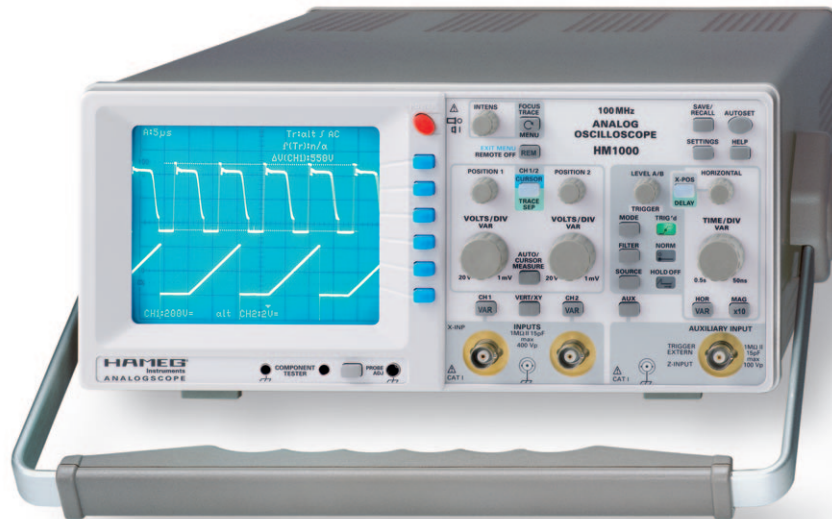
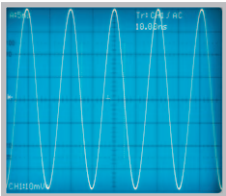


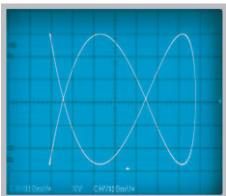
100 MHz Analog Oscilloscope HM1000



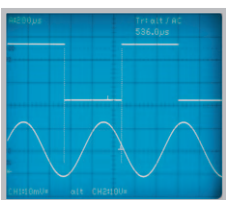
Undistorted display of a
100 MHz sine wave signal



Lissajous Figure (XY Mode)



Two asynchronous signals
triggered by alternate
triggering



Two Channels with deflection coefficients of 1 mV – 20 V/cm

Low Noise Measuring Amplifiers with high pulse fidelity

Two Time Bases: 0.5 s – 5 ns/cm and 20 ms – 5 ns/cm

Videotrigger: Odd and even frames, line selection (525/60 and 625/50 standard)

200 MHz 6-Digit Frequency Counter, Cursor and Automatic Measurement

14 kV high writing speed CRT, Readout, Autoset, Delay Line, no Fan

Save/Recall Memories for instrument settings

Help Function, Multilingual Menu



100 MHz Analog Oscilloscope HM1000

Valid at 23 °C after a 30 minute warm-up period

Vertical Deflection

| | |
|----------------------------------|--|
| Channels: | 2 |
| Operating Modes: | CH 1 or CH 2 separate, DUAL (CH 1 and CH 2 alternate or chopped), Addition |
| X in XY-Mode: | CH 1 |
| Invert: | CH 1, CH 2 |
| Bandwidth (-3dB): | 2 x 0 - 100 MHz |
| Rise time: | < 3.5 ns |
| Overshoot: | max. 1 % |
| Bandwidth limiting (selectable): | about 20 MHz (5 mV/cm - 20V/cm) |
| Deflection Coefficients(CH 1,2): | 14 calibrated steps |
| 1 mV - 2 mV/cm: | ± 5 % (0 - 10 MHz (-3 dB)) |
| 5 mV - 20V/cm: | ± 3 % (1-2-5 sequence) |
| variable (uncalibrated): | > 2.5:1 to > 50V/cm |
| Inputs CH 1, 2: | |
| Input Impedance: | 1 MΩ 15 pF |
| Coupling: | DC, AC, GND (ground) |
| Max. Input Voltage: | 400 V (DC + peak AC) |
| Y Delay Line: | 70 ns |
| Measuring Circuits: | Measuring Category I |
| Auxiliary input: | |
| Function (selectable): | Extern Trigger, Z (unblank) |
| Coupling: | AC, DC |
| Max. input voltage: | 100 V (DC + peak AC) |

Triggering

| | |
|-------------------------------|--|
| Automatic (Peak to Peak): | |
| Min. signal height: | 5 mm |
| Frequency range: | 10 Hz - 200 MHz |
| Level control range: | from Peak- to Peak+ |
| Normal (without peak): | |
| Min. signal height: | 5 mm |
| Frequency range: | 0 - 200 MHz |
| Level control range: | -10 cm to +10 cm |
| Operating modes: | Slope/Video |
| Slope: | positive, negative, both |
| Sources: | CH 1, CH 2, alt. CH 1/2 (≥ 8 mm), Line, Ext. |
| Coupling: | AC: 10 Hz-200 MHz DC: 0-200 MHz HF: 30 kHz-200 MHz LF: 0-5 kHz Noise Rej. switchable |
| Video: | pos./neg. Sync. Impulse |
| Standards: | 525 Line/60 Hz Systems 625 Line/50 Hz Systems |
| Field: | even/odd/both |
| Line: | all/line number selectable |
| Source: | CH 1, CH 2, Ext. |
| Indicator for trigger action: | LED |
| External Trigger via: | Auxiliary Input (0.3V _{pp} 100 MHz) |
| Coupling: | AC, DC |
| Max. input voltage: | 100 V (DC + peak AC) |
| 2nd Trigger | |
| Min. signal height: | 5 mm |
| Frequency range: | 0 - 200 MHz |
| Coupling: | DC |
| Level control range: | -10 cm to +10 cm |

Horizontal Deflection

| | |
|-------------------------|--------------------------------------|
| Operating modes: | A, ALT (alternating A/B), B |
| Time base A: | 0.5 s/cm - 50 ns/cm (1-2-5 sequence) |
| Time base B: | 20 ms/cm - 50 ns/cm (1-2-5 sequence) |
| Accuracy A and B: | ± 3 % |
| X Magnification x10: | to 5 ns/cm |
| Accuracy: | ± 5 % |
| Variable time base A/B: | cont. 1:2.5 |
| Hold Off time: | var. 1:10 LED-Indication |
| Bandwidth X-Amplifier: | 0 - 3 MHz (-3 dB) |
| XY phase shift < 3°: | < 220 kHz help functions |

Operation/Measuring/Interfaces

| | |
|--|---|
| Operation: | Autoset, Menu and help functions (multilingual) |
| Save/Recall (instrument parameter settings): | 9 |
| Signal display: | max. 4 traces CH 1, 2 (Time Base A) in combination with CH 1, 2 (Time Base B) |
| Frequency counter: | |
| 6 digit resolution: | > 1 MHz - 200 MHz |
| 5 digit resolution: | 0.5 Hz - 1 MHz |
| Accuracy: | 50 ppm |
| Auto Measurements: | Frequency, Period, Vdc, Vpp, Vp+, Vp- |
| Cursor Measurements: | Δt , $1/\Delta t$ (f), t_r , ΔV , V to GND, ratio X, ratio Y |
| Resolution Readout/Cursor: | 1000 x 2000 Pts |
| Interfaces (plug-in): | RS-232 (HO710), Ethernet, |
| Optional: | Dual-Interface RS232/USB |

Display

| | |
|--------------------------------|--------------|
| CRT: | D14-375GH |
| Display area (with graticule): | 8 cm x 10 cm |
| Acceleration voltage: | ca. 14 kV |

General Information

| | |
|----------------------|--|
| Component tester: | |
| Test voltage: | approx. 7V _{rms} (open circuit), approx. 50 Hz |
| Test current: | max. 7 mA _{rms} (short circuit) |
| Reference Potential: | Ground (safety earth) |
| Probe ADJ Output: | 1 kHz/1 MHz square wave signal 0.2V _{pp} (tr < 4 ns) |
| Trace rotation: | electronic |
| Line voltage: | 105 - 253 V, 50/60 Hz ± 10 %, CAT II |
| Power consumption: | 37 Watt at 230 V, 50 Hz |
| Protective system: | Safety class I (EN61010-1) |
| Weight: | 5.6 kg |
| Cabinet (W x H x D): | 285 x 125 x 380 mm |
| Ambient temperature: | 0° C ...+40° C |

Accessories supplied: Line cord, Operating manual, 2 Probes 10:1 with attenuation ID
Optional accessories:
HO720 Dual-Interface RS-232/USB
HO730 Dual-Interface Ethernet/USB
HO740 Interface IEEE-488 (GPIB)
HZ70 Opto-Interface (with optical fiber cable)