

Specification

Vertical Deflection

Operating modes: Channel I or Channel II separate, Channel I and II; alternate or chopped (chopper frequency approx. 0.5 MHz)
Sum or difference from Ch. I and Ch. II, (channel II invertable).
XY-Mode: via Channel I and Channel II (analog).
Frequency range: 2x DC to 20 MHz (-3 dB).
 Rise time: approx. 17.5 ns. Overshoot: $\leq 1\%$.
Deflection coefficients: 10 calibrated steps from 5 mV/div to 5 V/div in 1-2-5 sequence, Accuracy in calibrated position: $\pm 3\%$, variable 2.5:1 to max. **12.5 V/div**.
Y-magnification x5 (calibrated) to **1 mV/div** $\pm 5\%$ (frequency range DC to 3.5 MHz, -3 dB)
Input impedance: 1 M Ω || 25 pF.
 Input coupling: DC - AC - GD (Ground)
 Input voltage: max. 400V (DC + peak AC).
Y output from Ch. I or Ch. II: ≈ 40 mV/div into 50 Ω .

Triggering

With **Automatic** from 10 Hz - 40 MHz, (0.5 div. height) normal with level control from **DC-40 MHz**.
 Slope: positive or negative.
ALT. triggering, LED indication on triggering.
 Source: Ch. I, Ch. II, line, external.
 Coupling: **AC** (≥ 10 Hz - 10 MHz), **DC** (0 - 10 MHz), **LF** (0 - ≤ 1 kHz), **HF** (≥ 1.5 kHz - 40 MHz).
Trigger level external ≥ 0.3 V / 1 M Ω || 25 pF.
Active TV-Sync-Separator for line and frame.

Horizontal Deflection

Time coefficients (realtime): 21 calibr. steps from 0.2 μ s/div to 1 s/div in 1-2-5 sequence. Accuracy in calibrated position: $\pm 3\%$, variable 2.5:1 to max. 2.5 s/div, with **X-expansion x10** ($\pm 5\%$) to **20 ns/div** $\pm 5\%$.
Holdoff-time: variable up to approx. 10:1.
Time coefficients (storage): 18 calibr. steps from 10 μ s/div to 5 s/div in 1-2-5 sequence, with **X-expansion x10** ($\pm 5\%$) to ≈ 1 μ s/div.
Bandwidth X-amplifier: DC - 2.5 MHz (-3 dB).
 Input X-amplifier via Channel II.
 Sensitivity see Channel II.
X-Y-phase shift: $< 3^\circ$ below 120 kHz.

Digital Storage

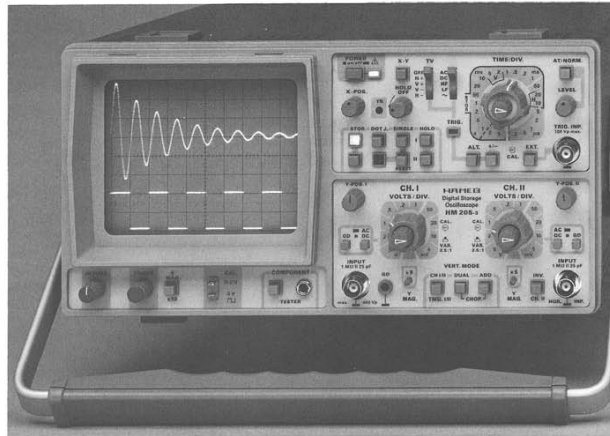
Operating modes: Refresh and Single (with reset button and ready-LED), Hold CH I a. Ch II, **Dot Joiner**.
Sampling rate: max. **20 MHz** for each channel.
Memory size: 2048 x 8 bit for each channel.
 Resolution: vertical **28**, horizontal **200 samples/div**.
X-expansion: x10 (X-resol.: 20 samples/div).
Analog/digital output for HAMEG Graphic Printer, and with optional interface for X-Y recorder.

Component Tester

Test voltage: max. 8.5 V_{ms} (open circuit).
Test current: max. 24 mA_{ms} (short circuit).
Test frequency: 50 or 60 Hz (line frequency).
 One test lead is grounded (Safety Earth).

General Information

CRT: D14-364 P43/123, **8 x 10 cm**, 2 kV, rectangular screen, internal graticule.
Trace rotation: adjustable on front panel.
Calibrator: square-wave 1 kHz for probe compensation. Output: 0.2 V a. 2 V $\pm 1\%$.
 Line voltages: 110, 125, 220, 240 V ~, $\pm 1\%$.
 Max. ambient temperature: -10°C , $+40^\circ\text{C}$.
Power consumption: ≈ 48 Watt, 50/60/400 Hz.
Protective system: Safety Class II (IEC 348).
 Weight: approx. 8 kg. Color: techno-brown.
 Cabinet: **W** 285, **H** 145, **D** 380 mm.
 Subject to change without notice.



Digital Storage Oscilloscope

Analogue: 2 Channels DC-20 MHz, max. 1 mV/div., Comp.-Tester
 Timebase 1 s/div. - 20 ns/div., Trigger DC - 40 MHz.

Digital: Max. sampling rate 2x20 MHz, Memory 2x 2048 x 8 bit,
 Timebase 5 s - 1 μ s/div., Dot-Joiner.

Now with a max. **sampling rate of 20 MHz** and an improved **storage depth of 2048 x 8 bits** per channel, the new **HM 205-3** has achieved a truly unique standard of performance. Compared to its predecessor model, which was already the best-selling digital storage oscilloscope in Europe, the usable frequency range for stored signals has been increased four-fold. The **HM 205-3** is also indispensable for capture and display of long-term transients and extreme low-frequency signals (< 10 Hz) that are impossible to represent as a continuous, stable trace on conventional realtime oscilloscopes. By pressing the so called **"DOT JOIN"** button, **linear interpolation** is used to connect the sampled points in memory and achieve good waveform recognition even at 10x magnification.

The storage functions are exceedingly easy to operate. Simply press the **"STORE"** button to capture, digitize and store the signals subsequently arriving at the scope input. In **"refresh"** mode the memory contents are updated with every sweep. One-time non-recurring signals can be captured in **"single" mode**. If, after data capture, the **"HOLD"** button is pressed, the memory contents are **"frozen"**. If the scope is equipped with an optional interface, these can then be output on the **HAMEG Graphics Printer HM 8148-2** or an X-Y recorder (e.g. HAMEG optional accessory **HO 75** in this catalog). An **IEEE-488** bus is available, as well as an extensive selection of software, for processing of data on **IBM-ATs, -XTs** or compatibles (see options **HO 79-2** and **SP 91**). Even with frequent mode changes, the most recently captured waveforms remain stored in memory until the instrument is powered down.

The **HM 205-3** is also **generously equipped for analogue** applications. Its outstanding attributes here include: excellent transient response up to 20 MHz, trigger bandwidth of at least 40 MHz, built-in component tester with single-button operation, variable **"hold-off"** period, and an **active TV sync separator**. Particularly when your job requires frequent switches between realtime and sampling modes, the superb efficiency and practicality of the new **HM 205-3** really pay off.

Accessories supplied

Two 10:1 probes, Line cord, Operators Manual.