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# ECM 2001 LITE

## Electrofusion and Electroporation System

The ECM 2001 LITE is a multifunctional electrofusion and square wave electroporation generator. The ability to generate both AC and DC waves enables fast and efficient cell fusion for hybrid cell formation and nuclear transfer applications. This system is powerful enough to yield high transfection efficiencies for cell lines and difficult to transfect cell types including stem cells and primary cells. The gentle square wave pulse also allows for high cell viability of these cell types.

### Waveforms

AC sine wave aligns cells by dielectrophoresis for electrofusion applications. Square DC waveform provides the fusion pulse for electrofusion or is utilized in mammalian electroporation applications.

### Electrofusion

Combining the characteristics of AC and DC wave pulses facilitates quick, efficient cell fusion. Fusion is achieved by the application of an AC current waveform that

generates a benign dielectrophoretic alignment of cells. After fusion, the AC is reapplied maintaining the cell compression for the rounding off process resulting in a higher number of hybrids.

### Electroporation

Electroporation is a standard method used to transfect mammalian cell lines with molecules of interest, such as nucleic acids, proteins, drugs, or nanoparticles. Delivery by this method is typically used in transient transfections to study protein expression or to temporarily knockout or “silence” these genes using siRNA. Alternatively, one may make permanent modifications with gene editing technologies and selection steps to isolate stably transfected cells. This allows for integration of a gene into the genome of the cell for long term expression of protein. The use of the ECM 2001 LITE offers the control needed to adjust electrical settings for optimization of transfection parameters.

### Applications

- Cell fusion
- Nuclear transfer
- Embryo manipulation
- Mammalian cell transfection
- Plant protoplast fusion
- Stem cell production
- Gene editing technologies

### Features

- AC waveform of 0.2 to 2.0 MHz
- Square wave electroporation capabilities
- A wide range of voltages from 5 V to 3000 V
- Capable of operating at low impedance loads
- Large touchscreen interface

### Specifications

Square Wave Pulse, DC	
Voltage Range	LV Mode 5 to 500 in 1 V steps HV Mode 505 to 3000 in 1 V steps
Voltage Accuracy	5%
Pulse Length	LV Mode 10 to 999 $\mu$ s in 1 $\mu$ s steps or 1 to 999 ms in 1 ms steps HV Mode 10 to 600 $\mu$ s in 1 $\mu$ s steps
Multiple Pulsing	0 to 100 pulses per sample
Pulse Interval	0.1 s to 10 s
AC steps (pre- and post- fusion)	
Frequency	0.2 to 2 MHz in 0.1 MHz steps
Voltage	5 to 75 V in 5 V steps
Duration	0 to 99 s in 1 s steps
Wave Shape	Sine Wave
Sample Load Ranges	
All AC Voltages	Load must be $\geq 60 \Omega$
DC LV Mode	Pulse Length <100 ms Load must be >8 to 9 $\Omega$ Pulse Length >100 ms Load Must be >100 $\Omega$
DC HV Mode	Load must be $\geq 40 \Omega$

### Ordering Info

Order No.	Description	Included Items
45-2065	ECM 2001 LITE Cell Fusion System	ECM 2001 LITE Generator, Microslides (0.5 mm Gap, 3.2 mm Gap), Meander Fusion Chamber, Flat Electrode / Divergent Field, Electrode Adapter, Connection Cable, Safety Stand 630B, Cuvettes 1 mm, 2 mm, 4 mm, pkg. of 30 (10 each) and Cuvette Rack
45-2066	ECM 2001 LITE Electroporation System	ECM 2001 LITE Generator, 630B Safety Stand, Cuvettes 1 mm, 2 mm, 4 mm, pkg. of 30 (10 each) and Cuvette Rack
45-2067	ECM 2001 LITE Embryo Manipulation System	ECM 2001 LITE Generator, Microslides, round wire (0.5 mm gap, 1.0 mm gap), rectangular wire (3.2 mm gap), Micrograbber adapter cables
45-2068	ECM 2001 LITE Hybridoma Production System	ECM 2001 LITE Generator, 2 ml Coaxial Optimization Chamber, 9 ml Coaxial Production Chamber, Female/Female Adapter Set, BTX Cytofusion Medium C 500 ml
45-2069	ECM 2001 LITE Generator Only	

Please visit [www.btxonline.com](http://www.btxonline.com) for a full list of accessories and consumables for ECM 2001 LITE.

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