

**We Adapt  
So You Don't Have To!**

Potentiostat/Galvanostat

*Product Catalog*



**WonA**Tech  
Since 1991



Since its establishment in 1991, WonATech has concentrated its efforts in the development of products related to electrochemical application. Steadily supplying products in experimental research fields and industrial sites, we have been playing a leading role in this field of business.

With the constant effort to achieve excellent quality and competitive edge of our products, we have been designing high value added system equipments as follows;

- 1) Potentiostat/Galvanostat**
  - Single and Multichannel Potentiostat/Galvanostat
  - Portable Potentiostat
  - W/Relevant Software
- 2) Battery Cycler System**
  - For Primary & Secondary Batteries
  - For Super capacitors
  - W/Relevant Software
- 3) Fuel Cell Test Station**
  - Variable Fuel Cell Supports; PEM, DMFC etc.
  - Fuel Cell Electronic Loads
  - W/Relevant Software
- 4) Cell & Accessories**

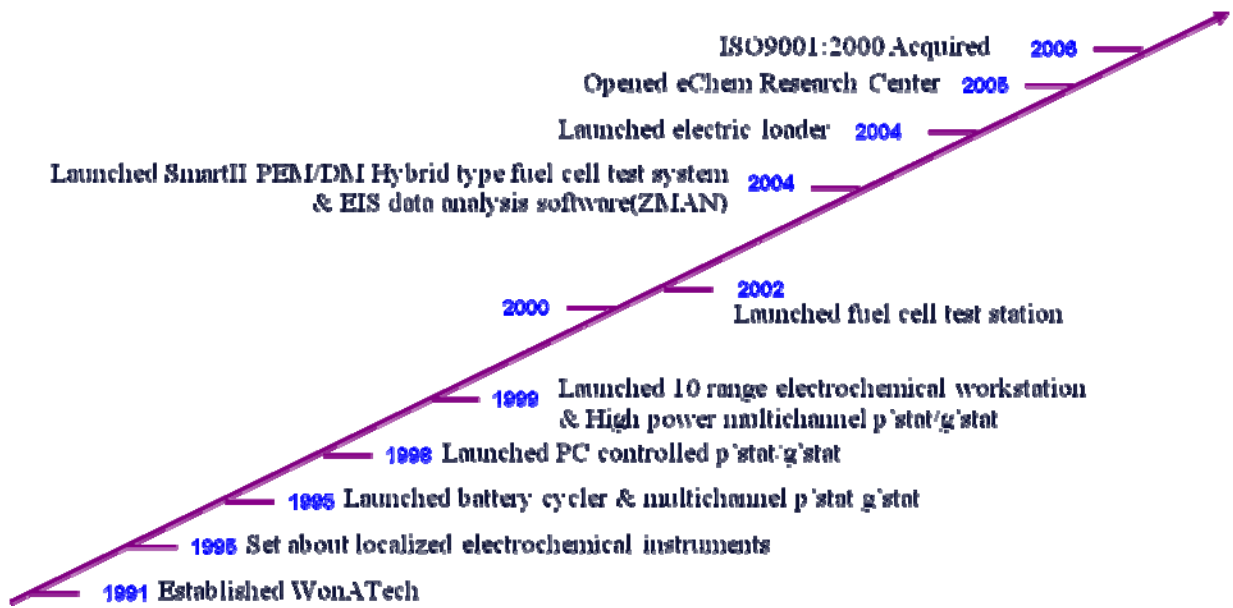


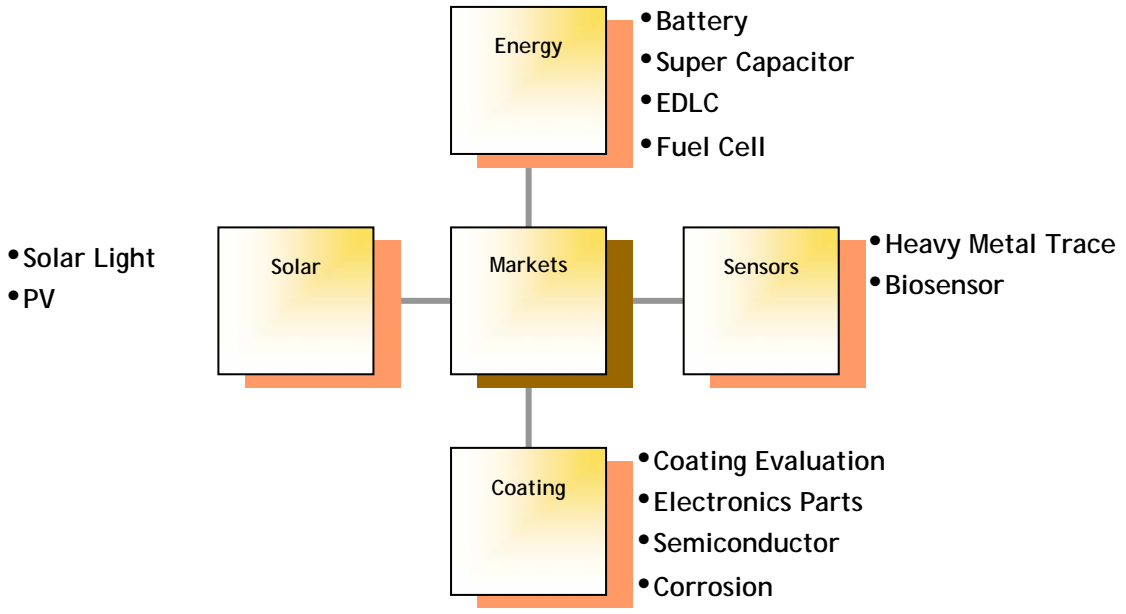
To fulfill customer's specific needs, we also provide flexible solution to meet their requirement with customized instruments. With base of past 16 year sales and marketing know-how, we are providing our products not only to local customers but also to foreign customers by strategic alliance with the specialized companies in each country. We hope that we satisfy your continued interest and support in the future.

**Facilities**

Complete 11,000 square foot facilities including sales, administrative, marketing, R & D center and manufacturing with clean room facility, test and demonstration lab, office and seminar room etc.

**History**





**Products Ranges**

- ◆ **Battery Charge/Discharge Cycler** WBCS3000 series
- ◆ **Multichannel Potentiostat/Galvanostat** WMPG1000 series| Fieldstat
- ◆ **Potentiostat/Galvanostat** W102| WPG100 series | WPG100P
- ◆ **Fuel Cell Test System** Smart/WFCTS series
- ◆ **Electronic Loads For Fuel Cell Test** WLOAD series
- ◆ **Multichannel Impedance Monitor** Z# series
- ◆ **EIS(Multichannel/Single channel) System** WEIS series
- ◆ **Temperature Controller** WTEMP
- ◆ **Faradaic Caged temperature oven** FaradHT
- ◆ **Software** ZMAN / IVMAN / LOADRUNNER etc.
- ◆ **Accessories** Cell, Jig, Fuel cell fixture etc

### Application

- Battery/Micro Fuel cell
- Membrane
- Corrosion
- Sensor
- Photo electrochemistry
- Electrosynthesis/Electrolysis
- User defined EI-Chem. application

### Feature

- Economical Price
- 16bit ADC, DAC
- For long term experiment
- Accurate Control & Measurement
- Easy to control Software
- Free Software upgrade
- USB2.0 communication
- Importing/Exporting data file



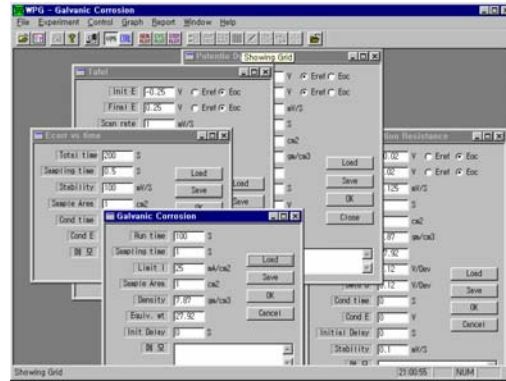
WPG100e Potentiostat/Galvanostat

### Hardware

- With 16bit ADC, DAC, this system provides 0.0015% f.s high resolution in control and data acquisition.
- 6 current ranges (Automatic & manual setting)
- User specification is available from low current to high current
- Output terminal: V-out & I-out analog signal for XY recorder
- High accuracy: < 0.01% f.s (standard type)
- Automatic protection: This system automatically stops the experiment if it meets data over hardware specification.
- This system can be used for battery cyler

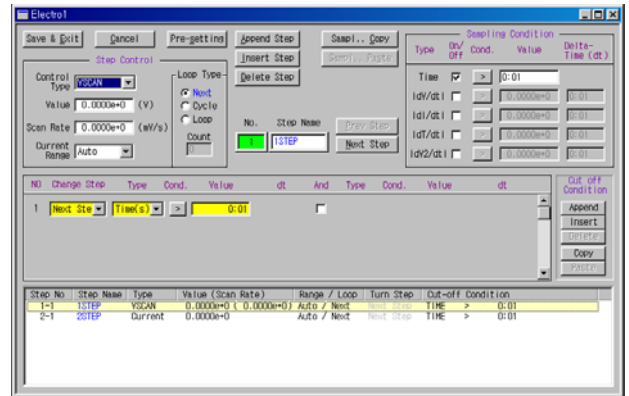
### Software

- This system provide pre-defined techniques menu and universal test procedure menu for user to make their own experiment procedure with cycle, loop and and or logic
- Predefined Technique Menu



- Electroanalytical techniques
  - ✓ Cyclic voltammetry
  - ✓ Linear Sweep Voltammetry
  - ✓ Chrono-amperometry
  - ✓ Chrono-coulometry
  - ✓ Chrono-potentiometry
  - ✓ Square wave Voltammetry
- Corrosion Measurement
  - ✓ Tafel Plot
  - ✓ Potentiodynamic
  - ✓ Potentiostatic
  - ✓ Galvanodynamic
  - ✓ Galvanostatic
  - ✓ Cyclic polarization
  - ✓ Ecorr vs. Time
  - ✓ Linear polarization Resistance
  - ✓ Rp/EC trend
  - ✓ Galvanic corrosion(Aux option needed)

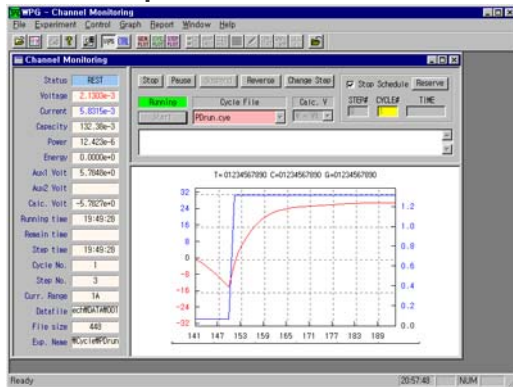
### Universal Test Mode



- ✓ Electrochemical Voltage Spectroscopy (EVS)
- ✓ Galvanic Intermittent time technique (GITT)
- ✓ Battery Cycling
- ✓ User definable Techniques
- ✓ Potentiostat Mode/ Cycler Mode
- ✓ Universal test mode

- Unlimited step experiment available
- Control type: voltage, current, power, load, rest, C-rate, current scan, voltage scan, conditioning potential, voltage step, current step, rest conditioning, Last I, Last V, OCV, LastVscan, VocScan, ZRA.
- Cut-Off (Vertex); time, voltage, current,  $dV/dt$ ,  $dI/dt$ , percentage capacity (FCC, FCD, LCC, LCD), cycle time, capacity,  $-dV$ , power, temperature, Aux voltage, Calc voltage,  $dT/dt$
- Data acquisition setting: time,  $dV/dt$ ,  $dI/dt$ ,  $dT/dt$ ,  $dV^2/dt$
- And/Or logic available in cut-off condition

### Virtual control panel



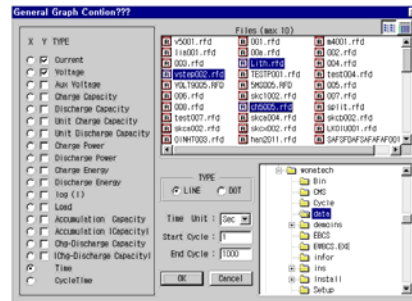
- In virtual control panel, it displays real time graphics (V vs. I, V & I vs. time, V vs. logI etc) to fit its own techniques. It also displays current data and other information of current experiment
- Experiment parameters can be saved or loaded on the virtual control panel.
- On experiment running, users can data analysis or other tasking simultaneously.
- Nominate data saving folder by user selection
- Cell connection check function.

### Safety limit & Fail check function.

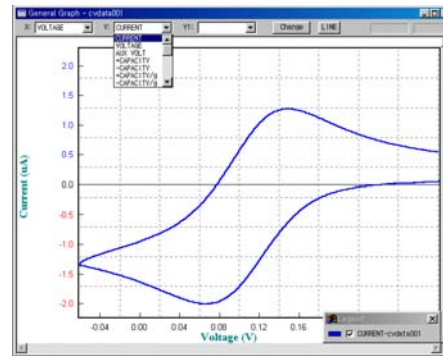
- To protect hardware, this system stop the experiment run automatically when detect the any value over hardware specification or user defined safety value
- It also stop the experiment running when the control value is different from measured value by wrong connection or abnormal reference electrode etc
- If the user try to close the program by mistake operation, the program refuse this operation
- This system monitor the cell voltage and if the voltage value is too small, then warning message will be display to protect wrong cell connection

### Graphics

- Universal Graphic function: User can set X, Y, Y1 axis variable
- User can use this function for running experiment data at real time.



- With re-load button click, the data format can be changed with out data loading



- File overlay: Max. 10 files
- Automatic scaling and manual scale/polarity setting available
- Crosshair data pointing displays the data value by mouse click
- Caption available on the graph
- Copy to clip board for graphic data.
- Slope calculation function
- Grid and pixel/line selection
- Data conversion only for graph data

### Option

- Temperature measurement
- Auxiliary voltage measurement
- Iout, Eout, External signal In



WPG100e back side

## Specification

Hardware	WPG100e
Control voltage range	±10V(standard) or <b>customer specified range</b>
Compliance Voltage	±12V(standard) or customer specified voltage
Control Current range	6 ranges(1A,100mA,10mA, 1mA,100uA,10uA) <b>or customer specified range</b>
LED	Run: 1ea, POT/GAL: 2ea, Irange: 6ea
Input impedance	10 <sup>10</sup> Ohm
Cell Connection	4 probe type, alligator clip cables
Voltage Accuracy	<0.01% f.s
Current Accuracy	<0.01% f.s
Voltage Control/Measurement	
Full Scale Ranges	±10V(Standard)
Resolution (16 Bits)	0.3mV(Standard)
Current Control/Measurement	
Full Scale Ranges	± 1A, ± 100mA, ± 10mA, ± 1mA, , ± 100uA, ± 10uA (Standard)
Resolution	16 bit(0.0015% f.s)
Power	30Watt
Sampling time	> 50ms
Potentiostat type	Floating type
Housing	metal
External In	Option
Eout, Iout	Option
Temperature measurement	Option
Auxiliary voltage measurement	Option
PC communication	USB2.0

Due to continuous product development, WonATech Co.,Ltd reserves the right to change specification without notice.

## Application

- High Power application
- Electrosynthesis/Electrolysis
- Battery Test
- Fuel Cell test (DMFC etc)
- Pilot line application

System hardware is based on WPG series potentiostat/galvanostat. Customize specification is available within 4KWatt. Current range is 3 range.

## For stable and accurate target

- 4 kelvin probe type true potentiostat/galvanostat circuit
- High resolution 16 bit ADC/DAC: HPstat provides 0.0015% f.s resolution in control and acquisition both.
- Channel isolation: To prevent any noise from the other channel, each channel is designed for isolation.
- Multiple current ranges: 3 ranges. Auto/manual selection

## Software

- ☞ Techniques
  - ✓ Cyclic voltammetry (Technique Menu)
  - ✓ Linear Sweep Voltammetry (Technique Menu)
  - ✓ Square Wave Voltammetry (Technique Menu: Option)
  - ✓ Chrono-amperometry (Technique Menu)
  - ✓ Chrono-coulometry (Technique Menu)
  - ✓ Chrono-potentiometry (Technique Menu)
  - ✓ Tafel Plot (Technique Menu)
  - ✓ Potentiodynamic (Technique Menu)
  - ✓ Cyclic Polarization (Technique Menu)
  - ✓ Ecorr vs. time (Technique Menu)
  - ✓ Galvanodynamic
  - ✓ OCV measurement
  - ✓ Zero resistance Ammeter
  - ✓ Linear polarization resistance (Technique Menu)
  - ✓ Rp-Ec trend
  - ✓ Charge/discharge Battery test
  - ✓ Electrochemical Voltage Spectroscopy (EVS)
  - ✓ Galvanic Intermittent time technique (GITT)
  - ✓ Electrochemical Permeation
  - ✓ User defined techniques

## Virtual control panel

- BCO (Button click operation); User can do any

task with just clicking the button: **NO MENU SELECTION**

- Easy assignment of cycle test condition file to channel with combo box selection at anytime.
- Synchronized change function of cycle test condition file for selected multiple channels.
- Real time dual channel (V & I) strip chart display for selected channel or for all running channels with time scrolling mode or whole window mode
- Status bar displays channel status. Booking running channel stop function by time, cycle number, step etc.

## Option

- Temperature monitoring.
- Auxiliary Voltage Monitoring



5V/50Amp version



5V/400Amp version



WPG100P series

**Application**

- For Field Application
- Sensor application
- Electroanalytical application
- Micro battery application
- Field Corrosion measurement
- Solar cell test
- Notebook PC is not included

**Feature**

- Portable (Field application)
- Battery operation (Option)
- Economical Price
- Electrochemistry/Battery application
- 16bit ADC, DAC
- Accurate Control & Measurement
- Easy to control Software
- Free Software upgrade
- Variable current, voltage range
- Importing/Exporting data file



User specification is available from low current to high current

Output terminal: V-out & I-out analog signal for XY recorder

High accuracy: < 0.01% f.s (standard type)

Automatic protection: This system automatically stop the experiment if it meets data over hardware specification.

This system can be used for battery cyclers

This system use I/O interface instead of serial communication, This system can be used long term experiment and stable control and data acquisition



**Option**

- External Battery Pack.
- Temperature monitoring
- Auxiliary voltage monitoring
- Notebook PC
- Low current version for sensor application is available

System hardware is based on WPG series potentiostat/galvanostat using WPG software. This system was designed for field usage. Customize specification is available within 2Watt

**Hardware**

With 16bit ADC, DAC, this system provides 0.0015% f.s high resolution in control and data acquisition. 6 current ranges (Automatic & manual setting)



WonATech Co., Ltd.  
736-1, MoonHyung-Ri, OPo-Eup, GwangJu-Si,  
GyeongGi-Do, 464-894, Korea  
**Tel:** +82-32-766-5974 **Fax:** +82-31-765-2645  
**e-mail:** sales@wonatech.com **Web site:** www.xenosystem.com

