

25 / 50 MHz Arbitrary Function Generator HMF2525 / HMF2550

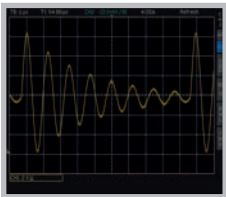
1st Quarter
2009



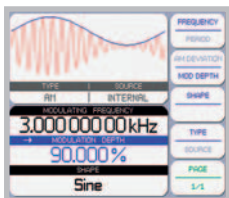
HMF2550



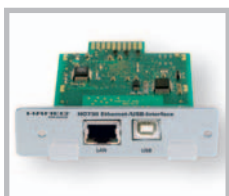
Generation of complex
waveforms with 256kpts
in 14 Bit



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, 14 Bit, 256kPts
- Sine, Square, Pulse, Triangle, Ramp, Arbitrary waveforms incl. standard curves (white, pink noise etc.)
- Total harmonic distortion 0.04% (f<100kHz)
- Burst, Sweep, Gating, external Trigger
- Rise time < 8ns, in pulse mode 8ns...500ns variable-edge-time
- Pulse mode: Frequency range 100 μ Hz...12.5MHz/25MHz, pulse width 10ns...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 & recall of set-ups and waveforms
- 3.5" TFT: crisp representation of the waveform and all parameters
- Galvanically isolated USB/RS-232 Dual-Interface, optional Ethernet/USB or IEEE-488

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

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

Frequency	
HMF2525:	10µHz...25MHz
HMF2550:	10µHz...50MHz
Temperature stability:	1ppm (18°C...28°C)
Aging [after 1 year]:	± 1ppm (25°C)
Amplitude	
Output voltage:	5mV _{pp} ...10V _{pp} (into 50Ω)
Resolution:	1mV
Setting accuracy:	± [1% of control + 1mV _{ss}] at 1kHz
Frequency response:	f < 10MHz: < ± 0.1dB 10MHz ≤ f < 25MHz: < ± 0.2dB 25MHz ≤ f < 50MHz: < ± 0.4dB
DC offset:	
Voltage range (AC + DC)	± 5mV...5V (into 50Ω)
Accuracy	± 2% of offset ± 0.5% of signal level ± 2mV
Units:	V _{pp} , V _{rms} , dBm
Waveform Sine Wave	
Total harmonic distortion (1V _{pp}):	
f < 100kHz:	< -70dBc
100kHz ≤ f < 10MHz	< -55dBc
10MHz ≤ f < 25MHz	< -40dBc
f ≥ 25 MHz	< -37dBc
Spurious: [Non-harmonics 1V _{pp}]	
f < 1MHz:	-70dBc
1MHz < f < 50MHz	-70dBc + 6dBc/Oktave
Total Harmonic Distortion (f ≤ 100kHz):	0.04% typ.
Phase noise:	[10MHz, 10kHz Offset, 1V _{pp}] < -115dBc/Hz typ.
Waveform Rectangle	
Rise / fall time:	< 8ns
Overshoot:	< 3% typ.
Symmetry (50% duty):	1% + 5ns
Jitter (RMS):	< 1ns typ.
Waveform Pulse	
Frequency range:	
HMF2525	100µHz...12.5MHz
HMF2550	100µHz...25MHz
Amplitude:	5mV...+5V respectively -5mV...-5V (into 50Ω)
Rise / fall time:	< 8ns, variable up to 500ns
Pulse width:	10ns...999s
Resolution:	5ns
Jitter (RMS):	< 500ps typ.
Overshoot:	< 3% typ.
Waveform Rampe, Triangle	
Frequency range:	
HMF2525	10µHz...5MHz
HMF2550	10µHz...10MHz
Symmetry:	0...100%
Linearity:	
f < 250kHz	< 0,1% typ.
f ≥ 250 kHz	< 2% typ.
Waveform Arbitrary	
Frequency range:	
HMF2525	10µHz...12.5MHz
HMF2550	10µHz...25MHz
Sample rate:	250MSa/s
Amplitude resolution:	14Bit
Bandwidth [- 3dB]:	> 50MHz
Signal length:	Up to 256kPts
Non-volatile memory:	
HMF2525	512kPts
HMF2550	1MPts
Predefined waveforms:	Exponential rise/fall, Sin(x)/x, Cardiac, white/pink noise
Inputs and Outputs	
Signal output:	BNC socket (frontside), short-circuit-proof, ext. voltage ± 15V max.
Impedance	50Ω
Gate / Trigger input:	BNC socket (frontside)
Impedance	5kΩ 100pF

Level	TTL (protected up to ± 30V)
Edge	Positive/negative (selectable)
Pulse width	Min. 100ns
Trigger output:	BNC socket (frontside)
Impedance	50Ω
Edge	Positive TTL level impulse
Frequency	10MHz max.
Modulation input:	BNC socket (rear side)
Impedance	10kΩ
Max. input voltage	± 5V for full scale
Bandwidth [- 3dB]	DC...50kHz (sample with 250kSa/s)
Reference input:	BNC socket (rear side)
Impedance	1kΩ
Frequency	10MHz ± 100kHz
Input voltage	TTL
Reference output:	BNC socket (rear side)
Impedance	50Ω
Frequency	10MHz
Output voltage	1,65V _{pp} (into 50Ω)
Ramp output:	BNC socket (rear side)
Impedance	200Ω
Output voltage	0...5V, synchronous with sweep
Sweep	
Signals:	All
Type:	linear/log.
Direction:	up/down
Sweep time:	1ms...500s
Burst	
Signals:	All
Typ:	Triggered, 1...50.000 cycles, endless or Gate controlled
Start / stop phase:	-360°...+360°
Trigger source:	Manual, internal or external via Trigger source or interface
Internal Trigger period:	1µs...500s
Modulation	
Waveform modulation:	AM, FM, PM, PWM, FSK
Waveform carrier:	All (without pulse)
Internal modulation (ripple):	Sine, Rectangle, Triangle, Ramp, Arbitrary with up to 4096Pts.
Internal modulation frequency:	10µHz...50kHz
Ext. modulation bandwidth [-3dB]:	DC...50kHz (sampled with 250kSa/s)
Amplitude modulation:	
Modulation depth	0...100%
Frequency modulation:	
Frequency deviation	Max. 10MHz
Phase modulation:	
Phase deviation	-180°...+180°
Pulse width modulation:	
Deviation	0...100% of the pulse width
Miscellaneous	
Display:	3,5" color TFT QVGA 65k colors
Interface:	Dual-Interface USB/RS-232 (H0720)
Save / Recall memory:	10 complete set-ups
Protection class:	Safety class I [EN61010-1]
Power supply:	105/253V, 50/60Hz, CAT II
Power consumption:	approx. 30Watt
Operating temperature:	+5°C...+40°C
Storage temperature:	-20°C...+70°C
Max. rel. humidity:	5%...80% (non condensing)
Dimensions (W x H x D):	285 x 75 x 365mm
Weight:	3,4kg

Accessories supplied: Line cord, Operating manual, CD

Optional accessories:

H0730	Dual-Interface Ethernet/USB
H0740	Interface IEEE-488 (GPIB), galvanically isolated
HZ42	2RU 19" Rackmount Kit
HZ33	Test cable BNC plug - BNC plug 0,5m
HZ34	Test cable BNC plug - BNC plug 1m
HZ20	Adapter plug BNC plug - 4mm safety sockets
HZ10S	5 x silicone test lead (measurement connection in black)
HZ10R	5 x silicone test lead (measurement connection in red)
HZ24	Attenuators 3/6/10 and 20 dB

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