

# R&S® SMB100A

Setting standards in the mid-range

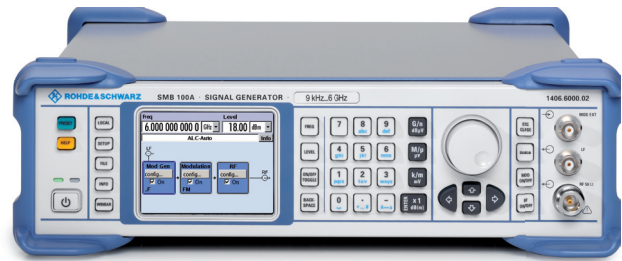
## Analog Signal Generator – 9 kHz to 6 GHz

Excellent signal characteristics, high flexibility, plus low cost of ownership are key criteria when it comes to selecting a signal source. The analog R&S®SMB100A signal generator superbly handles all these requirements, as a well-planned effort to fulfill them was made right from the initial stages of development. The technical characteristics of the R&S®SMB100A set new standards in the mid-range, especially the generator's high output power and signal purity. Moreover, the service concept of the R&S®SMB100A enables users to perform maintenance themselves. The straightforward modular design allows servicing to be performed on-site – quickly and easily. This ensures low total cost of ownership, plus high availability in labs and production.

The R&S®SMB100A provides RF characteristics that are exceptional in its class, making it an excellent general-purpose instrument. These excellent RF characteristics plus its compact size make the instrument ideal for a wide range of different applications. The R&S®SMB100A is thus ideal for use in development, production, and service, or, to put it even simpler: wherever an analog RF signal is required.

Its wide frequency range of 9 kHz to 6 GHz covers a large number of crucial RF applications. The R&S®SMB100A is thus the perfect choice for applications in the important ISM bands up to 5.7 GHz as well as for EMC applications because of its lower frequency limit of 9 kHz. In addition to pure CW signals, it also provides the most common analog AM and FM/φM modulation modes as standard. Moreover, the R&S®SMB100A can be equipped with an excellent pulse generator and modulator, allowing it to handle pulse applications.

The R&S®SMB100A is outstanding for its comprehensive standard equipment and hardly needs any additional options.



## Why R&S®SMB100A?

### Best signal quality in the mid-range

... for high measurement accuracy in a wide variety of applications

### Highest output power in its class

... provides power reserves to replace external amplifiers

### On-site servicing as a convenient alternative

... ensures low cost of ownership and maximum instrument availability

## Prepared for your application

### All purpose RF source

- ◆ Cost-effective, flexible analog RF source
- ◆ Wide frequency and level coverage
- ◆ Analog modulations on board
- ◆ Reverse power protection ensures the instrument
- ◆ Ease of use with graphical user interface

### Ideal for production

- ◆ Short setting times allow high throughput
- ◆ High output power compensates losses in the test rack
- ◆ Wear-free electronic attenuator supports heavy use easily
- ◆ Compact form factor reduces footprint
- ◆ Multiple choices for remote interfaces allows easy integration into the test system

### Ready for aerospace and defense applications

- ◆ Pulse modulator offers excellent performance necessary for radar measurements
- ◆ On-site servicing supports in-house metrology labs in the most effective way
- ◆ Low weight and compact housing makes mobile applications very easy

## Specifications in brief

Frequency		
Frequency range	R&S®SMB-B101/-B102/-B103/-B106	9 kHz to 1.1/2.2/3.2/6 GHz
Setting time	SCPI mode List mode	<3 ms, typ. 1.6 ms <1 ms
Level		
Output power	1 MHz ≤ f ≤ 6 GHz	-145 dBm to +18 dBm up to +25 dBm in Overrange mode
Level uncertainty	f = 200 kHz to 3 GHz	<0.5 dB
Setting time	SCPI mode List mode	<2.5 ms, typ. 1.2 ms <1 ms
Back-feed	f = 1 MHz to 1 GHz f = 1 GHz to 2 GHz f = 2 GHz to 6 GHz	50 W/50 V 25 W/50 V 10 W/50 V
Spectral purity		
Nonharmonics	carrier offset >10 kHz, f ≤ 1500 MHz	<-70 dBc (typ. -85 dBc)
SSB phase noise	f = 1 GHz carrier offset = 20 kHz 1 Hz measurement bandwidth	<-122 dBc (typ. -128 dBc)
Wideband noise	level >5 dBm carrier offset >10 MHz 1 Hz measurement bandwidth	<-142 dBc (typ. -152 dBc)
Supported modulation modes		
AM		standard
AM depth		0 % to 100 %
FM/φM		standard
Maximum FM deviation	f > 3 GHz	16 MHz
Maximum φM deviation	f > 3 GHz	160 rad
Pulse		optional (R&S®SMB-K22 pulse modulator)
Rise/fall time		<20 ns, typ. 10 ns
Minimum pulse width	using the optional pulse generator (R&S®SMB-K23 option)	20 ns
ON/OFF ratio		>80 dB
Connectivity		
Remote control		IEC/IEEE bus, Ethernet (TCP/IP), USB

## Ordering information

Designation	Type	Order No.
Base unit		
Signal Generator <sup>1)</sup>	R&S®SMB100A	1406.6000.02
Options		
RF Path		
9 kHz to 1.1 GHz	R&S®SMB-B101	1407.2509.02
9 kHz to 2.2 GHz	R&S®SMB-B102	1407.2609.02
9 kHz to 3.2 GHz	R&S®SMB-B103	1407.2709.02
9 kHz to 6 GHz	R&S®SMB-B106	1407.2909.02
Reference Oscillator OCXO	R&S®SMB-B1	1407.3005.02
Pulse Modulator	R&S®SMB-K22	1407.3770.02
Pulse Generator	R&S®SMB-K23	1407.3786.02

<sup>1)</sup> The base unit must be ordered together with an R&S®SMB-B101/-B102/-B103/-B106 frequency option.



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