

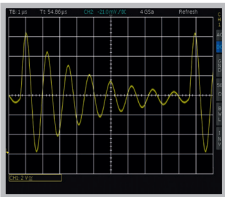
25MHz [50MHz] Arbitrary Function Generator HMF2525 [HMF2550]



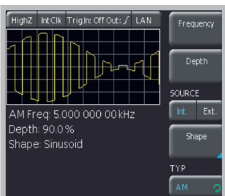
HMF2550



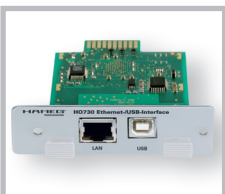
Generation of complex Waveforms with 256kPts in 14Bit



All Parameters at a Glance on the 3.5" TFT and interactive Softkeys



Ethernet/USB-Interface H0730 for industrial Use (Option)



- ✓ Frequency Range 10 μ Hz...25MHz [50MHz]
- ✓ Output Voltage 5mV_{pp}...10V_{pp} (into 50 Ω) DC Offset \pm 5mV...5V
- ✓ Arbitrary Waveform Generator: 250MSa/s, 14Bit, 256kPts
- ✓ Sine, Square, Pulse, Triangle, Ramp, Arbitrary Waveforms incl. Standard Curves (white Noise, Cardiac etc.)
- ✓ Total harmonic Distortion 0.04% (f < 100kHz)
- ✓ Burst, Sweep, Gating, external Trigger
- ✓ Rise Time <8ns, in Pulse Mode 8...500ns Variable-Edge-Time
- ✓ Pulse Mode: Frequency Range 100 μ Hz...12.5MHz [25MHz], Pulse Width 15ns...999s, Resolution 5ns
- ✓ Modulation Modes AM, FM, PM, PWM, FSK (int. and ext.)
- ✓ 10MHz Timebase: \pm 1ppm TCXO, rear I/O BNC Connector
- ✓ Front USB Connector: Save and Recall of Waveforms and Settings
- ✓ 8.9cm (3.5") TFT: crisp Representation of the Waveform and all Parameters
- ✓ USB/RS-232 Dual-Interface, optional Ethernet/USB or IEEE-488 (GPIB)

25 MHz Arbitrary Function Generator HMF2525 50 MHz Arbitrary Function Generator HMF2550

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

Frequency	
HMF2525:	10 µHz...25 MHz
HMF2550:	10 µHz...50 MHz
Temperature stability:	1 ppm (18...28 °C)
Aging (after 1 year):	±1 ppm (25 °C)
Amplitude	
Output voltage:	5 mV _{pp} ...10 V _{pp} (into 50 Ω) 10 mV _{pp} ...20 V _{pp} (open circuit)
Resolution:	1 mV (into 50 Ω)
Setting accuracy:	±(1 % of control + 1 mV _{pp}) at 1 kHz
Frequency response (Sine):	f < 10 MHz: <±0.15 dB 10 MHz ≤ f < 25 MHz: <±0.2 dB 25 MHz ≤ f < 50 MHz: <±0.4 dB
DC offset:	
Voltage range (AC + DC)	±5 mV...5 V (into 50 Ω) ±10 mV...10 V (open circuit)
Accuracy	±2 % of offset ±0.5 % of signal level ±2 mV ±1 mV/MHz
Units:	V _{pp} , dBm
Waveform Sine Wave	
Total harmonic distortion (1 V _{pp}):	f < 100 kHz: <-70 dBc 100 kHz ≤ f < 10 MHz: <-55 dBc 10 MHz ≤ f < 25 MHz: <-40 dBc f ≥ 25 MHz: <-37 dBc
Spurious: [Non-harmonics 1 V _{pp}]	f < 1 MHz: -70 dBc 1 MHz < f < 50 MHz: -70 dBc + 6 dB/Octave
Total harmonic distortion (f ≤ 100 kHz):	0.04 % typ.
Phase noise: (10 MHz, 10 kHz Offset, 1 V _{pp})	<-115 dBc/Hz typ.
Waveform Square	
Rise/fall time:	<8 ns
Overshoot:	<3 % typ.
Symmetry (50 % duty cycle):	1 % + 5 ns
Jitter (RMS):	<1 ns typ.
Waveform Pulse	
Frequency range:	HMF2525 100 µHz...12.5 MHz HMF2550 100 µHz...25 MHz
Amplitude:	5 mV...+5 V respectively -5 mV...-5 V (into 50 Ω)
Rise/fall time:	<8 ns, variable up to 500 ns
Pulse width:	15 ns...999 s
Resolution:	5 ns
Jitter (RMS):	<500 ps typ.
Overshoot:	<3 % typ.
Waveform Ramp, Triangle	
Frequency range:	HMF2525 10 µHz...5 MHz HMF2550 10 µHz...10 MHz
Symmetry:	1...99 %
Linearity:	f < 250 kHz <0.1 % typ. f ≥ 250 kHz <2 % typ.
Waveform Arbitrary	
Frequency range:	HMF2525 10 µHz...12.5 MHz HMF2550 10 µHz...25 MHz
Sample rate:	250 MSa/s
Amplitude resolution:	14 Bit
Bandwidth (-3 dB):	>50 MHz
Signal length:	Up to 256 kPts
Non-volatile memory:	up to 4 MB (internal file system)
Predefined waveforms:	Sine, square (50%), ramp (positive/negative), triangle (50%), noise (white/pink), cardinal sine, exponential (rise/fall)
Inputs and Outputs	
Signal output:	BNC socket (frontside), short-circuit-proof, ext. voltage ±15 V max.
Impedance	50 Ω
Gate/Trigger input:	BNC socket (frontside)
Impedance	5 kΩ 100 pF
Level	TTL (protected up to ±30 V)
Edge	Positive/negative (selectable)

Pulse width	Min. 100 ns
Trigger output:	BNC socket (frontside)
Impedance	50 Ω
Level	Positive TTL level impulse
Frequency	10 MHz max.
Modulation input:	BNC socket (rear side)
Impedance	10 kΩ
Max. input voltage	±5 V for full scale
Bandwidth (-3 dB)	DC...50 kHz (sample with 250 kSa/s)
Reference input:	BNC socket (rear side)
Impedance	1 kΩ
Frequency	10 MHz ±100 kHz
Input voltage	TTL
Reference output:	BNC socket (rear side)
Impedance	50 Ω
Frequency	10 MHz
Output voltage	1.65 V _{pp} (into 50 Ω)
Ramp output:	BNC socket (rear side)
Impedance	200 Ω
Output voltage	0...5 V, synchronous with sweep
Sweep	
Signals:	All (except pulse)
Type:	linear/logarithmic
Direction:	up/down
Sweep time:	1 ms...500 s
Burst	
Signals:	All
Type:	Internal/external triggered, 1...50,000 cycles, Immediate or Gate controlled
Start/stop phase:	0...360° (sine only)
Trigger source:	Manual, internal or external via Trigger source or interface
Internal Trigger period:	1 µs...500 s
Modulation	
Type of modulation:	AM, FM, PM, PWM, FSK
Waveform carrier:	All (except pulse)
Internal modulation (waveform):	Sine, square (50%), ramp (positive/negative), triangle (50%), noise (white/pink), cardinal sine, exponential (rise/fall), Arbitrary with up to 4096 Pts.
Internal modulation frequency:	10 µHz...50 kHz
Ext. modulation bandwidth (-3 dB):	DC...50 kHz (sampled with 250 kSa/s)
Amplitude modulation:	
Modulation depth	0...100%
Frequency modulation:	
Frequency deviation	Max. 10 MHz
Phase modulation:	
Phase deviation	-180...+180°
Pulse width modulation:	
Deviation	0...49,99 % of the pulse width
Miscellaneous	
Display:	8.9 cm (3.5") color TFT QVGA 65k colors
Interface:	Dual-Interface USB/RS-232 (H0720)
Save/Recall memory:	4 MB internal file system/ext. USB
Protection class:	Safety class I (EN61010-1)
Power supply:	105...253 V, 50...60 Hz, CAT II
Power consumption:	approx. 30 Watt
Operating temperature:	+5...+40 °C
Storage temperature:	-20...+70 °C
Rel. humidity:	5...80 % (non condensing)
Dimensions (W x H x D):	285 x 75 x 365 mm
Weight:	3.4 kg

Accessories supplied: Line cord, Operating manual, CD

Recommended accessories:

H0730	Dual-Interface Ethernet/USB
H0740	Interface IEEE-488 (GPIB), galvanically isolated
HZ13	Interface cable (USB) 1.8 m
HZ14	Interface cable (serial) 1:1
HZ20	Adapter plug BNC plug - 4 mm safety sockets
HZ24	Attenuators 3/6/10 and 20 dB
HZ33	Test cable BNC plug - BNC plug 0.5 m
HZ34	Test cable BNC plug - BNC plug 1.0 m
HZ42	19" Rackmount kit 2RU
HZ72	IEEE-488 (GPIB) Cable 2 m