

Analog Oscilloscope HM1004-3 (100MHz) & HM2005 (200MHz)

Autoset, Save/Recall, Readout/Cursor and RS-232 Interface

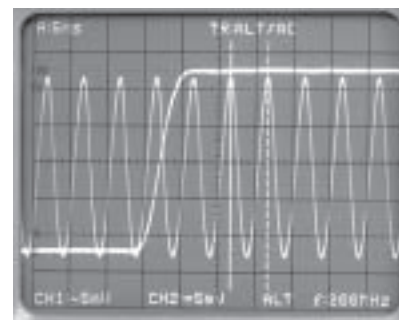


- 2 x DC to 100MHz (200MHz-HM2005) 2 x 1mV/div to 20V/div (5V/div-HM2005)
- Time Base A: 0.5s/div to 5ns/div (2ns-HM2005), Time Base B: 20ms/div to 5(2)ns/div
- Triggering DC to 200MHz (300MHz-HM2005), Peak Triggering; Component Tester
- 1kHz/1MHz Calibrator, TV Sync Separator, Built in Adjustment Menu

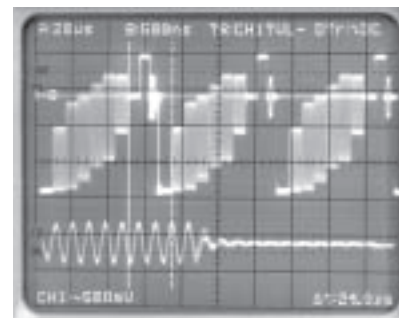
These **microprocessor** controlled oscilloscopes have been designed for a wide multitude of applications in service and industry. For ease of operation, the „Autoset“ function allows for signal related **automatic setup** of measuring parameters. On screen **alphanumeric readout** and **cursor functions** for voltage, time and frequency measurement provide extraordinary operational convenience. Nine different user defined instrument settings can be saved and recalled without restriction.

The **built in RS-232** serial interface permits remote controlled operation by a PC. The outstanding features of the **HM1004-3** and **HM2005** include a second time base with the ability to magnify, over 1000 times, extremely small portions of the input signal. The **second time base** has its own triggering controls, to allow a stable and precisely referenced display of asynchronous or jittery signal segments. The trigger circuit is designed to provide reliable triggering to over **200MHz (300MHz/HM2005)** at signal levels as low as **0.5div**. An active **TV Sync Separator** for TV signal tracing ensures accurate triggering even with noisy signals.

The **HM1004-3** and **HM2005** have a built in switchable calibrator, which checks the instrument's transient response characteristics. The essential high frequency compensation of wide band probes can be performed with this calibrator. The built in adjustment menu allows closed case adjustment procedures. The instruments offer the right combination of triggering control, frequency response, and time base versatility to facilitate measurements in a wide range of applications - in laboratory as well as in field service use. It is another example of **HAMEGs** dedication to engineering excellence.



Screen shot of a 1MHz square wave and 200MHz sine wave with alternate trigger



Screen shot of a FBAS-Signal with burst, displayed with 20ns/div and 20ns/div

Accessories supplied: Operators Manual, PC-Software on CDR, 2 Probes 10:1 and Line Cord

Specifications Reference Temperature: 23°C ±2°C**Vertical Deflection****Operating modes:****Chopper Frequency:****Sum or difference:****Invert:****XY-Mode:****Frequency range:****incl. Bandwidth Limiter:****Min. Rise Time:****Overshoot:****Deflection coefficients:****Input impedance:****Input coupling:****Input voltage:****Delay line:****Triggering****Automatic** (peak to peak):**Normal with level control:****Indicator for trigger action:****Slope:****Sources:****ALT. Triggering:****Coupling:****Triggering time base B:****Active TV Sync. Separator:****External:****Horizontal Deflection****Time base A:****X-Mag. x10:****Hold off time:****Time base B:****Operating modes:****Bandwidth X-amplifier:****Input X-amplifier:****Sensitivity:****X-Y phase shift:****Operation / Control****Manual:****Auto Set:****Save/Recall:****Readout:****Cursor measurement:****Remote control:****Component Tester****Test voltage:****Test current:****General Information****CRT:****Acceleration voltage:****Trace rotation:****Calibrator:****Z-Input** (Intensity modulation):**Line Voltage / Power consumption:****Min./Max. ambient temperature:****Protective system:****Weight:****Cabinet / Color:****HM1004-3 (100MHz)**

Channel I or II separate,
Channel I and II: alternate or chopped
approx. 0.5MHz
from CH I and CH II
both channels
via channel I (Y) and channel II (X)
2x DC to 100MHz (-3dB)
–
<3.5ns
≤1%
14 calibrated steps
1mV to 2mV/div.: ±5% (DC – 10MHz (-3dB))
5mV/div. to 20V/div.: ±3% in 1-2-5 sequence
with variable 2.5:1 up to **50V/div.**
1MΩ II 15pF
DC-AC-GD (ground)
max. 400V (DC + peak AC)
approx. 70ns

≤ 20Hz-200MHz (≥ 0.5div.)
DC-200MHz (≥ 0.5div.)
LED
positive or negative
Channel I or II, line and external
CH I/CH II (≥ 0.8div.)
AC (10Hz – 200MHz) **DC** (0 – 200MHz)
HF (50kHz – 200MHz) **LF** (0 – 1.5kHz)
NR (noise reject): 0-50MHz (≥ 0.8div.)
normal with level control and
slope selection (0 – 200 MHz)
field and line, + / –
≥0.3V_{pp} (0 – 100MHz)

22 calibrated steps (±3%)
from 0.5s/div. – 50ns/div. in 1-2-5 sequence
variable 2.5:1 up to 1.25s/div.
5ns/div. (±5%)
variable to approx. 10:1
18 calibrated steps (±3%)
from 20ms/div. to 50ns/div. in 1-2-5 sequence
A or **B**, alternate **A/B**
0 – 3MHz (-3dB)
via Channel I
see CH II
<3° below 220kHz

front panel switches
automatic parameter selection
9 user-defined parameter settings
Display of parameter settings
ΔV, Δt or Δ1/t (frequency)
with built in **RS-232** interface

approx. 7V_{rms} (o/c) approx. 50Hz
approx. 7mA_{rms} (s/c) approx. 50Hz
One test lead is grounded (Safety Earth)

D14-375GH, 8x10cm, internal graticule
approx. 14kV
adjustable on front panel
_L 0,2V ±1%, ≈ 1kHz/1MHz (t_r <4ns)
–
100-240V AC ±10% / approx. 38Watt. 50/60Hz
+10°C + 40°C
Safety class I (IEC1010-1)
approx. 5.9kg.
W 285, **H** 125, **D** 380 mm / techno-brown
Lockable tilt handle

HM2005 (200MHz)

Channel I or II separate,
Channel I and II: alternate or chopped
approx. 0.5MHz
from CH I and CH II
both channels
via channel I (X) and channel II (Y)
2x DC to 200MHz (-3dB)
2x DC to approx. 50MHz (-3dB)
<1.75ns
≤1%
12 calibrated steps
1mV to 2mV/div.: ±5% (DC – 10MHz (-3dB))
5mV/div. to 5V/div.: ±3% in 1-2-5 sequence
with variable 2.5:1 up to **12,5V/div.**
1MΩ II 15pF
DC-AC-GD (ground)
max. 250V (DC + peak AC)
approx. 70ns

≤ 20Hz-300MHz (≥ 0.5div.)
DC-300MHz (≥ 0.5div.)
LED
positive or negative
Channel I or II, line and external
CH I/CH II (≥ 0.8div.)
AC (10Hz – 300MHz) **DC** (0 – 300MHz)
HF (50kHz – 300MHz) **LF** (0 – 1.5kHz)
NR (noise reject): 0-50MHz (≥ 0.8div.)
normal with level control and
slope selection (0 – 300 MHz)
field and line, + / –
≥0.3V_{pp} (0 – 200MHz)

23 calibrated steps (±3%)
from 0.5s/div. – 20ns/div. in 1-2-5 sequence
variable 2.5:1 up to 1.25s/div.
2ns/div. (±5%)
variable to approx. 10:1
19 calibrated steps (±3%)
from 20ms/div. to 20ns/div. in 1-2-5 sequence
A or **B**, alternate **A/B**
0 – 5MHz (-3dB)
via Channel I
see CH I
<3° below 220kHz

front panel switches
automatic parameter selection
9 user-defined parameter settings
Display of parameter settings
ΔV, Δt or Δ1/t (frequency)
with built in **RS-232** interface

approx. 7V_{rms} (o/c) approx. 50Hz
approx. 7mA_{rms} (s/c) approx. 50Hz
One test lead is grounded (Safety Earth)

D14-375GH, 8x10cm, internal graticule
approx. 14kV
adjustable on front panel
_L 0,2V ±1%, ≈ 1kHz/1MHz (t_r <4ns)
max. +5V (TTL)
100-240V AC ±10% / approx. 43Watt. 50/60Hz
+10°C + 40°C
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