

New Low-cost Fully Synthesized Spectrum Analyzer HM5012-2 and HM5014-2

- Frequency Range from 150 kHz to 1050 MHz
- Amplitude Range from -100dBm to +10dBm, 80dB On-Screen
- Phase-Locked Direct Digital Synthesis (DDS)
- Keypad Entry for Precise and Repeatable Frequency Setting
- TCXO High Stability Reference Oscillator
- Resolution Bandwidth 9 kHz, 120 kHz, 1 MHz
- Remote controlled via RS-232 Interface



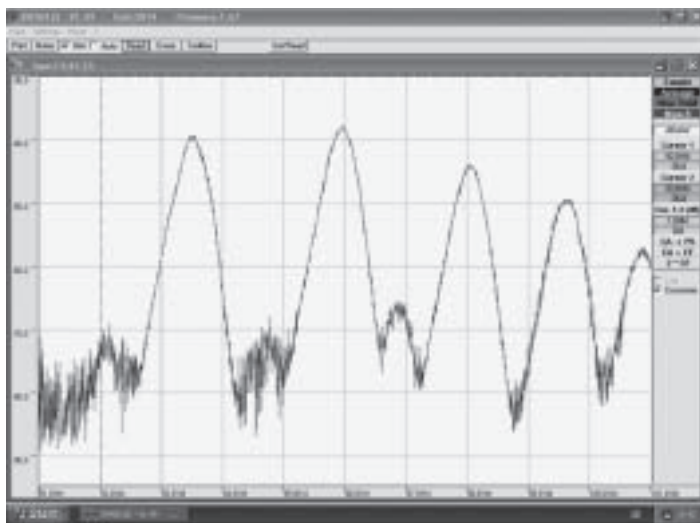
Technical Characteristics

The usable frequency range of the new spectrum analyzer **HM5012-2** and **HM5014-2** is from **150kHz to above 1GHz**. The available resolution bandwidths are **9kHz, 120kHz** and **1MHz**.

The high stability frequency generation is based on a phase-locked direct digital synthesizer (**DDS**) with a **TCXO-base oscillator**, resulting in improved accuracy, stability and repeatability. Frequency values are set via a new integrated front panel keypad or by means of a rotary dial. All other functions are set in the same manner.

The frequency spectra is digitized and stored in **real time** and displayed with a resolution up to **2000** sample points over the entire screen. The dynamic range of the analyzer display is 80dB max.

The screen will also display all selected frequency settings and the marker results, other parameters are indicated with LEDs. Other unique features of this spectrum analyzer are the extensive **EMC** measurement capabilities. EMI pre-compliance measurement including average, max. hold and quasi-peak detection is an important application use.



Screen shot of the supplied software AS100E

For the precise evaluation of the signals, a marker is provided that will give an **on screen readout** for amplitude and frequency. An additional advantage is that newly acquired signals can be compared with the content of the **stored reference**. Complicated and frequently used set ups can be saved by use of the **Save/Recall** function.

HM5014-2 with Tracking-Generator

The Model **HM5014-2** includes a **tracking generator** that can be used to evaluate the frequency characteristics of 2 port devices, such as band pass filters. Frequency Range is from **150kHz to 1050MHz**. Output level is selectable in **0.2dB** steps (keypad or rotary dial) from **-50dBm to +1dBm**.

The Interface

The Analyzers are supplied with an **RS-232** interface for PC communication and printout via PC. The optional HZ70 **opto-isolator** with fiber optic cable is available to isolate the spectrum analyzer from interference effects and ground loops.

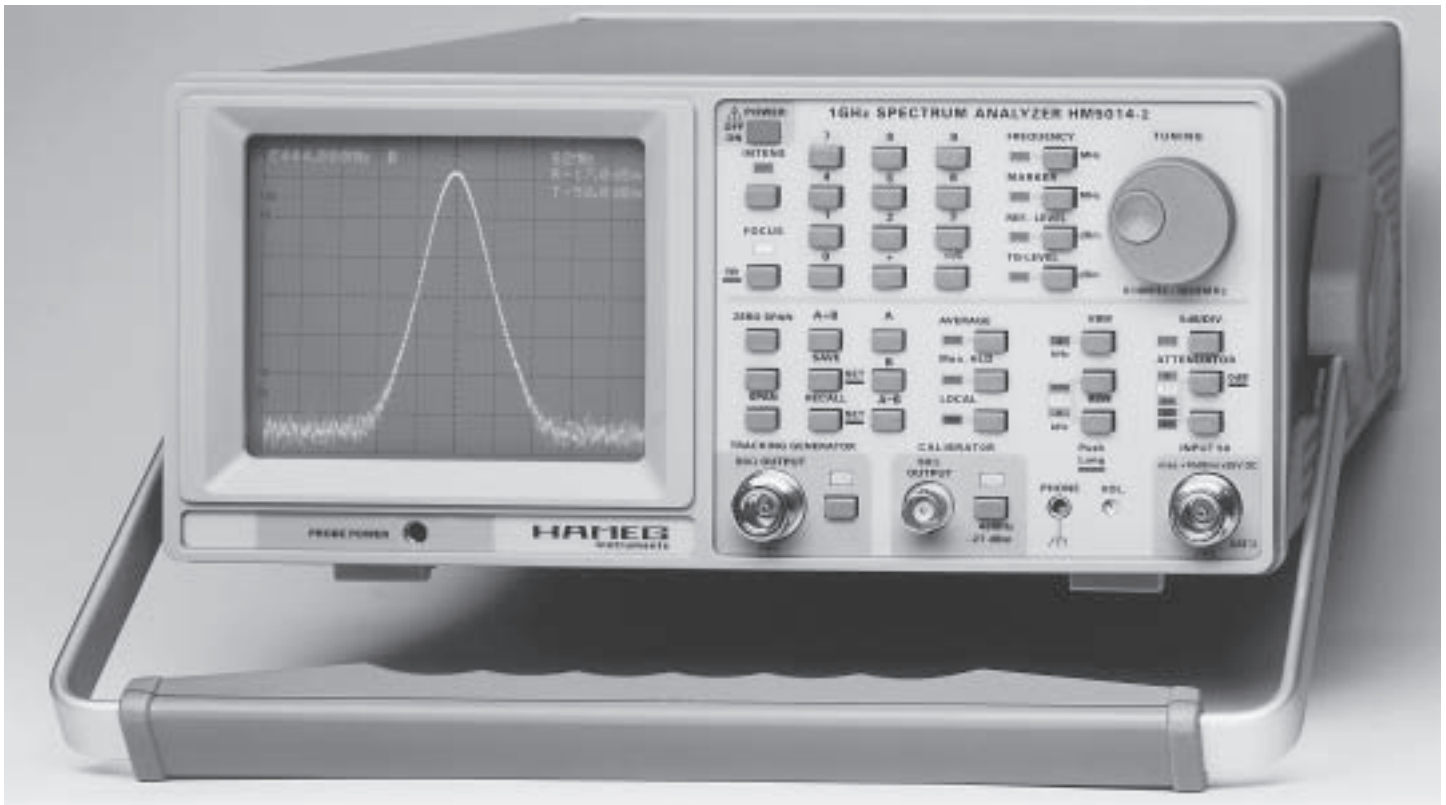
The Software AS100E

The new HAMEG Spectrum Analyzer PC software provides an **easy to use communication link** between a PC and the instrument via RS-232 interface. The software is compatible with **Windows © 9x, ME, NT4.0, 2000** and **XP**. Analysis and documentation on a PC are easy tasks.

The software base version includes:

- Numeric indication of measurement values
- Average and peak values with corresponding cursor
- Storage of reference spectra for comparison
- Freely definable limit lines
- Indication of above-limit signals
- Data storage in MS-Access
- B/W or color printouts of spectra and comments for all printers supported by Windows ©
- Automatic EMC measurements
- Correction factors for antennas and amplifiers

EMC Software extension: Evaluation of emissions from other devices/sources and quasi-peak detection. This feature is available against a registration fee.



Specifications

Reference Temperature 23°C ±2°C

Frequency

Frequency Range:	0.15 MHz to 1050MHz
Stability:	±5ppm
Ageing:	±1ppm/year
Display Resolution (Readout):	1kHz (6½ -Digit)
Center Frequency Range:	0 MHz - 1050 MHz
Frequency Generation:	TCXO with DDS
Span:	Zero span and 1MHz to 1000MHz in steps of 1-2-5
Marker:	Resolution (Frequency) 1KHz, 6½ -Digit Resolution (Amplitude) 0.4dB, 3½ -Digit
Resolution Bandwidth, RBW (6dB):	9kHz, 120kHz and 1MHz
Video Bandwidth, VBW:	4kHz
Sweep time (autom. Selection):	40ms, 320ms, 1s*

Amplitude (Marker related)

Measurement Range:	-100dBm to +10dBm
Scaling:	10dB/div., 5dB/div.
Display Range:	80dB (@ 10dB/div.), 40dB (@ 5dB/div.)
Frequency response (@10dB Attn., Zero Span, RBW 1MHz, -20dBm Signal):	±3dB
Display CRT, Units:	8 x10, logarithmic, dBm
Input Attenuator Range:	0 - 40dB, 10dB steps
Attenuator Accuracy rel. to 10dB:	±1dB
Maximum Safe Input Level (continuous):	
Attenuator setting 40dB:	+20dBm (0,1W)
Attenuator setting 0dB:	+10dBm
DC max:	±25 V
Reference Level Variation:	-99.6dBm to+10dBm
Reference Level Accuracy (rel. to 500MHz, 10dB Attn., Zero Span, RBW 1MHz):	±1dB
Min. Average Noise Level:	-100dBm (9kHz RBW)
Intermodulation (3rd Order):	better than 75dBc
(2 Signals, -27 dBm each, Frequency distance>3MHz)	
Harmonic Distortion	better than 75dBc
(2nd at input level -27dBm, ATTN 0dB, Frequency distance>3MHz)	
Resolution Bandwidth Amplitude Error (rel. to RBW 1MHz, Zero Span):	±1dB
Digitising Error:	±1 Digit (0.4dB) @ 10dB/div. (Average mode)

Inputs / Outputs

Signal Input:	N-Connector
Input Impedance:	50Ω
Tracking Generator Out (HM5014)	N-Connector
Output Impedance:	50Ω
Test Signal Output	BNC (F)
Output Impedance, Frequency, Level:	50Ω, 48MHz, -30dBm ±2dB
Probe Power:	6V (Near field probes)
VSWR:	ATTN ≥10dB typ. 1.5 : 1
Audio Output (Phone):	3.5 mm Ø jack

Functions

Num. Keypad:	Center Frequency, Reference and Tracking Generator Level
Rotary Dial:	Center Frequency, Reference and Tracking Generator Level, Marker
Max. Hold Detection:	Peak Detection
Quasi-Peak Detection:	with software AS100E
Average:	Mean value measurement
SAVE/RECALL	10 set-up settings
AM-Demodulator	Ear Phones
LOCAL:	RS-232 control disabled

Tracking Generator (HM5014-2 only)

Output Frequency Range:	150kHz to 1050MHz
Output Level:	-50dBm to +1dBm
Frequency Response:	±2dB
Spurious Outputs:	better than 20dBc

General Data

Temperature Range:	Operating: 10°C-40°C
Power Requirements:	100-240V~ ±10%, 50 to 60Hz
Power Consumption:	approx. 43W
Protective System:	Safety Class I (IEC 1010-1/EN61010-1)
Dimensions:	W 285, H 125, D 380mm
Cabinet, Weight:	Lockable tilt handle, approx.6kg

*Only in connection with software AS100E

Accessories supplied: Instruction Manual, Power Cord, PC-Software on CDR; **Optional Accessories:** Opto-Interface HZ70, Sniffer Probes HZ530, Transient Limiter HZ560, Line Impedance Stabilization Network HM6050-2