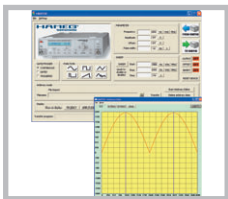


# 12.5 MHz Arbitrary Function Generator HM8150

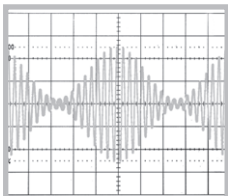
HM8150



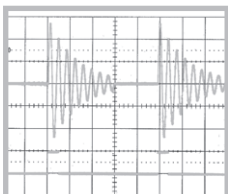
Gated sine wave,  
PC-Software included



Amplitude-modulated  
sine wave



Triggered arbitrary signal



Frequency range from 10 mHz to 12.5 MHz

Output voltage 20 mV<sub>pp</sub> to 20 V<sub>pp</sub> (open circuit)

Waveforms: Sine wave, square wave, triangle, pulse, sawtooth, arbitrary

Rise and fall time < 10 ns

Pulse width adjustment: 100 ns to 80 s

Arbitrary waveform generator 40 MSa/s

Burst, gating, external triggering, sweep

Software for remote control and for creation of Arbitrary waveforms

External amplitude modulation (bandwidth 20 kHz)

Intuitive operation with one touch of a button – quick change of signals

RS-232 Interface, optional: USB, IEEE-488

## 12.5 MHz Arbitrary Function Generator HM8150

Valid at 23 °C after a 30 minute warm-up period

### Frequency

Range:	10 mHz to 12.5 MHz
Resolution:	5 digit, max. 10 mHz
Accuracy:	± [1 digit + 5 mHz]
Temperature coefficient:	0.5 ppm/°C
Aging:	2 ppm/year

### Waveforms Sine wave

Frequency range:	10 mHz to 12.5 MHz
Amplitude:	20 mV <sub>pp</sub> – 20 V <sub>pp</sub> (open circuit)
Harmonic Distortion @ 1 V <sub>pp</sub> :	
f < 500 kHz:	-65 dBc
500 kHz ≤ f < 5 MHz:	-50 dBc
5 MHz ≤ f ≤ 12.5 MHz:	-40 dBc
Total Harmonic Distortion @ 1 V <sub>pp</sub> :	
f < 100 kHz:	typ. 0.05%
Spurious (Non-Harmonic) @ 1 V <sub>pp</sub> :	
f < 500 kHz:	-65 dBc
500 kHz ≤ f ≤ 12.5 MHz:	-65 dBc + 6 dBc/octave

### Square wave

Frequency range:	10 mHz to 12.5 MHz
Amplitude:	20 mV <sub>pp</sub> – 20 V <sub>pp</sub> (open circuit)
Rise / fall time:	< 10 ns
Overshoot:	< 5 % (U <sub>out</sub> ≤ 200 mV)
Symmetry:	50 % ± [5 % +10 ns]

### Pulse

Frequency range:	10 mHz to 5 MHz
Amplitude:	10 mV...+10 V or -10 mV...-10 V
Rise / fall time:	< 10 ns
Pulse width:	100 ns to 80 s
Duty cycle:	max. 90 %

### Sawtooth

Frequency range:	10 mHz to 25 kHz
Amplitude:	20 mV <sub>pp</sub> – 20 V <sub>pp</sub> (open circuit)
Linearity:	better than 1 %

### Triangle

Frequency range:	10 mHz to 250 kHz
Amplitude:	20 mV <sub>pp</sub> – 20 V <sub>pp</sub> (open circuit)
Linearity:	better than 1 %

### Arbitrary generator

Frequency range:	10 mHz to 250 kHz
Amplitude:	max. 20 V <sub>pp</sub> (open circuit)
Output rate:	40 MSa/s
Resolution:	X: 1024 (10 bit), Y: 1024 (10 bit) or X: 4096 (12 bit), Y: 4096 (12 bit)

### Inputs

Gate/Trigger:	BNC connector
Impedance:	5 kΩ    100 pF
Max. input voltage:	± 30 V
Modulation Input:	BNC connector
Impedance:	10 kΩ
Max. input voltage:	± 30 V

### Outputs

Signal output:	BNC connector, short circuit proof, ext. voltage up to ± 15 V
Impedance:	50 Ω
Output voltage:	
Range 1:	2.1 – 20 V <sub>pp</sub> (open circuit)
Range 2:	0.21 – 2.0 V <sub>pp</sub> (open circuit)
Range 3:	20 – 200 mV <sub>pp</sub> (open circuit)

Resolution:	
Range 1:	100 mV
Range 2:	10 mV
Range 3:	1 mV

### Setting accuracy (1 kHz):

Range 1:	± 2 %
Range 2:	± 3 %
Range 3:	± 4 %
	3 % additional for pulse and square wave

Frequency response:	< 100 kHz ± 0.2 dB
	0.1 – 12.5 MHz: ± 0.5 dB

Offset error:	Range 3: ± 50 mV
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Display:	2½ digits (LCD)
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Trigger output:	BNC connector
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Level:	5 V / TTL
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Impedance:	50 Ω
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Sawtooth output:	BNC connector
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Output voltage:	0 to 5 V, synchronous to sweep
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Impedance:	1 kΩ
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### DC offset

Output voltage:	Range 1: -7.5...+7.5 V (open circuit)
	Range 2: 0.75...+0.75 V (open circuit)
	-Range 3: 75...+75 mV (open circuit)

### Sweep (internal)

#### Setting of start and stop frequency

Internal sweep:	all waveforms
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Sweep time:	linear, 20 ms to 100 s continuous or triggered (ext. signal, interface)
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### Amplitude Modulation:

#### Modulation via external signal

Modulations depth:	0 to 100 %
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Bandwidth:	DC – 20 kHz (-3 dB)
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### Gate (asynchronous)

#### Modulation on/off via external TTL signal

Delay time:	< 150 ns
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Input signal:	TTL
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### Trigger Function (synchronous)

#### Burst mode via ext. trigger input or interface

Frequency range:	< 500 kHz
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### Miscellaneous

Interface:	RS-232 (standard), IEEE-488 (optional) or USB (optional)
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Display:	16 characters, LCD with backlight
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Memory:	for the last device settings and for 1 arbitrary signal
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Safety Class:	Safety Class I (EN61010-1)
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Power supply:	115/230 V ± 10 %; 50/60 Hz
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Power consumption:	approx. 20 Watt
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Operating temperature:	+10 °C to +40 °C
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Max. rel. humidity:	10 % to 90 % (without condensation)
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Dimensions (W x H x D):	285 x 75 x 365 mm
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Weight:	approx. 5 kg
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**Accessories supplied:** Operator's Manual and power cable, Software

#### Optional accessories:

HZ33/HZ34 Test Cable 50 Ω (BNC-BNC)  
HZ24 Attenuators 50 Ω 3/6/10 and 20 dB  
HZ42 19" Rackmount kit 2RU  
HZ20 Adapter plug  
HO870 USB Interface  
HO880 IEEE-488 (GPIB) Interface

www.hameg.com