

# 50MHz Analog Oscilloscope HM504

## Autoset, Save/Recall, Readout/Cursor and RS-232 Interface

Specifications Ref. Temperature: 23°C ±2°C

### Vertical Deflection

**Operating modes:** Channel I or CH II separate, Channel I and CH II alternate or chopped (0.5MHz)  
**Sum or Difference:** from CH I and CH II  
**Invert:** CH II  
**XY-Mode:** via CH I (X) and CH II (Y)  
**Frequency range:** 2x DC - 50MHz (-3dB)  
**Rise time, Overshoot:** <7ns, ≤ 1%  
**Deflection coefficient:** 14 calibrated steps (1-2-5 sequence)  
**1mV-2mV/div:** ±5% (DC to 10MHz (-3dB))  
**5mV-20V/div:** ±3% (DC to 50MHz (-3dB))  
**variable:** >2.5:1 (uncal.) to >50V/cm  
**Input impedance:** 1 MΩ || 18pF  
**Input coupling:** DC-AC-GD (ground)  
**Input voltage:** max. 400V (DC + peak AC)

### Triggering

**Automatic (peak to peak):** ≥ 0.5div, 20Hz - 100MHz  
**Normal with level control:** ≥ 0.5div, 0 - 100MHz  
**Indicator for trigger action:** LED  
**Slope:** positive or negative  
**Sources:** CH I or II, alternate CH I and CH II (≥ 0.8div), line (mains) and external  
**Coupling:** AC (10Hz - 100MHz), DC (0 - 100MHz), HF (50kHz - 100MHz), LF (0 - 1.5kHz)  
**2nd Triggering:** normal with level control and slope selection  
**External:** ≥ 0.3Vpp (0 - 50MHz)  
**Active TV Sync Separator:** field and line, pos. and neg.

### Horizontal Deflection

**Time coefficients:** 22 calibrated steps (1-2-5 sequence), 0.5s/div - 50ns/div (± 3%),  
**variable:** >2.5:1 (uncal.) to >1.25s/div  
**Delay:** 140ms - 200ns (variable)  
**Hold off time:** variable to approx. 10:1  
**Bandwidth X-Amplifier:** 0 - 3MHz (-3dB)  
**X-Y phase shift:** <3° below 120kHz

### Operation / Display

**Manual / Autoset:** front panel switches / autom. parameter selection  
**Save/Recall:** 9 user defined instrument settings  
**Readout:** display of instrument settings, automatic measuring results, Cursor measurement results, mathematic calculation results and pull down menus.  
**Frequency counter:** 4 digit (0.01% ± 1 digit) 0.5Hz - 100MHz  
**Interface (standard fitting):** RS-232 (for control)  
**Option:** control data via glass fiber: **HZ70**

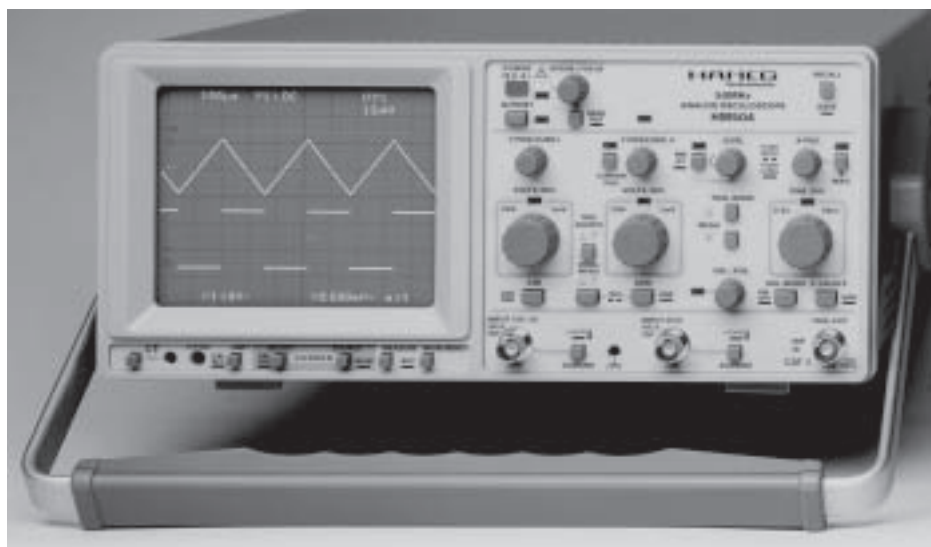
### Component Tester

**Test voltage, frequency:** approx. 7Vrms (open circuit), approx. 50Hz  
**Test current:** approx. 7mA rms (short circuit)  
 One test lead is grounded (Safety Earth)

### General Information

**CRT:** D14-363GY, 8x10cm, internal graticule  
**Acceleration voltage:** approx. 2kV  
**Trace Rotation:** adjustable on front panel  
**Z-Input (Intens. modulation):** max. +5V (TTL)  
**Calibrator (square wave):** 0.2V ± 1%, 1 Hz to 1MHz (tr <4ns), DC  
**Line voltage:** 100-240V AC ±10%, 50/60Hz  
**Power consumption:** approx. 34 Watt at 50Hz.  
**Min./Max. ambient temperature:** 10°C...+40°C  
**Protective system:** Safety class I (EN 61 010, IEC 1010-1)  
**Weight:** ca. 5.4kg  
**Color:** techno-brown  
**Cabinet:** W 285, H 125, D 380 mm

Accessories supplied:  
 Operators Manual, PC Software on CDR,  
 2 Probes 1:1/10:1 and Line Cord.

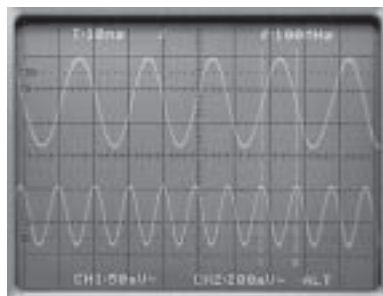


- 2 Channels, DC-50MHz, 1mV-20V/div, Component Tester
- Triggering DC - 100MHz (autom. Peak to Peak) ≥ 0.5div
- Time Base 0.5s - 10ns/div, with Delay and 2nd Trigger
- Automatic Measuring Functions, Built in Adjustment Menu
- 100MHz Frequency and Period Counter, 4 Digit Resolution

The new **50MHz** analog oscilloscope **HM504** unsurpassed in its price range, demonstrated by its high performance measurement characteristics and ease of operation. Other outstanding features are the integrated **100 MHz** frequency counter and five automatic voltage measurement functions.

The frequency response of the 50MHz (-3dB) Y-amplifiers allows signal displays higher than **100MHz**. Delayed time base operation allows high resolution analysis of asynchronous and complex signals simple in free run mode or in combination with the independent **second trigger circuit**. Briefly pressing the **Autoset** button results in an automatic, optimum setting of the controls for almost any signal to get a **fast signal presentation**. **Save/Recall** offers 9 non volatile memories for complete parameter set ups, which may be stored and recalled randomly. Another feature is the built in **RS-232 interface** for control purposes via a PC including convenient **free PC software**. New in this price-performance class is the high- and low frequency adjustable probes. With the built in calibrator, checking of the instrument's transient response characteristics is an easy task.

Front panel settings and selected features are alphanumerically displayed on the screen (**Readout**). For example, the results of cursor independent automatic measurement of frequency, period, dc and ac voltages. **Voltage, time, frequency, phase angle, gain, rise time, ratio X and ratio Y** can be determined by manual cursor measurement. The **HM504** also offers XY and component test mode, a **built in adjustment menu** for closed case calibration of the vertical, trigger and storage amps, a **Calibrator (1Hz-1MHz)** for probe and time base check, and Z-modulation.



50/100MHz Signals with frequency values



TV burst signal in delay mode with 2.Trigger