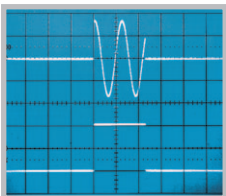


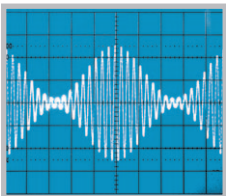
# 12.5 MHz Arbitrary Function Generator HM8150



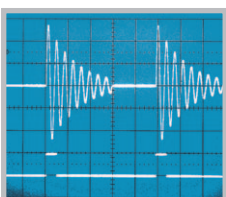
Gated sine wave,  
Gated mode



Amplitude-modulated  
sine wave



Triggered arbitrary signal



Frequency range 10 mHz to 12.5 MHz

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

Rise and fall time < 10 ns

Pulse width adjustment

Arbitrary waveform generator 40 MSa/s

Burst, gating, external triggering, sweep

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
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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)

#### 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)
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#### Trigger output BNC connector

Sawtooth:	0 to 5V (sweep out)
Level:	5V / TTL
Output impedance:	1 kΩ

#### Sweep (internal)

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

#### Amplitude Modulation:

Modulation via external signal	
Modulations depth:	0 to 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:	RS-232 (standard), IEEE-488 (optional) or USB (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
Power consumption:	approx. 20 Watt
Operating temperature:	+10 °C to +40 °C
Max. rel. humidity:	10 % to 90 % (without condensation)
Dimensions (W x H x D):	285 x 75 x 365 mm
Weight:	approx. 5 kg

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

#### 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 Interface

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