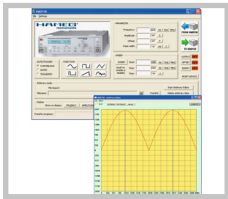


# 12.5MHz Arbitrary Function Generator HM8150

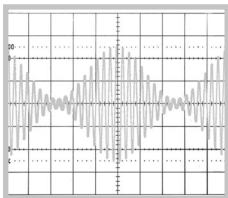
HM8150



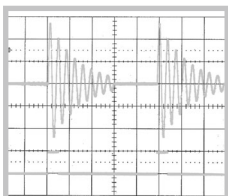
Gated sine wave,  
PC-Software included



Amplitude-modulated  
sine wave



Triggered arbitrary signal



- Frequency range 10mHz...12.5MHz
- Output voltage 10mV<sub>pp</sub>...10V<sub>pp</sub> (into 50Ω)
- Waveforms: Sine wave, square wave, triangle, pulse, sawtooth, arbitrary
- Rise and fall time < 10ns
- Pulse width adjustment: 100ns...80s
- Arbitrary waveform generator 40MSa/s
- Burst, gating, external triggering, sweep
- Software for remote control and for creation of Arbitrary waveforms
- External amplitude modulation (bandwidth 20kHz)
- Intuitive operation with one touch of a button – quick change of signals
- Galvanically isolated USB/RS-232 Interface, optional IEEE-488

## 12.5 MHz Arbitrary Function Generator HM8150

Product description, page 41

### Frequency

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

### Pulse

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

### Sawtooth

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

### Triangle

Frequency range:	10 mHz...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...250 kHz
Amplitude:	20 mV <sub>pp</sub> ...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
Display:	2½ digits (LCD)
Trigger output:	BNC connector
Level:	5 V / TTL
Impedance:	50 Ω
Sawtooth output:	BNC connector
Output voltage:	0...5 V, synchronous to sweep
Impedance:	1 kΩ

### 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) VAC Range + 2 x Voffset Range ≤ VRange max.
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### Sweep (internal)

Setting of start and stop frequency	
Internal sweep:	all waveforms
Sweep time:	linear, 20 ms...100 s continuous or triggered (ext. signal, interface)

### Amplitude Modulation:

Modulation via external signal	
Modulations depth:	0...100 %
Bandwidth:	DC...20 kHz (-3 dB)

### Gate (asynchronous)

Modulation on/off via external TTL signal	
Delay time:	< 150 ns
Input signal:	TTL

### Trigger Function (synchronous)

Burst mode via ext. trigger input or interface	
Frequency range:	< 500 kHz

### Miscellaneous

Interface:	USB/RS-232 (H0820), IEEE-488 (optional)
Display:	16 characters, LCD with backlight
Memory:	for the last device settings and for 1 arbitrary signal
Safety Class:	Safety Class I (EN61010-1)
Power supply:	115...230 V ± 10 %, 50/60 Hz, CAT II
Power consumption:	approx. 20 Watt
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 75 x 365 mm
Weight:	approx. 5 kg

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

**Accessories supplied:** Operator's Manual and power cable, Software

#### Optional accessories:

HZ33/HZ34 Test Cable 50 Ω (BNC-BNC)  
HZ24 Attenuators 3/6/10 and 20 dB  
HZ42 19" Rackmount kit 2RU  
HZ20 Adapter plug  
H0880 IEEE-488 (GPIB) Interface (galvanically isolated)

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