



# Powertronics

Venda, locação e manutenção.

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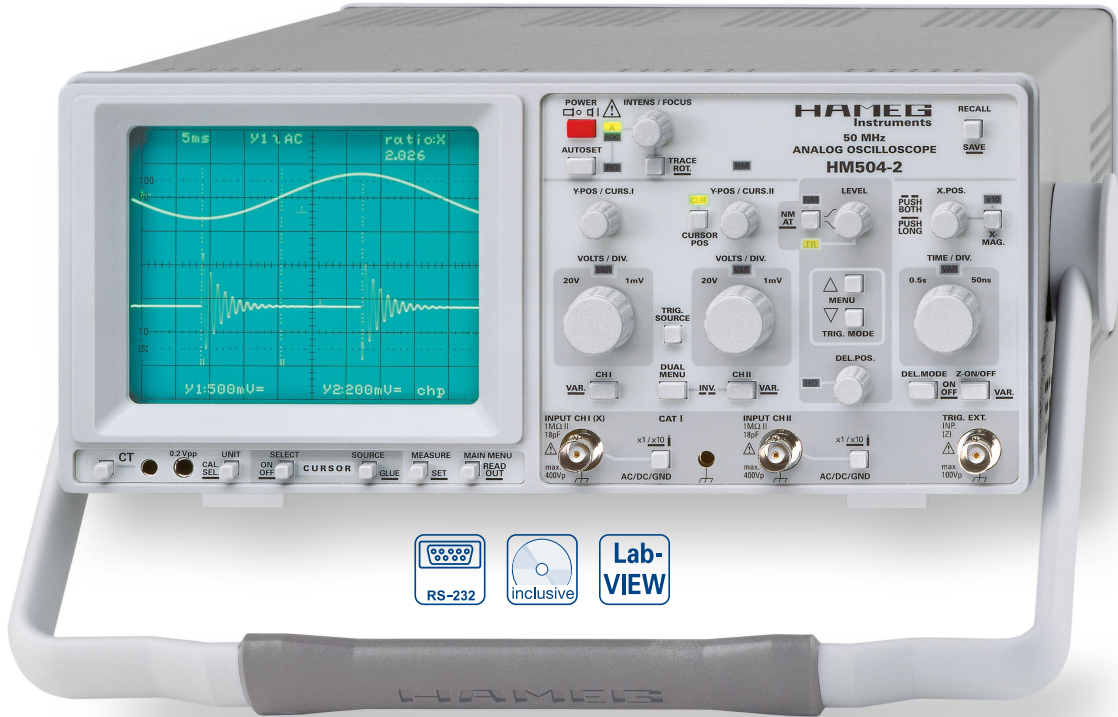
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# HAMEG® Instruments

A Rohde & Schwarz Company

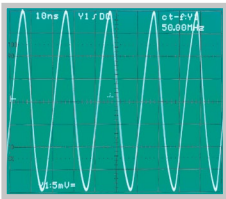
## 50MHz Analog Oscilloscope HM504-2



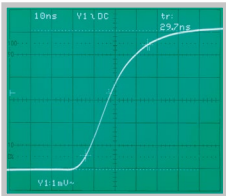
# HM504-2



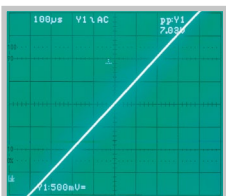
Full Screen Display of  
50MHz Sine Wave



Rise-Time Measurement  
with Cursor



Optimum Deflection  
Linearity



- 2 Channels with Deflection Coefficients 1mV/div....20V/div.
- Time Base 50ns/div....0.5s/div., with X Magnification to 10ns/div.
- Low Noise Measuring Amplifiers with high Pulse Fidelity
- Triggering 0...100MHz from 5mm Signal Level
- Time Base Delay provide high X Magnification of any Portion of the Signal
- 100MHz 4-Digit Frequency Counter, Cursor and Automatic Measurement
- Save/Recall Memories for Instrument Settings
- Readout, Autoset, no Fan
- Yt, XY and Component-Test Modes
- RS-232 Interface (for Parameter Queries and Control only)

## 50 MHz Analog Oscilloscope HM504-2

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

### Vertical Deflection

<b>Operating Modes:</b>	Channel 1 or 2 only Channels 1 and 2 (alternate or chopped) Sum or Difference of CH 1 and CH 2
<b>Invert:</b>	CH 2
<b>XY Mode:</b>	CH 1 (X) and CH 2 (Y)
<b>Bandwidth:</b>	2 x 0...50 MHz (-3 dB)
<b>Rise Time:</b>	<7 ns
<b>Deflection Coefficient:</b>	1-2-5 Sequence
1...2 mV/div.:	±5% (0...10 MHz (-3 dB))
5 mV/div...20 V/div.:	±3% (0...50 MHz (-3 dB))
Variable (uncalibrated):	>2.5:1 to >50V/div.
<b>Input Impedance:</b>	1 MΩ    15 pF
<b>Input Coupling:</b>	DC, AC, GND (ground)
<b>Max. Input Voltage:</b>	400V (DC + peak AC)

### Triggering

<b>Automatic (Peak to Peak):</b>	20 Hz...100 MHz (≥5 mm)
<b>Normal with Level Control:</b>	0...100 MHz (≥5 mm)
<b>Slope:</b>	Rising or falling
<b>Sources:</b>	Channel 1 or 2, CH 1/CH 2 alternate (≥8 mm), Line and External
<b>Coupling:</b>	AC (10 Hz...100 MHz), DC (0...100 MHz), HF (50 kHz...100 MHz), LF (0...1.5 kHz)
<b>Trigger Indicator:</b>	LED
<b>Triggering after Delay:</b>	with Level Control and Slope selection
<b>External Trigger Signal:</b>	≥0.3 V <sub>pp</sub> (0...50 MHz)
<b>Active TV sync. separator:</b>	Field and Line, +/-

### Horizontal Deflection

<b>Time Base:</b>	50 ns/div...0.5 s/div. (1-2-5 Sequence)
<b>Accuracy:</b>	±3%
Variable (uncalibrated):	>2.5:1 to >1.25 s/div.
<b>X Magnification x10:</b>	up to 10 ns/div. (±5%)
<b>Accuracy:</b>	±5%
<b>Delay (selectable):</b>	200 ns...140 ms (variable)
<b>Hold-Off Time:</b>	variable to approx. 10:1
<b>XY</b>	
<b>Bandwidth X amplifier:</b>	0...3 MHz (-3 dB)
<b>XY Phase shift &lt;3°:</b>	<120 kHz

### Operation/Readout/Control

<b>Manual:</b>	via controls
<b>Autoset:</b>	automatic signal related parameter settings
<b>Save and Recall:</b>	9 instrument parameter settings
<b>Readout:</b>	display of menu, parameters, cursors and results
<b>Autom. Measurement:</b>	Freq./Period, V <sub>dc</sub> , V <sub>pp</sub> , V <sub>p+</sub> , V <sub>p-</sub> , Trigger Level
<b>Cursor Measurement:</b>	Δt, 1/Δt, tr, ΔV, V to GND, Gain, Ratio X and Y
<b>Frequency counter:</b>	4 digit (0.01% ±1 digit) 0.5 Hz...100 MHz
<b>Interface:</b>	RS-232 (Device control and Parameter query, no CRT content transfer possible)

### Component Tester

<b>Test Voltage:</b>	approx. 7V <sub>rms</sub> (open circuit)
<b>Test Current:</b>	max. 7 mA <sub>rms</sub> (short-circuit)
<b>Test Frequency:</b>	approx. 50 Hz
<b>Test Connection:</b>	2 banana jacks 4 mm Ø

One test circuit lead is grounded via protective earth (PE)

### Miscellaneous

<b>CRT:</b>	D14-363GY, 8 x 10 div. with internal graticule
<b>Acceleration Voltage:</b>	approx. 2 kV
<b>Trace Rotation:</b>	adjustable on front panel
<b>Z-input (Intens. modulation):</b>	max. + 5V (TTL)
<b>Calibrator Signal</b> (Square Wave):	0.2V, 1 Hz...1 MHz (tr <4 ns), DC
<b>Power Supply (Mains):</b>	105...253V, 50/60 Hz ±10%, CAT II
<b>Power Consumption:</b>	approx. 34 Watt at 230V/50 Hz
<b>Safety class:</b>	Safety class I (EN61010-1)
<b>Operating temperature:</b>	+5...+40 °C
<b>Storage temperature:</b>	-20...+70 °C
<b>Rel. humidity:</b>	5...80% (non condensing)
<b>Dimensions (W x H x D):</b>	285 x 125 x 380 mm
<b>Weight:</b>	approx. 5.4 kg

**Accessories supplied:** Line Cord, Operators Manual and Software for Windows on CD-ROM, 2 Probes 1:1/10:1 (HZ154),

#### Recommended accessories:

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 m
HZ43	19"-Rackmount Kit 3RU
HZ51	Probe 10:1 (150 MHz)
HZ52	Probe 10:1 RF (250 MHz)
HZ53	Probe 100:1 (100 MHz)
HZ100	Differential probe 20:1/200:1
HZ109	Differential probe 1:1/10:1
HZ115	Differential probe 100:1/1000:1
HZ200	Probe 10:1 with auto attenuation ID (250 MHz)
HZ350	Probe 10:1 with automatically identification (350 MHz)
HZ355	Slimline probe 10:1 with automatically identification (500 MHz)
HZ020	High voltage probe 1000:1 (400 MHz, 1000 V <sub>rms</sub> )
HZ030	Active probe 1 GHz (0.9 pF, 1 MΩ, including many accessories)
HZ050	AC/DC Current probe 20 A, DC...100 kHz
HZ051	AC/DC Current probe 1000 A, DC...20 kHz