HAMEG Instruments
A Rohde&Schwarz Company

40MHz Analog Oscilloscope
HM400

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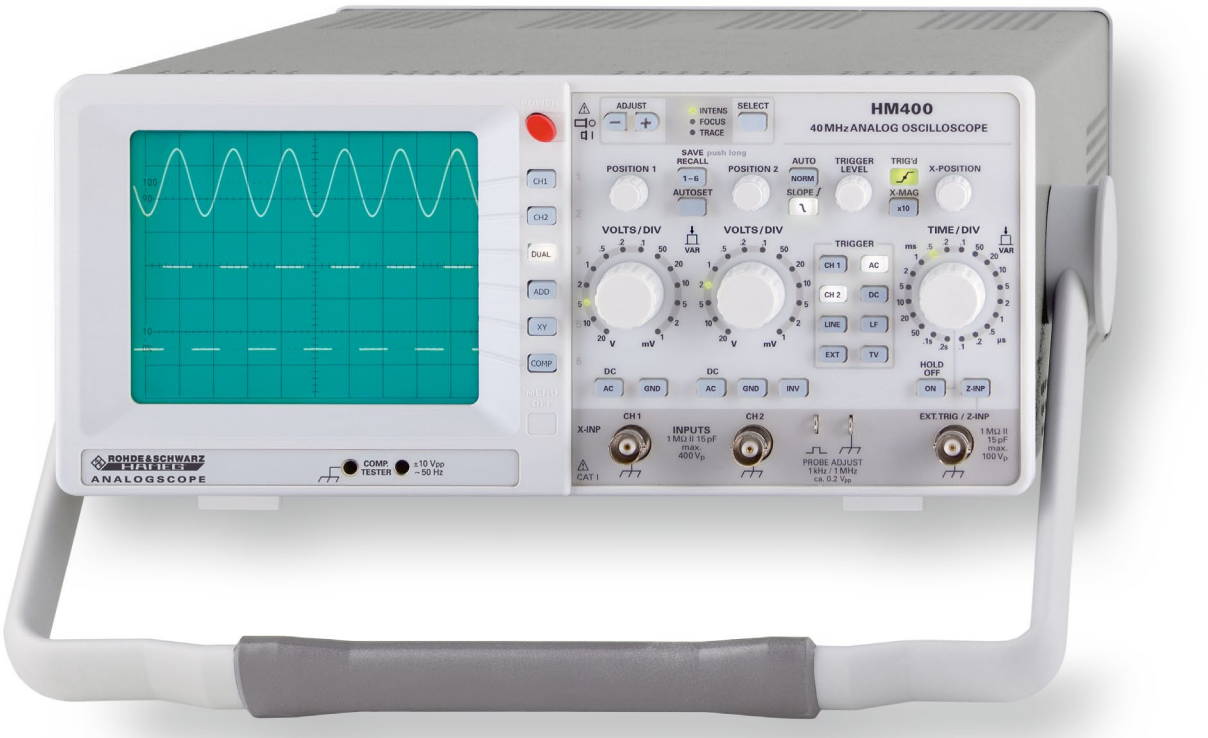
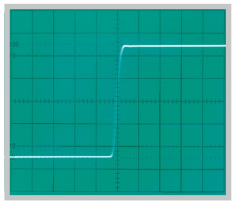
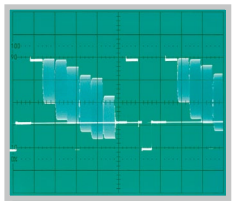


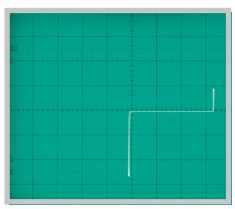
No Signal Distortion resulting from Overshoot



Line triggered composite Video Signal



Z-Diode Characteristic with Component Test Mode



- ☑ **Reference-Class in Sensitivity and Input Voltage Range**
- ☑ 2 Channels with Deflection Coefficients 1mV/div....20V/div., variable up to 50V/div.
- ☑ Time Base 100ns/div....0.2s/div., with X Magnification to 10ns/div.
- ☑ Low Noise Measuring Amplifiers with high Pulse Fidelity and minimum Overshoot
- ☑ Peak to Peak Trigger for stable Triggering 0...50MHz at 0.5div. Signal Level (up to 80MHz at 1div.)
- ☑ 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)
- ☑ Low Power Consumption, fanless Design

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All data valid at 23 °C after 30 minutes 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, 5 mV/div....20 V/div.	0...40 MHz
AC, 5 mV/div....20 V/div.	2 Hz...40 MHz
DC, 1...2 mV/div.	0...10 MHz
AC, 1...2 mV/div.	2 Hz...10 MHz
Rise Time (calculated):	<35 ns (1...2 mV/div.) <8.75 ns (5 mV/div....20 V/div.)
Deflection Coefficient:	1–2–5 Sequence ±5 % (1...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 peak detection and trigger level
Min. signal height	0.5 div.
Frequency range	5 Hz...50 MHz
Level control range	From peak- to peak+
Normal (without peak)**:**	
Min. signal height	0.5 div.
Frequency range	0...50 MHz
Level control range	-10....+10 div.
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	1 MΩ II 15 pF
External Trigger Signal:	0.3 V_{pp} ≤5 V, DC (0...50 MHz), AC (20 Hz...50 MHz)
Max. input voltage	100 V (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 x10:	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 approx. 0.2 V_{pp} (tr <5 ns) for probe adjustment
Power Supply (Mains)**:**	105...253 V, 50...60 Hz ±10 %, CAT II
Power Consumption:	approx. 30 W at 230 V/50 Hz
Safety class:	Safety class I (EN61010-1)
Operating temperature:	+5...+40 °C
Storage temperature:	-20...+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, Operating Manual, 2 Probes 1:1/10:1 (HZ154) with LF/HF adjustment, CD

Recommended accessories:

HZ20	Adapter, BNC to 4 mm banana
HZ33	Test cable 50 Ω, BNC/BNC, 0.5 m
HZ34	Test cable 50 Ω, BNC/BNC, 1.0 m
HZ45	19"-Rackmount Kit 4RU
HZ51	Probe 10:1 (150 MHz)
HZ52	Probe 10:1 RF (250 MHz)
HZ53	Probe 100:1 (100 MHz)
HZ100	Differential probe 20:1/200:1
HZ109	Differential probe 1:1/10:1
HZ115	Differential probe 100:1/1,000:1
HZ200	Probe 10:1 with auto attenuation ID (250 MHz)
HZ350	Probe 10:1 with automatic identification (350 MHz)
HZ355	Slimline probe 10:1 with automatic identification (500 MHz)
HZO20	High voltage probe 1,000:1 (400 MHz, 1,000 V_{rms})
HZO30	Active probe 1 GHz (0.9 pF, 1 MΩ, including many accessories)
HZO50	AC/DC Current probe 30 A, DC...100 kHz
HZO51	AC/DC Current probe 100/1,000 A, DC...20 kHz

HAMEG Instruments GmbH · Industriestr. 6 · D-63533 Mainhausen · Tel +49 (0) 6182 8000 · Fax +49 (0) 6182 800100 · www.hameg.com · info@hameg.com