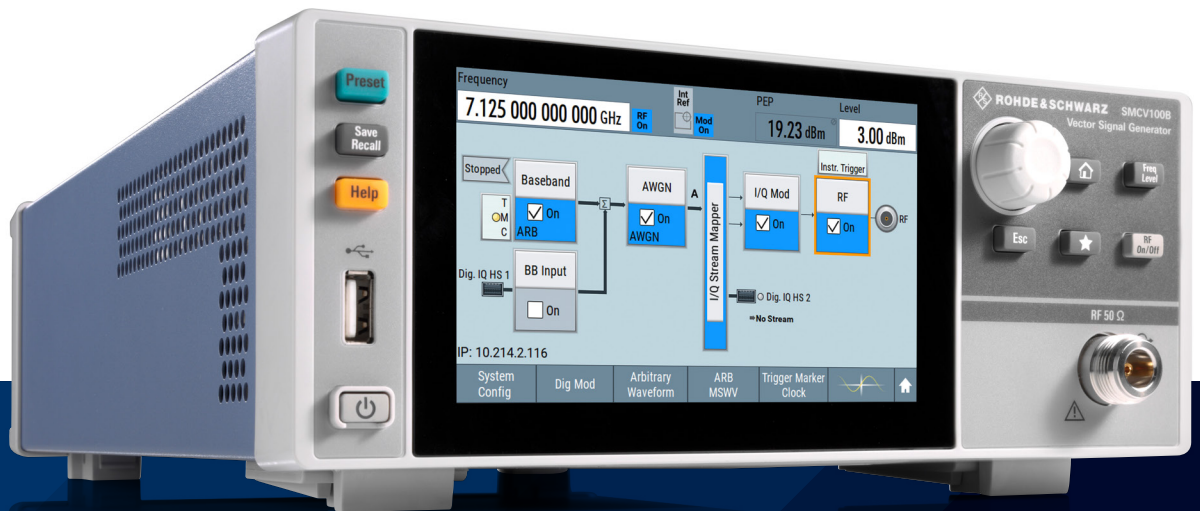


R&S® SMCV100B VECTOR SIGNAL GENERATOR



Specifications in brief
and ordering information



Product Flyer
Version 01.00

ROHDE & SCHWARZ
Make ideas real



BENEFITS

First multistandard platform for automotive, broadcast, navigation and wireless applications

- ▶ Modern RF signal generation concept
 - 4 kHz up to 7.125 GHz
 - Direct RF upconversion up to 2.5 GHz
 - Modulation bandwidth up to 240 MHz
- ▶ Powerful internal baseband generator
 - Real-time broadcast coder
 - Custom digital modulation
 - Internal baseband signal generation with ARB
- ▶ I/O streaming capabilities
 - Playback of long I/Q sequences from solid state disk drive for EMC testing
- ▶ Support of R&S®WinIQSIM2™ waveform generation
 - Wireless standards such as 5G NR, LTE, non-cellular IoT, Wi-Fi (IEEE 802.11)
 - Navigation standards for functional Go/NoGo tests and predefined position fix tests

Maximum flexibility in production

- ▶ From functional end-of-line testing (EOLT) to application-specific device software testing
- ▶ Temporary and transferable software licenses
- ▶ Fully software defined signal generation for easy upgrading at customer site
- ▶ Standardization of production lines with a single vector signal generator
- ▶ Minimizes downtime of production lines

User friendly in every detail

- ▶ Half a rack size, great performance, leading operating concept with block diagrams
- ▶ 5" touch display (800 × 480 pixel) in a 2 HU instrument
- ▶ SCPI macro recorder

R&S®LegacyPro: refresh your technology

- ▶ Remote compatibility and emulation of the R&S®SFE100 broadcast signal generator



SPECIFICATIONS IN BRIEF

Specifications in brief		
Frequency range	with R&S®SMCVB-B103 option (mandatory)	4 kHz to 3 GHz
	with R&S®SMCVB-B103 and R&S®SMCVB-KB106 options	4 kHz to 6 GHz
	with R&S®SMCVB-B103, R&S®SMCVB-KB106 and R&S®SMCVB-KB107 options	4 kHz to 7.125 GHz
Specified level range	peak envelope power (PEP)	
R&S®SMCVB-B103/-KB106/-KB107	standard	
	4 kHz < f ≤ 10 MHz	-110 dBm to +15 dBm
	10 MHz < f ≤ 6 GHz	-127 dBm to +15 dBm
	6 GHz < f ≤ 7.125 GHz	-127 dBm to +15 dBm
	with R&S®SMCVB-K31 option	
	4 kHz < f ≤ 10 MHz	-110 dBm to +20 dBm
	10 MHz < f ≤ 6 GHz	-127 dBm to +20 dBm
	6 GHz < f ≤ 7.125 GHz	-127 dBm to +18 dBm
Spectral purity		
SSB phase noise	standard, without R&S®SMCVB-K709 option; carrier offset = 20 kHz, measurement bandwidth 1 Hz, level = +10 dBm	
	f = 100 MHz	< -110 dBc
	f = 1 GHz	< -100 dBc
	f = 2 GHz	< -100 dBc
	f = 2.5 GHz	< -100 dBc
	2.5 GHz < f ≤ 7.125 GHz	< -95 dBc
Harmonics	CW, I/Q mode (full-scale internal single carrier signal), level ≤ 13 dBm	
	1 MHz < f ≤ 6 GHz	1 MHz < f ≤ 6 GHz
Nonharmonics	CW, level > +10 dBm, > 10 kHz offset from carrier and outside the modulation spectrum, internal reference frequency	
	f ≤ 2.5 GHz	< -55 dBc, -60 dBc (typ.)
	2.5 GHz < f ≤ 7.125 GHz	< -55 dBc, -70 dBc (typ.)
Analog modulation		
	supported analog modulation modes	
	with R&S®SMCVB-K197	AM/FM/φM
	with R&S®SMCVB-K198	PM
I/Q modulation		
RF modulation bandwidth	standard	60 MHz
	R&S®SMCVB-K521	120 MHz
	R&S®SMCVB-K522	160 MHz
	R&S®SMCVB-K523	240 MHz
Baseband signal sources		
ARB waveform generator	standard	1 sample to 64 Msample
	with R&S®SMCVB-K511 option	1 sample to 512 Msample
	with R&S®SMCVB-K512 option	1 sample to 1 Gsample
TS player	file format	TRP, BIN, ETI, T2MI
Broadcast standards	the options are described in the Broadcast Standards data sheet (PD 3608.3990.22)	AM, FM RDS/RDDBS/DARC, DAB/DAB+, DRM, ATSC 3.0, ATSC-M/H, ATSC/8VSB, DTMB, DVB-T2, DVB-T/H, ISDB-T EEW, ISDB-T _{SB} , DVB-S, DVB-S2, DVB-S2X
		5G NR, cellular IoT, LTE Release 8-14, 3GPP FDD HSPA/HSPA+, GSM, WLAN IEEE 802.11a/b/g/n/j/p/ac/ax, AWGN and furthers
Digital standards	the options are described in the Digital Standards data sheet (PD 5213.9434.22)	
GNSS	the options are described in the GNSS and Avionics data sheet (PD 3607.6896.22)	GPS, Galileo, GLONASS, BeiDou
Noise generator	AWGN with R&S®SMCVB-K62	-50 dB to +65 dB
	system bandwidth depending on option	60 MHz, 120 MHz, 160 MHz, 240 MHz

Specifications in brief		
Power rating	rated voltage	100 V to 240 V AC ($\pm 10\%$)
	rated frequency	50 Hz to 60 Hz ($\pm 5\%$)
	rated current	3.6 A to 1.5 A
	rated power	110 W (measured)
	standby	< 2 W
Dimensions	W x H x D	222 mm x 97 mm x 366 mm (8.74 in x 3.82 in x 14.41 in), 1/2 19", 2 HU
Weight		4.7 kg (10.36 lb)

ORDERING INFORMATION

Designation	Type	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 [®] SMCV100B	1432.7000.02
Options		
R&S [®] SMBVB-Bxxx = hardware option, R&S [®] SMBVB-Kxxx = software/keycode option		
Frequency options		
4 kHz to 3 GHz	R&S [®] SMCVB-B103	1433.2002.02
Frequency extension to 6 GHz	R&S [®] SMCVB-KB106	1433.2202.02
Frequency extension to 7.125 GHz	R&S [®] SMCVB-KB107	1433.2402.02
RF options		
High output power	R&S [®] SMCVB-K31	1434.4115.02
Low phase noise	R&S [®] SMCVB-K709	1434.3590.02
Baseband		
Digital baseband interface	R&S [®] SMCVB-K19	1434.4073.02
ARB memory extension to 512 Msample	R&S [®] SMCVB-K511	1434.3519.02
ARB memory extension to 1 Gsample	R&S [®] SMCVB-K512	1434.3531.02
ARB waveform streaming	R&S [®] SMCVB-K505	1434.5328.02
Baseband enable broadcast standards	R&S [®] SMCVB-K519	1434.3690.02
Baseband extension to 120 MHz RF bandwidth	R&S [®] SMCVB-K521	1434.3554.02
Baseband extension to 160 MHz RF bandwidth	R&S [®] SMCVB-K522	1434.3577.02
Baseband extension to 240 MHz RF bandwidth	R&S [®] SMCVB-K523	1434.4050.02
Baseband enhancements		
Additive white Gaussian noise (AWGN)	R&S [®] SMCVB-K62	1434.3654.02
Improved modulation frequency response	R&S [®] SMCVB-K547	1434.4138.02
Crest factor reduction	R&S [®] SMCVB-K548	1434.5640.02
AM/AM, AM/φM	R&S [®] SMCVB-K197	1434.3619.02
Pulse modulation	R&S [®] SMCVB-K198	1434.3631.02
Custom digital modulation	R&S [®] SMCVB-K199	1434.3990.02
Digital standards ²⁾		
AM/FM /RDS/DARC	R&S [®] SMCVB-K155	1434.3719.02
DAB/T-DMB	R&S [®] SMCVB-K156	1434.3731.02
DRM	R&S [®] SMCVB-K160	1434.3819.02
ATSC/ATSC-MH	R&S [®] SMCVB-K161	1434.3831.02
ATSC 3.0	R&S [®] SMCVB-K162	1434.3854.02

¹⁾ The base unit can only be ordered with an R&S[®]SMBV-B103 frequency option.

²⁾ Requires R&S[®]SMCV-K519 option.

Designation	Type	Order No.
DVB-T	R&S°SMCVB-K163	1434.3877.02
DVB-T2	R&S°SMCVB-K164	1434.3890.02
ISDB-T/T _{SB}	R&S°SMCVB-K165	1434.3919.02
DTMB	R&S°SMCVB-K166	1434.3931.02
DVB-S/DVB-S2	R&S°SMCVB-K167	1434.3954.02
DVB-S2X	R&S°SMCVB-K168	1434.3977.02
Digital standards using R&S°WinIQSIM2™³⁾		
Cellular standards		
GSM/EDGE	R&S°SMCVB-K240	1434.4150.02
EDGE Evolution	R&S°SMCVB-K241	1434.4173.02
3GPP FDD	R&S°SMCVB-K242	1434.4196.02
CDMA2000®	R&S°SMCVB-K246	1434.4238.02
1xEV-DO Rev. A	R&S°SMCVB-K247	1434.4250.02
TD-SCDMA	R&S°SMCVB-K250	1434.4273.02
TD-SCDMA enhanced BS/MS tests	R&S°SMCVB-K251	1434.4296.02
EUTRA/LTE	R&S°SMCVB-K255	1434.4373.02
3GPP FDD HSPA/HSPA+, enhanced BS/MS tests	R&S°SMCVB-K283	1434.4473.02
EUTRA/LTE Release 9 and enhanced features	R&S°SMCVB-K284	1434.4496.02
EUTRA/LTE Release 10 (LTE-Advanced)	R&S°SMCVB-K285	1434.4515.02
1xEV-DO Rev. B	R&S°SMCVB-K287	1434.4550.02
LTE Release 11 and enhanced features	R&S°SMCVB-K412	1434.4650.02
EUTRA/LTE Release 12	R&S°SMCVB-K413	1434.4673.02
Cellular IoT	R&S°SMCVB-K415	1434.4738.02
Verizon 5GTF signals	R&S°SMCVB-K418	1434.4773.02
LTE Release 13 and 14	R&S°SMCVB-K419	1434.4796.02
Cellular IoT enhancements	R&S°SMCVB-K443	1434.4850.02
5G NR	R&S°SMCVB-K444	1434.4873.02
Cellular IoT Release 15	R&S°SMCVB-K446	1434.5705.02
Wireless connectivity standards		
IEEE 802.11 (a/b/g/n/j/p)	R&S°SMCVB-K254	1434.4350.02
Bluetooth® EDR	R&S°SMCVB-K260	1434.4396.02
IEEE 802.11ac	R&S°SMCVB-K286	1434.4538.02
Bluetooth® 5.0	R&S°SMCVB-K417	1434.4750.02
LORA	R&S°SMCVB-K431	1434.4815.02
IEEE 802.11 ax	R&S°SMCVB-K442	1434.4838.02
Navigation standards		
GPS (1 satellite)	R&S°SMCVB-K244	1434.4215.02
Galileo (1 satellite)	R&S°SMCVB-K266	1434.4450.02
GLONASS (1 satellite)	R&S°SMCVB-K294	1434.4596.02
NavIC/IRNSS (1 satellite)	R&S°SMCVB-K297	1434.5734.02
Modernized GPS	R&S°SMCVB-K298	1434.4615.02
BeiDou	R&S°SMCVB-K407	1434.4638.02
Modernized BeiDou, (1 satellite)	R&S°SMCVB-K432	1434.5740.02
Broadcast standards		
DVB-H/DVB-T	R&S°SMCVB-K252	1434.4315.02
DAB/T-DMB	R&S°SMCVB-K253	1434.4338.02
DVB-S2/DVB-S2X	R&S°SMCVB-K416	1434.4715.02
Other standards and modulation systems		
Multicarrier CW signal generation	R&S°SMCVB-K261	1434.4415.02
Additive white Gaussian noise (AWGN)	R&S°SMCVB-K262	1434.4438.02
NFC A/B/F	R&S°SMCVB-K289	1434.4573.02
OFDM signal generation	R&S°SMCVB-K414	1434.4696.02

³⁾ R&S°WinIQSIM2™ requires an external PC.

Designation	Type	Order No.
Other options		
1000BASE-T copper SFP transceiver	R&S®ERST.2	3627.0570.00
Cable for HS digital I/Q interface, optical cable, length: 3 m	R&S®DIGIQ-HS	3641.2948.03
Recommended extras		
19" rack adapter, 2 HU, for one or two instruments	R&S®HZN96	3638.7813.02
USB serial adapter for RS-232 remote control	R&S®TS-USB1	6124.2531.00
Documentation of calibration values	R&S®DCV-2	0240.2193.18
R&S®SMCV100B accredited calibration (ISO 17025, ISO 9000)	R&S®ACASMCV100	3598.5600.03

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

Your local Rohde & Schwarz expert will help you determine the optimum solution for your requirements. To find your nearest Rohde & Schwarz representative, visit www.sales.rohde-schwarz.com

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