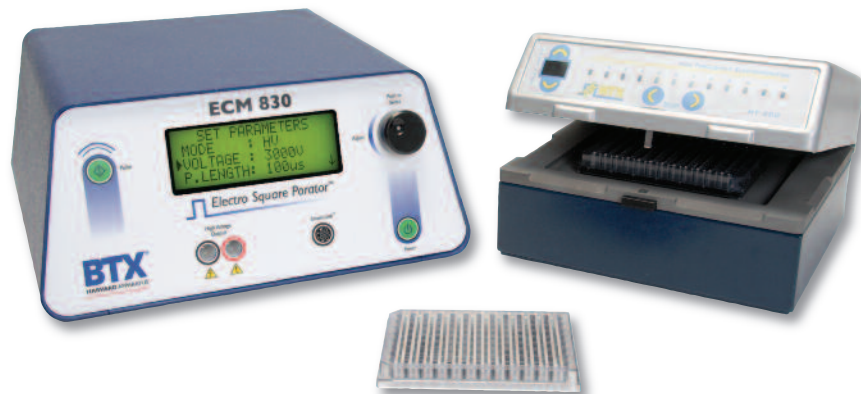


BTX[®]

HARVARD APPARATUS



ECM[®] 830 HT

HIGH THROUGHPUT

MULTI-WELL ELECTROPORATION SYSTEM

TECHNICAL SPECIFICATIONS

APPLICATIONS

- Mammalian Cells
- Primary Cells
- Stem Cells
- siRNA Libraries

PRODUCT DESCRIPTION

The BTX[®] High Throughput (HT) System, offers a multi-well electroporation technology for processing multiple samples in seconds. Using the HT Multi-Well plates instead of traditional cuvettes, the researcher can transition from a single cuvette to either a 96 well or 25 well electroporation plate by using one simple plate handler. This increases yields and the number of experiment runs in a single day. Experiments take seconds to run, allowing for quick and efficient optimization of the electrical and biological parameters. Once optimized, samples are rapidly processed increasing yields and saving valuable time and money. The HT plate handler is compatible with the ECM 830 and some older ECM 830 generators (for more details regarding compatibility of your ECM 830 systems please contact BTX tech support). The HT System is comprised of 3 components: The HT Multi-Well Plates, an HT Plate Handler and the BTX ECM 830 Generator.

HT PLATES

Each HT plate consists of either 96 or 25 individual wells with integrated electrodes. The 96-well plate assumes a traditional 96 well format i.e., 12 columns of 8 wells each. The 25-well format has 5 columns of 5 well each. Four different Multi-Well Plates are available: 96-well with 4 mm gap, 96-well 2 mm gap, 25-well 4 mm gap and 25-well 2 mm gap. Rapid protocol optimization of transformation and transfection parameters can be obtained by loading a plate with unique experimental samples. Optimization of electrical parameters can be achieved by pulsing each column within the plate with variable electrical settings. **The same electrical settings are applied to each well within a column.**

PLATE HANDLER

The key to the HT system is the combination of the Plate Handler and Multi-Well Plates. The Plate Handler holds the HT Multi-Well Plates; much like the safety stand holds the cuvettes. It delivers the pulse(s) to the wells using parameters set in the ECM[®] 830 generator. Specifically, the HT 200 plate handler offers the option of the delivery of multiple pulses column by column automatically.

GENERATOR

The final component of the HT System is a BTX ECM[®] 830 Square Wave Electroporation Generator.

ECM[®] 830 High Throughput TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS FOR THE HT-100/HT-200

Standard Capabilities:

| | |
|------------------------------|---|
| Power | 100 to 240 VAC, 50/60 Hz, 15 W, 0.50 A fuse (2) |
| Voltage Range | 0 to 3000V DC (Pulse) |
| Pulse Length Range | 10 µsec to 10 sec |
| Pulse Number Range | 1 to 99 |
| Operating Temperature | 5° to 40°C |
| Intended Use | Indoor Use |
| Relative Humidity | 20 to 80% |
| Pulse Length Range | 10 µsec to 10 sec |
| Maximum Altitude | 2,000 m (6,562 ft) |
| Pollution Degree | II |
| Insulation Degree | CAT I |

Physical Characteristics for Models HT-100 and HT-200:

| | |
|-------------------------------|--|
| Width x Depth x Height | 23 x 21.5 x 14 cm (9.1 x 8.5 x 5.5 in) |
| Weight | 4.8 Kg (10.6 lbs) |

TECHNICAL SPECIFICATIONS FOR THE ECM[®] 830 GENERATOR

Standard Capabilities:

| | |
|---------------------------------------|---|
| Display | Type: 20-character by 4-line liquid crystal Display. LED backlit. |
| Power Source Voltage | 100 to 240 Vac, 50 to 60 Hz, CAT II |
| Power | Pulse: 500 W Idle: 150 W |
| Fusing | T2.5 250 V |
| Environmental Characteristics: | |
| Intended Use | 10°C to + 40°C |
| Cooling | Convection through metal case |
| Relative Humidity | 90% relative humidity |
| Altitude | 2,000 m (operating) |
| Mechanical Characteristics: | |
| Footprint | 12.5 x 12.25 x 5.5 in (31.75 x 3.12 x 13.97 cm) (W x D x H) |
| Weight | 15 lbs (6.8 kg) |
| Controls | Single rotary encoder with integrated push button |

Electrical Characteristics:

| | |
|----------------|--|
| Voltage | 5 to 500 Volts (LV mode) @ 1 Volt resolution 30 to 3000 Volts (HV mode) @ 5 Volts resolution (Voltage Delivery @ 5% accuracy and Voltage Monitoring @ 5.0% accuracy) |
|----------------|--|

TECHNICAL SPECIFICATIONS CONTINUED:

| | |
|---------------------------|--|
| Pulse Length | 10 µs to 999 µs (LV mode) @ 1 µs resolution 1 ms to 999 ms (LV mode) @ 1 ms resolution 1 s to 10s (LV Mode) @ 0.1 s resolution 10 µs to 600 µs (HV mode) @ 1 µs resolution |
| Pulse Interval | 100 ms to 10 sec @ 1 ms resolution |
| Multiple Pulsing | 1 to 99 pulses |
| Current Limit | 500 A limit at 100 µs |
| Pollution Degree 2 | Not to be operated in conductive pollutants atmosphere |

Note:

LV Mode Less than a 20% V drop at the end of the pulse with the following constraints: PL² 25 ms, load 3 20 1/2. PL² 1 sec, load 3 1k 1/2. PL² 10 sec, load 3 10k 1/2

HV Mode Less than a 10% V drop at the end of the pulse with the following constraints: PL² 600 µs, load 3 40 1/2

ORDERING INFORMATION

| Order # | Product |
|---------|--|
| 45-0421 | Includes ECM 830 Generator, 4 mm gap, 2 x 96-Well Plates, Plate Seals and HT-200 Plate Handler |
| 45-0411 | Includes ECM 830 Generator, 4 mm gap, 6 x 25-Well Plates, Plate Seals and HT-200 Plate Handler |
| 45-0452 | 96-Well Disposable Electroporation Plates, 4 mm gap, 250 µl, 1 plate |
| 45-0450 | 96-Well Disposable Electroporation Plate, 2 mm gap, 125 µl, 1 plate |
| 45-0462 | 25-Well Disposable Electroporation Plate, 4 mm gap, 250 µl, 1 plate |
| 45-0466 | 25-Well Disposable Electroporation Plate, 2 mm gap, 125 µl, 1 plate |
| 45-0463 | 25-Well Disposable Electroporation Plate, 4 mm, 250 µl, pkg. of 6 |
| 45-0467 | 25-Well Disposable Electroporation Plates, 2 mm, 125 µl, pkg. of 6 |
| 45-0401 | HT-200 Plate Handler, Automatic Column Switching |

TROUBLESHOOTING

Please contact BTX Technical Support at 800-272-2775 in the event of any failure.

TECHNICAL & CUSTOMER SERVICE

For further references regarding specific applications and optimization, please contact BTX Technical Support, see below.

If outside the United States or Canada: call 508-893-8999 or contact your nearest BTX Distributor.



HARVARD APPARATUS

The Electroporation Experts

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