

Analog Oscilloscope HM1004-2 (100MHz) & HM2005 (200MHz)

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



- 2 Channels, 1mV – 20V (5V/2005)/div,
- Delay Line, 14kV CRT
- Time Base A: 0.5s – 5ns (2ns/2005)/div.,
- Time Base B: 20ms–5(2)ns/div. , 2nd Trigger
- Triggering DC – 250 (300/2005) MHz,
- Automatic Peak to Peak,
- Alternate Trigger,
- Calibrator and Component Tester

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 allows for remote controlled operation by a PC.

The outstanding features of the **HM1004-2** and **HM2005** include two vertical input channels and the second time base with the ability to magnify, over 1000 times, extremely small por-

tions of the input signal. The **second time base** has its own triggering controls, including level and slope selection, 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 **250 (300/2005)MHz** 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 built in **Y delay line** allows for leading edge display of even low repetition rate signals, supported by the **14kV CRT** with its high intensity. Both instruments are equipped with a built in **COMPONENT TESTER**.

Because it is so important to be able to trust the accuracy of the display when viewing pulse or square signals, the

HM1004-2 and **HM2005** have a built-in switchable calibrator, which checks the instrument's transient response characteristics - from probe tip to CRT screen. The essential high frequency compensation of wide band probes can be performed with this calibrator, which features a rise time of less than 6ns.

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 **HAMEG's** dedication to engineering excellence.

Accessories supplied:
Line Cord, Operators Manual,
1 Disk, 2 Probes 10:1





Specifications

Vertical Deflection

Operating modes:

Chopper Frequency:

Sum or difference:

Invert:

XY-Mode:

Frequency range:

incl. Bandwidth Limiter:

Risetime:

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:

Holdoff 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:

Test frequency:

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:

Subject to change without notice.

HM1004-2 (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-250MHz (≥ 0.5div.)

DC-250MHz (≥ 0.5div.)

LED

positive or negative

Channel I or II, line and external

CH I/CH II (≥ 0.8div.)

AC (10Hz – 250MHz) **DC** (0 – 250MHz)

HF (50kHz – 250MHz) **LF** (0 – 1.5kHz)

NR (noise reject): 0-50MHz (≥ 0.8div.)

normal with level control and

slope selection (0 – 250 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 II

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 (frequ.)

with built in **RS-232** interface

max. 7V_{rms} (o/c) approx. 50Hz

max. 7mA_{rms} (s/c) approx. 50Hz

One test lead is grounded (Safety Earth)

D14-375GY, 8x10cm, internal graticule

approx. 14kV

adjustable on front panel

┘L 0,2V ±1%, ≈ 1kHz/1MHz (tr <6ns)

100-240V AC ±10% / approx.35Watt. 50/60Hz

0°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)

approx. 2x DC to 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 – 100MHz)

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 (frequ.)

with built in **RS-232** interface

max. 7V_{rms} (o/c) approx. 50Hz

max. 7mA_{rms} (s/c) approx. 50Hz

One test lead is grounded (Safety Earth)

D14-375GY, 8x10cm, internal graticule

approx. 14kV

adjustable on front panel

┘L 0,2V ±1%, ≈ 1kHz/1MHz (tr <6ns)

max. +5V (TTL)

100-240V AC ±10% / approx.43Watt. 50/60Hz

0°C + 40°C

Safety class I (IEC1010-1)

approx. 5.9kg.

W 285, **H** 125, **D** 380 mm / techno-brown

Lockable tilt handle

