HM8150
Function Generator
Technical Data

HAMEG®
Instruments
A Rohde&Schwarz Company

USB | RS-232 | optional IEEE-488 | Lab-VIEW | Software

Key facts

- Frequency range: 10mHz to 12.5MHz
- Output voltage: 10mV$_{pp}$ to 10V$_{pp}$ (into 50Ω)
- Waveforms: Sine wave, square wave, triangle, pulse, sawtooth, arbitrary
- Rise and fall time <10ns
- Pulse width adjustment: 100ns to 80s
- Arbitrary waveform generator 40MSa/s
- Burst, gating, external triggering, sweep
- Free of charge 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 dual-interface, optional IEEE-488 (GPIB)

ROHDE&SCHWARZ

Test & Measurement
Technical Data
PD 5210.8737.32 - 01.00

Technical Data

12,5 MHz Arbitrary Funktionsgenerator HM8150

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

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_{pp} to 20 V_{pp} (open circuit)
Harmonic Distortion @ 1 V_{pp}	
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_{pp}	
f <100 kHz	typ. 0,05 %
Spurious (Non-Harmonic) @ 1 V_{pp}	
f <500 kHz	-65 dBc
500 kHz ≤f ≤12.5MHz	-65 dBc + 6 dBc/octave
Square wave	
FrequenzRange	10 mHz to 12,5 MHz
Amplitude	20 mV_{pp} to 20 V_{pp} (open circuit)
Anstiegs-/Abfallzeit	<10 ns
Overshoot	<5 % (U_{out} ≤200 mV)
Symmetry	50 % ±(5 % +10 ns)
Pulse	
Frequency range	10 mHz to 5 MHz
Amplitude	10 mV_{pp} to +10 V_{pp} or -10 mV_{pp} to -10 V_{pp}
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_{pp} to 20 V_{pp} (open circuit)
Linearity	better than 1%
Triangle	
Frequency range	10 mHz to 250 kHz
Amplitude	20 mV_{pp} to 20 V_{pp} (open circuit)
Linearity	better than 1%
Arbitrary-Generator	
Frequency range	10 mHz to 250 kHz
Amplitude	20 mV_{pp} to 20 V_{pp} (open circuit)
Output rate	40 MSa/s
Resolution	X 1.024 (10 Bit), Y 1.024 (10 Bit) or X 4.096 (12 Bit), Y 4.096 (12 Bit)
Inputs	
Gate/Trigger	BNC connector
Impedance	5 kΩ II 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 to 20 V_{pp} (open circuit)
Range 2	0,21 to 2,0 V_{pp} (open circuit)
Range 3	20 to 200 mV_{pp} (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 to 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 to 5 V, synchronous to sweep
Impedance	1 kΩ
DC-Offset	
Output voltage	
Range 1	-7.5 to +7.5 V (open circuit)
Range 2	-0.75 to +0.75 V (open circuit)
Range 3	-75 to +75 mV (open circuit)
$V_{ac\,range}$ + 2 x $V_{offset\,range}$ ≤$V_{range\,max}$	
Sweep (internal)	
Setting of start and stop frequencies	
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 to 20 kHz (-3 dB)
Gate (asynchronuous)	
Modulation on/off via external TTL signal	
Delay time	<150 ns
Input singal	TTL
Trigger Function (synchronuous)	
Burst mode via ext. trigger input or interface	
Frequency range	<500 kHz
Miscellaneous	
Interface	Dual-Interface USB/RS-232 (HO820), IEEE-488 (GPIB) (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 to 230 V ±10%; 50 to 60 Hz, CAT II
Power consumption	ca. 20 W
Operating temperature	+5 to +40 °C
Storage temperature	-20 to +70 °C
Rel. humidity	5 to 80% (non condensing)
Dimensions (W x H x D)	285 x 75 x 365 mm
Weight	approx. 5 kg

Accessories supplied:
Line cord, Operating manual, CD, Software

Recommended accessories:

HO880	Interface IEEE-488 (GPIB), galvanically isolated
HZ13	Interface cable (USB) 1.8 m
HZ14	Interface cable (serial) 1:1
HZ20	Adapter, BNC to 4 mm banana
HZ24	Attenuators 50 Ω (3/6/10/20 dB)
HZ33	Test cable 50 Ω, BNC/BNC, 0.5 m
HZ34	Test cable 50 Ω, BNC/BNC, 1.0 m
HZ42	19“ Rackmount kit 2RU
HZ72	GPIB-Cable 2 m

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