

**Auto-set, Save & Recall,  
 RS-232,  
 Readout and Cursor, 2 ch.1mV/div. - 20V/div  
 ,Delay line, Overscan indicator  
 Time base: 0.5s - 5ns/div.  
 Trigger after delay, Alt. trigger  
 Triggering DC - 150MHz**

Microprocessor controlled oscilloscope designed for a wide multitude of applications in service and industry. For ease of operation the "Auto Set" function allows for signal related automatic setup of measuring parameters. On-screen alphanumeric readout and cursor functions for voltage, time and frequency measurement provide extraordinary operational convenience, also supported by the unique Overscan indicator. Six different user defined instrument settings can be saved and recalled without restriction. The built-in RS-232 serial interface allows for remote controlled operation by PC. The outstanding features of the HM1004 include two vertical input channels and the delay time base with the ability to magnify, over 1,000 times, extremely small portions of the input signal. The delayed time base has its own triggering controls, including level and slope selection, to allow a stable and precisely referenced display of asynchronous or jittery signal segments. The trigger circuit is designed to provide reliable triggering over 150MHz at signal levels as low as 0.5div. An active TV Sync Separator for TV-signal tracing ensures accurate triggering even with noisy signals. Signals are solid and distortion free even at the upper frequency limit. The built-in Y delay-line allows for leading edge display of even low repetition rate signals, supported by the 14kV CRT with its high intensity.

### **Specifications**

#### **Vertical Deflection**

Operating Modes	Ch.1 or Ch.11 separate Ch.1 or 11 alternate or chopped(ch/freq.0.5MHz with Ch.1 and 11 (both channels invertable)
Sum or Difference	
X-Y Mode	Via Channel 1(X) and Channel 11(Y)
Frequency Range:	2 x DC to 100MHz (-3dB). Risetime: <3.5nS. Overshoot: <1%
Deflection Coefficient	14 calibrated steps (1mV to 20mV/div.)
Accuracy in calibrated position:	1mV to 2mV/div ( $\pm 5\%$ ; 0 to 10MHz) 2mV to 20V/div. $\pm 3\%$
Input Impedance	1MR # 22pF
Input Coupling:	DC-AC GD(Ground)
Delay line	approx. 90ns
Triggering	With automatic 20Hz-150MHz (>5div. ) normal, DC-150MHz (>0.5div)
Slope:	Positive or Negative.
Coupling	AC (>10Hz-15MHz), DC (0-150MHz), HF (15kHz-150MHz), LF (0-1.5kHz)
Active TV Sync-separator:	Positive & negative
External	>0.3VPP from 30Hz to 100MHz

#### **Horizontal Deflection**

Time coefficients	22 calibrated steps from 0.5s to 50s/div. in 1-2-5 sequence. Accuracy in calibrated position; $\pm 3\%$ variable
Hold-off time	Variable to approx 10:1
Delay	50ms - 10ns, variable 2.5:1 up to 125ms
Bandwidth X-Amplifier	0-3MHz (-3dB)
X-Y Phase Shift	<3° below 120kHz

#### **Operation/Control**

Auto set  
Manual  
Memory  
Remote control

**Component Tester**

Test voltage  
Test current  
Test frequency  
Test connection

Accessories Supplied:

**General Information:**

CRT  
Acceleration voltage  
Trace rotation  
Calibrator:  
Note:

Automatic parameter selection  
Front panel switches  
for 6 user-defined parameter settings  
with built-in RS232 interface

approx 8.5V rms (open circuit)  
approx. 7mA rms (shorted)  
approx. 50Hz  
2 banana jacks 4m  
one lead is grounded (safety earth)  
Line cord, Operators Manual, 2 x 10:1 Probes

D14-372GH (rect.screen) 8 x10div. internal grat  
approx 14kV  
adjustable on front panel  
Square wave generator, O/P 0.2V  $\pm$ 1% & 2V  
All Hameg Oscilloscopes have a 2 year warranty