

## Specification

### Operating Modes

Channel I, Channel II, Channel I and II **alternate** or **chopped** (chop. freq.  $\approx 0.5$  MHz). **sum** and **difference**:  $\pm$  Channel I  $\pm$  Channel II (with invert buttons for both channels). **X-Y Mode**: via Channel II and Channel I.

### Vertical Deflection (Y)

**Bandwidth**: 2x DC to 20 MHz ( $-3$  dB).  
Risettime:  $\approx 17.5$  ns. Overshoot:  $\leq 1\%$ .  
**Deflection coefficients**: 12 calibrated steps from 5 mV/div to 20 V/div in 1-2-5 sequence, variable 1:2.5 to min. **2 mV/div**.  
Accuracy in calibrated position:  $\pm 3\%$ .  
**Input impedance**: 1 M $\Omega$  || 30 pF.  
Input coupling: AC ( $-3$  dB  $\triangleq$  max. 2 Hz) - DC - GROUND.  
Input voltage: max. 400 V (DC + peak AC).

### Timebase (T)

**Time coefficients**: 18 calibrated steps from 0.5  $\mu$ s/div to 0.2 s/div in 1-2-5 sequence, variable 1:2.5 to min. 0.2  $\mu$ s/div, with **X-Magnifier x 10** ( $\pm 5\%$ ) to  $\approx 20$  ns/div. Accuracy in calibrated position:  $\pm 3\%$ . Hold-off-time: variable control  $\approx 10:1$ .  
**Trigger system**: Automatic ( $\geq 10$  Hz) or Normal with level control. **LED indication** for trig. action. Bandwidth: **DC to 40 MHz**  $\geq 0.5$  div, ext.  $\geq 0.25$  V. Slope: positive or negative. Sources: Ch. I, Ch. II, line, external. Coupling: **AC** ( $\geq 10$  Hz), **DC**, **LF** (DC to  $\leq 1$  kHz), **HF** ( $\geq 1.5$  kHz to 40 MHz).  
**Active TV-Sync-Separator** for line and frame.

### Horizontal Deflection (X)

**Bandwidth**: DC to 2.5 MHz ( $-3$  dB).  
Input via Ch. II (see Vertical Deflection spec.).  
**X-Y phase shift**:  $< 3^\circ$  up to 120 kHz.

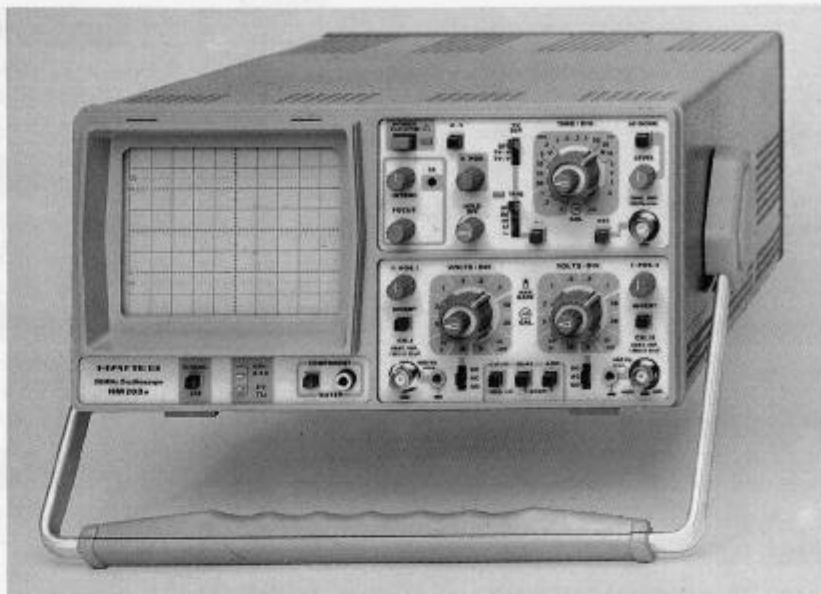
### Component Tester

**Test voltage**: max. 8.5 V<sub>rms</sub> (open circuit).  
**Test current**: max. 24 mA<sub>rms</sub> (shorted).  
**Test frequency**: 50 - 60 Hz (line frequency).  
Test connection: 2 banana jacks 4 mm  $\varnothing$ .  
One test lead is grounded (Safety Earth).

### General Information

**Cathode-ray tube**: D14-364 P43/123, **8 x 10 cm**, rectangular screen, internal graticule, quick heating, **complete Mu-metal shielding**. Acceleration voltage: 2000 V.  
**Trace rotation**: adjustable on front panel.  
**Calibrator**: square-wave generator  $\approx 1$  kHz for probe compensation. Output: 0.2 V + 2 V  $\pm 1\%$ .  
**Line voltages**: 110, 125, 220, 240 V ~.  
Permissible line fluctuation:  $\pm 10\%$ .  
Line frequency range: **50 to 60 Hz**.  
Power consumption: approx. **40 Watt**.  
**Protective system**: Safety Class I (IEC 348).  
Weight: approx. 7.5 kg. Color: techno-brown.  
Cabinet (mm): **W 285, H 145, D 380**.  
Lockable tilt handle.

Subject to change without notice.  
Printed in West Germany 7/85



## 20 MHz Standard Oscilloscope

**Y: 2 channels, DC-20MHz, max. sensitivity 2 mV/div;**  
**X: 0.2s-20ns/div incl. x 10 magnification. Component Tester.**  
**Triggering DC up to 40MHz; active TV-Sync-Separator.**

The **HM 203** series is **Western Europe's best selling oscilloscope**. Both vertical amplifiers incorporate **variable gain controls** and maximum input sensitivity is **2 mV/div** over the full bandwidth of the oscilloscope. A further feature permits display of the **sum and difference** of two signals.

Triggering facilities have also been extended. In addition to **line** and **TV** triggering, **HF** and **DC triggering** is possible. The HM 203-6 will **trigger** reliably with a 0.5 div display height up to at least **40 MHz**. Using the manual level control combined with the variable hold-off control, even relatively complex signals can be stably triggered. The time resolution has now been increased to max. **20 ns/div**, including **x 10 magnification**.

An 8x10cm **internal graticule** permits **parallax-free viewing** over a wide angle. The effect of the earth's magnetic field upon horizontal trace position can be compensated for, externally, with a **trace rotation** control.

The **HM 203-6** has a built-in **Component Tester**, which is particularly useful in maintenance and service work. Among other applications, this device enables rapid **in-circuit testing** of semiconductors. Test voltage and current are rated so that normal semiconductors or other components cannot be damaged. **Test results are displayed on the scope screen**.

The **HM 203-6** was designed for **general purpose applications** in industry and service. Its many operating modes, front panel layout, and **ease of operation** also make it an ideal oscilloscope for training engineers and technicians.

## Accessories optional

**Probes: 1X, 10X, 10X(HF), 100X, 1X/10X (switchable); demodulating probe; test cables BNC-BNC and banana-BNC; 50  $\Omega$  BNC feed-through termination; viewing hood; carrying case; etc.**