

**100 MHz Analog Oscilloscope HM1000**

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

**Vertical Deflection**

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

**Triggering**

<b>Automatic (Peak to Peak):</b>	
Min. signal height:	5 mm
Frequency range:	10 Hz - 200 MHz
Level control range:	from Peak- to Peak+
<b>Normal (without peak):</b>	
Min. signal height:	5 mm
Frequency range:	0 - 200 MHz
Level control range:	-10 cm to +10 cm
<b>Operating modes:</b>	Slope/Video
<b>Slope:</b>	positive, negative, both
<b>Sources:</b>	CH 1, CH 2, alt. CH 1/2 (≥ 8 mm), Line, Ext.
<b>Coupling:</b>	<b>AC:</b> 10 Hz-200 MHz <b>DC:</b> 0-200 MHz <b>HF:</b> 30 kHz-200 MHz <b>LF:</b> 0-5 kHz Noise Rej. switchable
<b>Video:</b>	pos./neg. Sync. Impulse
<b>Standards:</b>	525 Line/60 Hz Systems 625 Line/50 Hz Systems
<b>Field:</b>	even/odd/both
<b>Line:</b>	all/line number selectable
<b>Source:</b>	CH 1, CH 2, Ext.
<b>Indicator for trigger action:</b>	LED
<b>External Trigger via:</b>	Auxiliary Input (0,3V <sub>pp</sub> , 100 MHz)
<b>Coupling:</b>	AC, DC
<b>Max. input voltage:</b>	100 V (DC +peak AC)
<b>2nd Trigger</b>	
Min. signal height:	5 mm
Frequency range:	0 - 200 MHz
Coupling:	DC
Level control range:	-10 cm to +10 cm

**Horizontal Deflection**

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

**Operation/Measuring/Interfaces**

<b>Operation:</b>	Autoset, Menu and help functions (multilingual)
<b>Save/Recall (instrument parameter settings):</b>	9
<b>Signal display:</b>	max. 4 traces CH 1, 2 (Time Base A) in combination with CH 1, 2 (Time Base B)
<b>Frequency counter:</b>	
6 digit resolution:	>1 MHz - 200 MHz
5 digit resolution:	0,5 Hz - 1 MHz
<b>Accuracy:</b>	50 ppm
<b>Auto Measurements:</b>	Frequency, Period, V <sub>dc</sub> , V <sub>pp</sub> , V <sub>p+</sub> , V <sub>p-</sub>
<b>Cursor Measurements:</b>	Δt, 1/Δt (f), t <sub>r</sub> , ΔV, V to GND, ratio X, ratio Y
<b>Resolution Readout/Cursor:</b>	1000 x 2000 Pts
<b>Interfaces (plug-in):</b>	RS-232 (HO710), Ethernet,
<b>Optional:</b>	Dual-Interface RS232/USB

**Display**

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

**General Information**

<b>Component tester:</b>	
Test voltage:	approx. 7 V <sub>rms</sub> (open circuit), approx. 50 Hz
Test current:	max. 7 mA <sub>rms</sub> (short circuit)
<b>Reference Potential:</b>	Ground (safety earth)
<b>Probe ADJ Output:</b>	1 kHz/1 MHz square wave signal 0,2 V <sub>pp</sub> (tr < 4 ns)
<b>Trace rotation:</b>	electronic
<b>Line voltage:</b>	105 - 253 V, 50/60 Hz ± 10 %, CAT II
<b>Power consumption:</b>	37 Watt at 230 V, 50 Hz
<b>Protective system:</b>	Safety class I (EN61010-1)
<b>Weight:</b>	5,6 kg
<b>Cabinet (W x H x D):</b>	285 x 125 x 380 mm
<b>Ambient temperature:</b>	0° C ...+40° C

**Accessories supplied:** Line cord, Operating manual, 2 Probes 10:1 with attenuation 1D

**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)

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