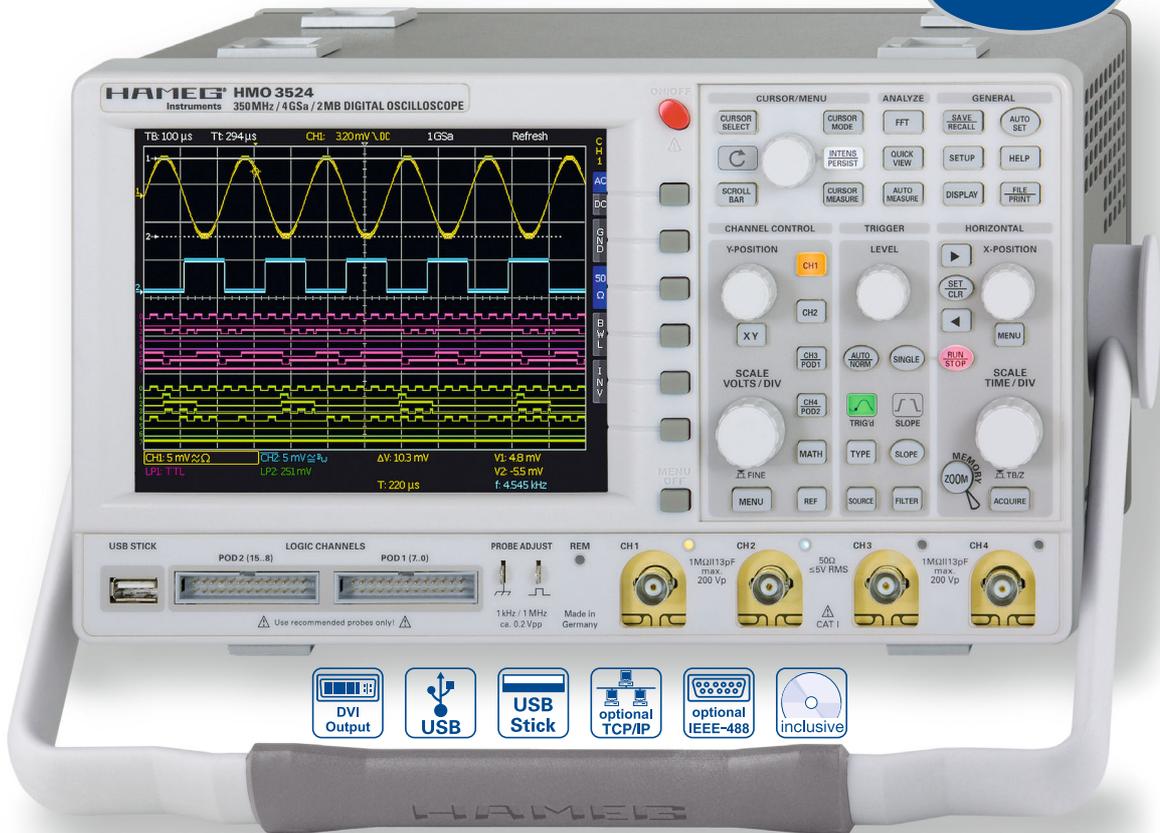


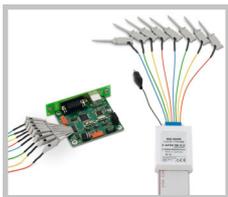
# 350 MHz 2/4 Channel Digital Oscilloscope HM03522 / HM03524

**NEW**



HM03524

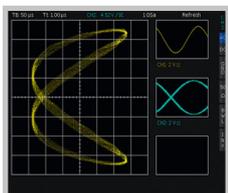
8 Channel  
logic probe H03508



Carrying Case HZ99



The operating mode XYZ



- ☑ 4GSa/s Real time, 50GSa/s Random sampling, low noise flash A/D converter (reference class)
- ☑ 2MPts memory per channel, memory  oom up to 100,000:1
- ☑ MSO (Mixed Signal Opt. H03508) with 8/16 logic channels
- ☑ Vertical sensitivity 1mV...5V/div. (into 1MΩ/50Ω)  
Offset control ±0,2...±20V
- ☑ 12div. x-axis display range
- ☑ Trigger modes: slope, video, pulsewidth, logic, delayed, event
- ☑ FFT for spectral analysis
- ☑ 6 digit counter, Autoset, automeasurement, formula editor
- ☑ 6.5" TFT VGA display, DVI output
- ☑ 3 x USB for mass storage, printer and remote ctrl.  
optional IEEE-488 or Ethernet/USB



# 350 MHz 2 [4] Channel Digital Oscilloscope HMO3522 [HMO3524]

All data valid at 23 °C after 30 minute warm-up

## Display

Display:	6,5" VGA Color TFT
Resolution:	640 x 480 Pixel
Backlight:	LED 400 cd/m <sup>2</sup>
Display area for curves:	
without menu	400 x 600 Pixel (8 x 12 div.)
with menu	400 x 500 Pixel (8 x 10 div.)
Color depth:	256 colors
Intensity steps per channel:	0...31

## Vertical System

<b>Channels:</b>	
DSO mode	CH1, CH2 [CH1...CH4]
MSO mode	CH1, CH2 LCH 0...15 (logic channels) with 2 x Option HO3508
<b>Auxiliary input:</b> Frontside [Rear side]	
Function	Ext. Trigger
Impedance	1MΩ    13pF ± 2pF
Coupling	DC, AC
Max. input voltage	100V [DC + peak AC]
XYZ-mode:	All analog channels on individual choose
Invert:	CH 1, CH 2 [CH1...CH4]
Y-bandwidth [-3dB]:	350MHz (5mV...5V)/div. 100MHz (1mV, 2mV)/div.
Lower AC bandwidth:	2Hz
Bandwidth limiter (switchable):	approx. 20MHz
Rise time (calculated):	< 1ns
DC gain accuracy	2%
Input sensitivity:	12 calibrated steps
CH1, CH2 [CH1...CH4]	1mV/div...5V/div. [1-2-5 Sequence]
Variable	Between calibrated steps
<b>Inputs CH1, CH2 [CH1...CH4]:</b>	
Impedance	1MΩ    13pF ± 2pF (50Ω switchable)
Coupling	DC, AC, GND
Max. input voltage	200V [DC + peak AC], 50Ω <5V <sub>rms</sub>
Measuring circuits:	Measuring Category I (CAT I)
Position range	± 10Divs
<b>Offset control:</b>	
1mV, 2mV	± 0,2V
5mV...50mV	± 1V
100mV...5V	± 20V
<b>Logic channels</b> With Option HO3508	
Select. switching thresholds	TTL, CMOS, ECL, 2 x User -2V...+8V
Impedance	100kΩ    < 4pF
Coupling	DC
Max. input voltage	40V [DC + peak AC]

## Triggering

<b>Analog channels:</b>	
<b>Automatic:</b> Linking of peakdetection and triggerlevel	
Min. signal height	0.8div; 0.5div typ.
Frequency range	5Hz...400MHz
Level control range	From peak- to peak+
<b>Normal (without peak):</b>	
Min. signal height	0.8div; 0.5div typ.
Frequency range	0...400MHz
Level control range	-10div...+10div.
<b>Operating modes:</b> Slope/Video/Logic/Pulse	
Slope:	Rising, falling, both
Sources:	CH1, CH2, Line, Ext., LCH0...15 [CH1...CH4, Line, Ext., LCH0...15]
Coupling:	<b>AC:</b> 5Hz...400MHz <b>DC:</b> 0...400MHz <b>HF:</b> 30kHz...400MHz <b>LF:</b> 0...5kHz <b>Noise rejection:</b> 100MHz LPF switchable
<b>Video:</b> Pos./neg. sync. impulse	
Standards	525 Line/60Hz systems 625 Line/50Hz systems
Fields	Field 1, field 2, both
Line	All, selectable line number
Source	CH1, CH2, Ext. [CH1...CH4]
<b>Logic:</b> AND, OR, TRUE, FALSE	
Source	LCH0...15
State	LCH0...15 X, H, L
<b>Indicator for trigger action:</b> LED	
Ext. Trigger via:	Auxiliary input [Aux. input at rear side] 0,3V...10V <sub>SS</sub>
<b>2nd Trigger:</b>	
Slope	Rising, falling, both

Min. signal height	0.8div; 0.5div typ.
Frequency range	0...400MHz
Level control range	-10div...+10div.
<b>Operating modes:</b>	
after time	20ns...0.1s
after incidence	1...2 <sup>16</sup>

## Horizontal System

Domain representation:	Time, Frequency (FFT), Voltage (XY)
Representation Time Base:	Main-window, main- and zoom-window
Memory Zoom:	Up to 100.000:1
Accuracy:	15ppm
<b>Time Base:</b>	
Refresh operating modes	1ns/div...20ms/div.
Roll operating modes	50ms/div...50s/div.

## Digital Storage

Sampling rate (real time):	2 x 2GSa/s, 1 x 4GSa/s [4 x 2GSa/s, 2 x 4GSa/s] Logic channels: 16 x 1GSa/s
Sampling rate (random):	50GSa/s [n/a to logic channels]
Memory:	2 x 2MPts [4 x 2MPts]
Operation modes:	Refresh, Average, Envelope, Peak-Detect Roll: free run/triggered, Smooth
Resolution (vertical)	8Bit
<b>Resolution (horizontal)</b>	
Yt Mode	(50 Pts./div.)
XY Mode	8Bit
Interpolation:	Sinx/x [CH1...CH4], Pulse [LCH0...15]
Persistence:	Off, 50ms...∞
Delay pretrigger:	0...2 Million x (1/samplerate)
posttrigger:	0...8 Million x (1/samplerate)
Display refresh rate:	Up to 2500 waveforms/s
Display:	Dots, vectors (interpolation), 'persistence'
Reference memories:	typ. 10 Traces

## Operation / Measuring / Interfaces

Operation:	Menu-driven (multilingual), Autoset, help functions (multilingual)
Save / Recall memories:	typ. 10 complete instrument parameter settings
<b>Frequency counter:</b>	
0.5Hz...350MHz	6 Digit resolution
Accuracy	15ppm
Auto measurements:	Frequency, Period, pulse count, U <sub>DC</sub> , U <sub>pp</sub> , U <sub>p+</sub> , U <sub>p-</sub> , U <sub>RMS</sub> , U <sub>Avg</sub> , t <sub>Rise</sub> , t <sub>Fall</sub>
Cursor measurements:	ΔV, Δt, 1/Δt (f), V to Gnd, V <sub>t</sub> related to Trigger point, ratio X and Y, pulse count, peak to peak, peak+, peak-
Interface:	Dual-Schnittstelle USB/RS-232 (HO720) USB-Stick (frontside) USB-Printer (rear side) with SW V2.0 DVI for ext. monitor
Optional:	IEEE-488, Ethernet/USB

## Mathematic functions

Number of formula sets:	typ. 10 formula sets with up to 5 formulas each
Sources:	All channels and math. memories
Targets:	Math. memories
Functions:	ADD, SUB, 1/X, ABS, MUL, DIV, SQ, POS, NEG, INV
Display:	Up to 4 math. memories

## General Information

Probe ADJ Output:	1kHz/1MHz square wave signal -0.2V <sub>pp</sub> (t <sub>a</sub> < 4ns)
Internal RTC (Realtime clock):	Date and time for stored data
Line voltage:	105...253V, 50/60Hz, CAT II
Power consumption:	Max. 70Watt at 230V, 50Hz
Protective system:	Safety class I [EN61010-1]
Operating temperature:	+5°C...+40°C
Storage temperature:	-20°C...+70°C
Rel. humidity:	5%...80% (non condensing)
Dimensions (W x H x D):	285 x 175 x 220mm
Weight:	3.6kg

**Accessories supplied:** Line cord, Operating manual, 2 [4] Probes, 10:1 with  
attenuation ID (HZ350), Dual-Interface USB/RS-232 (HO720), CD

### Optional accessories:

HO730	Dual-Interface Ethernet/USB
HO740	Interface IEEE-488 (GPIB) galvanically isolated
HZ46	4RU 19" Rackmount Kit
HZ355	Slimline Probe 10:1 with automatic identification
HO3508	8 Channel Logic Probe