

Function Generator HM8130

- Synthesized Function Generator
- Basic Frequency 10mHz to 10MHz
- 5 Standard Waveforms; Sweep Mode
- Arbitrary Waveform Generation (1024 x 1024 points)
- External Gating and external Triggering

The Function Generator **HM8130** is a highly versatile, **all-purpose signal source** which is equally at home on the bench or in an automated test system. It combines a direct digital synthesizer(DDS), sweep function, and an **arbitrary waveform** generator in one compact box. In addition to its 5 standard waveforms (sine, rectangle, triangle, saw tooth and pulse), "user defined" signals can be generated using the arbitrary function with a storage capacity of **1024** points in both vertical and horizontal direction. Data entry, readout, and editing for simple waveforms is possible via the external keypad (option) point by point where the HM8130 calculates the vectors itself. The **IEEE-488** interface (option), allows the download of the waveform data captured with **HAMEG** digital scopes via an external controller. All arbitrary waveform data is stored in a non-volatile memory for quick recall until re-programmed.

The **HM8130** can be controlled asynchronously or synchronously via a gate/trigger input. In addition, it offers an integrated and easy to set sweep generator with two frequency ranges, from **10mHz** to **550kHz**, and from **450kHz** to **10MHz**. Start and stop frequency as well as sweep time can be set independently. The sweep generator can also be controlled via the **Gate/Trigger input**.

Waveforms made easy!

The output signal level of the **HM8130** may be controlled by an external DC voltage, which provides an option for amplitude-modulation.

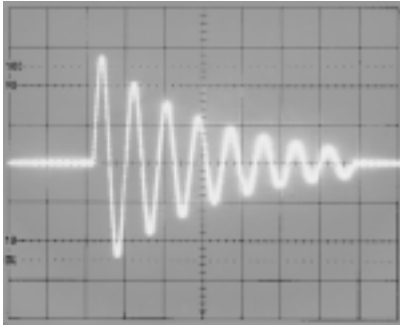
The frequency range of sinewave and squarewave extends from **0.01Hz** to **10MHz**. The range of the other waveforms is limited due to their digital generation. Frequency value is indicated on a bright, 5-digit, seven segment LED display with a **resolution** going down as fine as **0.01Hz** on the lower scales.

The maximum output voltage for all waveforms is **20V_{pp}** O.C. or **10V_{pp}** into **50Ω** load. The signal output voltage is indicated on a separate **2½digit** display. Signal output is **short-circuit-proof** and protected against external voltage up to **±15V**. DC-offset is adjustable up to **±7.5V** independent of the waveform type. The output can drive full scale into a **50Ω** load with less than a **10ns** rise time.

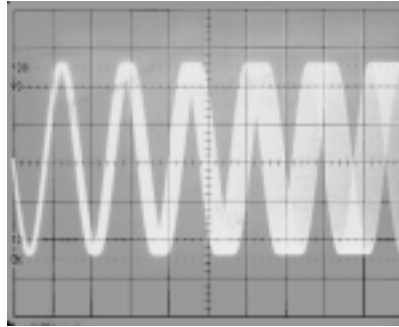
In spite of its versatility, the **HM8130** is easy to use. All variable parameters are adjustable by means of a **single rotary dial**. The bright display and the **clearly arranged** front panel design allow the user to be informed about the instrument status and all important parameters at a glance.

The **HM8130** is a precise, multi-purpose generator, ideal for laboratory bench development work. It is perfect for automated measurement applications when supplied with the optional **IEEE-488** or **RS-232** interfaces.

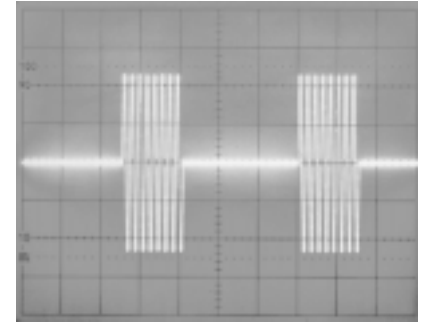




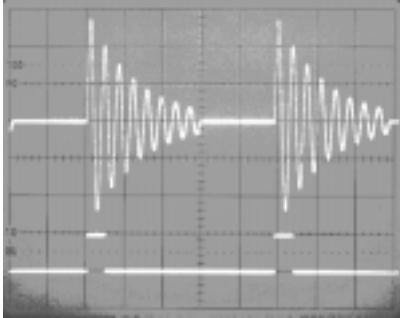
Arbitrary Signal



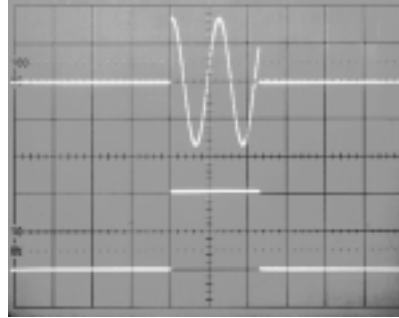
Sweep Signal



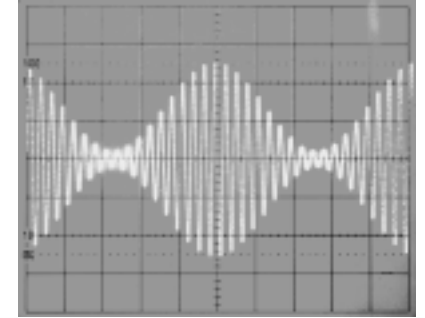
Burst Signal (Sinewave)



Arbitrary Signal (triggered)



Gated Sinewave



Sinewave with AM

Specifications HM 8130

(Ref. temp.: 23°C ± 2°C)

Frequency

Range: 0.01Hz to 10MHz
Resolution: 5 digit to .01Hz
Display: 5 digit; LED
Accuracy: ±(1 digit + .005Hz)
Setting: Remote Control via interface or manual via front panel or ext. keyboard
Temperature coeff.: 0.5ppm/°C
Aging: 2ppm/year

Waveforms

Sine

Frequency range: 0.01Hz to 10MHz
Amplitude: 0 to 20Vpp Open Circuit
Harmonic Distortion: <0.5% (0.01Hz to 500kHz)
 <1% (500kHz to 3MHz)
 <3% (3MHz to 10MHz)

Square

Frequency range: 0.01Hz to 10MHz
Amplitude: 0 to 20Vpp Open Circuit
Rise-/Falltime: <10ns
Aberration: <5% (Uout ≥ 200mV)
Symmetry: 50% ±(5% + 10ns)

Pulse:

Frequency range: 0.01Hz to 5MHz
Amplitude: 0 ... +10V or 0 ... -10V
Rise-/Falltime: <10ns
Pulse width: 100ns to 80s
Duty cycle: max. 80%

Ramp

Frequency range: 0.01Hz to 10kHz
Amplitude: 0 - 20Vpp Open Circuit
Linearity: better than 1%

Triangle

Frequency range: 0.01Hz to 100kHz
Amplitude: 0 - 20Vpp Open Circuit
Linearity: better than 1%

Arbitrary

Frequency range: 0.01Hz to 100kHz
Amplitude: 0 - 20Vpp (OC)
Sampling rate: 10MHz
Resolution: X: 1024; Y: 1024 (10 bit)

Inputs

GATE/ TRIGGER: (BNC jack)
Impedance: 5kΩ || 100pF; protected up to ±30V
LEVEL CONTROL: (AM; BNC jack)
Impedance: 10kΩ; protected up to ±30V

Outputs

Signal output: (BNC jack)
 short circuit proof; ext. voltage up to max. ±15V
Impedance: 50Ω
Output voltage: 2.1 to 20Vpp (OC)
 0.21 to 2.0Vpp (OC)
 20 to 200mVpp (OC)

Resolution:

100mV
 10mV
 1mV

Accuracy:

±2% (2.1 to 20V)
 (@1kHz ±3% (0.21 to 2V)
 ±4% (20 to 200mV)

Flatness:

for pulse and square additional 3%
 ±0.2dB <100kHz
 ±0.5dB 100kHz to 2MHz
 +0.5dB/-3dB 2MHz to 10MHz

Offset:

±50mV (Range 3)
Display: 2½digit (LED)
Setting: remote controlled via interface or manual via front panel or ext. keyboard

DC Offset

Output voltage: -7.5V to +7.5V (OC)
 -0.75V to +0.75V (OC)
 -75mV to +75mV (OC)

Trigger Output

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

Sweep (internal)

Internal sweep: all waveforms
2 ranges: .01Hz to 550kHz / 450kHz to 10MHz
 free setting of start and stop frequency
Sweep time: Linear, 20ms to 100s
 continuous or triggered via ext. signal, ext. keyboard, interface

Amplitude Modulation

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

Gate (asynchronous)

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

Triggerfunction (synchronous)

Frequency range: <500kHz
 Single burst via ext. trigger input or interface

General

1 Last set-up memory (+9 via ext.keyboard)
 1 memory array 1024x1024 for Arb. signal
External keyboard (Option HZ830 for setting of parameters and programming of Arb. signal)
RS232 Interface (Option HO89)
IEEE-488 Interface (Option HO88)
Power requ.: 110/220V ±15%; 45-60 Hz, 40 VA
Operating conditions: +0°C to +40°C
Max. rel. humidity: 10%-90%, no condensation
Dimensions: 285x75x365mm (WxHxD),
Weight: approx. 5 kg
Safety: Class I, According to IEC 348

Subject to change without notice

Optional accessories:

HZ33, HZ34: 50Ω Coaxial cable BNC-BNC; **HZ24:** Set of BNC attenuators 3/6/10 and 20dB incl. 1HZ22;

HZ72: Double shielded IEEE-bus cable; **HO88:** IEEE-488 Interface; **HO89:** RS 232-Interface;

LabWindows and LabView instrument drivers on request.