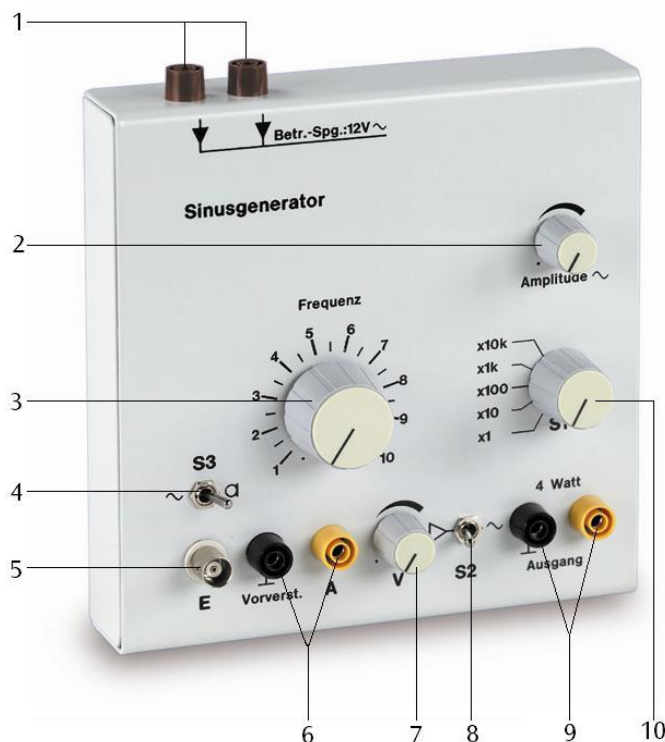


Sine Wave Generator 1001038

Instruction Sheet

06/15 SP/ALF



- 1 Supply voltage input
- 2 Amplitude control
- 3 Frequency control
- 4 Microphone/amplifier selector switch (S3)
- 5 Amplifier input
- 6 Pre-amplifier output
- 7 Amplification control
- 8 Generator/preamplifier selector switch (S2)
- 9 Power amplifier output
- 10 Frequency range selector switch (S1)

1. Safety instructions

The sine wave generator conforms to safety regulations for electrical measuring, control and laboratory equipment as specified in DIN EN 61010 Part 1 and is designed to meet protection classification I. 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can no longer be operated without risk (e.g. if visible damage is detected), the equipment must immediately be withdrawn from use and secured in such a way as to prevent its inadvertent operation.

In schools and other educational institutions, the

instrument must only be used under the supervision of a responsible person.

- Before operating the sine wave generator it needs to be examined and tested. If it fails to function correctly or if there is visible damage it must immediately be withdrawn from use and secured in such a way as to prevent its inadvertent operation.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 terminals.
- Do not allow the instrument to be opened by anyone other than an electrically qualified specialist.

2. Description

The sine wave generator is used to generate sinusoidal voltages in a frequency range from 1Hz to 100kHz. A selector switch allows the instrument to be used either as a sine wave generator with power output or as a power amplifier with a pre-amplifier stage.

The frequency can be selected over a range of 5 decades, each of which is continuously adjustable on a scale from 1 to 10. The power amplifier has a robust output stage and a large reserve of power. The output stage is thermally protected and proof against short-circuiting, and the output is current-limited.

With the mode selector switch (S3) in the microphone position \square , the socket marked E is supplied with +8V via a 10k Ω resistor. This bias voltage is suitable for direct connection to an electret microphone or carbon microphone.

Modes of operation:

Switch		Function
S1		Frequency decade switch (acts as multiplier to the "Frequency" adjustment)
S2	~	Sinusoidal voltage available at power amplifier output – output adjustable via "Amplitude ~" knob
	∇	Pre-amplifier output is fed to power amplifier output stage
S3	~	Input to preamplifier through 100 μ F capacitor
	\square	Bias voltage (8 V, 10 k Ω); input to preamplifier through 1 μ F capacitor

3. Technical data

Sine wave generator with power output:

Frequency range:	1 Hz - 100 kHz in 5 decades, continuously adjustable by linear marked dial
Frequency deviation:	< 5%
Output voltage:	0 - 6 V, adjustable
Max. output current:	10 A, short-circuit protected
Max. output power:	16 W continuous, 30 W for short periods
Input resistance:	100 k Ω

Pre-amplifier:

Amplification factor:	1- 250, continuously adjustable
Input:	AC coupled, microphone voltage switch
Max. output voltage:	10 Vpp
Max. output current:	15 mA, short-circuit protected
Output impedance:	1 k Ω

Power amplifier:

Voltage amplification:	0 - 8.5
Operating voltage:	12 V AC
Dimensions:	160x160x50 mm ³
approx.	
Weight:	1.1 kg approx.

4. Operation

Recommended voltage supply source:

Transformer 12 V @115 V	1000865
or	
Transformer 12 V @230V	1000866

The output stage is very robust and can be relied on to work safely in physics experiments. However, when working with inductive loads (coils, transformers, motors, etc.) the following precautions need to be taken:

Switching onto an inductive load may only be done when there is no signal (i.e., with the "Amplitude" and/or "V" control knobs fully to the left).

Speakers can be damaged if the equipment is switched on when there is already a signal voltage. Therefore, before switching on, set the signal level to zero (amplification control knob "V" fully to the left).

When the unit is operating at a high power level the housing can become hot. Although the output stage is not likely to be damaged by heat, under such conditions a longer cooling period should be allowed for.

To avoid excessive heating when operating continuously for a long period, it is advisable to keep the load resistance above 3 Ω .

- Connect the mains adapter transformer to the supply voltage input terminals.

4.1 Operation as a power amplifier with pre-amplifier stage

- Set switch S3 (4) to either the microphone position (right) or the amplifier position (left)

as required, and switch S2 (8) to the pre-amplifier position (left).

- Turn the amplification control knob (7) fully to the left (zero).
- Connect the pair of output sockets (9) to the load (e.g., horn speaker 1000811).
- Increase the amplitude using the amplification control (7) (do not exceed the maximum permitted power for the equipment that is connected).

4.2 Operation as a sine wave generator with power output

- Set switch S2 (8) to the generator position (right).
- Turn the amplitude control knob (2) fully to the left.
- Connect the pair of output sockets (9) to the load (e.g., horn loudspeaker 1000811, vibration generator 1000701, 12V DC motor 1001041, etc.).
- Increase the amplitude using the amplitude control (2) (do not exceed the maximum permitted power for the equipment that is connected).

5. Storage, cleaning and 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.



