

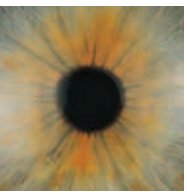

GENE TRANSFER

Gene Pulser Xcell™ Electroporation System

- Exponential and square waveforms for optimal delivery
- Modular design for value and flexibility
- User-friendly, intuitive digital interface
- Choice of preset protocols or manual operation

An Exceptional System for Excellent Results

A Flexible Approach to Gene Delivery

The flexible, modular Gene Pulser Xcell electroporation system generates both exponential-decay and square-wave pulses for optimal nucleic acid delivery, enabling you to choose the waveform and protocol that work best for your cell type.

The Gene Pulser Xcell system is recommended for siRNA and DNA delivery into primary, suspension, and difficult-to-transfect mammalian cells, including those that are resistant to chemical transfection using lipid-based reagents.

The Gene Pulser Xcell system is composed of a main unit, two accessory modules (the CE and the PC module), and the ShockPod™ cuvette chamber. The CE module is recommended for use with the Gene Pulser Xcell main unit for electroporation of most eukaryotic cells (including mammalian cells and plant protoplasts). The PC module is recommended for the electroporation of bacteria and fungi, as well as for other applications where high-voltage pulses are applied to samples of small volume and high resistance. To fit your research needs, the system is available in a choice of three configurations.

Performance Features

- Generates both exponential-decay and square-wave pulses
- Supports electroporation of all prokaryotic and eukaryotic cell types, including those that are resistant to chemical transfection
- Uses patented* PulseTrac™ circuitry to ensure reproducible results
- Provides an intuitive user interface for easy programming
- Delivers up to 3,000 V
- Includes the innovative ShockPod cuvette chamber, which permits one-handed operation

* US patents 4,750,100 and 4,910,140.

BIO-RAD

Gene Pulser Xcell Electroporation System

Programming Capabilities

- User-friendly digital interface for easy, intuitive programming and display of all experimental parameters
- Preoptimized programs for frequently used microbial and mammalian cell lines
- Manual programming for entry or editing of all parameters used for exponential-decay and square-wave pulses
- Optimization protocol enables the best conditions to be determined using incremental voltage steps
- Variety of delivery parameters — time constant, actual volts given, pulse interval, and pulse time — depending on the waveform chosen
- Storage of up to 144 programs
- Storage and recall of pulse parameters and results from previous 100 experiments

Bulletins and Electroprotocols

A number of electroporation protocols are available online, including technical bulletins describing electroporation methods for a variety of cell types and Electroprotocols Online, which provides methods from scientists worldwide who use Gene Pulser® systems in their research. These items can be found by searching the gene transfer literature at **discover.bio-rad.com**. In addition, any protocol using virtually any other electroporation instrument can be used or adapted for the Gene Pulser Xcell system. For more information on Bio-Rad's comprehensive set of tools for effective gene silencing and analysis from delivery to detection, please visit **www.bio-rad.com/RNAi/** or contact your local Bio-Rad sales representative.

Specifications

Gene Pulser Xcell Total System
For prokaryotic and eukaryotic cells; includes main unit, CE module, and PC module.

Outputs	Waveform: Exponential decay or square wave Voltage: 10–3,000 V
Capacitance	10–500 V: 25–3,275 µF in 25 µF increments 500–3,000 V: 10, 25, 50 µF
Resistance (parallel)	50–1,000 Ω in 50 Ω increments, plus infinity
Sample resistance	20 Ω minimum at 10–2,500 V 600 Ω minimum at 2,500–3,000 V
Square-wave timing	10–500 V: 0.05–100 ms pulse length, 1–10 pulses, 0.1–10 sec pulse interval 500–3,000 V: 0.05–5 ms pulse length, 1–2 pulses, 5–30 sec pulse interval

General

Input voltage	100–120 VAC or 220–240 VAC, 50/60 Hz
Power	Maximum 240 W (during short charging periods)
Operating environment	Temperature 0–35°C, humidity 0–95% (noncondensing)
Regulatory	Safety EN 61010, EMC EN61326 Class A
Dimensions (W x D x H)	Main unit: 31 x 30 x 14 cm CE module: 31 x 28 x 9 cm PC module: 31 x 28 x 5 cm
Weight	Main unit: 6.6 kg CE module: 3.1 kg PC module: 1.9 kg

Ordering Information

Catalog #	Description
Gene Pulser Xcell Systems	
165-2660	**Gene Pulser Xcell Total System**, for mammalian and microbial cells, 100/240 V, 50/60 Hz, exponential and square-wave delivery, includes main unit, CE module, PC module, ShockPod chamber, 15 sterile cuvettes (5 each of 0.1, 0.2, and 0.4 cm gap), instructions
165-2661	**Gene Pulser Xcell Eukaryotic System**, 100/240 V, 50/60 Hz, exponential (25–3,275 µF range) and square-wave delivery, includes main unit, CE module, ShockPod chamber, 5 sterile cuvettes (0.4 cm gap), cuvette rack, instructions
165-2662	**Gene Pulser Xcell Microbial System**, 100/240 V, 50/60 Hz, exponential-decay delivery, includes main unit, PC module, ShockPod chamber, 10 sterile cuvettes (5 each of 0.1 and 0.2 cm gap), cuvette rack, instructions
Components	
165-2666	**Gene Pulser Xcell Main Unit**, 100/240 V, 50/60 Hz
165-2667	**Gene Pulser Xcell CE Module**, 25–3,275 µF range controlled by main unit, includes integral leads
165-2668	**Gene Pulser Xcell PC Module**, 50–1,000 Ω range controlled by main unit, includes integral leads
165-2669	**Gene Pulser Xcell ShockPod Cuvette Chamber**, includes integral leads for connection to Gene Pulser Xcell, Gene Pulser II, or MicroPulser™ electroporators

BIO-RAD

Bio-Rad Laboratories, Inc.