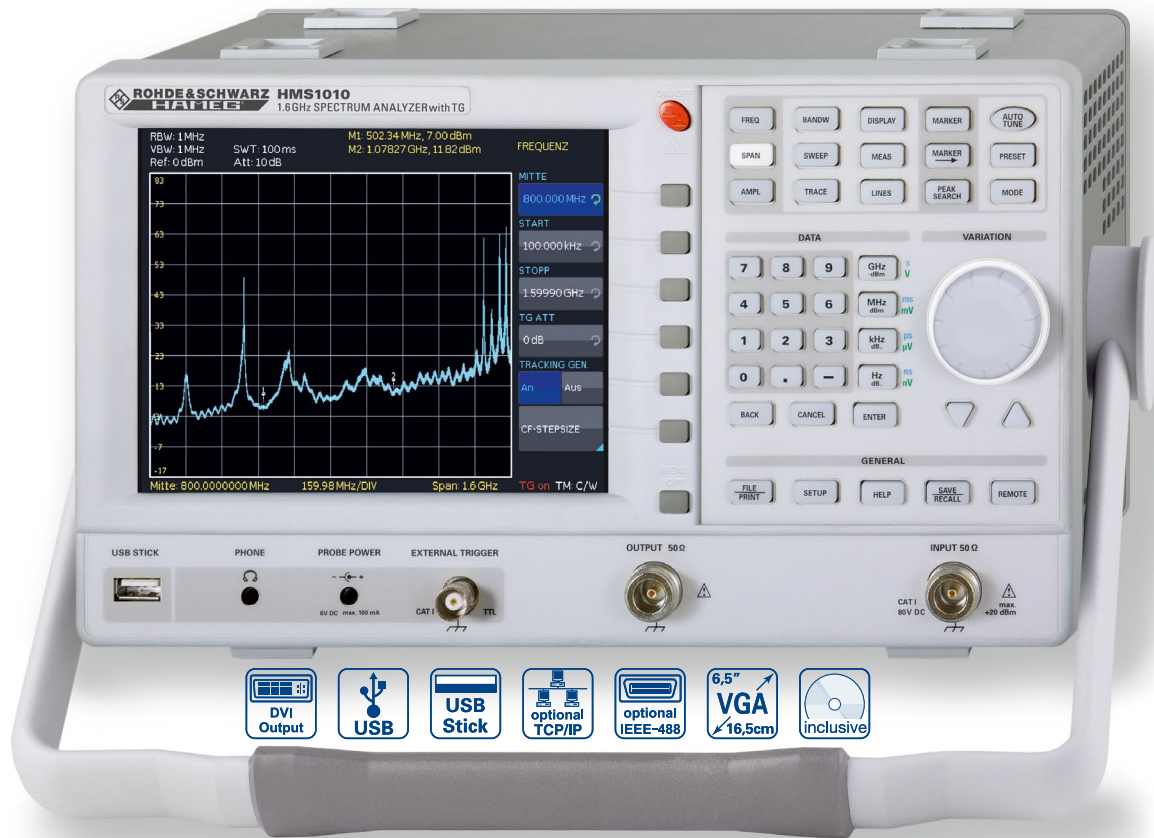


1.6GHz Spectrum Analyzer HMS1000 / HMS1010



HMS1010

1.6GHz Spectrum Analyzer
HMS1000 without TG



EMI Near-Field Probe Set
up to 1GHz HZ530



VSWR Test Unit HZ547



- ✓ Frequency Range 100kHz...1.6GHz
- ✓ Tracking Generator HMS1010 -20...0dBm
- ✓ Amplitude Measurement Range -114...+20dBm
DANL -135dBm with Preamp. Option H03011
- ✓ Sweep Time 20ms...1000s
- ✓ Resolution Bandwidth 100Hz...1MHz in 1-3 Steps,
200kHz (-3dB); additional 200Hz, 9kHz, 120kHz, 1MHz (-6dB)
- ✓ Spectral Purity <-100dBc/Hz (@100kHz)
- ✓ Video Bandwidth 10Hz...1MHz in 1-3 Steps
- ✓ Integrated AM and FM Demodulators (Phone and int. Speaker)
- ✓ Detectors: Auto-, Min-, Max-Peak, Sample, RMS, Quasi-Peak
- ✓ 8 Markers with Delta Marker, miscellaneous Peak Functions
- ✓ Crisp 16.5cm (6.5") TFT VGA Display, DVI Output
- ✓ 3 x USB for Mass-Storage, Printer and Remote Control,
optional IEEE-488 (GPIB) or Ethernet/USB Dual-Interface

1.6 GHz Spectrum Analyzer HMS1000, HMS1010 (with TG) [3GHz Spectrum Analyzer HMS3000, HMS3010 (with TG)]

Firmware: ≥ 2.022

All data valid at 23 °C after 30 minute warm-up.

Frequency	
Frequency range:	
HMS1000, HMS1010	100 kHz...1.6 GHz
HMS3000, HMS3010	100 kHz...3 GHz
Temperature stability:	± 2 ppm (0...30 °C)
Aging:	± 1 ppm/year
Frequency counter:	
Resolution	1 Hz
Accuracy	\pm (Frequency x tolerance of reference)
Span setting range:	
HMS1000, HMS1010	0 Hz (zero span) and 100 Hz...1.6 GHz
HMS3000, HMS3010	0 Hz (zero span) and 100 Hz...3 GHz
Spectral purity, SSB phase noise:	
30 kHz from carrier (500 MHz, +20...30 °C)	< -85 dBc/Hz
100 kHz from carrier (500 MHz, +20...30 °C)	< -100 dBc/Hz
1 MHz from carrier (500 MHz, +20...30 °C)	< -120 dBc/Hz
Sweep time:	
Span = 0 Hz	2 ms...100 s
Span > 0 Hz	20 ms...1,000 s, min. 20 ms/600 MHz
Resolution bandwidths (-3 dB):	100 Hz...1 MHz in 1-3 steps, 200 kHz
Tolerance	
≤ 300 kHz	± 5 % typ.
1 MHz	± 10 % typ.
Resolution bandwidths (-6 dB):	200 Hz, 9 kHz, 120 kHz, 1 MHz
Video bandwidths:	10 Hz...1 MHz in 1-3 steps
Amplitude	
Display range:	Average noise level displayed up to +20 dBm
Amplitude measurement range:	Typ. -114...+20 dBm
Max. permissible DC at HF input:	80 V
Max. power at HF input:	20 dBm, 30 dBm for max. 3 Min.
Intermodulation free range:	
TOI products, 2 x -20 dBm (-10 dBm ref. level) (at distance between signals ≤ 2 MHz)	66 dB typ. (typ. +13 dBm third-order intercept) 60 dB typ. (+10 dBm TOI)
(at distance between signals > 2 MHz)	66 dB typ. (typ. +13 dBm TOI)
DANL [Displayed average noise level]: (RBW 100 Hz, VBW 10 Hz, ref. level ≤ -30 dBm 10 MHz...1.6 GHz resp. 3 GHz) With Preamp.	-115 dBm, typ. -124 dBm -135 dBm typ.
Inherent spurious: (ref. level ≤ -20 dBm, f > 30 MHz, RBW ≤ 100 kHz)	< -80 dBm
Input related spurious: (Mixer level ≤ -40 dBm, carrier offset > 1 MHz)	-70 dBc typ., [-55 dBc (2...3 GHz)]
2 nd harmonic receive frequency: (mixer level -40 dBm)	-60 dBc typ.
Level display:	
Reference level	-80...+20 dBm in 1 dB steps
Display range	100 dB, 50 dB, 20 dB, 10 dB, linear
Logarithmic display scaling	dBm, dB μ V, dBmV
Linear display scaling	Percentage of reference level
Measured curves:	1 curve and 1 memory curve
Trace mathematics:	A-B (curve-stored curve), B-A
Detectors:	Auto-, Min-, Max-Peak, Sample, RMS, Average, Quasi-Peak
Failure of level display: (ref. level -50 dBm, 20...30 °C)	< 1.5 dB, typ. 0.5 dB

Marker/Deltamarker	
Number of marker:	8
Marker functions:	Peak, next peak, minimum, center = marker, frequency, reference level = marker level, all marker on peak
Marker displays:	Normal (level, lin. & log.), delta marker, noise marker, (frequency) counter

Inputs/Outputs	
HF Input:	N socket
Input Impedance	50 Ω
VSWR (10 MHz...1.6 GHz/3 GHz)	< 1.5 typ.
Output tracking generator: (HMS1010/HMS3010)	N socket
Output Impedance	50 Ω
Frequency range	5 MHz...1.6 GHz [3 GHz]
Output level	-20...0 dBm, in 1 dB steps
Trigger input:	BNC female
Trigger voltage	TTL
Ext. reference input/output:	BNC females
Reference frequency	10 MHz
Essential level (50 Ω)	10 dBm
Supply output for field probes:	6 V _{dc} , max. 100 mA (2.5 mm DIN jack)
Audio output (Phone):	3.5 mm DIN jack
Demodulation	AM and FM (internal speaker)

Miscellaneous	
Display:	16.5 cm (6.5") TFT Color VGA Display
Save/Recall memory	10 complete device settings
Trigger	Free run, Video Trigger, Single Trigger, external Trigger
Interfaces:	Dual-Interface USB/RS-232 (H0720), USB-Stick (frontside), USB-Printer (rear side), DVI-D for ext. monitor
Power supply:	105...253 V, 50...60 Hz, CAT II
Power consumption:	Max. 40 W at 230 V, 50 Hz
Protection class:	Safety class I (EN61010-1)
Operating temperature:	+5...+40 °C
Storage temperature:	-20...+70 °C
Rel. humidity:	5...80 % (non condensing)
Dimensions (W x H x D):	285 x 175 x 220 mm
Weight:	3.6 kg

Accessories supplied: Line cord, Operating manual, HZ21 Adapter plug,
N-plug to BNC socket (2x HMS1010/3010), CD, Software

Recommended accessories:

H0730	Dual-Interface Ethernet/USB
H0740	Interface IEEE-488 (GPIB), galvanically isolated
H03011	Preamplifier -135 dBm DANL (100 Hz RBW)
HZ13	Interface cable (USB) 1.8 m
HZ14	Interface cable (serial) 1:1
HZ20	Adapter, BNC to 4 mm banana
HZ33	Test cable 50 Ω , BNC/BNC, 0.5 m
HZ34	Test cable 50 Ω , BNC/BNC, 1.0 m
HZ46	4RU 19" Rackmount Kit
HZ72	GPIB-Cable 2 m
HZ99	Carrying Case for protection and transport
HZ520	Plug-in Antenna with BNC connection
HZ525	50 Ω -Termination, N plug
HZ530	Near-Field Probe Set 1 GHz for EMI diagnostics
HZ540/550	Near-Field Probe Set 3 GHz for EMI diagnostics
HZ540L/550L	Near-Field Probe Set 3 GHz for EMI diagnostics
HZ547	3 GHz VSWR Bridge for HMS1010, HMS3010
HZ560	Transient limiter
HZ575	75/50 Ω Converter
HZ030	Active probe 1 GHz (0.9 pF, 1 M Ω , including many accessories)