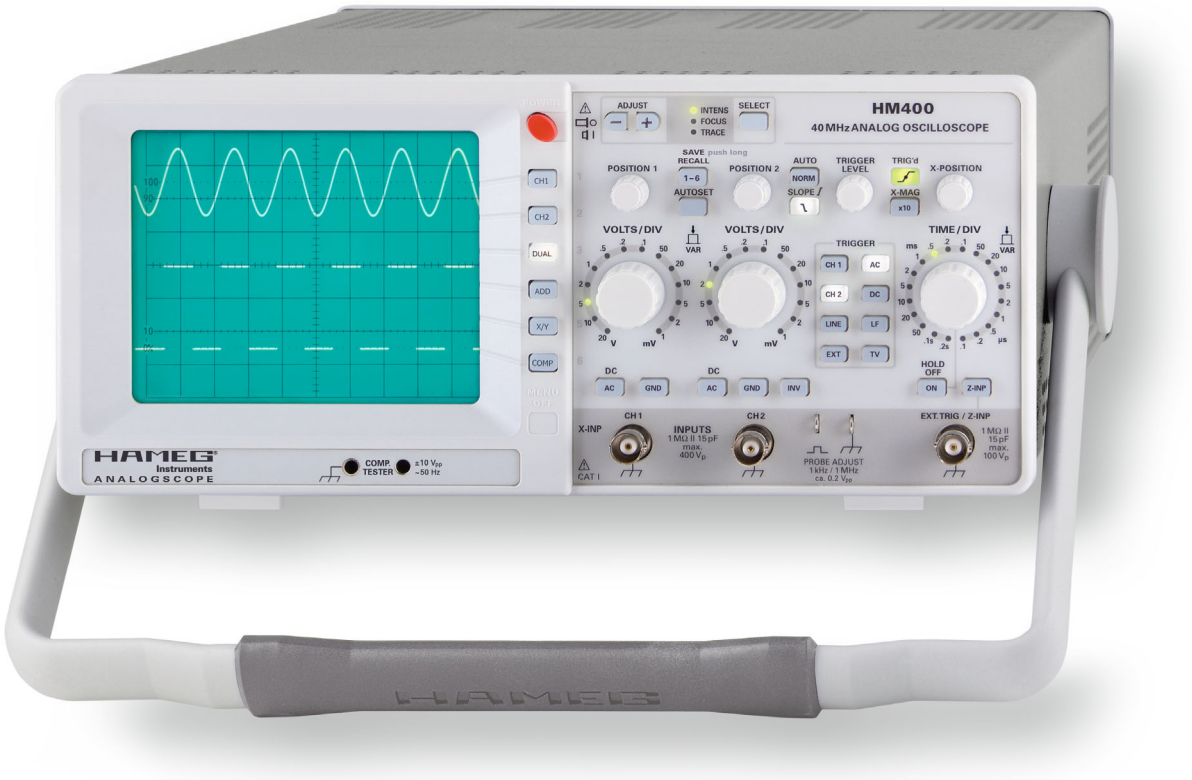
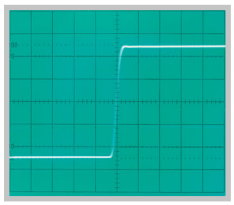
HAMEG Instruments

40 MHz Analog Oscilloscope
HM400

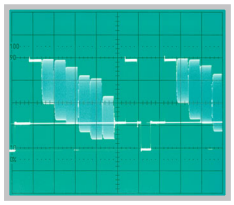
HM400



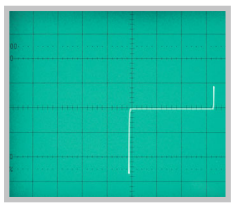
No signal distortion resulting from overshoot



Line triggered composite video signal



Caracteristic of a Z-Diode with component test mode



- ☑ **Reference-Class in sensitivity and input voltage range**
- ☑ 2 Channels with deflection coefficients 1 mV/div....20 V/div., variable up to 50 V/div.
- ☑ Time Base 100 ns/div. ...0.2 s/div., with X magnification to 10 ns/div.
- ☑ Low noise measuring amplifiers with high pulse fidelity and minimum overshoot
- ☑ Peak to peak trigger for stable triggering 0...50 MHz at 0.5 div. signal level (up to 80 MHz at 1 div.)
- ☑ Autoset, Save/Recall Memories for 6 instrument settings
- ☑ Yt- and XY-Mode with Z-Input for intensity modulation
- ☑ Component characterisation with component tester (two terminal network measurement) for use within service etc.
- ☑ Low power consumption, no fan

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

Vertical Deflection

Operating Modes:	Channel 1 or 2 only Channels 1 and 2 (alternate or chopped) Sum or Difference of CH 1 and CH 2
Invert:	CH 2
XY Mode:	CH 1 (X) and CH 2 (Y)
Bandwidth (-3 dB):	
DC, 5mV/div....20V/div.:	0...40MHz
AC, 5mV/div....20V/div.:	2Hz...40MHz
DC, 1mV/div....2mV/div.:	0...10MHz
AC, 1mV/div....2mV/div.:	2Hz...10MHz
Rise Time (calculated):	‹35 ns (1 mV/div....2 mV/div.) ‹8,75 ns (5 mV/div....20 V/div.)
Deflection Coefficient:	1-2-5 Sequence ± 5% (1 mV/div....2 mV/div.) ± 3% (5 mV/div....20 V/div.)
Variable (uncalibrated):	› 2.5:1 to › 50 V/div.
Input Impedance:	1 MΩ II 15 pF
Input Coupling:	DC, AC, GND (ground)
Max. Input Voltage:	400 V (DC + peak AC)

Triggering

Automatic:	Linking of peakdetection and triggerlevel
Min. signal height	0.5div
Frequency range	5Hz...50MHz
Level control range	From peak- to peak+
Normal (without peak):	
Min. signal height	0.5div
Frequency range	0...50MHz
Level control range	–10div....+10div.
Slope:	Rising or falling
Sources:	Channel 1 or 2, Line and External
Coupling:	AC (5 Hz...80 MHz), DC (0...80 MHz), LF (0...1.5 kHz)
Trigger Indicator:	LED
External Trigger:	
Input Impedance:	1MΩ II 15pF
External Trigger Signal:	0,3 V_{pp} ≤5 V, DC (0...50 MHz), AC (20 Hz...50 MHz)
Max. input voltage:	100V (DC + Peak AC)
Active TV sync. separator:	Field and Line, +/-

Horizontal Deflection

Time Base:	100 ns/div....0.2 s/div. (1-2-5 Sequence)
Accuracy:	± 3 %
Variable (uncalibrated):	› 2.5 :1 to › 1.25 s/div.
X Magnification x 10:	up to 10 ns/div.
Accuracy:	± 5 %
Hold-Off Time:	variable to approx. 10 : 1
XY	
Bandwidth X amplifier:	0...2.5 MHz (-3 dB)
XY Phase shift ‹ 3°:	‹ 120 kHz

Operation / Readout / Control

Manual:	via controls and buttons
Autoset:	automatic signal related parameter settings
Save and Recall:	6 instrument parameter settings

Component Tester

Test Voltage:	approx. 7 V_{rms} (open circuit)
Test Current:	max. 7 mA_{rms} (short-circuit)
Test Frequency:	approx. 50 Hz
Test Connection:	2 banana jacks 4 mm Ø One test circuit lead is grounded via protective earth (PE)

Miscellaneous

CRT:	D14-363GY, 8 x 10 div. with internal graticule
Acceleration Voltage:	approx. 2 kV
Trace Rotation:	adjustable on front panel
Z-Input (Intens. modulation):	max. + 5 V (TTL), 10 kHz
Probe ADJ Output:	1 kHz / 1 MHz Square Wave Signal ca. 0.2 V_{pp} (tr ‹ 5 ns) for probe adjustment
Power Supply (Mains):	105...253V, 50/60 Hz ± 10 %, CAT II
Power Consumption:	approx. 30 Watt at 230 V/50 Hz
Safety class:	Safety class I (EN61010-1)
Operating temperature:	+5°C...+40°C
Storage temperature:	-20°C...+70°C
Rel. humidity:	5%...80% (non condensing)
Dimensions (W x H x D):	285 x 125 x 380 mm
Weight:	approx. 4.8 kg

Accessories supplied: Line Cord, Operators Manual, 2 Probes 1:1/10:1 (HZ154) with LF/HF adjustment

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