

1.2 GHz RF-Synthesizer HM8134-3



Frequency range from 1 Hz to 1.2 GHz

Frequency resolution 1 Hz (accuracy 0.5 ppm)

Output power from - 127 dBm to + 13 dBm

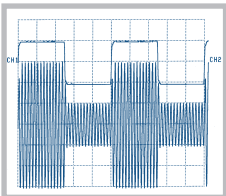
High spectral purity

AM / FM / PM and gate modulation

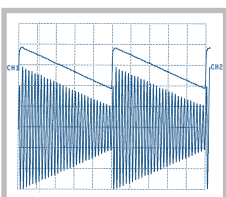
HZ42 19" Rackmount kit 2RU



Internal modulation source



Internal modulation source



1.2 GHz HF Synthesizer HM8134-3

Technical description

Frequency

Range:	1 Hz to 1200 MHz
Resolution:	1 Hz
Settling time:	< 10 ms

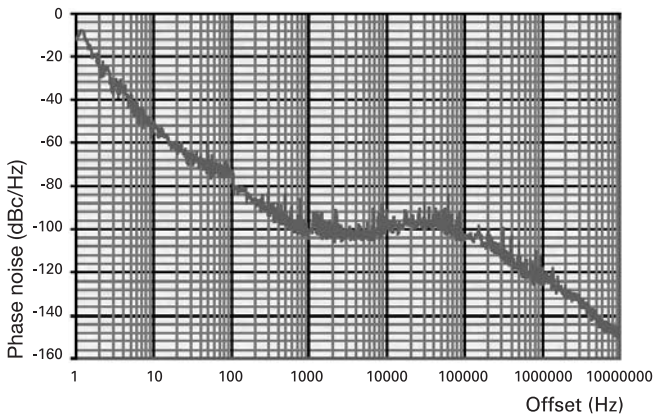
Frequency Reference 10 MHz

Standard:	TCXO
Stability (0 to 50° C):	≤ ±0.5 ppm
Aging:	≤ ±1 ppm/year
Option: OCXO (H085)	
Stability:	≤ ±1.10 ⁻⁸
Aging:	≤ ±5.10 ⁻⁹ /day
Internal reference output:	(rear panel)
Level:	TTL
External reference input:	(rear panel)
Level:	> 0 dBm

Spectral purity (without modulation)

Harmonic:	≤ - 35 dBc
Non-harmonic:	≤ - 55 dBc (> 15 kHz from carrier)

Phase noise:	(at 20 kHz from carrier)
< 16 MHz:	≤ - 120 dBc/Hz
16 to 250 MHz:	≤ - 95 dBc/Hz
250 to 500 MHz:	≤ - 105 dBc/Hz
500 to 1000 MHz:	≤ - 100 dBc/Hz
1000 to 1200 MHz:	≤ - 95 dBc/Hz



(Typical phase noise at 1 GHz)

Output level

Range:	- 127 to + 13 dBm
Resolution:	0.1 dB
Precision:	≤ ± 0.5 dB (for level > - 57 dBm)
Impedance:	50 Ω
V.S.W.R.:	≤ 1 : 1.5

Modulation sources

Internal:	10 Hz - 150 kHz sine wave, 10 Hz - 20 kHz square wave, triangle, saw tooth
Resolution:	10 Hz
External:	(input on front panel)
Impedance:	10 kΩ 50 pF
Input level:	2 V _{rms} for full scale
Coupling:	AC or DC
Output (on front panel):	Impedance: 1 kΩ Level: 2 V _{rms}

Amplitude modulation (Level ≤ + 7 dBm)

Source:	internal or external
Modulation depth:	0 to 100 %
Resolution:	0.1 %
Accuracy:	± 4 % of reading ± 0.5 % (AM-depth ≤ 80 % and f _{mod} ≤ 1 kHz)

Ext. frequency resp. (to - 1 dB):	10 Hz to 50 kHz for AC
Distortion:	< 2 % (AM-depth ≤ 60 %, f _{mod} ≤ 1 kHz) < 6 % (AM-depth ≤ 80 %, f _{mod} : 10 Hz to 50 kHz)

Frequency modulation

Source:	internal or external
Deviation:	± 200 Hz to 400 kHz (depending on frequency band)
Resolution:	100 Hz
Accuracy:	f _{mod} < 5 kHz: ±(3% + res. FM) f _{mod} > 5 kHz: ±(7% + res. FM)
Ext. frequency response: (to - 1 dB)	
DC coupling:	0 to 150 kHz
AC coupling:	10 Hz to 150 kHz
Distortion:	< 3 % for deviation ≥ 10 kHz at 1 kHz

Phase modulation

Source:	internal or external
Deviation:	< 16 MHz: 0 to 3.14 rad > 16 MHz: 0 to 10 rad
Resolution:	0.01 rad
Accuracy:	± 5 % to 1 kHz + residual PM
Ext. frequency response : (to - 1 dB)	
DC coupling:	0 to 150 kHz
AC coupling:	10 Hz to 150 kHz
Distortion:	< 3 % for f _{mod} = 1 kHz and deviation = 10 rad

FSK modulation

Range:	16 to 1200 MHz
Mode:	2 FSK levels
Data source:	external
Max. rate:	10 kbit/s
Shift (F1 - F0):	0 to 10 MHz
Resolution:	100 Hz
Accuracy:	see under FM

PSK modulation

Range:	16 to 1200 MHz
Mode:	2 PSK levels
Data source:	external
Max. rate:	10 kbit/s
Shift (Ph1 - Ph0):	< 16 MHz: 0 to ± 3.14 rad > 16 MHz: 0 to ± 10 rad
Resolution:	0.01 rad
Accuracy:	see under PM

Pulse modulation

Source:	external (rear panel)
Dynamic range:	> 60 dB
Rise/fall times:	< 200 ns
Delay:	< 100 ns
Max. frequency:	2.5 MHz
Input level:	TTL

Sweep mode

Range:	16 MHz to 1200 MHz
Depth:	500 Hz to 1184 MHz
Sweep time:	20 ms to 5 s
Trigger:	internal

Protective functions

The synthesiser is protected against reverse power applied on RF output up to 1 W for a 50 Ω source and against any DC source up to ± 7 V. The protection disconnects the output until manually rearmed by operator.

Miscellaneous

Interface:	RS-232, 9-pole D-sub
Configuration memories:	10
Safety class:	Safety Class I (EN61010-1)
Power supply:	115/230 V ± 10 %, 50/60 Hz
Power consumption:	approx. 40 VA
Operating temperature:	+ 10 to + 40° C
Max. relative humidity:	10 to 90 % (without condensation)
Dimensions (W x H x D):	285 x 75 x 365 mm
Weight:	approx. 5 kg

Accessories supplied: Operator's manual, power cable
Optional accessories: HZ33/34 Test cable 50 Ω, HZ21 Adapter plug, HZ42 19" Rackmount Kit 2RU