Low-Frequency Sine-Wave Source

FEATURES

Low-frequency *Sine-Wave Generator*

- Amplitude: 0 – 80 V peak to peak (0 – 28 V RMS)
- Frequency range: 0 – 20 kHz
- DC offset: ±5 V
- Amplitude and frequency sweeps
- Built-in sequencer, up to 20 steps
- USB-programmable
- USB +5 V powered, low consumption
- Internal rechargeable battery (8 h autonomy)
- Dimensions 94 mm × 32 mm × 20 mm
- Weight 80 g

DESCRIPTION

The HOA-20K is a low-frequency sine-wave generator specifically designed to drive devices with a capacitive impedance (e.g. liquid-crystal cells, piezoelectric devices).

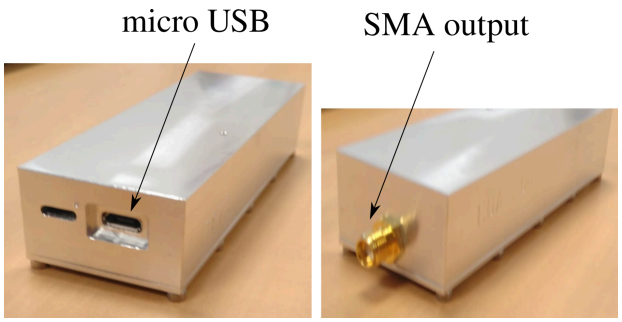
The frequency range goes from DC to 20 kHz and the maximum amplitude is 80 V peak to peak. All parameters are easily set from a graphical interface.

All electronic components are low noise. For increased stability, an internal rechargeable battery allows operation without mains power. The battery autonomy is 8 hours with the output on.

APPLICATIONS

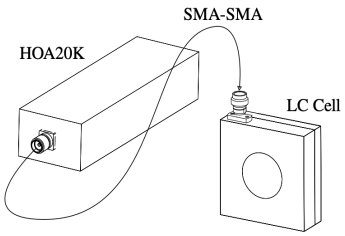
- Electrical driver for liquid-crystal cells
- OASLM electrical driver
- Electrical driver for piezoelectric components

VIEWS

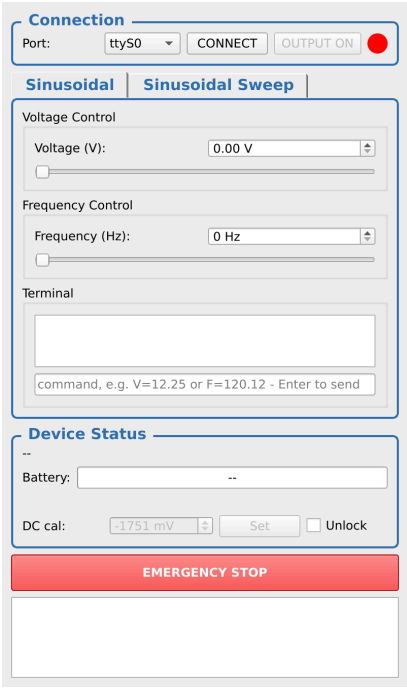


EXAMPLE

Driving an LC cell with the HOA-20K.



Connect the SMA cable to the controlled device. Connect the USB cable to the computer and install the supplied software (Linux, Windows, macOS). The operating parameters are set from the graphical interface, which also runs amplitude and frequency sweeps and shows the battery level and the temperature of the device.



The HOA-20K can be programmed from any operating system through its USB serial port. Example code in C is supplied.

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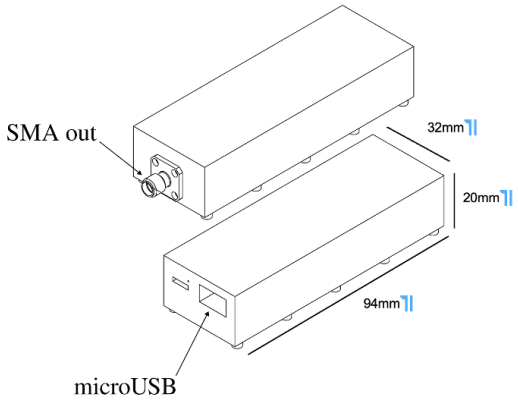
MECHANICAL DRAWING



CHARACTERISTICS

Item	HOA-20K
Waveform	Sine
Frequency range	0 – 20 kHz
Voltage range	0 – 80 V peak to peak (0 – 28 V RMS)
Voltage resolution	0.01 V RMS
Voltage offset	−5000 – +5000 mV
Output connector	SMA
Interface / power	micro-USB, +5 V (serial over USB)
Battery autonomy	8 h, output on
Dimensions	94 mm × 32 mm × 20 mm
Weight	80 g

Programming the HOA-20K

Plug in the micro-USB port to communicate with the HOA-20K (serial over USB, 115200 baud, 8N1, commands terminated by CR LF). A set of predefined commands, written in capital letters, controls the sine waveform generated by the HOA-20K.

LIST OF COMMANDS

Syntax	Parameter range	Description
`B=?`		Return the battery voltage (above 4 V the battery is more than 90 % charged)
`T=?`		Return the maximum internal temperature in degrees Celsius
`F=?`		Return the frequency of the output voltage in hertz
`F=X`	0 ≤ X ≤ 20E3	Set the frequency of the output sine wave to X hertz
`V=?`		Return the RMS voltage of the output sine wave in volts
`V=X`	0 ≤ X ≤ 28	Set the RMS voltage of the output sine wave to X volts
`CAL=X`	−5E3 ≤ X ≤ 5E3	Add a DC offset of X millivolts (saved in the device)
`CAL?`		Return the DC offset in millivolts
`ON / OFF`		Turn the output on / off
`SET(F,V,T)`	0 ≤ F ≤ 20E3 0 ≤ V ≤ 28 1 ≤ T ≤ 200 (integer values)	Add a step to the sequence (up to 20 steps): a sine wave of • frequency F in hertz • amplitude V in volts RMS • duration T in seconds
`START`		Start playing the sequence
`STOP`		Stop the sequence
`RESET`		Clear the sequence
`SAVE`		Save the sequence in the device (occasional use)