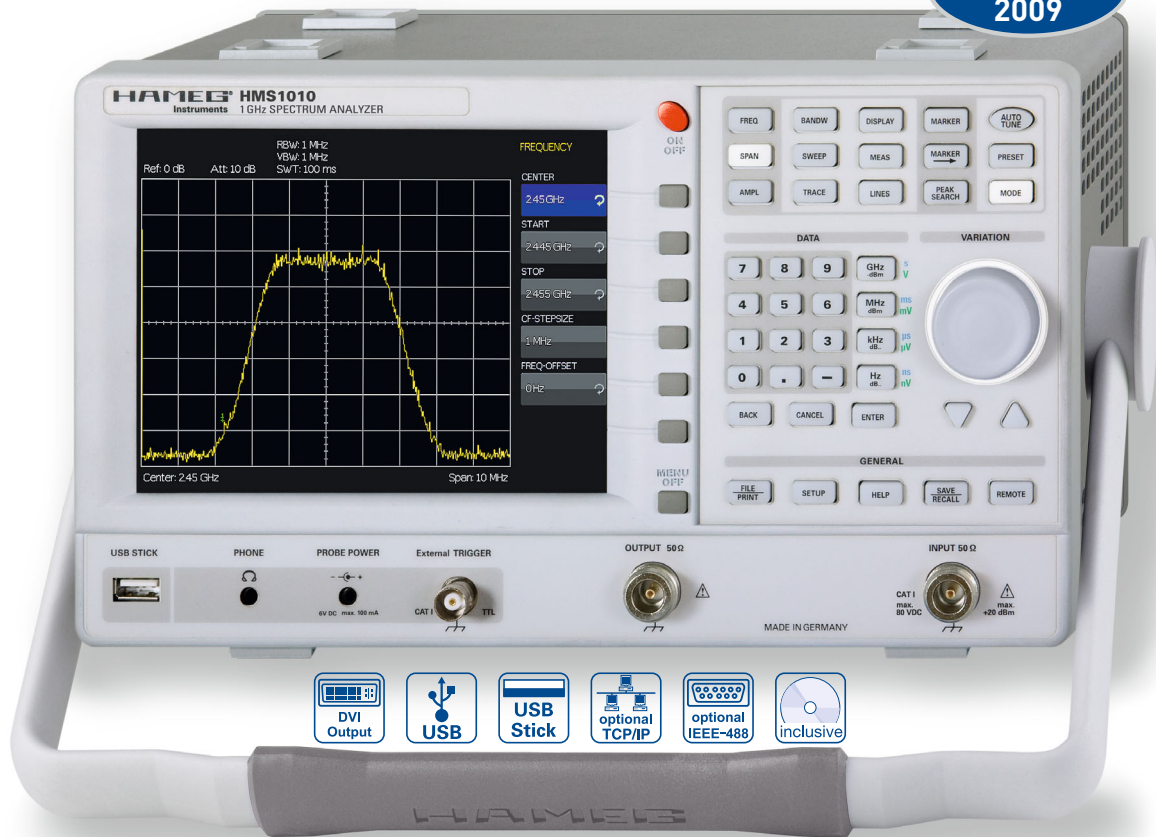


# 1GHz Spectrum Analyzer HMS1000/HMS1010

4<sup>th</sup> Quarter  
2009

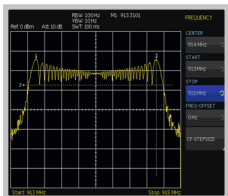


HMS1010

Carrying Case HZ99



Comfortable automatic measurement functions with up to 8 markers



Ethernet/USB-interface H0730 for industrial use (Option)



- Frequency range 100kHz...1GHz
- Amplitude measurement range -114dBm...+20dBm  
DANL -135dBm with Preamp. Option H03011
- Sweep time 20ms...1000s
- Resolution bandwidth (RBW) 1kHz...1MHz in 1-3 steps, 200kHz (-3dB)  
additional 9kHz, 120 kHz, 1MHz (-6dB)
- Spectral purity < -100dBc/Hz (@100kHz)
- Video bandwidth (VBW) 10Hz...1MHz in 1-3 steps
- Tracking Generator (HMS1010) -20dBm/0dBm
- Integrated AM and FM demodulator (int. speaker)
- Detectors: Auto-, min-, max-peak, sample, RMS, quasi-peak
- 8 Marker with delta marker, miscellaneous peak functions
- Crisp 16.5cm (6.5") TFT VGA display, LED backlight, DVI output
- 3 x USB for mass-storage, printer and remote control  
optional IEEE-488 (GPIB) or Ethernet/USB Interface

## 1GHz Spectrum Analyzer HMS1000, HMS1010 (with TG) 3GHz Spectrum Analyzer HMS3000, HMS3010 (with TG)

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

Frequency	
<b>Frequency range:</b>	
HMS1000, HMS1010	100kHz...1GHz
HMS3000, HMS3010	100kHz...3GHz
<b>Temperature stability:</b>	
	± 2ppm (0...30°C)
<b>Aging:</b>	
	± 1 ppm/year
<b>Frequency counter (from SW 2.0):</b>	
Resolution	1Hz
Accuracy	± (Frequency x tolerance of reference)
<b>Span setting range:</b>	
HMS1000, HMS1010	0Hz (zero span) and 1kHz...1GHz
HMS3000, HMS3010	0Hz (zero span) and 100Hz...3GHz
<b>Spectral purity, SSB phase noise:</b>	
30kHz from carrier (500MHz, +20°C...30°C)	<-85dBc/Hz
100kHz from carrier (500MHz, +20°C...30°C)	<-100dBc/Hz
1MHz from carrier (500MHz, +20°C...30°C)	<-120dBc/Hz
<b>Sweep time:</b>	
Span = 0Hz	20ms...100s
Span > 0Hz	20ms...1000s, min. 20ms/600MHz
<b>Resolution bandwidths (-3 dB):</b>	
HMS1000, HMS1010	1kHz...1MHz in 1-3 steps, 200kHz
HMS3000, HMS3010	100Hz...1MHz in 1-3 steps, 200kHz
<b>Tolerance:</b>	
≤ 300kHz	± 5% typ.
1MHz	± 10% typ.
<b>Resolution bandwidths (-6 dB):</b>	
HMS1000, HMS1010	9kHz, 120kHz, 1MHz
HMS3000, HMS3010	200Hz, 9kHz, 120kHz, 1MHz
<b>Video bandwidths:</b>	
	10Hz...1MHz in 1-3 steps
Amplitude	
<b>Display range:</b>	
	Average noise level displayed up to +20 dBm
<b>Amplitude measurement range:</b>	
	Typ. -114dBm...+20dBm
<b>Max. permissible DC at HF input:</b>	
	80V
<b>Max. power at HF input:</b>	
	20dBm, 30dBm for max. 3 Min.
<b>Intermodulation free range:</b>	
IM3 products, 2 x -20dBm (-10dBm ref. level)	66dB typ. (typ. +13dBm third-order intercept)
(at distance between signals ≤ 2MHz)	60dB typ. (+10dBm TOI)
(at distance between signals > 2MHz)	66dB typ. (typ. +13dBm TOI)
<b>DANL (Displayed average noise level):</b>	
(RBW 1kHz, VBW 10Hz, ref. level ≤ -30dBm, 10MHz...1GHz resp. 3GHz)	-105dBm, typ. -114dBm
With Preamp.	-135dBm typ. (100Hz RBW)
<b>Inherent spurious:</b>	
(ref. level ≤ -20dBm, f < 30MHz, RBW ≤ 100kHz)	< -80dBm
<b>Input related spurious:</b>	
(Mixer level ≤ -40dBm, carrier offset > 1MHz)	-70dBc typ., -55dBc (2...3GHz)
<b>2nd harmonic receive frequency</b>	
(mixer level -40dBm):	-60dBc typ.
<b>Level display:</b>	
Reference level	-80dBm...+20dBm in 1dB steps
Display range	100dB, 50dB, 20dB, 10dB, linear
Logarithmic display scaling	dBm, dBμV, dBmV
Linear display scaling	μV, mV, V, nW, μW, mW, W
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:	< 1,5dB, typ. 0,5dB
	(ref. level to ref. level-50dB, 20°C...30°C)

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), noise marker, (frequency) counter (from SW 2.0)
Inputs / Outputs	
HF Input	N socket
Input Impedance:	50Ω
VSWR (10MHz...1GHz/3GHz):	< 1,5 typ.
<b>Output tracking generator:</b>	
(HMS1010/HMS3010)	N socket
Output Impedance:	50Ω
Frequency range:	5MHz...1GHz/3GHz
Output level:	-20dBm/0dBm
<b>Trigger and external reference input:</b>	
reference input:	BNC female, selectable
Trigger voltage	TTL
Reference frequency	10MHz
Essential level (50Ω)	10dBm
Supply output for field probes:	6VDC, max. 100mA (2,5mm DIN jack)
Audio output (Phone):	3,5mm DIN jack
Demodulation	AM and FM (internal speaker)
Miscellaneous	
Display:	6,5" TFT Color VGA Display
Save / Recall memory:	10 complete device settings
Trigger:	Free run, Video Trigger (from SW 2.0), external Trigger
Interfaces:	Dual-Interface USB/RS-232 (HO720), USB-Stick (frontside), USB-Printer (rear side) from SW 2.0, DVI-D for ext. monitor
Power supply:	105...253 V, 50/60 Hz, CAT II
Power consumption:	Max. 40Watt at 230V, 50 Hz
Protection class:	Safety class I (EN61010-1)
Operating temperature:	+5°C...+40°C
Storage temperature:	-20°C...+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, Dual-Interface USB/RS-232 (HO720), CD, HZ21 Adapter plug (N plug to BNC socket)

### Optional accessories:

H03011 Preamplifier -135dBm DANL (100Hz RBW)  
 H0730 Dual-Interface Ethernet/USB  
 H0740 Interface IEEE-488 (GPIB), galvanically isolated  
 HZ547 3GHz VSWR Test Unit for HMS1010, HMS3010  
 HZ520 Plug-in Antenna with BNC connection  
 HZ530 Near-Field Probe Set 1GHz for EMV diagnostics  
 HZ540 Near-Field Probe Set 3GHz for EMV diagnostics  
 HZ560 Transient limiter  
 HZ575 75/50Ω Converter  
 HZ46 4RU 19" Rackmount Kit

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