

Specifications in brief

Frequency		
Range	SME02/03 SME03E/06	5 kHz to 1.5/3 GHz 5 KHz to 2.2/6 GHz
Resolution		0.1 Hz
Setting time		<10 ms
after IEC/IEEE-bus delimiter		<500 μ s
after trigger pulse in list mode		adjustable in steps of 1°
Phase offset		
Reference frequency		standard option SM-B1
Aging (after 30 days of operation)		1×10^{-6} /year $<1 \times 10^{-9}$ /day
Temperature effect (0 to 55°C)		2×10^{-6} $<5 \times 10^{-8}$
Spectral purity		
Spurious signals		
Harmonics		<-30 dBc, <-26 dBc with SM-B3/B8/B9
Nonharmonics at		
>5 kHz from carrier, f <1.5 GHz		<-80 dBc
SSB phase noise at 20 kHz from carrier, 1 Hz bandwidth,		
FM/ ϕ M deviation <5% of max. deviation		
<93.75 125 250 MHz 0.5 1 2 3 6 GHz		
<-129 <-140 <-137 <-132 <-126 <-120 <-116 <-116 dBc		
Residual FM, rms (f=1 GHz)		
0.3 to 3 kHz (CCITT)		<1 Hz
0.03 to 20 kHz		<4 Hz
Level		-144 to +13 dBm
Resolution		0.1 dB
Accuracy for levels >-127dBm		
f <1.5 GHz		± 1 dB
f >1.5 GHz		± 1.5 dB
f >3 GHz		± 2 dB
Level frequency response at 0 dBm		1 dB, typ. 0.3 dB
Overload protection		protects the unit from externally applied RF power (50 Ω source) and DC voltage, SME02 and 03: ≤ 50 W/35 V; SME06: ≤ 1 W/0 V
Simultaneous modulation		any combination of AM, FM (ϕ M), pulse modulation and DM (DM = FSK, 4FSK, FFSK, GFSK, GMSK or QPSK)
Frequency modulation		with option SM-B5
Operating modes		internal, external AC/DC, two-tone with two separate channels FM1 and FM2
Maximum deviation		depending on carrier frequency: 500 kHz (<130 MHz) to 4 MHz (6 GHz)
Setting error at AF=1 kHz		<3% of reading + 20 Hz
FM distortion at AF=1 kHz and 50% of max. deviation		<0.5%, typ. 0.05%
Modulation frequency range for maximum deviation		DC to 500 kHz
for <25% of max. deviation		DC to 2 MHz
Carrier frequency offset with FM		depending on carrier frequency: <50 Hz (f_c <93.75 MHz) to <100/200 Hz (f_c 1.5/3 GHz) +1 % of deviation
Phase modulation		with option SM-B5
Operating modes		internal, external AC/DC, two-tone with two separate channels ϕ M1 and ϕ M2
Maximum deviation		depending on carrier frequency: 5 rad (f_c <130 MHz) to 40 rad (f_c 6 GHz)
Setting error at AF=1 kHz		<3% of reading + 0.01 rad
Distortion at AF=1 kHz and 50% of max. deviation		<1 %
Modulation frequency range		DC to 100 kHz
Digital modulation		with option SME-B11, standard in SME03E
Modulation modes		FSK, 4FSK, FFSK, GFSK, GMSK, QPSK, $\pi/4$ DQPSK

Operating modes		internal, external
Internal data generator		programming of data, level switching and burst output
Storage capacity		3 x 8192 bit
Frequency accuracy		same as reference frequency
PRBS (pseudo-random bit sequence)		selectable lengths: 2^2-1 , $2^{15}-1$, $2^{20}-1$, $2^{21}-1$ or $2^{23}-1$
FSK		to Cityruf, POCSAG, FLEX specs
Shift, filtered		4/4.5/4.8 kHz
unfiltered		0.01 to 400 kHz, maximum shift depending on carrier frequency
Data rate, filtered		0.05 to 90 kbit/s
unfiltered		0.05 to 1900 kbit/s
FFSK		to Cityruf, POCSAG specifications
Shift		1.5/2/3/3.5/4/4.5 kHz
Data rate		0.05 to 90 kbit/s
4FSK		to APCO25, ERMES, FLEX, MODACOM specifications
Shift		0.01 to 400 kHz, maximum shift depending on carrier frequency
Data rate		1 to 24.3/27 to 48.6 kbit/s
GFSK		to CT2, CT3, DECT specifications
Shift		18/160/288 kHz as well as non-standard shifts
Data rate		10 to 585/640 to 1170 kbit/s
GMSK		to CDPD, GSM 1800, DSRR, GSM, MC9, MD24 to MD192, MOBITEX8000 specifications
Data rate		2.4/3.6/4/4.8/6/8/9.6/10/12/16/19.2/270.833/1000 kbit/s
QPSK, $\pi/4$ DQPSK		to APCO25, MSAT, NADC, PDC, TETRA, TETS specifications
for f >3 GHz		not specified
Data rate		1 to 24.3/27 to 48.6 kbit/s
Filter		$\sqrt{\cos 0.35/0.4/0.5/0.6}$ $\cos 0.2/0.35/0.4/0.5/0.6$

Amplitude modulation, pulse modulation, internal modulation generator, LF generator, multifunction generator, stereo multiplex signal, VOR modulation signal, ILS modulation signal, pulse generator and sweep see SMT, page 210

List mode		automatic, single-shot, manual, externally triggered
(not SME03E)		2000
Max. number of channels		1 ms to 1 s
Step time		

Remote control		IEC 625 (IEEE 488)
Command set		SCPI 1992.0

General data		
Power supply		90 to 132/180 to 265 V, 47 to 440 Hz, autosegging to AC voltage, max. 300 VA
Dimensions (W x H x D)		435 mm x 192 mm x 460 mm
Weight		25 kg for fully equipped unit

Ordering information

Signal Generator		
SME02		1038.6002.02
SME03		1038.6002.03
SME03E		1038.6002.13
SME06		1038.6002.06

Options		
Reference Oscillator OCXO	SM-B1	1036.7599.02
LF Generator	SM-B2	1036.7947.02
Pulse Modulator for SME02	SM-B3	1036.6340.02
for SME03	SM-B8	1036.6805.02
for SME06	SM-B9	1039.5100.02
Pulse Generator (only in combination with SM-B3, SM-B8 or SM-B9)	SM-B4	1036.9310.02
FM/ ϕ M Modulator	SM-B5	1036.8489.02
Multifunction Generator	SM-B6	1036.7760.02
DM Coder	SME-B11	1036.8720.02
DM Memory Extension (8 Mbit)	SME-B12	1039.4090.02
FLEX Protocol	SME-B41	1039.5645.02
POCSAG Protocol	SME-B42	1039.5745.02
Rear Connectors for RF and LF	SME-B19	1039.3907.02