

Function generator SG10 (230 V, 50/60 Hz) 1017337

Function generator SG10 (115 V, 50/60 Hz) 1017338

Instruction manual

01/14 SD/ALF



- 1 Plug-in power supply
- 2 Amplitude adjustment knob
- 3 Frequency adjustment knob
- 4 4-mm output sockets
- 5 Amplitude/polarity indicators

1. Safety instructions

The function generator SG10 conforms to safety regulations for electrical measuring, control and laboratory equipment as specified in DIN EN 61010 Part 1. It is to be operated in dry rooms as appropriate for the use of electrical equipment.

Safe operation of this equipment is guaranteed as long as it is used as stipulated. However, there is no guarantee of safety if the equipment is used incorrectly or carelessly.

If there is any suspicion that the equipment can no longer be operated without risk (e.g. if visible damage is detected), the equipment must immediately be with-drawn from use and secured in such a way as to prevent its inadvertent operation.

- Only use the instrument in a dry environment.
- Do not apply any external voltage to the output sockets.
- Use only with the supplied plug-in power supply.

2. Description

The SG10 function generator is a generator with a power amplifier for generating sine waves of very low frequency. It is particularly well suited for use in experiments which are to be performed by the students themselves.

The equipment outputs a sine-wave voltage of adjustable amplitude and frequency. Two LEDs (red and green) indicate the polarity of the output voltage, and their brightness is an indication of the amplitude.

The output is resistant against short circuits, and protected from induced voltages and spark discharges.

Power is supplied via a 12 V AC plug-in power supply.

The function generator SG10 with order number 1017338 is intended for a mains voltage of 115 V ($\pm 10\%$), whereas the one numbered 1017337 is for 230 V ($\pm 10\%$).

3. Technical data

Signals:

Frequency range:	0.01 Hz to 10 Hz
Distortion factor:	<5%
Signal waveform:	Sine

Output:

Output amplitude:	1 V _{pp} to 10 V _{pp} , continuously adjustable
Output power:	1.5 W permanent
Output current:	300 mA max.

General data:

Power supply:	Plug-in power supply, 12 V AC, 0.5 A
Dimensions:	100x75x35 mm approx.
Weight:	400 g approx. (including power supply)

4. Operation

- Connect the plug-in power supply to the mains and plug it into the function generator.

The equipment is then switched on and ready to use.

- Adjust the amplitude with the amplitude knob.

As of an amplitude of 2 V, the two LEDs will indicate the positive or negative half-waves of the output voltage signal.

- Adjust the frequency with the frequency knob.

The set frequency will be indicated by the two LEDs as long as the amplitude exceeds 2 V. The frequency can be adjusted to between 10 mHz to 10 Hz along a linear curve.

The signal can be read using a multimeter with the zero point in the middle (the ESCOLA 2 multimeter 1006811 is recommended) or with an oscilloscope.

5. Example experiment

Demonstration of rotation reversal for a DC motors depending on the polarity

The following additional equipment is needed in order to carry out this experiments:

1 DC motor	1001041
1 Stand base	1001046

Experiment leads

- Set up the motor with the help of the stand base. (see Fig. 1)
- Connect up the motor and function generator with experiment leads.

- Set both amplitude and frequency to their minimum levels.
- Connect the plug-in power supply to the mains and plug it into the function generator.
- Gently increase the frequency and amplitude until the metal arm on the motor starts to oscillate back and forth.



Fig. 1 Experiment set-up for demonstration of rotation reversal for a DC motor

6. Storage, cleaning, disposal

- Keep the equipment in a clean, dry and dust free place.
- Before cleaning the equipment, disconnect it from its power supply.
- Do not clean the unit with volatile solvents or abrasive cleaners.
- Use a soft, damp cloth to clean it.
- The packaging should be disposed of at local recycling points.
- Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. Local regulations for the disposal of electrical equipment will apply.

