode: high quality<1.0 dB, < 0.3 dB (meas.)				
1 MHz ≤ f ≤ 4 GHz±25% of carrier frequencyModulation frequency response in specified RF modulation bandwidthf > 4 GHz±1 GHzModulation frequency response in specified RF modulation bandwidthwith internal baseband I/Q, I/Q wideband on, optimization mode: high quality< 1.0 dB, < 0.3 dB (meas.)			±250 MHz	
f > 4 GHz±1 GHzModulation frequency response in specified RF modulation bandwidthwith internal baseband I/Q, I/Q wideband on, optimization mode: high quality< 1.0 dB, < 0.3 dB (meas.)				
Modulation frequency response in specified RF modulation bandwidthwith internal baseband I/Q, I/Q wideband on, optimization mode: high quality< 1.0 dB, < 0.3 dB (meas.)I/Q baseband generatorSignal bandwidthstandard120 MHz240 MHz120 MHzwith R&S*SMBVB-K523 option240 MHz240 MHz120 MHzstandardMoth R&S*SMBVB-K523 and R&S*SMBVB-K524 options500 MHzARB memory depthstandardwith R&S*SMBVB-K511 option512 Msamplewith R&S*SMBVB-K511 and R&S*SMBVB-K512 options1 Gsamplewith R&S*SMBVB-K513 options2 Gsamplebigital standardsthe options are described in the Digital Standards data sheet (PD 5213.9434.22)56 NR, cellular IOT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S*Pulse Sequencer (DFS) software or R&S*Pulse Sequencer (DFS) software or R&S*Pulse Sequencer (DFS) softwarethe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)gPS, Galileo, GLONASS, BeiDou, GBAS, ILS,GNSS and avionicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,				
RF modulation bandwidthoptimization mode: high quality< 1.0 dB, < 0.3 dB (meas.)I/Q baseband generatorSignal bandwidthstandard120 MHzwith R&S*SMBVB-K523 option240 MHzWith R&S*SMBVB-K523 and R&S*SMBVB-K524 options500 MHzARB memory depthstandard64 Msamplewith R&S*SMBVB-K511 option512 Msamplewith R&S*SMBVB-K511 and R&S*SMBVB-K512 options1 Gsamplewith R&S*SMBVB-K513 options2 Gsamplebigital standardsbig options are described in the Digital Standards data sheet (PD 5213.9434.22)56 NR, cellular IoT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n///pac/ax/be, AWGN and morebigital standardsthe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)pulse sequencing, enhanced pulse sequencing, direction finding, DFS signal generationGNSS and avignicsthe options are described in the GNSS andGPS, Gailleo, GLONASS, BeiDou, GBAS, ILS,			±1 GHz	
Signal bandwidthstandard120 MHzImage: Signal bandwidthwith R&S*SMBVB-K523 option240 MHzImage: Signal bandwidthwith R&S*SMBVB-K523 and R&S*SMBVB-K524 options500 MHzARB memory depthstandard64 MsampleImage: Signal bandwidthstandard512 MsampleImage: Signal bandwidthwith R&S*SMBVB-K511 option512 MsampleImage: Signal bandwidthwith R&S*SMBVB-K511 and R&S*SMBVB-K512 options1 GsampleImage: Signal bandwidthwith R&S*SMBVB-K513 options2 GsampleImage: Signal bandwidththe options are described in the Digital Standards data sheet (PD 5213.9434.22)Signal bandwidthImage: Signal bandwidththe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)Signal generationImage: Signal bandwidththe options are described in the GNSS and options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,	RF modulation bandwidth		< 1.0 dB, < 0.3 dB (meas.)	
Image: constant of the symbolic symbols and symbol	-			
Numberwith R&S*SMBVB-K523 and R&S*SMBVB-K524 options500 MHzARB memory depthstandard64 Msamplewith R&S*SMBVB-K511 option512 Msamplewith R&S*SMBVB-K511 and R&S*SMBVB-K512 options1 Gsamplewith R&S*SMBVB-K511, R&S*SMBVB-K512 and R&S*SMBVB-K513 options2 GsampleDigital standardsthe options are described in the Digital Standards data sheet (PD 5213.9434.22)5G NR, cellular IoT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S*Pulse Sequencer (DFS) software or R&S*Pulse Sequencer (DFS) softwarethe options are described in the GNSS and options are described in the GNSS and options are described in the GNSS and options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,	Signal bandwidth			
ARB memory depthstandard64 MsampleARB memory depthstandard64 Msamplewith R&S°SMBVB-K511 option512 Msamplewith R&S°SMBVB-K511 and R&S°SMBVB-K512 options1 Gsamplewith R&S°SMBVB-K513 options2 Gsamplebigital standardsthe options are described in the Digital Standards data sheet (PD 5213.9434.22)5G NR, cellular IoT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S°Pulse Sequencer (DFS) softwarethe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)pulse sequencing, enhanced pulse sequencing, direction finding, DFS signal generationGNSS and avignicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,			240 MHz	
indexwith R&S*SMBVB-K511 option512 Msamplewith R&S*SMBVB-K511 and R&S*SMBVB-K512 options1 Gsamplewith R&S*SMBVB-K511, R&S*SMBVB-K512 and R&S*SMBVB-K513 options2 GsampleDigital standardsthe options are described in the Digital Standards data sheet (PD 5213.9434.22)5G NR, cellular IoT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S*Pulse Sequencer software or R&S*Pulse Sequencer (DFS) softwarethe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)pulse sequencing, enhanced pulse sequencing, direction finding, DFS signal generationGNSS and avignicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,			500 MHz	
with R&S°SMBVB-K511 and R&S°SMBVB-K512 options1 Gsamplewith R&S°SMBVB-K511, R&S°SMBVB-K512 and R&S°SMBVB-K513 options2 GsampleDigital standardsthe options are described in the Digital Standards data sheet (PD 5213.9434.22)5G NR, cellular IoT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S°Pulse Sequencer software or R&S°Pulse Sequencer (DFS) softwarethe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)pulse sequencing, enhanced pulse sequencing, direction finding, DFS signal generationGNSS and avignicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,	ARB memory depth	standard	64 Msample	
optionsI Gsamplewith R&S*SMBVB-K511, R&S*SMBVB-K512 and R&S*SMBVB-K513 options2 GsampleDigital standardsthe options are described in the Digital Standards data sheet (PD 5213.9434.22)5G NR, cellular IoT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S*Pulse Sequencer software or R&S*Pulse Sequencer (DFS) softwarethe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)pulse sequencing, enhanced pulse sequencing, direction finding, DFS signal generationGNSS and avionicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,			512 Msample	
R&S*SMBVB-K513 options2 GsampleDigital standards5G NR, cellular IoT, LTE Release 8 to 15, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S*Pulse Sequencer software or R&S*Pulse Sequencer (DFS) softwarethe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)pulse sequencing, enhanced pulse sequencing, direction finding, DFS signal generationGNSS and avionicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,			1 Gsample	
Digital standardsthe options are described in the Digital Standards data sheet (PD 5213.9434.22)3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and moreExternal R&S°Pulse Sequencer software or R&S°Pulse Sequencer (DFS) softwarethe options are described in the Pulse Sequencer options data sheet (PD 3607.1388.22)pulse sequencing, enhanced pulse sequencing, direction finding, DFS signal generationGNSS and avionicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,			2 Gsample	
R&S®Pulse Sequencer (DFS) softwareoptions data sheet (PD 3607.1388.22)direction finding, DFS signal generationGNSS and avionicsthe options are described in the GNSS andGPS, Galileo, GLONASS, BeiDou, GBAS, ILS,			3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax/be, AWGN and more	
(aNSS and avionics				
	GNSS and avionics			

Always up to date

The firmware can be updated using a USB storage device or the LAN port. Free firmware updates are available for download from the Internet at www.rohde-schwarz.com.

ORDERING INFORMATION

Designation	Туре	Order No.
Base unit		
Vector signal generator ¹⁾ , including baseband generator with ARB (64 Msample, 120 MHz RF bandwidth), power cable and quick start guide	R&S [®] SMBV100B	1423.1003.02
Options		
$R\&S^{\circ}SMBVB-Bxxx = hardware option,$		
R&S®SMBVB-Kxxx/KBxxx = software/keycode option Frequency options		
8 kHz to 3 GHz (mandatory)	R&S [®] SMBVB-B103	1423.6270.02
Frequency extension to 6 GHz	R&S®SMBVBKB106	1423.6370.02
RF options		1420.0070.02
OCXO reference oscillator	R&S [®] SMBVB-B1	1423.6470.02
High performance OCXO reference oscillator	R&S [®] SMBVB-B1H	1423.6570.02
1 GHz reference input/output	R&S [®] SMBVB-B3	1423.7260.02
Flexible reference input from 1 MHz to 100 MHz	R&S®SMBVB-K704	1423.7618.02
High output power	R&S [®] SMBVB-K31	1423.6670.02
Ultra high output power	R&S [®] SMBVB-B32	1423.6711.02
Phase coherence	R&S [®] SMBVB-K90	1423.7076.02
Pulse modulator	R&S [®] SMBVB-K22	1423.7560.02
Pulse generator	R&S [®] SMBVB-K23	1423.7576.02
Multifunction generator	R&S®SMBVB-K24	1423.7582.02
AM/FM/φM	R&S [®] SMBVB-K720	1423.7599.02
Baseband		2017 000102
Differential analog I/Q outputs	R&S [®] SMBVB-K17	1423.7624.02
Digital baseband output	R&S [®] SMBVB-K19	1423.7630.02
ARB memory extension to 512 Msample	R&S [®] SMBVB-K511	1423.7653.02
ARB memory extension to 1 Gsample	R&S [®] SMBVB-K512	1423.7660.02
ARB memory extension to 2 Gsample	R&S [®] SMBVB-K513	1423.8589.02
Baseband real-time extension	R&S [®] SMBVB-K520	1423.7676.02
Baseband extension to 240 MHz RF bandwidth	R&S [®] SMBVB-K523	1423.7682.02
Baseband extension to 500 MHz RF bandwidth	R&S [®] SMBVB-K524	1423.7699.02
Baseband enhancements		
Additive white Gaussian noise (AWGN)	R&S®SMBVB-K62	1423.7876.02
Bit error rate tester	R&S®SMBVB-K80	1423.7647.02
Envelope tracking	R&S®SMBVB-K540	1423.7701.02
AM/AM, AM/φM predistortion	R&S®SMBVB-K541	1423.7718.02
User-defined frequency response correction	R&S®SMBVB-K544	1423.8150.02
Crest factor reduction	R&S®SMBVB-K548	1423.8820.02
Notched signals	R&S [®] SMBVB-K811	1423.8972.02
Digital standards		
GSM/EDGE	R&S®SMBVB-K40	1423.7724.02
EDGE evolution	R&S [®] SMBVB-K41	1423.7730.02
3GPP FDD	R&S®SMBVB-K42	1423.7747.02
CDMA2000°	R&S®SMBVB-K46	1423.7760.02
1xEV-DO	R&S [®] SMBVB-K47	1423.7776.02
TD-SCDMA	R&S [®] SMBVB-K50	1423.7782.02
TD-SCDMA enhanced BS/MS tests	R&S [®] SMBVB-K51	1423.7799.02
IEEE802.11 (a/b/g/n/j/p)	R&S [®] SMBVB-K54	1423.7824.02
LTE Release 8	R&S [®] SMBVB-K55	1423.7830.02
Bluetooth® EDR	R&S [®] SMBVB-K60	1423.7853.02
Multicarrier CW signal generation	R&S®SMBVB-K61	1423.7860.02
3GPP FDD HSPA/HSPA+, enhanced BS/MS tests	R&S [®] SMBVB-K83	1423.7899.02
LTE Release 9	R&S [®] SMBVB-K84	1423.7901.02

Designation	Туре	Order No.
ITE Belease 10	R&S [®] SMBVB-K85	1423.7918.02
IEEE802.11ac	R&S [®] SMBVB-K86	1423.7924.02
1xEV-DO Rev. B	R&S [®] SMBVB-K87	1423.7930.02
NFC A/B/F	R&S [®] SMBVB-K89	1423.7947.02
LTE Release 11	R&S [®] SMBVB-K112	1423.8037.02
LTE Release 12	R&S [®] SMBVB-K113	1423.8043.02
OFDM signal generation	R&S [®] SMBVB-K114	1423.8050.02
Cellular IoT Release 13	R&S [®] SMBVB-K115	1423.8066.02
Bluetooth [®] 5.x	R&S [®] SMBVB-K117	1423.8089.02
LTE Release 13/14/15	R&S [®] SMBVB-K119	1423.8108.02
LoRa°	R&S®SMBVB-K131	1423.8720.02
IEEE 802.11ax	R&S [®] SMBVB-K142	1423.8114.02
Cellular IoT Release 14	R&S [®] SMBVB-K143	1423.8637.02
5G NR Release 15	R&S [®] SMBVB-K144	1423.8608.02
Cellular IoT Release 15	R&S®SMBVB-K146	1423.8808.02
IEEE 802.11be	R&S [®] SMBVB-K147	1423.8950.02
5G NR Release 16	R&S [®] SMBVB-K148	1423.8843.02
UWB HRP	R&S [®] SMBVB-K149	1423.8889.02
U-plane generation	R&S [®] SMBVB-K175	1423.8989.02
Digital standards using R&S®WinIQSIM2 ²⁾		
GSM/EDGE	R&S [®] SMBVB-K240	1423.8166.02
EDGE evolution	R&S [®] SMBVB-K241	1423.8172.02
3GPP FDD	R&S [®] SMBVB-K242	1423.8189.02
GPS	R&S [®] SMBVB-K244	1423.8195.02
CDMA2000°	R&S [®] SMBVB-K246	1423.8208.02
1xEV-DO Rev. A	R&S [®] SMBVB-K247	1423.8214.02
TD-SCDMA	R&S [®] SMBVB-K250	1423.8220.02
TD-SCDMA enhanced BS/MS tests	R&S [®] SMBVB-K251	1423.8237.02
DVB-H	R&S®SMBVB-K252	1423.8243.02
DAB/T-DMB	R&S [®] SMBVB-K253	1423.8250.02
IEEE802.11a/b/g/n	R&S®SMBVB-K254	1423.8266.02
LTE Release 8	R&S®SMBVB-K255	1423.8272.02
Bluetooth® EDR	R&S®SMBVB-K260	1423.8295.02
Multicarrier CW signal generation	R&S®SMBVB-K261	1423.8308.02
Additive white Gaussian noise (AWGN)	R&S [®] SMBVB-K262	1423.8314.02
Galileo	R&S [®] SMBVB-K266	1423.8320.02
3GPP FDD HSPA/HSPA+, enhanced BS/MS tests	R&S [®] SMBVB-K283	1423.8337.02
LTE Release 9	R&S [®] SMBVB-K284	1423.8343.02
LTE Release 10	R&S®SMBVB-K285	1423.8350.02
IEEE802.11ac	R&S [®] SMBVB-K286	1423.8366.02
1xEV-DO Rev. B	R&S [®] SMBVB-K287	1423.8372.02
NFC A/B/F	R&S [®] SMBVB-K289	1423.8389.02
GLONASS 1 satellite	R&S®SMBVB-K294	1423.8395.02
NavIC/IRNSS 1 satellite	R&S [®] SMBVB-K297	1423.8695.02
Modernized GPS	R&S [®] SMBVB-K298	1423.8408.02
Beidou	R&S [®] SMBVB-K407	1423.8489.02
LTE Release 11	R&S®SMBVB-K412	1423.8495.02
LTE Release 12	R&S®SMBVB-K413	1423.8508.02
OFDM signal generation	R&S®SMBVB-K414	1423.8595.02
Cellular IoT Release 13	R&S [®] SMBVB-K415	1423.8514.02
DVB-S2/DVB-S2X	R&S [®] SMBVB-K416	1423.8520.02
Bluetooth [®] 5.x	R&S®SMBVB-K417	1423.8537.02
Verizon 5GTF signals	R&S®SMBVB-K418	1423.8543.02
LTE Release 13/14/15	R&S [®] SMBVB-K419	1423.8550.02

LoPair RASTS MARVP-K431 L42 J837.02 Modernized RenDuu RASTS MARVP-K442 1422 J837.02 EFE R02.11ax RASTS MARVP-K442 1423 J811.02 Celluar for Relevan 16 RASTS MARVP-K442 1423 J811.02 Celluar for Relevan 15 RASTS MARVP-K442 1423 J811.02 Celluar for Relevan 15 RASTS MARVP-K442 1423 J810.02 Celluar for Relevan 15 RASTS MARVP-K442 1423 J810.02 Celluar for Relevan 16 RASTS MARVP-K443 1423 J810.02 CARN DECAUSE for Signals from RSS'WINDS/MAR, RSS'Place Sequencer, RSS'Place Sequencer (DFS) softwart 1423 J817.47 Veweform Sociation RRSS'WINDS/MAR, RSS'Place Sequencer (DFS) softwart 1423 J817.47 Seweform Sociation RRSS'WINDS/MAR, RSS'Place Sequencer (DFS) softwart 1423 J817.47 Seweform Sociation RRSS'WINDS Sequencer Software or RSS'Place Sequencer (DFS) softwart 1423 J817.42 Develoar in the chemal RSS'Place Sequencer (DFS) softwart 1423 J817.02 Collisis with chemal RSS'Place Sequencer (DFS) softwart 1423 J817.02 Develoar in cheman RSS'Place Sequencer (DFS) softwart 1423 J817.02 Collisis cheman RSS'Place Sequencer Software or RSS'Place SeqUENCE (DFS) softwart 1423 J817.02 </th <th>Designation</th> <th>Туре</th> <th>Order No.</th>	Designation	Туре	Order No.
Modernized BellouR43578/REVB.K42214/3.881.0.0IFFF.80.1.1axR45753/MEVB.K43214/3.881.0.0IFF.80.1.1axR45753/MEVB.K43214/3.881.0.0IGUAR IOT Release 15R45753/MEVB.K44414/3.881.0.0IEEE 602.11beR45753/MEVB.K44414/3.881.0.0IEEE 602.11beR45753/MEVB.K44614/3.881.0.0IEEE 602.11beR45753/MEVB.K44614/3.880.0IEEE 602.11beR45753/MEVB.K44614/3.880.0IEEE 602.11beR45753/MEVB.K44614/3.880.0IEEE 602.11beR45753/MEVB.K44014/3.880.0IEEE 602.11beR45753/MEVB.K40014/3.871.47IEEE 602.11beR45753/MEVB.K20014/3.871.47IEEE 602.11beR45753/MEVB.K20014/3.871.47IEEE 602.11beR45753/MEVB.K20014/3.871.47IEEE 602.11beR45753/MEVB.K20014/3.871.02IEEE 602.11beR45753/MEVB.K20014/3.871.02IEEE 602.11beR45753/MEVB.K20014/3.871.02IEEE 602.11beR45753/MEVB.K20014/3.971.02IEEE 602.11beR45753/MEVB.K20014/3.970.02IEEE 602.11beR45753/MEVB.K20014/3.970.02IEEE 602.11beR45753/MEVB.K20014/3.970.02IEEE 602.11beR45753/MEVB.K3014/3.970.02IEEE 602.11beR45753/MEVB.K3014/3.970.02IEEE 602.11beR45753/MEVB.K3014/3.970.02IEEE 602.11beR45753/MEVB.K3014/3.970.02IEEE 602.11beR45753/MEVB.K10614/3.970.02IEEE 1000R45753/MEVB.K10314/			
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USB serial adapter for RS-232 remote controlR&S*TS-USB16124.2531.00Documentation of calibration valuesR&S*DCV-20240.2193.18	Spare CFAST card	R&S [®] SMBVB-Z10	3639.9910.02
Documentation of calibration values R&S®DCV-2 0240.2193.18	19" rack adapter	R&S®ZZA-KNA33	1177.8090.00
	USB serial adapter for RS-232 remote control	R&S®TS-USB1	6124.2531.00
R&S [®] SMBV100B accredited calibration (ISO 17025, ISO 9000) R&S [®] ACASMBV100 3598.1027.03	Documentation of calibration values	R&S®DCV-2	0240.2193.18
	R&S®SMBV100B accredited calibration (ISO 17025, ISO 9000)	R&S [®] ACASMBV100	3598.1027.03

The base unit can only be ordered with an R&S[®]SMBVB-B103 frequency option.
 R&S[®]WinIQSIM2[™] requires an external PC.

³⁾ Maximum 250 waveforms per instrument can be registered.

Warranty		
Base unit	3 years	
All other items 1)	1 year	
Service options		
Extended warranty, one year	R&S®WE1	
Extended warranty, two years	R&S®WE2	
Extended warranty with calibration coverage, one year	R&S®CW1	Please contact your local
Extended warranty with calibration coverage, two years	R&S®CW2	Rohde&Schwarz sales office.
Extended warranty with accredited calibration coverage, one year	R&S®AW1	
Extended warranty with accredited calibration coverage, two years	R&S®AW2	

¹⁾ For options that are installed, the remaining base unit warranty applies if longer than 1 year. Exception: all batteries have a 1 year warranty.

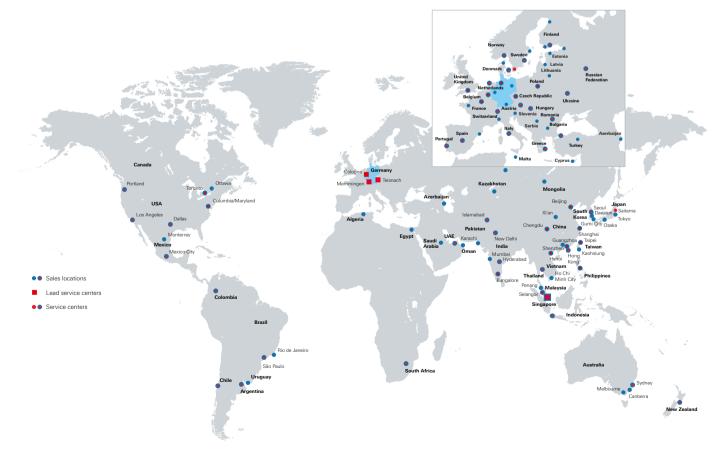
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