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Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

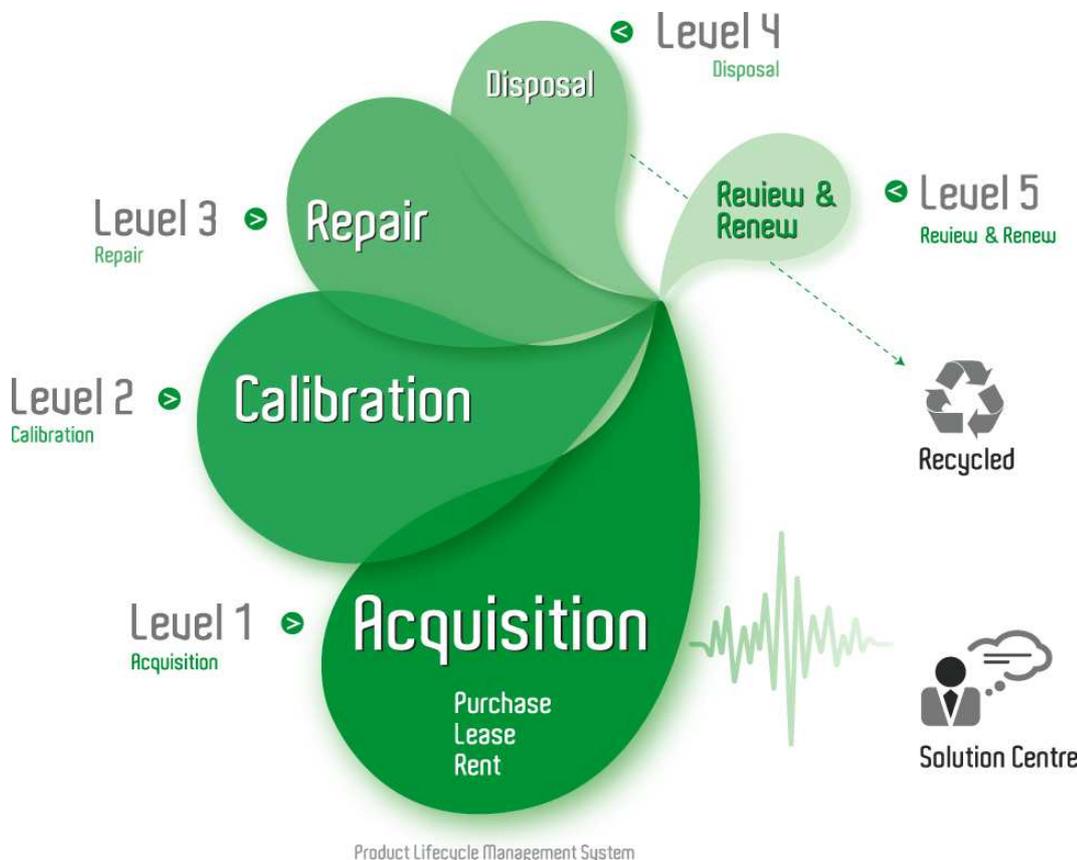
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Product Lifecycle Management System

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1.2 GHz RF-Synthesizer HM8134-3

HM8134-3



HZ42 19" Rackmount kit 2 RU



H0870 USB Interface



H0880 IEEE-488
(GPIB) Interface



Outstanding Frequency range from 1 Hz to 1.2 GHz

Output power from -127 dBm to +13 dBm

Frequency resolution 1 Hz
(accuracy 0.5 ppm)

Input for external time base (10 MHz)

Modulation modes: AM, FM, Pulse, Φ , FSK, PSK

Rapid pulse modulation: typ. 200 ns

Internal modulator (sine wave, square wave, triangle, sawtooth)
from 10 Hz to 150 kHz

High spectral purity

10 configuration memories including turn-on configuration

Standard: TCXO (temperature stability: $\pm 0,5 \times 10^{-6}$)

Optional: OCXO (temperature stability: $\pm 1 \times 10^{-8}$)

RS-232 Interface, optional: USB, IEEE-488

1.2 GHz HF Synthesizer HM8134-3

Valid at 23 °C after a 30 minute warm-up period

Frequency

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

Frequency Reference 10 MHz

Standard: TCXO	
Temperature stability (0 to 50 °C):	≤ ±0.5 ppm
Aging:	≤ ±1 ppm/year

Option: OCXO (Type HM8134-3X)

Temperature stability (0 bis 50 °C):	≤ ±1x10 ⁻⁸
Aging:	≤ ±1x10 ⁻⁹ /day

Internal reference output:

(rear panel)

Level: TTL

External reference input:

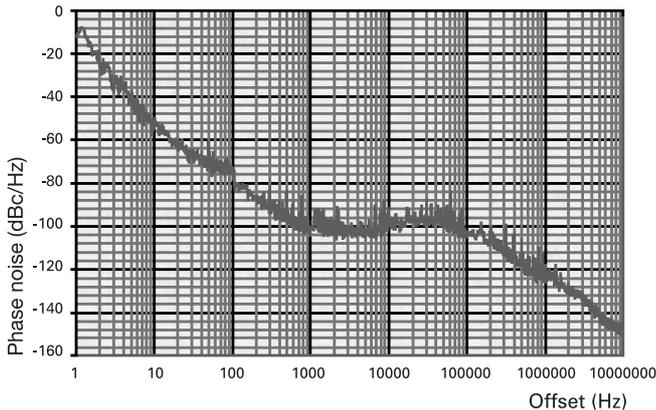
(rear panel)

Level: > 0 dBm

Frequency: 10 MHz ± 20 ppm

Spectral purity (without modulation)

Harmonics:	≤ -35 dBc
Non-harmonics:	≤ -55 dBc (> 15 kHz from carrier)
Phase noise:	(at 20 kHz from carrier)
f < 16 MHz:	≤ -120 dBc/Hz
16 MHz ≤ f < 250 MHz:	≤ -94 dBc/Hz
250 MHz ≤ f < 500 MHz:	≤ -105 dBc/Hz
500 MHz ≤ f < 1000 MHz:	≤ -100 dBc/Hz
1000 MHz ≤ f < 1200 MHz:	≤ -95 dBc/Hz
Residual FM:	≤ 6.5 Hz (at 1 GHz in 300 Hz – 3 kHz bandwidth)
Residual AM:	typ. < 0.06 % (in 0.03 – 20 kHz bandwidth)



(Typical phase noise at 1 GHz)

Output level

Range:	-127 to +13 dBm
Resolution:	0.1 dB
Precision:	for level > -57 dBm: ≤ ± 0.5 dB for level < -57 dBm: ≤ ± (0.5 dB + (0.2 x [-57 dBm - level])/10)
Impedance:	50 Ω
V.S.W.R.:	≤ 2

Modulation sources

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

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 %, f _{mod} ≤ 40 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} < 20 kHz)

Frequency modulation

Source:	internal or external
Deviation:	± 200 Hz to 400 kHz (depending on frequency band)
Resolution:	100 Hz
Accuracy:	± 3 % + res. FM (f _{mod} ≤ 5 kHz) ± 7 % + res. FM (5 kHz < f _{mod} < 100 kHz)

Ext. frequency response: (to -1 dB)

DC coupling:	0 to 100 kHz
AC coupling:	10 Hz to 100 kHz

Distortion:	< 1 % for deviation ≥ 50 kHz at 1 kHz < 3 % for deviation ≥ 10 kHz at 1 kHz
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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 100 kHz
AC coupling:	10 Hz to 100 kHz

Distortion:	< 3 % for f _{mod} = 1 kHz and deviation = 10 rad
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FSK modulation

Range (F0 - F1):	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

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:	> 80 dB
Rise/fall times:	< 50 ns
Delay:	< 100 ns
Max. frequency:	2.5 MHz
Input level:	TTL

Sweep mode

Range:	1 MHz to 1200 MHz
Depth:	500 Hz to 1199 MHz
Sweep time:	20 ms to 5 s
Trigger:	internal

Protective functions

The synthesizer 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 (standard), IEEE-488 (optional), USB (optional)
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/HZ34 Test Cable 50 Ω (BNC-BNC), HZ21 Adapter plug, HZ42 19" Rackmount kit 2RU, H0870 USB Interface, H0880 IEEE-488 (GPIB) Interface, H0890 RS-232 Interface, OCXO (Type HM8134-3X)

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