

BTX[®]

HARVARD APPARATUS



ECM[®] 830 Generator

TECHNICAL SPECIFICATIONS

FEATURES

- A wide range of voltages from 5 to 3000 V
- Finer voltage discrimination
- Pulse durations from 10 μ sec to 10 sec
- Arc Quenching
- Digital display of actual voltage and pulse length delivered

APPLICATIONS

- Transfection of Mammalian Cells
- In Vitro, In Vivo, Ex Vivo & In Ovo Tissue Transfection
- Nuclear Transfer
- Plant Protoplast Transfection
- High Throughput 96 and 25 well Electroporation

The ECM[®] 830 is a square wave pulse generator designed for in vitro and in vivo electroporation applications. BTX[®] square wave technology provides the advantage of efficient cell transfer and high cell viability for numerous applications. The versatility of the ECM[®] 830 applications for gene, drug and protein delivery include; mammalian cells, in vivo and ex vivo tissues, zebra fish tissue and embryos, nuclear transfer, embryo manipulation, plant protoplast and basic bacteria and yeast transformations. The ECM[®] 830 possesses key features including a wide range of voltages from 5 to 3000 volts, fine voltage discrimination, pulse durations from 10 μ sec to 10 sec, user control of pulse intervals, Arc Quenching[™], digital display of output of voltage and pulse length for precise optimization of experiments. It is a true laboratory work-horse with a 2-year warranty. The ECM[®] 830 can be used in combination with a wide array of BTX[®] specialty electrodes and accessories to enhance your molecular and drug delivery experiments. Flexibility is important to a researcher, so BTX[®] has designed a plug and play system for our ECM[®] 830 system to transition between standard cuvettes and 96- or 25-well electroporation plates using our High Throughput plate handler.

96-WELL ELECTROPORATION

The High Throughput (HT) 96- & 25-well systems offer the researcher the advantage of multi-well technology. This permits a large number of samples to be quickly processed for routine applications or easy optimization of electrical and biological conditions. Simplify discovering the conditions needed to obtain the best possible efficiencies using the BTX[®] ECM[®] 830 pulse generator and HT plate handler.

MONITORING OPTION

The ENHANCER 3000 allows the researcher to monitor and track key electrical parameters used in electroporation applications. The electrical pulse data is captured as both a graphic display of the wave form and electrical output values following each experiment. This data can be stored on a memory stick or downloaded to a computer easily by using the USB port for potential analysis, documentation and validation purposes.

COMBINATION SYSTEMS

This combo system includes the power and flexibility of the ECM[®] 630 exponential decay wave generator to provide the highest transformation efficiencies for a wide range of bacteria and yeast strains. The gentle strength and versatility of the ECM[®] 830 square wave system provides high transfection efficiencies with equally high cell viabilities in mammalian cells and in vivo tissues. BTX[®] offers the ECM[®] 630/ECM[®] 830 combo system complete with two safety stands and sample cuvettes. These systems may be used together or separate as independent systems for operation in different labs with no extra components needed.

ECM[®] 830 Generator TECHNICAL SPECIFICATIONS

REFERENCES

1. Shi, W. et al., Generation of sp3111 transgenic RNAi mice via permanent integration of small hairpin RNAs in repopulating spermatogonial cells in vivo, *Acta Biochim Biophys Sin* (2010), Volume 42, Issue 2
2. Nasser, N. et al., Alternatively spliced Spalax heparanase inhibits extracellular matrix degradation, tumor growth, and metastasis, 2009, *PNAS*
3. Clape, C. et al., miR-143 Interferes with ERK5 Signaling, and Abrogates Prostate Cancer Progression in Mice, 2009, *PLOS ONE*
4. Nyugen, K. et al., T Cell Costimulation via the Integrin VLA-4 Inhibits the Actin-Dependent Centralization of Signaling Microclusters Containing the Adaptor SLP-76, 2008, *Immunity*
5. Lin, G. et. al, Regeneration of neural crest derivatives in the *Xenopus* tadpole tail, 2007, *BMC Developmental Biology*
6. Chalberg, T. et al., C31 Integrase Confers Genomic Integration and Long-Term Transgene Expression in Rat Retina, *Investigative Ophthalmology & Visual Science*, June 2005, Vol. 46, No. 6
7. Deora, A. et al., Efficient Electroporation of DNA and Protein into Confluent and Differentiated Epithelial Cells in Culture, 2007, *Traffic*

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)
Pulse Length Range	10 μ s – 999 μ s LV Mode/ 1 μ s resolution 1 msec – 999 msec LV Mode/ 1 msec resolution 1 sec – 10 sec LV Mode/ 0.1 sec resolution 10 μ s – 600 μ s HV Mode/ 1 μ s resolution
Voltage Range	5 – 500 V LV Mode/ 1 V resolution 505 – 3000 V HV Mode/ 5 V resolution
Multiple Pulsing	1 – 99
Pulse Interval	100 msec – 10 sec
Programmability	Storage for 3 protocol setups (V,t,n,interval)
Arc Control	Arc Quenching™
Safety	Generator short circuit proof
Capacitance	4000 μ F LV, 111 μ F HV
Input	500 A limit at 100 μ s
Remote Operation	Footswitch available.

ORDERING INFORMATION

Order #	Product
45-0002	ECM [®] 830 Electroporation System includes, ECM [®] 830 Generator, 630B Safety Stand, Cuvettes 1 mm, 2 mm, 4 mm pkg. of 30 (10 each) and Cuvette Rack 660
45-0052	ECM [®] 830 Generator Only
45-0421	HT 96/200 includes ECM 830 Generator, 2- x 96-Well Plates (4 mm), Plate Seals and HT-200 Plate Handler
45-0411	HT 25/200 includes ECM [®] 830 Generator, 6- x 25-Well Plates (4 mm), Plate Seals and HT-200 Plate Handler
45-0061	ECM [®] 830 / ECM [®] 630 Combination Package includes ECM [®] 830 Generator, ECM [®] 630 Generator, 2 x Safety Stands, Sample Package of Cuvettes and Cuvette Rack
45-0060	ECM [®] 830 / ECM [®] 399 Combination Package includes ECM [®] 830 Generator, ECM [®] 399 Generator, Safety Stand, PEP, Sample Package of Cuvettes and Cuvette Rack
45-0072	ECM [®] 830 / ENHANCER 3000 System: ENHANCER 3000 Probe, ENHANCER Interface Box, Oscilloscope, Communications Module, ECM [®] 830 Generator, Safety Stand, 30 Cuvettes (10 each 1 mm, 2 mm and 4 mm) and Cables

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The Electroporation Experts