

Function Generator HM8130-2

- Remote Controlled Synthesized Function Generator
- Frequency Range from 10mHz to 10MHz
- 5 Standard Waveforms; Sweep Mode
- Arbitrary Waveform Generation (1024x1024)
- External Gating and external Triggering

**Complex Waveforms
made easy !**

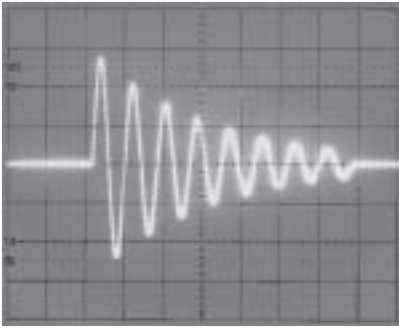
The Function Generator **HM8130-2** is a highly versatile, **all purpose signal source** which is equally at home on the bench or in an automated test system. It combines a sweep function, and an **arbitrary waveform** generator in one compact unit. In addition to its 5 standard waveforms (sine, rectangle, 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 waveform editing is possible via the **IEEE-488** or **RS-232** interfaces (option). All arbitrary waveform data is stored in a non volatile memory for quick recall until reprogrammed.

The **HM8130-2** 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**.

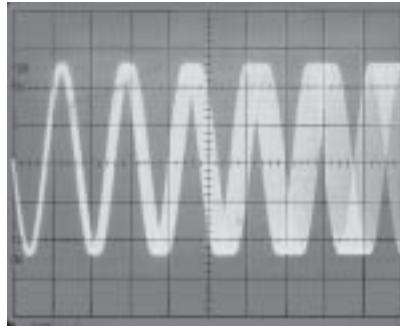
The output signal level of the **HM8130-2** may be controlled by an external DC voltage, which provides an option for amplitude modulation. The frequency range of sine wave and square wave extends from **0.01Hz** to **10MHz**. Frequency value is indicated on a 5 digit LED display with a **resolution** going down to **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 **2½** digit display. Signal output is protected external voltage up to $\pm 15V$. DC offset is adjustable up to $\pm 7.5V$ independent of waveform type. The output can drive full scale into a **50Ω** load with less than 10ns rise time.

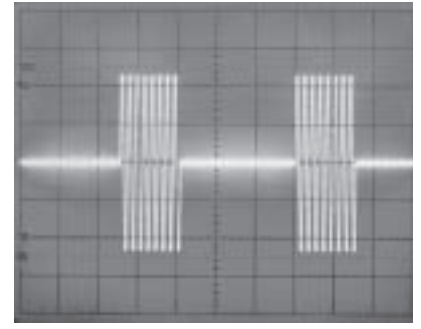
In spite of its versatility, the **HM8130-2** is easy to use. All variable parameters are adjustable by means of a **single rotary dial**. The bright display and the **clearly arranged** front panel design allow the user to be informed about the instrument status and all important parameters at a glance.



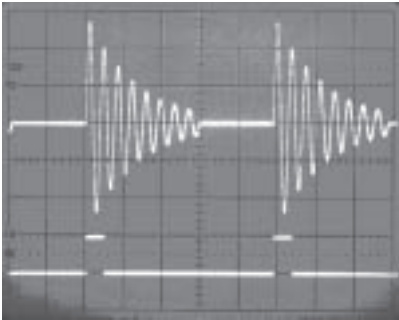
Arbitrary Signal



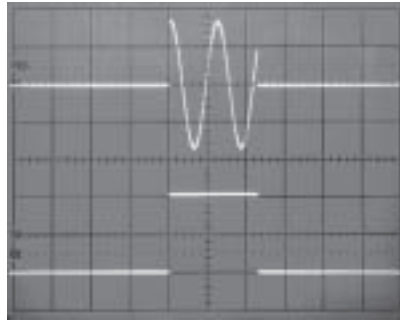
Sweep Signal



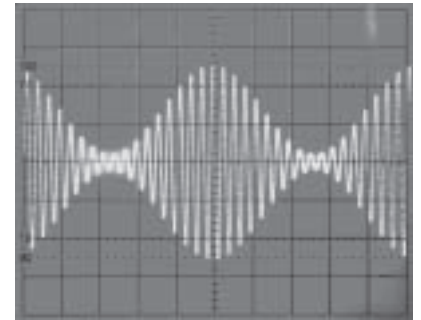
Burst Signal (Sine Wave)



Arbitrary Signal (triggered)



Gated Sine Wave



Sine Wave with AM

Specifications HM8130-2

(Ref. temp.: 23°C ± 2°C)

Frequency

Range: 0.01Hz to 10MHz
Resolution: 5 digit max. 0.01Hz
Display: 5 digit; LED
Accuracy: ±(1 digit + 0.005Hz)
Setting: Remote control or manual
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% (up to 500kHz)
 <1% (500kHz to 3MHz)
 <3% (3MHz to 10MHz)

Square
Frequency Range: 0.01Hz to 10MHz
Amplitude: 0 to 20Vpp Open Circuit
Rise-/Fall Time: <10ns
Aberration: <5% (Vout ≥ 200mV)
Symmetry: 50% ±(5% + 10ns)

Pulse
Frequency Range: 0.01Hz to 5MHz
Amplitude: 0 ... +10V or 0 ... -10V
Rise-/Fall Time: <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 socket)
Impedance: 5kΩ||100pF; protected up to ±30V
Level Control: AM modulation; (BNC socket)
Impedance: 10kΩ; protected up to ±30V

Outputs

Signal Output: (BNC socket)
 short circuit proof; ext. voltage 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 (1kHz): ±2% (2.1 to 20V)
 ±3% (0.21 to 2V)
 ±4% (20 to 200mV)

Flatness: for pulse and square add 3%
 ±0.2dB <100kHz
 ±0.5dB 100kHz to 2MHz
 +0.5dB/-3dB 2MHz to 10MHz
 ±50mV

Offset Error: ±50mV
Display: 2½ digit (LED)
Setting: remote controlled or manual

DC Offset

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

Trigger Output (BNC socket)

Level: 5V / TTL

Sweep

Internal Sweep: all waveforms
2 ranges: 0.01Hz to 550kHz/450kHz to 10MHz
 free setting of start and stop frequency
Sweep Time: Linear, 20ms to 100s cont./trig.
Ramp: 0 to 5V (sweep out)
Output Impedance: 1kΩ

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

Trigger Function (synchronous)

Frequency Range: <500kHz
 One cycle or burst via ext. trigger input or interface

General

1 Last set-up memory
 1 memory array 1024x1024 for 1 Arbit. signal
RS-232 Interface (Option HO89-2)
IEEE-488 Interface (Option HO88-2)
Power: 115/230V±10%;45-60 Hz, typ. 45W
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 1010-1

Optional Accessories:

- HZ33, HZ34:** 50Ω Coaxial cable BNC-BNC; **HZ24:** Set of BNC attenuators 3/6/10 and 20dB
- HZ72:** Double shielded IEEE-bus cable; **HO88-2:** IEEE-488 Interface; **HO89-2:** RS-232 Interface;
- HZ42:** 19" rack mount kit