



In Vitro Magnetic Field Generator

Product information, MFG-1000, 080630 version A

Intended Use

The *In Vitro Magnetic Field Generator MFG-1000* is an electromagnetic instrument for generating a strong high-frequency alternating magnetic field in an inserted sample container (PCR vial or microscope slide). It is only intended to be used for research applications in the biochemical and medical fields. Typical research applications may involve the use of magnetic nanoparticles, tissues, cells, bacteria, viruses, and biological fluids (such as blood).

Pack size	Product number	Price/ Unit
1 unit	E0200	5 400 EURO

Content Information (1 unit / E0200)

1. In Vitro Magnetic Field Generator (1 pc)
2. Power supply, wide input range 110 - 230 V 50 - 60 Hz (1 pc)
3. Sample container PCR VIAL (100 pcs)
4. Operating manual in English (1 pc)

Materials and Services Available for Purchase

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|---|---------|-------|---------|
| 1. Sample container PCR VIAL | 100 pcs | E0201 | 15 EURO |
| 2. Sample container MICROSCOPE SLIDE | 1 pc | E0202 | 85 EURO |
| 3. Magnetic nanoparticles (visit homepage: www.euris.org) | | | |
| 4. Custom specific magnetic nanoparticles (contact us: info@euris.org) | | | |

General Information About Applications of Magnetic Fields

Medical applications of static magnetic fields (generated by magnets) were suggested already 4000 years ago by Aristotle and Plato. During the last decades, a variety of functionalized superparamagnetic nanoparticles, capable of interacting with cells and other biological substances, have been developed. Such nanoparticles in combination with alternating magnetic fields (generated by coils) has attracted much attention in medical and scientific research applications. These applications involve areas such as Hyperthermia, Cell-membrane receptor targeting, Cell and bacteria lysis.

Product Description

The *In Vitro Magnetic Field Generator MFG-1000* is an instrument capable of generating alternating magnetic fields that are characterized by a fixed high frequency (1 MHz) and a variable (continuous or pulsed) homogeneous magnetic field (max 5 mT). Sample containers (PCR vials or microscope slides) are inserted individually into a temperature controlled compartment in the device. The desired field properties (field strength, constant/pulsed mode, and field exposure time) are set using the keyboard (SET and +/- buttons) and the field is activated by the RUN command button.

Performance Characteristics and Instrument Data

^a Magnetic flux density adjustable range	0 - 5 mT (0 - 50 Gauss)
	in 0,1 mT steps
Magnetic field strength adjustable range	50 Oe (4000 A/m)
Field activation time setting range	1 s - 99 min 59 s
Field activation in pulsed mode duty cycle	ON (1 - 255 s), OFF (1 - 255 s)
Volume of homogeneous magnetic field	0,4 cm ³ (L4 x W7 x H15 mm)
Sample container regulation temperature	20 - 25 °C
Instrument ambient operating temperature	15 - 25 °C
Input voltage power supply	110 V - 230 V (50 - 60 Hz)
Instrument voltage / power consumption	19 V DC / max 100 W
Instrument size	L280 x W160 x H120 mm
Weight (excluding power supply)	1,9 kg
Manufacturer	European Institute of Science AB

^aThe generated magnetic flux density has been calibrated against an external reference coil at the factory. The displayed value of the generated magnetic flux density is calculated from real-time measurements of the coil current.

Warnings, Precautions and Disclaimer

This product information must be read before using the instrument. Do not open the instrument housing. Use only recommended sample containers provided by the European Institute of Science or any of their authorized distributors. Bring sample containers to room temperature (15 - 30 °C) before use. Do not insert sample containers containing ($\mu_r > 2$) or metallic objects into the instrument as very rapid high-temperature increases might result in explosions and/or personal hazards and/or instrument malfunction. Wear protective clothing and disposable gloves when handling the sample containers. Wash hands thoroughly after using the instrument. Do not smoke, eat, or drink in areas where sample containers are handled. Dispose all materials used including sample containers as biohazardous waste. This product is only intended for research use in laboratories. It is not intended for use in medical treatments, households or any other areas.

Technical Service

The European Institute of Science's mission is to provide high-quality products. The main objective is to satisfy every customer's need with our products. We appreciate questions or comments about our products. Any product that does not function properly will be replaced, free of charge, by the European Institute of Science. Warranty is only granted if all product components are stored and handled in accordance with instructions.

Visit the European Institute of Science homepage which offers you:

- New products and special offers
- View and download documents
- Request information (i.e. custom made nanoparticles)
- Updated product information

Regulatory Issues

This instrument is CE-marked and complies according to EMC test report No. 081702 (EMP-tronic AB, Sweden) with the requirements according to the following EU standards: EN 61326-1:2006 and EN 61326-2-3:2006.