

## 50MHz Analog-Oscilloscope HM504

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

#### Specifications

##### Vertical Deflection

**Operating modes:** Channel I or CH II separate, Channel I and 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)) with 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%), with variable >2.5:1 (uncal.) to >1.25s/div  
**Delay:** 140ms - 200ns (variable)  
**Holdoff 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 and measuring results  
**auto measurement:** frequency/cycle, Vdc, Vpp, Vp+, Vp-  
**Cursor measurement:** ΔV, Δt or 1/Δt (frequ.), gain, rise time, ratio X, ratio Y, V to GND, phase angle  
**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

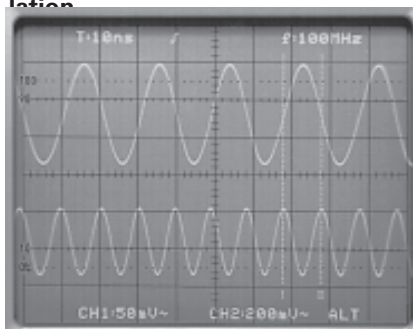
**CRT:** 8x10cm, internal graticule  
**Acceleration voltage:** approx. 2kV  
**Z-Input (Intens. modulation):** max. +5V (TTL)  
**Calibrator (square wave):** 0.2V ±1 %, 1 Hz - 1 MHz (tr <4ns)  
**Line voltage:** 100-240V AC ±10%, 50/60Hz  
**Power consumption:** approx. 34 Watt at 50Hz.  
**Min./Max. 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

Subject to change without notice



- 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.
- 7 Automatic Measurement Routines, Built-in Calibrate Menu
- 100MHz Frequency & Period Counter, 4 Digit Resolution

The new 50MHz analog oscilloscope **HM504** is unsurpassed in its price range, convincing by high performance measurement characteristics and operation comfort. Other outstanding features are the integrated **100 MHz** frequency counter, which also enables period time measurement and five automatic voltage measurement functions. The measurement quality is based on the **CRT** with its practically unlimited resolution in both deflection directions. In combination with the excellent input attenuator and signal amplifier characteristics, it allows for the best possible signal display. The frequency response of the 50MHz (-3dB) Y-amplifiers allows signal displays higher than **100MHz**. In combination with the trigger circuit and the high resolution time base (**max. 10ns/div**), such high signals can be presented in a stable and clear display. 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**. The ergonomic user interface characteristics of **HM504** are easy to use. Briefly pressing the **Autoset** button results in an automatic, optimum setting of the controls for almost any signal to get a **fast signal presentation**. Of course, any parameter may be adjusted manually as required for signals with high complexity or for special presentations. **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. Suitable **free PC software** is also included in the delivery. 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. Probe factor input (x1 and x10) enables the correct display of deflection coefficients and voltages, without annoying calculation. The **HM504** also offers XY and component test mode, a **built-in calibrate menu for closed-case calibration of the vertical-, trigger- and storage amps, a Calibrator (1Hz-1MHz) for probe and timebase check - and Z- modulation**.



TV burst signal in delay mode with 2.Trigger



50/100MHz Signals with frequency values

**Accessories supplied: Operators Manual and PC-Software on CD-ROM, 2 Probes 1:1/10:1 and Line Cord.**