

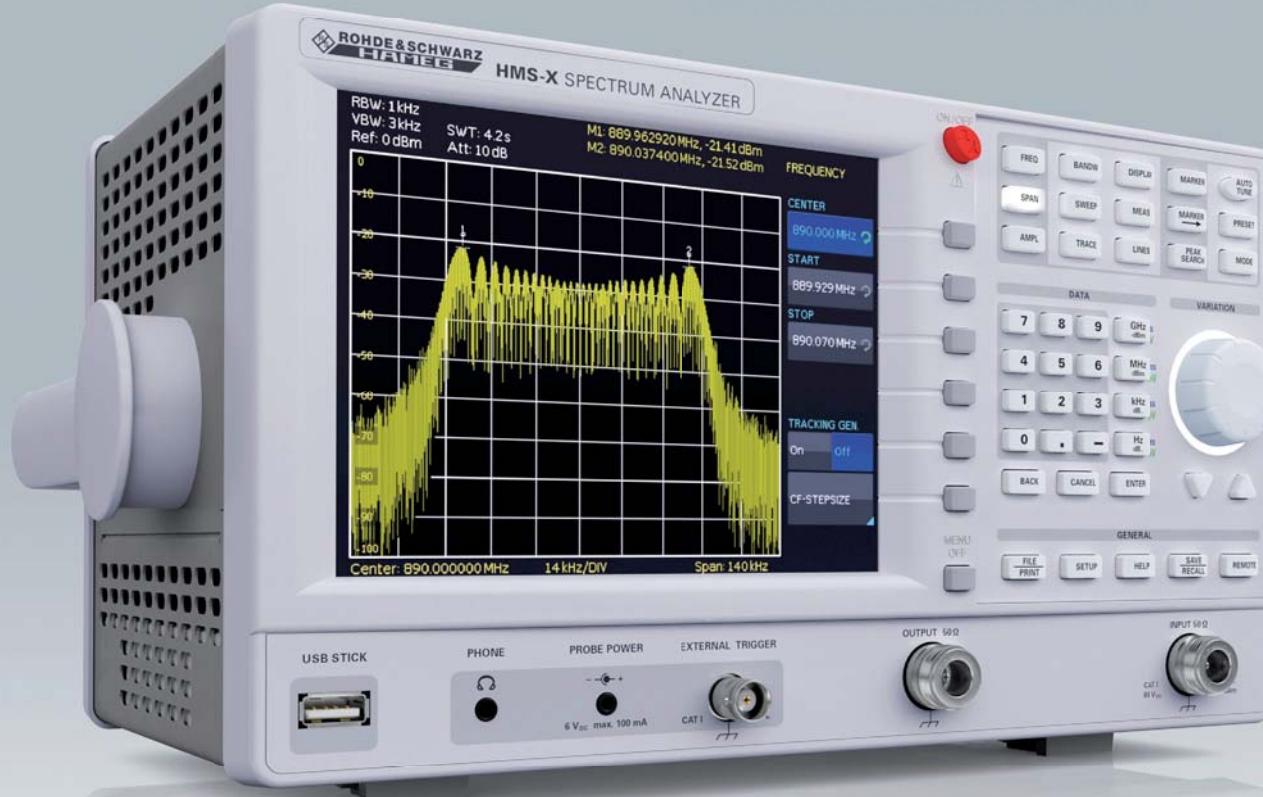
Spectrum Analyzer

1.6 GHz | 3 GHz

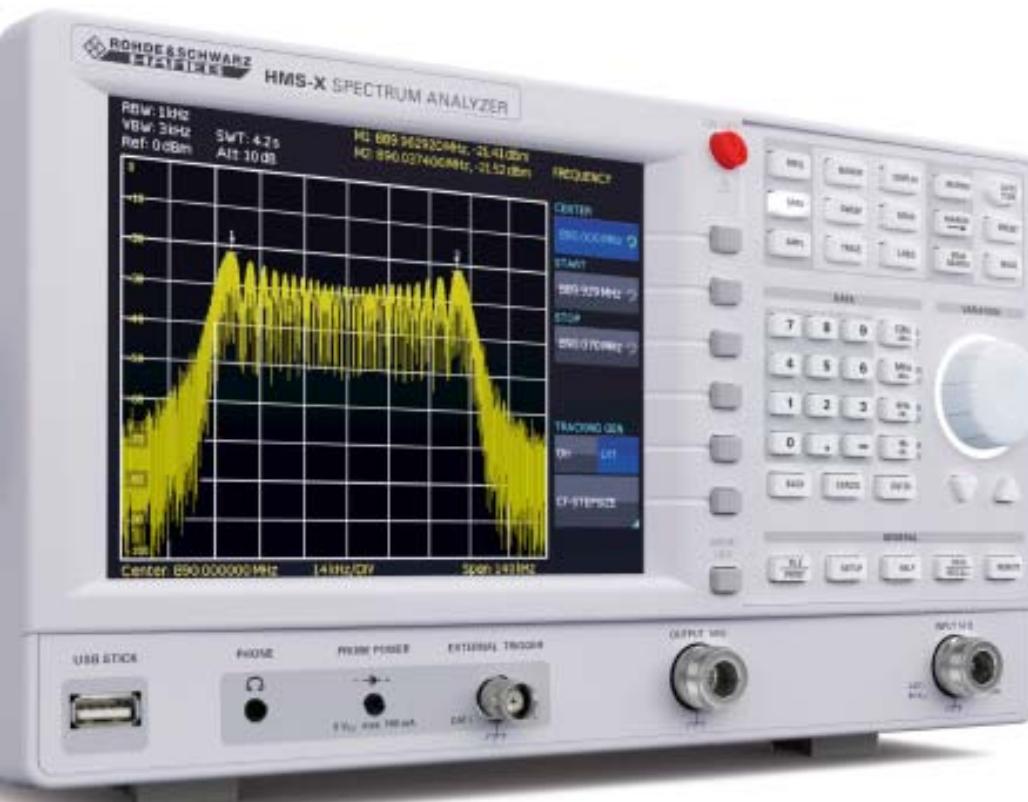
HMS-X



HAMEG®
Instruments
A Rohde & Schwarz Company



1 Basic Unit + 3 Options



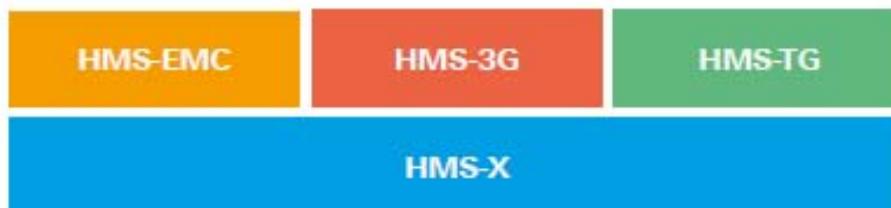
Key facts

- Frequency range: 100kHz to 1.6GHz/3GHz^{*1}
- Spectral purity greater than -100dBc/Hz (at 100kHz)
- SWEEP from 20ms to 1000s
- Detectors: auto-, min-/max.-peak, sample, RMS, average, quasi-peak^{*2}
- Miscellaneous marker/Δmarker and peak functions
- Tracking generator^{*3}
Frequency range: 5MHz to 1.6GHz/3GHz^{*1}
Output level: -20dBm to 0dBm
- Directly export data to USB flash drive, RS-232/USB dual interface for remote control
- Fanless design and fast boot time

*1 with HMS-3G (HV212) option

*2 with HMS-EMC (HV213) option

*3 with HMS-TG (HV211) option



Model overview:	HMS-X with EMC option	HMS-X basic unit
Amplitude measurement range	-114dBm to +20dBm	-104dBm to +20dBm
DANL	typ. -135dBm	typ. -104dBm
Resolution bandwidth	100Hz to 1MHz, 200kHz (-3dB), 200Hz, 9kHz, 120kHz, 1MHz (-6dB)	10kHz to 1MHz, 200kHz (-3dB)
Video bandwidth	10Hz to 1MHz	1kHz to 1MHz

Your HMS-X Spectrum Analyzer

You can create your HMS spectrum analyzer by combining a basic unit with any of three available options. In case of growing requirements, upgrade vouchers allow you to upgrade your instruments with all options at any point in time.



HMS-EMC

- This option activates all the functions that are required for EMC precompliance measurements. The preamplifier option has been integrated into the new HMS-EMC option.

HMS-3G

- The frequency range is increased from 1.6GHz to 3 GHz with this option.

3 GHz



HMS-TG

- This option activates the tracking generator in the instrument.



We have used the first-class hardware from our largest HMS spectrum analyzer and developed a new and flexible instrument concept. It can be individually configured, combined and upgraded for your applications.

HMS previous models	HMS-X
HMS1000E	HMS-X
HMS1000	HMS-X + EMC*
HMS1010	HMS-X + EMC* + TG
HMS3000	HMS-X + EMC* + 3G
HMS3010	HMS-X + EMC* + 3G + TG

* The preamplifier function is an integral part of the HMS-EMC option

Upgrade at any time

You can easily upgrade all three available options at any later point in time with option upgrade vouchers available at your dealer.

The voucher number and the serial number of your HMS-X instrument enable you to generate the respective licence key directly on our web page
<http://voucher.hameg.com>.



HMS-X options	Option code ^{*1}	Voucher code ^{*2}
EMC option incl. preamplifier	HMS-EMC	HV213
Bandwidth upgrade to 3 GHz	HMS-3G	HV212
Unlock built-in tracking generator	HMS-TG	HV211

*¹ available only with purchase of HMS-X basic unit

*² activate HMS-X options at any time after purchase of HMS-X basic unit

EMC Precompliance

Not only do unexpected results in test labs during EMC compliance measurements translate into extra costs, quite often they also cause a substantial delay for your project. HAMEG offers effective and cost-efficient tools for EMC precompliance measurements which allow you to successfully prevent possible surprises before the actual onset of a problem.

Our HMExplorer software for your EMC measurements is included with every HMS-X spectrum analyzer with activated EMC option.

EMC precompliance sets

HAMEG offers product sets for your EMC precompliance measurements, which include all necessary instruments to analyse typical EMC problems. Depending on your requirements, you can choose between a 1 GHz and a 3 GHz combination.

1GHz EMC-SET1

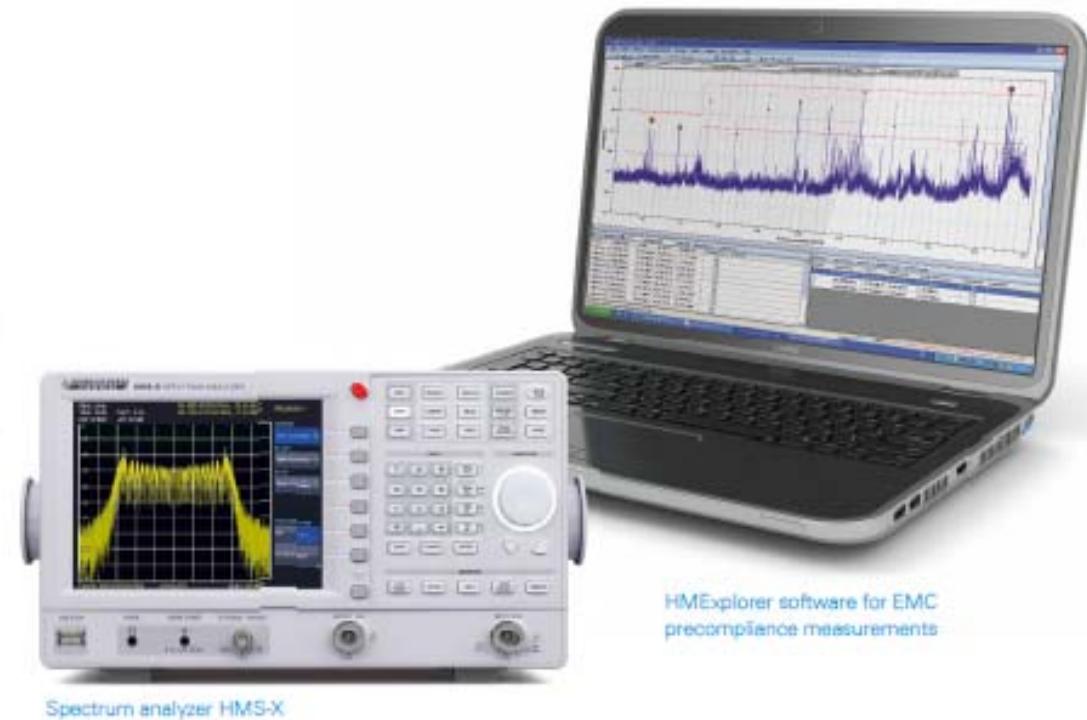
- Spectrum analyzer HMS-X incl. HMS-EMC option
- Probe set HZ530
- Line impedance stabilization network (LISN) HM6050-2
- HMExplorer software



3GHz EMC-SET2

Differences to SET1:

- HMS-3G option additional
- 3 GHz probe set HZ540 instead of HZ530



HMExplorer software for EMC precompliance measurements

Spectrum analyzer HMS-X



Line impedance stabilization network for line conducted measurements
LISN HM6050-2



1 GHz probe set
HZ530



3 GHz probe set
HZ540 (fig. similar)

Recommended Accessories

3 GHz VSWR bridge HZ547

This unit is used to measure the voltage standing wave ratio (VSWR) and reflection coefficient of a device under test with an impedance of 50Ω . Typical test devices include attenuators, terminations, frequency switches, amplifiers, cables and mixers.



3 GHz VSWR bridge for HMS-X, option HMS-TG required, option HMS-3G recommended

HZ46

4RU 19" rackmount kit



HZ99

Carrying case for protection and transport



HO730

Ethernet/USB dual interface card



HO740

Interface IEEE-488 (GPIB), galvanically isolated



HZ530

Near-field probe set 1 GHz



Near-field probe set 3 GHz HZ540 | HZ550

Near field probe set for comparative measurements with built-in preamplifier covering frequency ranges from 1 MHz to 3 GHz, designed for the 50Ω N-connectors of the HMS-X:

- E-field probe
- H-field probe
- High impedance probe
- μ H-field probe (HZ550)
- Radiation probe (HZ550)

Alternative version

HZ540L | HZ550L

Same specification as HZ540 | HZ550, but with low capacitance probe instead of high impedance probe



Spectrum analyzer HMS-X

Firmware: ≥ 2.022

Frequency	
Frequency range:	100 kHz to 1.6 GHz
	100 kHz to 3 GHz ¹⁾
Temperature stability:	±2 ppm (0 to 30 °C)
Aging:	±1 ppm/year
Frequency counter ²⁾ :	
Resolution	1 Hz
Accuracy	±(Frequency x tolerance of reference)
Span setting range:	0 Hz (zero span) and 100 Hz to 1.6 GHz
Basic unit	0 Hz (zero span) and 100 Hz to 3 GHz ¹⁾
Spectral purity, SSB phase noise:	
30 kHz from carrier (500 MHz, +20 to 30 °C)	<-85 dBc/Hz ²⁾
100 kHz from carrier (500 MHz, +20 to 30 °C)	<-100 dBc/Hz
1 MHz from carrier (500 MHz, +20 to 30 °C)	<-120 dBc/Hz
Sweep time:	
Span = 0 Hz	2 ms to 100 s
Span > 0 Hz	20 ms to 1000 s, min. 20 ms/600 MHz
Resolution bandwidths (3 dB):	10 kHz to 1 MHz in 1-3 steps, 200 kHz
	100 Hz to 1 MHz in 1-3 steps, 200 kHz ²⁾
Tolerance	
<300 kHz	±5% typ.
1 MHz	±10% typ.
Resolution bandwidths (6 dB):	200 Hz, 9 kHz, 120 kHz, 1 MHz ²⁾
Video bandwidths:	1 kHz to 1 MHz in 1-3 steps
	10 Hz to 1 MHz in 1-3 steps ²⁾

Amplitude	
Display range:	Average noise level displayed up to +20 dBm
Amplitude measurement range:	Typ. -104 to +20 dBm
	Typ. -114 to +20 dBm ²⁾
Max. permissible DC at HF input:	90 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)	66 dB typ.
(typ. +13 dBm third-order intercept)	
(at distance between signals ≤ 2 MHz)	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 10 kHz, VBW 1 kHz, ref. level <-30 dBm 10 MHz to 1.6 GHz/3 GHz ¹⁾)	-95 dBm, typ. -104 dBm
(RBW 100 Hz, VBW 10 Hz, Ref. Level <-30 dBm 10 MHz to 1.6 GHz/3 GHz ¹⁾)	-115 dBm ²⁾ , typ. -135 dBm ²⁾
Preamp. deactivated	typ. -124 dBm ²⁾
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.
(2 to 3 GHz)	-55 dBc ²⁾
2nd harmonic receive frequency:	
(mixer level -40 dBm)	-60 dBc typ.
Level display:	
Reference level	-80 to +20 dBm in 1 dB steps
Display range	100 dB, 50 dB, 20 dB, 10 dB linear ²⁾
Logarithmic display scaling	dBm, dB μ V, dBmV
Linear display scaling	Percentage of reference level ²⁾
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 ²⁾
Failure of level display:	<1.5 dB, typ. 0.5 dB (ref. level -50 dBm, 20 to 30 °C)

Marker/Dotmarker	
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, log.), delta marker, noise marker Normal (lin.), (frequency) counter ²⁾

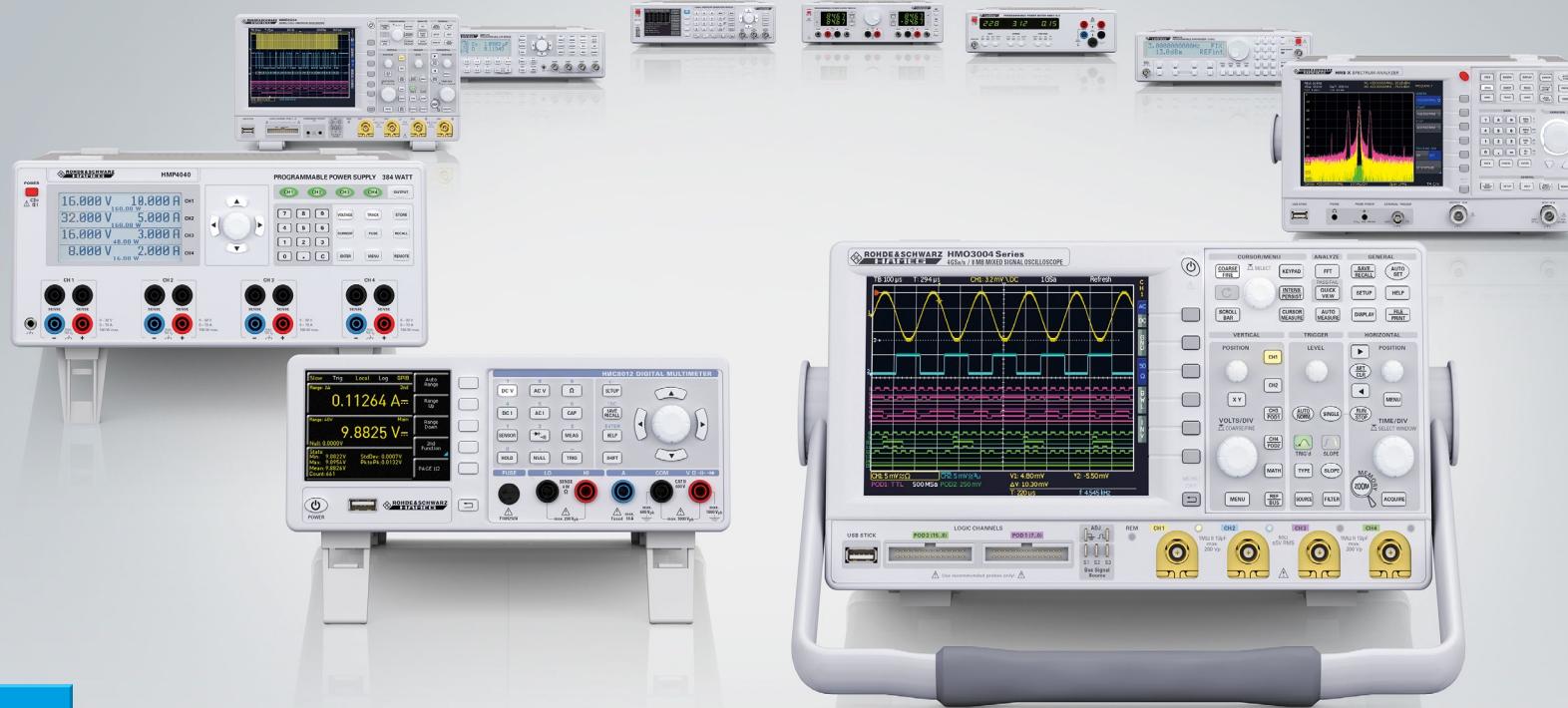
Inputs/Outputs	
HF Input:	N socket
Input impedance	50 Ω
VSWR (10 MHz to 1.6 GHz/3 GHz ¹⁾)	<1.5 typ.
Output tracking generator ²⁾ :	N socket
Output impedance	50 Ω
Frequency range	5 MHz to 1.6 GHz/3 GHz ¹⁾
Output level	20 to 0 dBm, in 1 dB steps

Trigger input:	BNC female
Trigger voltage	TTL
Ext. reference input/output:	BNC female
Reference frequency	10 MHz
Essential level (50 Ω)	10 dBm
Supply output for field probes:	6 Vdc, 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, Single Trigger, external Trigger Video Trigger ²⁾
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 to 60 Hz, CAT II
Power consumption:	Max. 40 W at 230 V, 50 Hz
Protection class:	Safety class I (EN61010-1)
Operating temperature:	+5 to +40 °C
Storage temperature:	-20 to +70 °C
Rel. humidity:	5 to 80% (non condensing)
Dimensions (W x H x D):	285 x 175 x 220 mm
Weight:	3.8 kg

¹⁾ with activated HMS-3G option²⁾ with activated HMS-EMC option³⁾ with activated HMS-TG option**Accessories included:**
Line cord, printed operating manual, CD, software

Recommended accessories:	
H0730	Dual-interface ethernet/USB
H0740	Interface IEEE-488 (GPIB), galvanically isolated
H2530	Near-field probe set 1 GHz for EMI diagnostics
H2540/550	Near-field probe set 3 GHz for EMI diagnostics
H2540L/550L	Near-field probe set 3 GHz for EMI diagnostics
H2547	3 GHz VSWR bridge for HMS-X incl. HMSTG option
H213	Interface cable (USB) 1.8 m
H214	Interface cable (serial) 1:1
H221	Adapter N (plug) - BNC (socket)
H246	4RU 19" rackmount kit
H272	GPIB-cable 2 m
H299	Carrying case for protection and transport
H2520	Plug-in antenna with BNC connection
H2525	50 Ω termination, N plug
H2560	Transient limiter
H2575	75/50 Ω converter



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