

Power Function Generator @115 V 1001036
Power Function Generator @230 V 1001037

Instruction sheet

06/15 SP/ALF



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| <ul style="list-style-type: none"> 1 Selector switch for waveforms and amplifier input 2 Amplifier input 3 Ground socket 4 Input socket for AM/FM control voltage 5 Toggle switch for AM- or FM-modulation 6 Toggle switch for power amplifier operating mode 7 Mains switch 8 Ground socket for power amplifier 9 LED mode indicator for power amplifier 10 Power amplifier output 11 Attenuator for AM/FM with switch | <ul style="list-style-type: none"> 12 Offset-trimmer for switch 13 Ground socket for generator 14 Generator output 15 Frequency range selector 16 LED indicator for limiting 17 Amplitude regulator for generator and power amp 18 Frequency fine adjustment knob 19 LED-display 20 BNC-on reverse (TTL level for generated frequency) |
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1. Safety instructions

The device conforms to the safety regulations for electrical measuring, control, monitoring and laboratory equipment, as specified under DIN EN 61010, section 1, and is designed to be classified as protection class I equipment. It is intended for operation in a dry environment as this is suitable for the operation of electrical equipment and systems.

Safe operation of the equipment is guaranteed, provided it is used correctly. However, there is no guarantee of safety if the equipment is used in an improper or careless manner.

If it is deemed that the equipment can no longer be operated without risk (e.g. visible damage has occurred), the equipment should be switched off immediately and secured against any unintended use.

In schools and other educational institutions, the operation of the function generator must be supervised by qualified personnel.

- Before putting the function generator into operation, confirm that the specifications printed on the rear side of the housing are compatible with the local mains voltage.
- Before putting the function generator into operation, check the housing for any damage. In the event of any malfunction/operational defect or visible damage, switch off the unit immediately and secure it from unintentional use.
- The instrument may only be connected to the mains via a socket that has an earth connection.
- Before making any connections, check the experiment leads for damaged insulation and exposed wires.
- Never cover the air vents and heat sink at the rear of the housing. These are necessary in order to ensure sufficient circulation of air required for cooling the components inside the equipment.
- The equipment may only be opened/repaired by qualified and trained personnel.

2. Description

This high-power function generator is intended for conducting experiments on the topics of harmonic oscillation, acoustics, ultrasonics and magnetic induction, concentrating mainly on the low-frequency range. Frequency can be adjusted over seven decades ranging from 10 mHz to 100 kHz.

The equipment involves an external AM and FM (sweep) modulating function generator with power amplification and digital frequency display showing values and units. It can be used as a function generator, DC voltage source or power amplifier and provides alternative operating modes such that it can be used as a voltage or a current source with a power output of 50 watts. Any overload of the amplifier due to the setting of the offset voltage or excessive input voltage is shown on the display. The outputs are protected against overloading by electronic protection circuitry.

Function generator 1001036 is designed for a mains voltage of 115 V ($\pm 10\%$) while 1001037 operates with 230 V ($\pm 10\%$).

3. Technical data

Signal form:	Sine, square, triangle
Frequency range:	<10 mHz...>100 kHz in 7 decades
Measuring output:	0 - 20 V, 10 mA
FM modulation:	0 - 5 V control voltage effecting a frequency variation in the ratio 1:1000

Range	0 V	5 V
100 mHz or 1000 mHz	10 mHz approx.	1 Hz
10 Hz or 100 Hz	100 mHz approx.	100 Hz
1 kHz or 10 kHz	10 Hz approx.	10 kHz
100 kHz	100 Hz approx.	100 kHz

AM modulation:	0 - 5 V control voltage effecting a change in output amplitude in the range 0 - 100%
Display:	3½-digit LED
Numerals:	13-mm LED, red
Offset:	± 10 V
Power amplifier gain:	Referenced to generator: 1.5x Referenced to LF (NF)-socket: 10x
Limit display:	On overload of LF signal or offset
Power output:	50 W
Voltage source:	0 - 30 V, $I_{max} = 5$ A
Current source:	2.1 A at 6 Ω
Operating voltage:	See reverse of device
Dimensions:	125x170x225 mm approx.
Weight:	6.5 kg approx.

4. Operation

4.1 Generator mode

- Turn on the mains via the mains switch (7).
- Select the waveform using the selector (1).
- Set the offset switch (12) and attenuator (11) to the ratcheted setting.
- Set frequency using controls (15 and 18).
- Set amplitude using rotary knob (17).
- Use toggle (6) to select current or voltage source operating mode for power amplification. **The output signal from the power amp should always be referenced to socket (8).**
- Set offset if required.
- For AM modulation set toggle (5) to AM setting.
- Apply 0 - 5 V control voltage to socket (4) and set the amplitude limits using the attenuator (11).
- For FM modulation set toggle (5) to FM setting.
- Apply 0 - 5 V control voltage to socket (4) and set the frequency limits using the attenuator (11).

4.2 Power amp with external signal

- Apply a 0 - 1 V signal to LF (NF) socket (2)
- Set the selector (1) to LF (NF).
- Use rotary knob (17) to set amplitude.

For excessively large input signals LED (16) will indicate an "Overload".

4.3 Power amp as voltage or current source

- Turn knob (17) fully to the left.
- Set attenuator (11) to INT.GEN. (it will click). Selector (1) must not be set to LF (NF).
- Use the offset trimmer (12) and amplitude knob (17) to set the output voltage or current.

4.4 Miscellaneous

In "voltage source" mode, the timing or waveform of the voltage output matches the input voltage for currents up to 5 A.

In "Current source" mode, the timing or waveform of the voltage output matches the input voltage up to a maximum load resistance of 6 Ω .

The NF socket stands for low frequency (LF)

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.



