100 MHz Analog Oszilloscope 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 %
Bandwith limiting (selectable):	about 20 MHz (5 mV/cm - 20 V/cm)
Deflection Coefficients(CH 1, 2):	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 › 50 V/cm
Inputs CH 1, 2:	
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 (0.3 V_{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/Δt (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. 7 V_{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 0.2 V_{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)

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