

## Cyclic Charge-Discharge for Series G/PCI4

### Introduction

This customized experiment package and the PHE200 Physical Electrochemistry software license are required to perform cyclic charge-discharge experiments on a Series G/PCI4 potentiostat. The experiment carries out a constant current charge to a set voltage, a constant voltage for voltage finishing, and a constant current discharge to a set voltage. The experiment repeats for a user specified number of cycles. The data file for each cycle can be opened in Echem Analyst.

### Installation

Manual installation steps are required. In Windows XP use the root path "C:\Documents and Settings\All users\Application Data\Gamry Instruments\..." In Windows Vista/7 use the root path "C:\ProgramData\Gamry Instruments\..."

1. Copy the following files into your **Framework Scripts** folder (...Framework\Scripts\):  
"Auto-Battery2.exp"  
"Battery Utilities.exp"  
"Charge-Discharge with Voltage Finish.exp"
2. Copy the following file into your **Echem Analyst Databases** folder (...Echem Analyst\Databases\):  
"CustomAnalysisScripts.mdb"
3. Copy the following file into your **Echem Analyst Scripts** folder (...Echem Analyst\Scripts\):  
"Battery2.GScript"
4. Copy the following file into your **My Gamry Data** folder:  
"Sample Supercapacitor Charge-Discharge.dta"

To execute the script in Framework, select **Experiment / Named Script...** and browse for "Charge-Discharge with Voltage Finish.exp".

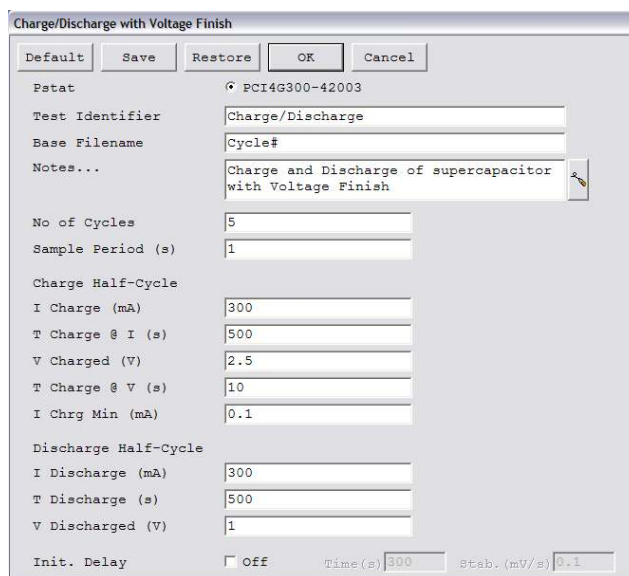


Figure 1: Setup screen for cyclic charge-discharge experiment.

### Setup Parameters Explained

I Charge: charging current  
T Charge: maximum time for charge step  
V Charge: voltage to charge to  
T Charge: time to hold voltage for finish  
I Chrg Min: end voltage finish at this current level  
I Discharge: discharging current  
T Discharge: maximum time for discharge step  
V Discharged: voltage to discharge to

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