

B&K Precision 8500 series DC Loads

# BATTERY APPLICATION

# MODES OF OPERATION

- CC (Constant Current)
- CV (Constant Voltage)
- CW (Constant Power)
- CR (Constant Resistance)



# Battery Testing: CC mode

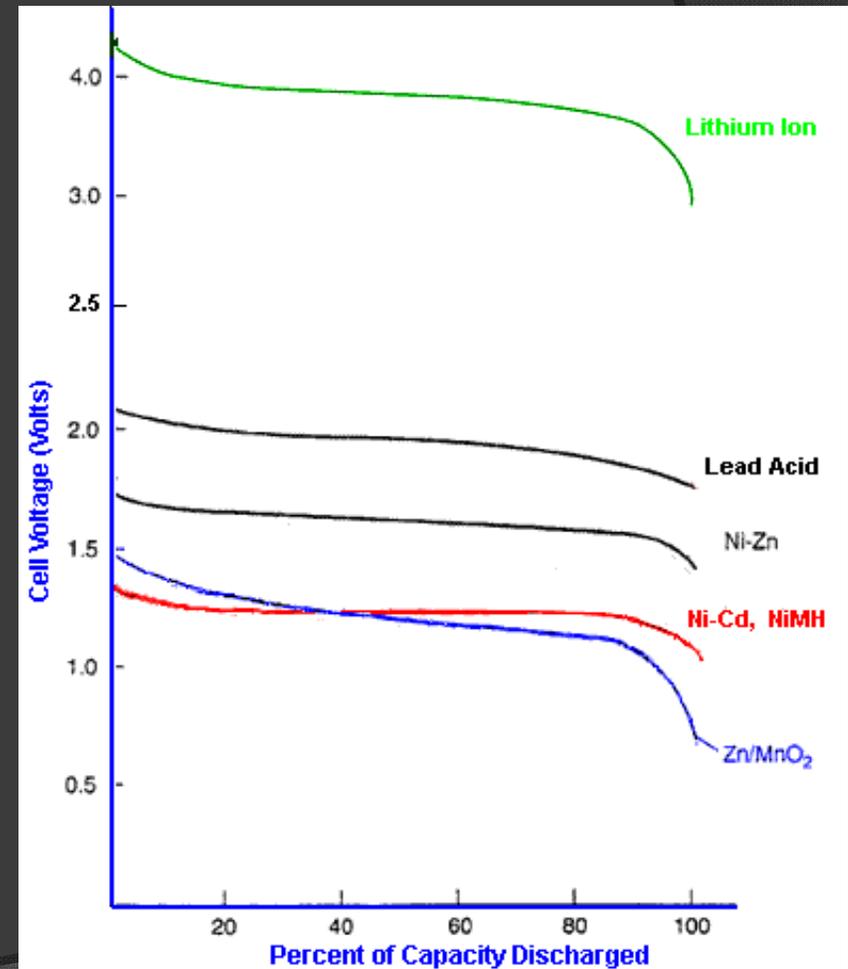
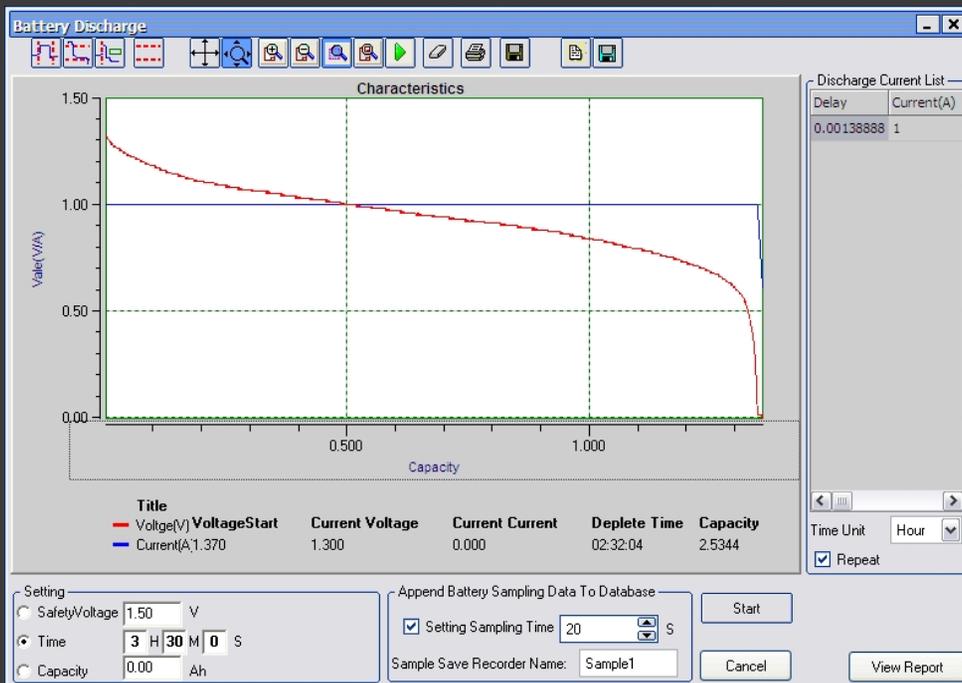
The screenshot displays the PV8500 Battery Discharge software interface. The main window features a menu bar with 'Config', 'Battery', 'MultiAutoTest', 'Save', 'Open', and 'Help'. Below the menu is a toolbar and a digital display showing 'Preset Value' as '+00000000 A'. The interface is divided into several sections:

- Graphs:** Two main graphs are visible. The top graph shows 'Current(A)' vs 'Time(S)' with a scale from 0 to 100. The bottom graph shows 'Voltage/Resistance/Power' vs 'Time(S)' with a scale from 0 to 100. A central 'Characteristics' graph plots 'Vole(V/A)' vs 'Capacity', showing a red curve that starts at approximately 1.3V and drops to 0.5V as capacity increases from 0 to 2.5 Ah.
- Discharge Current List:** A table with columns 'Delay' and 'Current(A)'. It contains one entry: '0.00138888 1'.
- Discharge Parameters Table:**

WidthA	LevelB	WidthB
1A	0.5000S	2.000A 0.5000S
0A	2.0000S	0.400A 2.0000S
0A	2.0000S	1.000A 3.0000S
- Settings Panel:**
  - Setting:** Radio buttons for 'SafetyVoltage' (1.50 V), 'Time' (3 H 30 M 0 S), and 'Capacity' (0.00 Ah).
  - Append Battery Sampling Data To Database:** Checked 'Setting Sampling Time' (20 s).
  - Sample Save Recorder Name:** Sample1
- Control Panel:** Includes 'PC Control', 'Panel Control', 'Local Enable', 'Local Disable', 'Input', 'Remo', and 'Local sense' buttons. Status indicators for 'OT', 'RX', 'SV', 'TX', and 'Unreg' are shown at the bottom.

At the bottom of the window, status information reads: 'Type: 8510 DC Electronic Load', 'System OK!', and 'Communication Successful'.

# Sample Battery Discharge



- Step 1:** Set current to draw constantly
- Step 2:** Set when to end (time, voltage, capacity)
- Step 3:** Run test

(A\*hr)

# What the modes do

- ◎ CC mode
  - Battery discharge characteristics
  - Battery life
- ◎ CV mode
  - Battery capability to produce max. current
- ◎ CW mode
  - Tests under constant power
  - Changing voltage and current characteristics
- ◎ CR mode
  - Battery internal resistance characteristics
  - Voltage & current linearly changing

# Applications

- Battery testing
  - (consumer, Li-ion, Ni-MH, Lead Acid, rechargeable, etc..)
- Battery chargers
  - Charging behaviors, trickle characteristics
- Solar cells
  - Test their power capabilities and stability
- Fuel cells
  - Hydrogen vehicles
  - Laptop and cell phone power
  - Extensive time discharge
- UPS
  - Backup power, power regenerators
- Super capacitors
  - Electrical Vehicles
  - Cycle efficiencies
- Power supplies
  - Testing power supplies
  - Computer power supplies
  - Power adapters / wall-warts
- Smaller/quick applications
  - Voltmeter
  - Circuit fuse