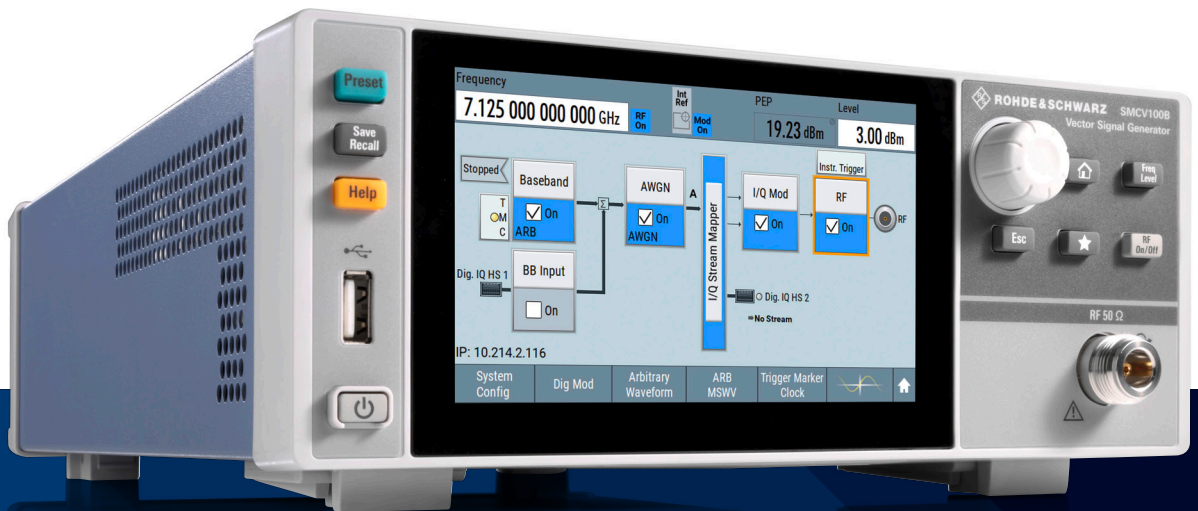


R&S® SMCV100B VECTOR SIGNAL GENERATOR

Maximum flexibility in applications
and in production



Flyer
Version 02.00

ROHDE & SCHWARZ

Make ideas real



OVERVIEW

General purpose

- ▶ Multistandard platform for the applications
 - Broadcast
 - Navigation
 - Cellular
 - Wireless
- ▶ For labs and manufacturers

Labs

- ▶ Research
- ▶ NB-IoT device development
- ▶ Quality assurance
- ▶ EMC test houses
- ▶ Education, universities

EMC testing and validation

- ▶ Streaming of long I/Q sequences
- ▶ Streaming RF bandwidth up to 56 MHz
- ▶ Internal and external memory device support
- ▶ Real-time broadcast signal generation with continuous playout of test patterns
- ▶ EMC stream library for CISPR 32

Manufacturing

- ▶ For automotive, consumer electronics and electronics manufacturing services (EMS)
- ▶ Functional tester/end of line tester (EOLT)
- ▶ Perfect instrument for line standardization
- ▶ High RF output power of up to +25 dBm
- ▶ R&S®LegacyPro for R&S®SFE100 replacement

Arbitrary waveform generation

- ▶ ARB with multisegment and multicarrier feature
- ▶ 1 Gsample memory
- ▶ R&S®WinIQSIM2™ waveform generation support
- ▶ NB-IoT, IEEE 802.11xx, Bluetooth®, 5G NR and more
- ▶ Test signals: rectangular, sinusoidal, pulse

Custom digital modulation

- ▶ Maximum flexibility in designing signals
- ▶ Huge number of digital modulation types
- ▶ Quick access to digital modulation types
- ▶ Predefined settings for communications standards
- ▶ Definable data lists

Real-time broadcast signal generation

- ▶ All major audio and video broadcast standards
- ▶ ATSC 3.0, DVB-T2, DVB-S2X, HD Radio™, etc.
- ▶ SFN support with 1 PPS and 10 MHz
- ▶ IP interface for 2nd and 3rd generation standards
- ▶ Internal TS and audio player/generator

I/Q streaming and playback

- ▶ Streaming of long I/Q sequences
- ▶ RF bandwidth up to 56 MHz
- ▶ Internal streaming from 64 Gbyte SSD
- ▶ External memory device support via USB 3.0
- ▶ Electrical and optical SFP+ interface

GENERATION OF WIDE VARIETY OF SIGNALS

APPLICATION AREAS



USABILITY

MODERN SIGNAL GENERATION CONCEPT

Fully software defined vector signal generator

- ▶ Unique basic hardware platform with Linux OS
- ▶ Pure software based option concept
- ▶ Highest flexibility in instrument configuration
- ▶ Flexible license concept
- ▶ Expandable for future requirements

Intuitive graphical user interface

- ▶ 5" touchscreen for convenient operation
- ▶ Block diagram optimized for intuitive use
- ▶ Instrument status overview
- ▶ Configurable soft buttons
- ▶ Direct access to each functional block

Compact solution

- ▶ Compact instrument
- ▶ Space saving ½ 19" rack size, 2 HU
- ▶ Optimized cooling and air-flow concept for side-by-side mounting
- ▶ Lowest acoustic noise emission
- ▶ Economic power consumption
- ▶ Very low weight of 4.7 kg (10.36 lb)

SCPI recorder

- ▶ Time and cost saving automation
- ▶ Built-in SCPI macro recorder with code generator
- ▶ Automatic recording of all manual settings
- ▶ Creation of executable MATLAB® script
- ▶ Export of SCPI lists

Fully software based signal generation

- ▶ Real-time signal generation or waveform playback from ARB
- ▶ Powerful FPGA and processor platform
- ▶ Upgrade baseband capabilities by keycode

Direct RF DAC concept for RF signal generation up to 2.5 GHz

- ▶ Direct RF DAC signal generation
- ▶ Low phase noise option
- ▶ Improved SSB performance after FM demodulation
- ▶ Crest factor reduction option

Wide RF frequency range

- ▶ 4 kHz up to 7.125 GHz
- ▶ Software definable instruments with 3 GHz, 6 GHz and 7.125 GHz
- ▶ 5G NR extended FR1 support up to 7.125 GHz

Large RF modulation bandwidth

- ▶ Scalable bandwidth via software options: 60 MHz, 120 MHz, 160 MHz and 240 MHz
- ▶ Best prepared for new upcoming signals
- ▶ IEEE 802.11 a/b/g/n/j/p/ac/ax support

HIGHLIGHTS

Modern and flexible

The R&S®SMCV100B vector signal generator uses the latest direct digital RF upconversion technology for signal generation. Thanks to its powerful, fully software based platform, it is the ideal solution for flexible use in various applications, including:

- ▶ Research
- ▶ NB-IoT device development
- ▶ Quality assurance
- ▶ EMC test houses
- ▶ Education, universities

Perfect match for a wide range of signals

The R&S®SMCV100B generates non-cellular and cellular communications signals, broadcast and navigation signals and user-specific signals, effectively addressing a wide range of applications. The vector signal generator supports the various current digital standards such as 5G NR, NB-IoT, ATSC 3.0 and GNSS. Users can also create their own signals with the custom digital modulation option. This option provides different digital modulation types as well as predefined settings for selected communications standards, giving users maximum flexibility in signal generation.

Latest transmission standards for testing 5G NR and NB-IoT devices

The R&S®SMCV100B can be used to generate signals in line with the most important communications standards such as 5G NR and LTE. It is ideal for component tests and basic functional receiver tests. With a maximum RF frequency of 7.125 GHz, the R&S®SMCV100B supports the 5G NR extended FR1 frequency range. The maximum modulation bandwidth of 240 MHz enables generation of signals for all current Wi-Fi® standards, making the R&S®SMCV100B the perfect solution for the production of IoT devices.

Fully software defined vector signal generator

The R&S®SMCV100B option concept is fully software based. No additional hardware needs to be installed for full device functionality. This applies to upgrading the frequency option, the memory depth of the ARB generator, the I/Q modulation bandwidth and all other R&S®SMCV100B options that can be used to cover different applications.

Perfect fit in the lab and in production

With its compact housing, the R&S®SMCV100B is the perfect solution for the lab bench and where lab space is limited. The ventilation concept is optimized for minimum noise emission. Cold air is drawn in from the front and sides and heated air is blown out to the rear. This concept contributes to an optimal working environment in the lab and simplifies integration into 19" racks in production areas.

Expandable for future requirements

Thanks to its flexible and customizable design, the R&S®SMCV100B is ideally prepared to meet future requirements. Options can easily be added via software key-codes, allowing users to quickly expand the I/Q modulation bandwidth, RF output power and RF frequency range of the R&S®SMCV100B or add standards.

Modern RF signal generation with direct digital RF upconversion concept

The R&S®SMCV100B vector signal generator features a new direct RF DAC concept for RF signal generation. This concept enables I/Q modulation and upconversion in the digital domain, which eliminates I and Q imbalance errors and LO leakage as known from traditional analog I/Q modulators.

Wide range of applications

- ▶ Research and education: use in labs at universities, schools, etc.
- ▶ Wide base market: use as general purpose instrument in labs
- ▶ Wireless market: signal generator for cellular signals, such as 5G, LTE and IoT, and non-cellular signals, such as Wi-Fi®, in line with the different versions of IEEE 802.11, Bluetooth® and other standards
- ▶ Broadcast consumer equipment market: production and testing of broadcast receivers, set-top boxes, TV receivers, etc.
- ▶ Automotive market: production, end-of-line testing of car radios, entertainment and navigation systems, etc.
- ▶ Electronics manufacturing services: production of products with constantly varying user requirements

REAR PANEL CONNECTIONS

Ethernet (LAN)

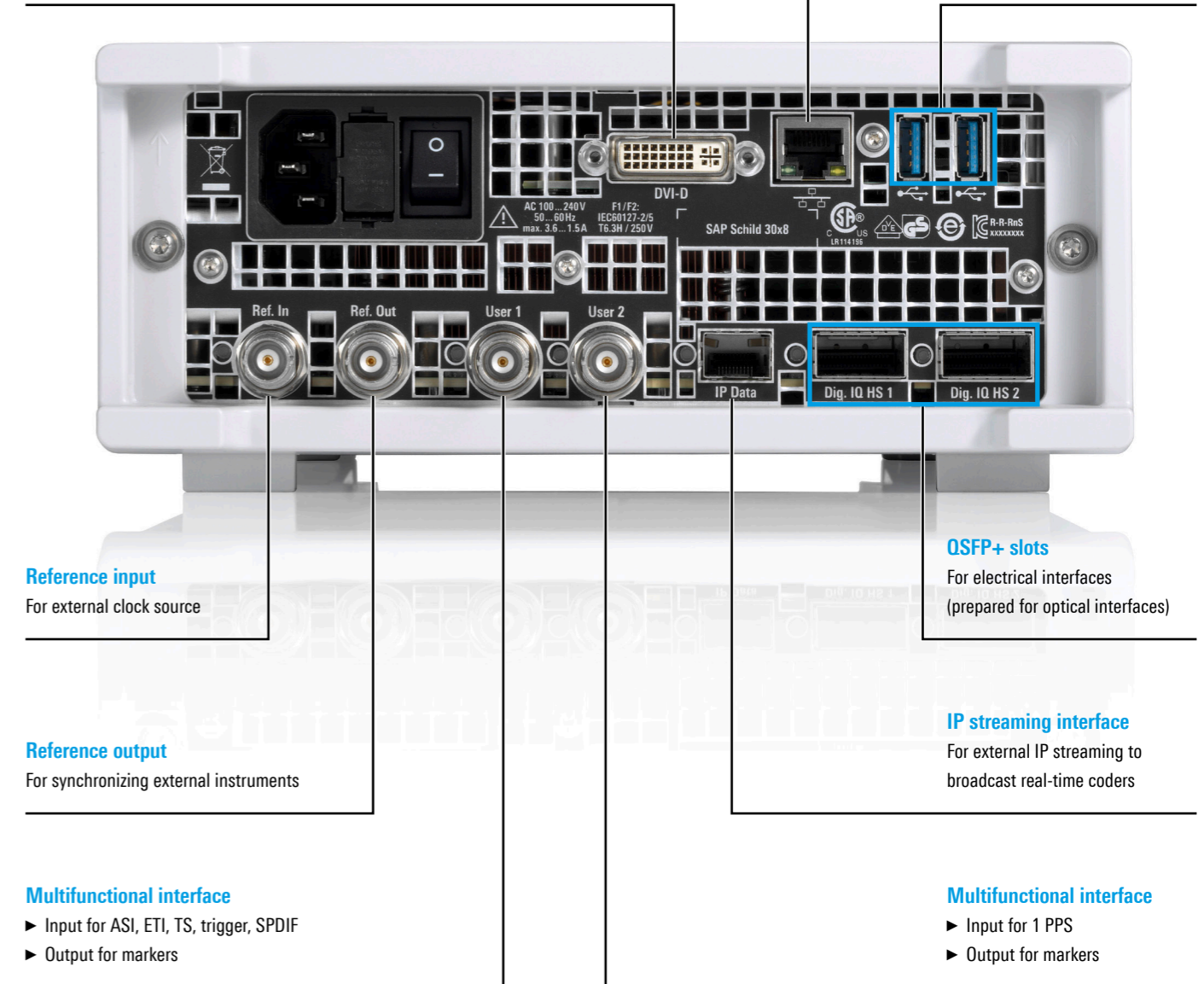
For remote access and remote control

Digital visual interface (DVI-D)

External monitor interface

USB 3.0 interfaces

PC data and streaming interfaces for waveform streaming



Reference input

For external clock source

Reference output

For synchronizing external instruments

Multifunctional interface

- ▶ Input for ASI, ETI, TS, trigger, SPDIF
- ▶ Output for markers

OSFP+ slots

For electrical interfaces (prepared for optical interfaces)

IP streaming interface

For external IP streaming to broadcast real-time coders

Multifunctional interface

- ▶ Input for 1 PPS
- ▶ Output for markers

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- ▶ Uncompromising quality
- ▶ Long-term dependability

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- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership

Certified Quality Management

ISO 9001

Certified Environmental Management

ISO 14001

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