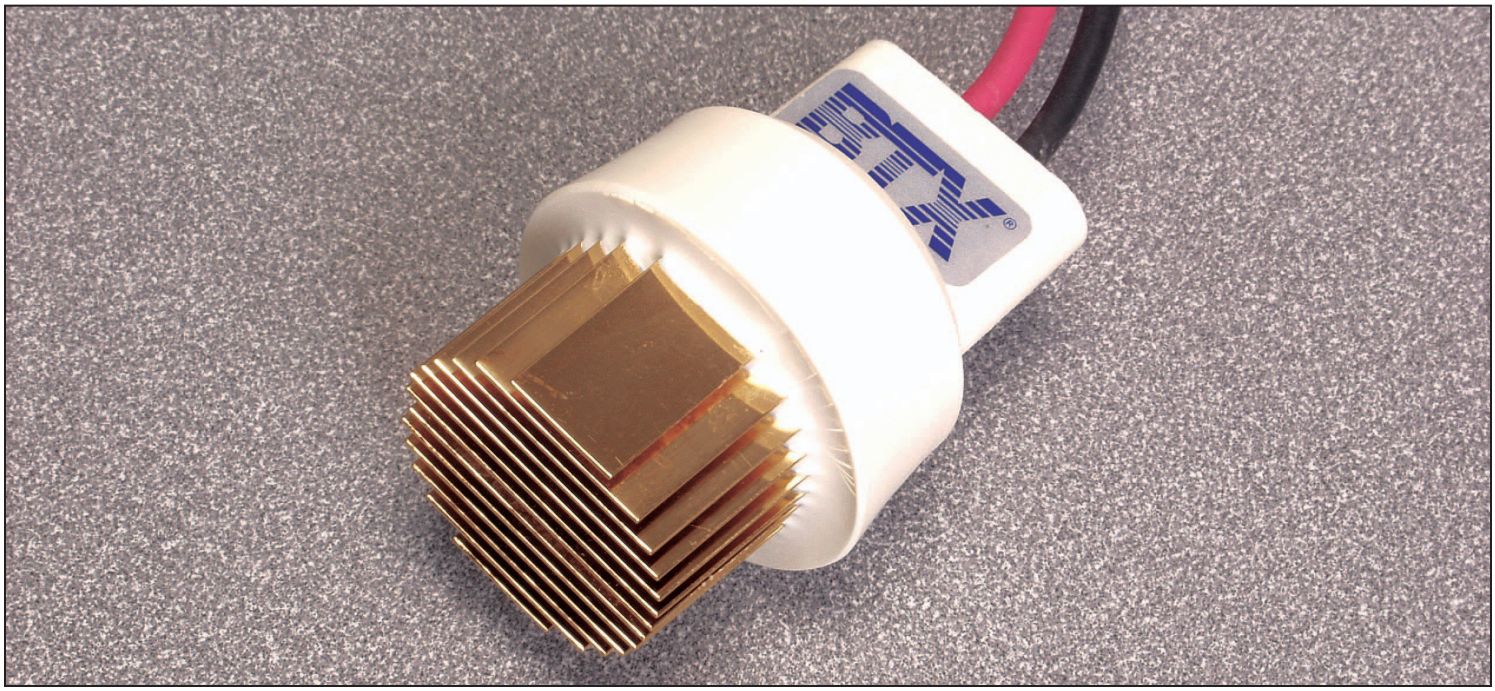
# Petri Pulser™ Electrode

## USER'S MANUAL

BTX®
HARVARD APPARATUS
The Electroporation Experts



## INTRODUCTION

The Petri Pulser™ Electrode PP35-2P is a reusable electroporation applicator designed to fit into each single well of a 6-well plate or an individual 35 mm diameter Petri dish. The PP35-2P consists of an electrode assembly embedded in a polyurethane holder with high voltage electrode cables. The thin electrodes are gold plated and designed to maximize the surface area of electroporation. The high voltage cables are connected with a BTX electroporator, and the electrode head inserted into the dish or well containing the sample. An electroporation pulse may then be delivered. The entire applicator may be cleaned with mild detergent, and the electrodes may be sterilized with ethanol and dried with acetone.

**IMPORTANT:** Read all Instructions, Warnings and Precautions prior to use.

FOR RESEARCH PURPOSES ONLY

## SAMPLE PREPARATION

BTX protocols outline detailed information on sample preparation. Please request protocols by contacting BTX technical service (Web: www.btxonline.com). In sample preparation, the medium used represents a certain electrical resistance to the power supply. The cuvette resistance is determined by the cuvette geometry and the specific conductivity of the medium. These variables could cause a voltage drop when using highly conductive media such as PBS.

| Order No. | Model | Description |
|---|---|---|
| **45-0130** | PP35-2P | Petri Pulser™ Electrode |

# Petri Pulser™ Electrode

## GENERAL INFORMATION

### Warranty

BTX/Harvard Apparatus warranties this BTX Petri Pulser™ Electrode for a period of 90 days from date of purchase. At its option, BTX/Harvard Apparatus will repair or replace the item if it is found to be defective as to workmanship or material. This warranty does not extend to damage resulting from misuse, neglect, or abuse, normal wear and tear, or accident. This warranty extends only to the original customer purchase.

**IN NO EVENT SHALL HARVARD APPARATUS BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.** Some states do not allow exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, OR OF ANY OTHER NATURE.** Some states do not allow this limitation on an implied warranty, so the above limitation may not apply to you. If a defect arises within the 90 day warranty period, promptly contact: **BTX/Harvard Apparatus, 84 October Hill Road, Holliston, Massachusetts 01746-1388** using our toll free number **1-800-272-2775 (Outside the U.S. call 1-508-893-8999).** Goods will not be accepted for return unless an RMA (Return Materials Authorization) number has been issued by our customer service department. The customer is responsible for shipping charges. Please allow a reasonable period of time for completion of repairs or replacement and return. If the unit is replaced, the replacement unit is covered only for the remainder of the original warranty period dating from the purchase of the original device. This warranty gives you specific rights, and you may also have other rights which vary from state to state.

**Note:** BTX electrodes are not recommended for use with power supplies or cables from other manufacturers. Such use is completlely at the customer's own risk as it may result in damage, create unsafe conditions and will immediately void the 90 day warranty.

**IMPORTANT:** Read all Instructions, Warnings and Precautions prior to use.

### Technical & Customer Service

BTX® is the ultimate resource for technical information on the use of high voltage bacterial transformation and general electroporation of molecules and drugs into cells. We constantly track and monitor scientific publications in this area. Our Technical Service group extracts and enters pertinent information, such as results and parameters from these papers into a Protocol database. This database is available via the BTX website. Please visit www.btxonline.com. For technical assistance, additional information or an inquiry/request for repair service, contact BTX/Harvard Apparatus Technical Support/Customer Service Group at:


**BTX®**
**A Division of Harvard Apparatus**
**84 October Hill Road**
**Holliston, MA 01746-1388 U.S.A.**
**Toll Free: 1-800-272-2775** (U.S. only)
**Phone: 1-508-893-8999**
**Fax: 1-508-429-5732**
**E-mail: techsupport.btx@harvardapparatus.com**
**Internet: www.btxonline.com** (click on customer service)


If outside the United States and Canada: call **1-508-893-8999** or contact your nearest BTX Distributor. A complete list of distributors is on our website.

## GENERAL SAFETY INFORMATION

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazard, use this product only as specified. Only qualified BTX personnel should perform service procedures.

**To Prevent Hazard or Injury:**

**ARCING CAN OCCUR AT HIGH VOLTAGES**
An unfavorable combination of parameters such as high voltage settings and a small sample volume with a highly conductive medium might lead to flashover between the electrodes (ARC) and/or explosive evaporation of the medium. Reduce voltage or pulse length to avoid repeating this condition.

**DO NOT OPERATE WITH SUSPECTED FAILURES**
If you suspect there is damage to the product, have it inspected by qualified BTX service personnel.

**DO NOT CONTACT ELECTRODES**
To avoid fire or shock hazard, observe all ratings and markings on the product or in this manual before using the device.

**AVOID EXPOSURE TO CONTACT**
Do not insert fingers or try to remove electrode or sample during pulsing sequence.

**WEAR PROPER EYE PROTECTION DURING ELECTROPORATION**

**DO NOT OPERATE IN AN EXPLOSIVE ENVIRONMENT**

**DO NOT OPERATE IN WET/DAMP CONDITIONS**

**Safety Terms and Symbols:**

Terms that appear in this manual:

**WARNING.** Warning statements identify conditions or practices that could result in injury or loss of life.

**CAUTION.** Caution statements identify conditions or practices that could result in damage to these products or other property.

Symbols that may appear on the products:

Danger High Voltage

Attention Refer to Manual

Protective (Earth) Terminal

Functional Ground Terminal

# Petri Pulser™ Electrode

## OPERATION: GETTING STARTED

**WARNING HIGH VOLTAGE**

**Make sure the BTX electroporator is switched off before continuing.**

1. Plug the HV cables from the PP35-2P into output jacks of a BTX electroporator or the VIP 3000 Monitoring System.
2. Prepare sample of interest (cells-adherent or suspension and molecule-DNA, protein, etc.) in 6-well plates.
3. Place the electrode head in one well of the 6-well place. Allow it to gently rest on the surface of the dish.
4. Deliver electroporation pulse(s) from a BTX electroporator, following the manual instructions.
5. Remove the electrode, clean as appropriate and complete delivery of pulses to all wells.

**Cleaning the electrode between samples**

1. Fill the wells of a 6-well plate with 3 ml of serum-free medium (you may want to prepare a few "cleaning plates" like these depending on the number of samples you have).
2. In between samples, dip the electrode sequentially into the two wells of serum-free media. Dab the electrode with Kimwipe gently to dry. Then dip the electrode into the well with the actual sample and deliver the pulse.
3. When you are changing sample type again, repeat the cleaning by dipping the electrodes into two new wells in the cleaning plate. This will ensure that no cross-contamination is introduced. Do this each time you change the sample type.

## APPENDIX A: SPECIFICATIONS

### Petri Pulser™ Electrode Electrical & Technical Specifications

**Standard Capabilities:**

| | |
|---|---|
| Voltage Range | 0 to 300 VDC (Do not use AC current) |
| Pulse Length Range | 1 µsec to 35 msec |
| Pulse Number Range | 1 to 99 (depending on voltage) |
| Operating Temperature | 5º to 40ºC |
| Intended Use | Indoor use only |
| Relative Humidity | 20 to 80% |
| Maximum Altitude | 2,000 m (6,562 ft) |
| Pollution Degree | II |
| Insulation Category | CAT I |

**Physical Characteristics:**

| | |
|---|---|
| Weight | 170.1 g (6 oz) |
| Number of Electrodes | 13 |
| Volume Range | 0.5 to 3.0 ml |
| Gap Size | 2 mm |
| Electrode Thickness | 0.5 mm |
| Electrode Material | Gold Plated |

**Compatibility:**

| | |
|---|---|
| Generators | ECM® 630, 630 and 2001 |
| Monitoring | The Enhancer 3000® Monitoring System recommended |

## APPENDIX B: REPLACEMENT PARTS

| Order No. | Model | Description |
|---|---|---|
| **45-0130** | PP35-2P | Petri Pulser™ Electrode PP35-2P |
| **45-0059** | VIP3000SC | The Enhancer 3000® Monitoring System |

**Meets requirements of Directive 89/336/EEC for Electromagnetic Compatibility (EC) and Low-Voltage Directive 72/23/EEC for Product Safety.**

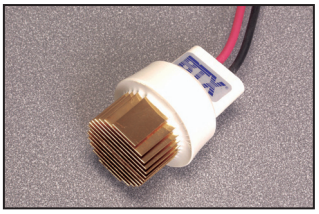
## APPENDIX C: TROUBLESHOOTING

Please contact BTX Technical Service at any of the numbers listed below in the event of any failure.

**BTX®**
**A Division of Harvard Apparatus**
**84 October Hill Road**
**Holliston, MA 01746-1388 U.S.A.**
**Toll Free:** 1-800-272-2775 (US only)
**Phone:** 1-508-893-8999
**Fax:** 1-508-429-5732
**E-mail:** techsupport.btx@harvardapparatus.com
**Internet:** www.btxonline.com (click on customer service)

## APPENDIX D: MAINTENANCE

Do not attempt maintenance while the Petri Pulser™ Electrode PP35-2P is plugged into an electroporator. Clean the polyurethane electrode base with a soft cloth or Kimwipe. If necessary, moisten the cloth or Kimwipe with a dilute detergent solution. Clean the electrode plates by washing with a mild detergent using a soft bristled brush. Alternatively, the electrode head can be placed into an ultrasonic water bath and cleaned with mild detergent under sonication. Do not immerse the electronic components of the electrode head.



**Petri Pulser™ Electrode**
**45-0130**

**CAUTION**
**FOR RESEARCH USE ONLY**
**NOT FOR CLINICAL**
**USE ON PATIENTS**

# WEEE/RoHS Compliance Statement

**EU Directives WEEE and RoHS**

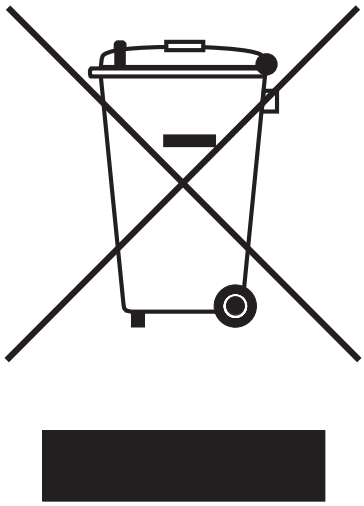
To Our Valued Customers:

We are committed to being a good corporate citizen. As part of that commitment, we strive to maintain an environmentally conscious manufacturing operation.

The European Union (EU) has enacted two Directives, the first on product recycling (Waste Electrical and Electronic Equipment, WEEE) and the second limiting the use of certain substances (Restriction on the use of Hazardous Substances, RoHS). Over time, these Directives will be implemented in the national laws of each EU Member State.

Once the final national regulations have been put into place, recycling will be offered for our products which are within the scope of the WEEE Directive. Products falling under the scope of the WEEE Directive available for sale after August 13, 2005 will be identified with a "wheelie bin" symbol.

Two Categories of products covered by the WEEE Directive are currently exempt from the RoHS Directive – Category 8, medical devices (with the exception of implanted or infected products) and Category 9, monitoring and control instruments. Most of our products fall into either Category 8 or 9 and are currently exempt from the RoHS Directive. We will continue to monitor the application of the RoHS Directive to its products and will comply with any changes as they apply.



- **Do Not Dispose Product with Municipal Waste**
- **Special Collection/Disposal Required**

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