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3.3 GHz Portable Spectrum Analyzer

HM5033

HAMEG®
Instruments

Specifications of HM5033

Frequency section

Frequency range	50 kHz to 3.3 GHz
Center frequency	
– Setting resolution	100 kHz, allows Rotary encoder, numeric key and function key
– Accuracy (kHz)	within ±(30 +100 x t) ±1 dot t: Sweep time (s) (frequency span: 200 kHz to 10 MHz, RBW: 30 kHz, 23 °C ± 5 °C) within ±(100 + 700 x t) ±1 dot t: Sweep time (s) (frequency span: 20 MHz to 3.3 GHz, RBW: 100 kHz, 23 °C ±5 °C)
– RBW frequency error	within ±6% of RBW (RBW: 3 kHz, 30 kHz) within ±30% of RBW (RBW: 100 kHz to 3 MHz)
Frequency span	
– Setting range	0 Hz (zero span), 200 kHz to 2 GHz (1-2-5 step) and 3.3 GHz (full span)
– Accuracy (kHz)	within [±3% (20 x t)] ±1 dot (frequency span: 200 kHz to 10 MHz, 23 °C ±5°C) within [±3% (200 x t)] ±1 dot (frequency span: 20 MHz to 3.3 GHz, 23 °C ±5°C) t: Sweep time (s)
Display resolution	LCD: Frequency span/250 PC Monitor (max.): Frequency span/1000 (via RS-232C)
Display dot number	LCD: 251 dots, PC Monitor (max.): 1001 dots (via RS-232C) (The unit displays data as 251 horizontal dots, but it internally captures the signal as 1001 dots)
Resolution bandwidth	3 dB bandwidth
– Setting range	3 kHz to 3 MHz (1-3 step) and AUTO
– Accuracy	within ±20%
– Selectivity	1 : 12 (typical, 3 dB : 60 dB)
Video bandwidth	100 Hz to 300 kHz (1-3 step), OFF and AUTO
SSB phase noise	–90 dBc/Hz (typical, 100 kHz offset, RBW: 3 kHz, VBW: 100 Hz, Sweep time: 0.3 s)
Spurious response	less than –60 dBc
Harmonics	less than –40 dBc (50 kHz to 100 MHz) less than –45 dBc (100 Mhz to 3.3 GHz)

Amplitude section

Reference level	
Setting range	+10 to –60 dBm (1 dB step)
Accuracy	within ±0.8 dB ±1 dot (center frequency: 100 MHz, RBW: 3 MHz, VBW: OFF, ATT: 0 dB, 23 °C ±5 °C)
Unit	dBm, dBV, dBmV, dBµV, dBµV/m, dBµA/m (dBµV/m and dBµA/m is used as the measuring function)
Average noise level	-110 dBm (typical, center frequency: 100 MHz, RBW: 3 kHz, VBW: 100 Hz)
Frequency Characteristic	within ±2.0 dB ±1 dot (50 kHz to 100 MHz) within ±1.0 dB ±1 dot (100 MHz to 3.3 GHz)
Input impedance	50 Ω
Input VSWR	less than 2.0
Input attenuator	
– Operating range	0 to 25 dB (1 dB step), coupled with reference level
– Switching error	within ±0.6 dB
RBW switching error	within ±0.6 dB
Display resolution	0.4 dB (10 dB/div), 0.08 dB (2 dB/div)
Display dot number	200 dots
Display scale	
– Scale	10 dB/div, 2 dB/div
– Accuracy	within ±0.2 dB / 2 dB ±1 dot within ±0.8 dB / 10 dB ±1 dot within ±1.6 dB / 70 dB ±1 dot
Input damage level	+20 dBm (CW average power), 25 VDC

Sweep section

Sweep time	
– Setting range	10 ms to 30 s (1-3 step, frequency span: 0 to 2 GHz) and AUTO 30 ms to 30 s (1-3 step, frequency span: full span) and AUTO
– Accuracy	within ±0.1% ±1 dot (frequency span: 0 to 2 GHz) within ±1.5% ±1 dot (frequency span: full span)
Trigger mode	AUTO (frequency span: zero span)
Detection mode	Positive peak, Negative peak, Sample (When sweep time is 10 ms or 30 ms, only Sample can be set)

Functions

Marker	NORM: displays frequency (7 digits max) and level (4 digits max) at marker point. DELTA: displays differential frequency and level between 2 markers.
Peak search	NORM: searches a peak point within 10 div. Available NEXT peak (10 max). ZONE: searches a peak point within a zone designated by center and width. Marker moves to a peak point each sweep.
Calculation	NORM, MAX HOLD, MIN HOLD, AVERAGE, OVER WRITE MAX/MIN HOLD: 2 to 1024 times, AVERAGE: 2 to 256
Measuring	Channel power, Adjacent channel leakage power, Occupied frequency bandwidth, Electric field strength (optional antenna), Magnetic field strength (optional magnetic field probe) measurement.
AUTO tuning	When pushing AUTO TUNE key, the maximum level spectrum within 3.3 GHz bandwidth is adjusted to center, and reference level, RBW, VBW and sweep time are adjusted to optimum values.
Save/Load	
– Save	Saves 100 traces and 100 setups
– Load	Loads 1 trace and 1 setup

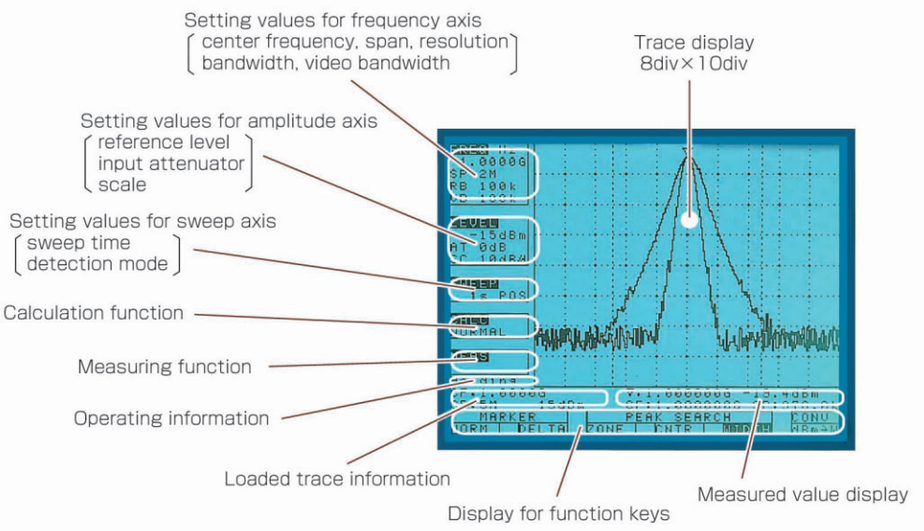
General

Input connector	SMA(J)
Communication	
– Interface	RS-232C
– Baud rate	2400 to 38400 bps
Hard copy	Allows direct hard copy with an optional printer.
Display	
– Display	LCD
– Backlight	CFL backlight
– Resolution	320 (H) x 240 (V) dots
Power source	
– Battery	Ni-MH battery (optional)
– External DC source	Pin jack, DC5V/4A

Other

Operating temperature	0 °C to 40 °C (Guaranteed at 23 °C ±10 °C, without soft carrying case)
Operating humidity	less than 40 °C / 80% RH (Guaranteed at less than 33 °C / 70% RH, without soft carrying case)
Storage temperature	–20 °C to 60 °C, less than 60 °C / 70% RH
Dimensions (WxHxD)	162 x 70 x 260 mm (exclude projections and stand)
Weight	approx. 1.7 kg (include battery), approx. 1.5 kg (without battery)

Definitive edition of handy type spectrum analyzer



Function Key

Frequency span
200kHz to 2GHz, ZERO and FULL span.

Center frequency
Sets center frequency in 100kHz resolution.

Video bandwidth
100Hz to 300kHz and OFF.

Resolution bandwidth
3kHz to 3MHz.

Sweep
Sets 10ms to 30s sweep time and detection mode.

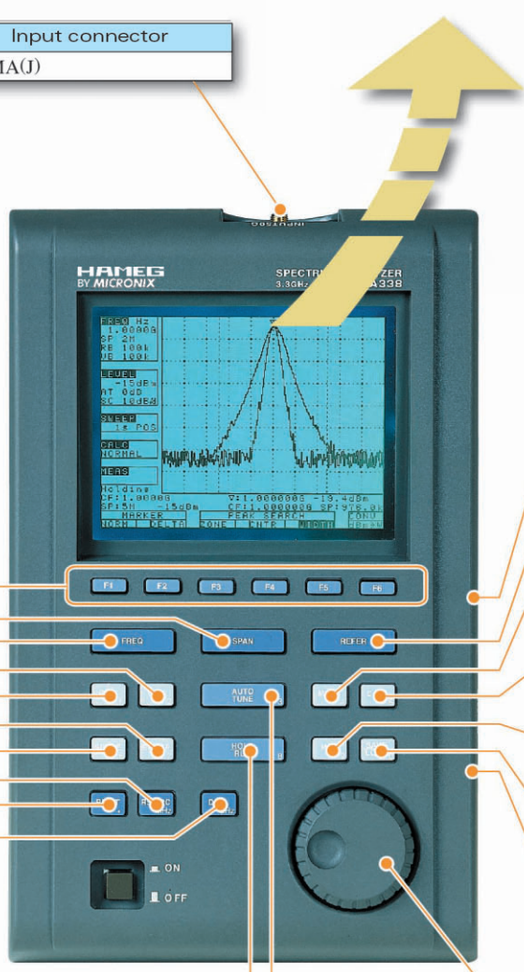
Scale
2dB/div and 10dB/div.

RS-232C
Sets baud rate and transfers a current or saved trace.

Print
When pressing this key, the image is printed with a printer (optional) as it is.

Display control
Sets contrast, backlight ON/OFF, brightness of backlight and invert display.

Input connector
SMA(J)



Hold/Run
Stops or restarts capturing data.

AUTO tuning
Tunes to the maximum level spectrum within full bandwith.

Input connector for DC power source
Connects AC adaptor MA300.

Reference level
Sets +10 to -40dBm in 1dB step.

Measuring functions
Available for Channel power, Adjacent channel power, Occupied bandwidth, Electric field strength and Magnetic field strength measurement.

Calculation functions
Available for Max hold, Min hold, Average and Over write.

Marker and peak search functions
Displays the frequency and level at the marker point or between two markers.

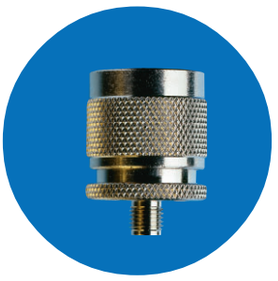
Save/Load
Saves 100traces and 100setups, and loads 1trace and 1setup.

RS-232C connector
9 pin D-sub connector to connect to an optional printer or PC.

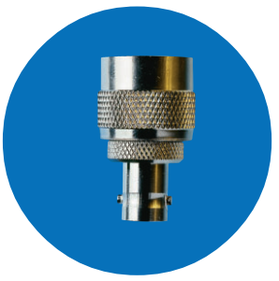
Rotary encoder

The new 3,3 GHz Spectrum Analyzer HM5033 incl. the below mentioned accessories

Standard



HZ19
Adapter SMA-jack
to N-plug



HZ21
Adapter N-plug
to BNC-jack

HZ29
Adapter N-jack
to SMA-jack

HZ521
Sniffer-antenna
with SMA-plug

HZ522
Sniffer-antenna
with SMA-plug

HZ37
Cable SMA-plug
to SMA-plug (length 40 cm)

AC adaptor HM5033

Soft carrying case HM5033

Ni-MH battery HM5033

Optional

Software CD MAS300 1.03C

for Microsoft® WIN 95, WIN 98, Me, 2000 and XP

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