**ECM® 830 Specifications Sheet**

**Description**

The ECM 830 is a Square Wave Electroporation System designed for all *in vitro* and *in vivo* electroporation applications. The generator utilizes the new BTX Power Platform Technology and an all-new digital user interface.

All BTX T 820 square wave electroporation protocols are easily reproducible with the ECM 830 electroporation system. The ECM 830 possesses key features including finer voltage discrimination and 0.5 V accuracy, Arc Quenching™, the monitoring of all key parameters, and the control of pulse intervals.

**Applications**

**Mammalian Cell Transfections/Gene Therapy**
The use of square wave pulses for the transfection of mammalian cells is well established. Fakhrai has used the BTX T 820 in the technique of Electro-Immuno Therapy. The ECM 830 will enable transfection of mammalian cells while maintaining higher cell viability. For many mammalian cells, higher transfection efficiencies will also be obtained.

**Mammalian Cell Protein/Drug Electroincorporation**
Square wave pulses have been used to electroincorporate a variety of molecules into mammalian cells; Tsong has used square wave to load drugs into erythrocytes while Marrero has used the BTX T 820 and BTX Model 366 Petri Dish Electrode to incorporate biologically active antibodies into RASM cells.

**In Vivo Applications**
Recent advances by Genetronics™ and BTX have allowed researchers to perform *in vivo* electroporation. *In vivo* Electro Gene Therapy has significant advantages over viral mediated gene transfer, biolistics, and the use of cationic lipids.

**Nuclear Transfer**
BTX square wave systems have been used by the experts in mammalian embryo manipulation techniques in nuclear transfer for applications ranging from pharmaceutical production to organ generation.

**Plant Applications**
Intact plant tissue and protoplasts may be transformed using electroporation, and references indicate that square wave is indeed superior to exponential decay for plant protoplast transformation.

**Bacterial and Yeast Electroporation**
The ECM 830 is capable of reproducing our T 820 bacterial protocols, including all four E coli electrotransformation protocols referencing transformation efficiencies equivalent or superior to exponential decay results. Square wave pulses are used to transform yeast species at high efficiencies relative to exponential decay electroporation.
**Technical Specifications**

**Standard Capabilities**

**Operational Status:** Internal self test upon start-up

**Interface:** Digital User Interface

**Input:** 110 V/220 V Universal

**Charge Time:** 5 sec maximum (without delay)

**Voltage Range:** 5 – 500 V LV Mode/ 1 V resolution

30 – 3000 V HV Mode/ 5 V resolution

**Pulse Length Range:**

- 10 µs – 999 µs LV Mode/ 1 µs resolution
- 1 msec – 999 msec LV Mode/ 1 msec resolution
- 1 sec – 10 sec LV Mode/ 0.1 sec resolution
- 10 µs – 600 µs HV Mode/ 1 µs resolution

Voltage dependent/internally controlled

**Multiple Pulsing:** 1 – 99

**Pulse Interval:**

- 100 msec - 10 sec

**Programmability:** Storage for 2 setups (V,t,n,interval)

**Arc Control:** Arc Quenching™

**Safety:** Generator short circuit proof

**Other Electrical Characteristics**

**Capacitance:** 4000 µF

**Amperage:** 500 A limit at 10 µs

**Physical Characteristics**

**Footprint:** 12.5" x 12.25" x 5.5" (W-D-H)

**Weight:** 15 lbs (6.8 kg)

**Display:** 20 x 4 character LCD

**Controls:** Single Rotary Encoder with push button toggle between all set parameters. Additional on/off Power and Start switches

**Interfaces:** RS 232 and RS 485

**Monitoring:** Monitoring and display of V, t, n, interval

**Remote Operation:** Footswitch available. Please contact BTX Technical Services at 1-800-289-2465 or tech@genetronics.com for assistance.

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**Ordering Information**

<table>
<thead>
<tr>
<th>Model No</th>
<th>Available Configurations</th>
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| 8300     | **ECM 830 Electroporation System**
|          | ECM 830 Generator with Power Supply
|          | Model 630 B Safety Stand
|          | Model 610, 620, 640 Disposable
|          | Electroporation Cuvettes Plus™ 10 ea
|          | Model 660 Cuvette Rack
|          | Manuals and Instruction Sheets

<table>
<thead>
<tr>
<th>Model No</th>
<th>Description</th>
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<tbody>
<tr>
<td>4001</td>
<td>Enhancer™ 400 Graphic Pulse Monitor with Computer and Printer Interfaces</td>
</tr>
<tr>
<td>610</td>
<td>Cuvettes Plus, 1 mm gap, 50/pkg</td>
</tr>
<tr>
<td>620</td>
<td>Cuvettes Plus, 2 mm gap, 50/pkg</td>
</tr>
<tr>
<td>640</td>
<td>Cuvettes Plus, 4 mm gap, 50/pkg</td>
</tr>
</tbody>
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**References**