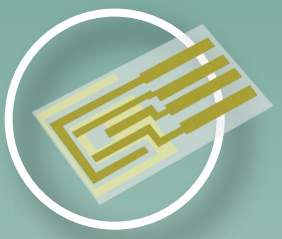
10th Edition

# Product Catalog

**WMPG Series**
**Multichannel Potentiostat/Galvanostat**

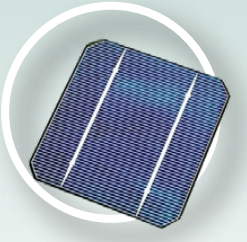












*For*
*Corrosion*
*Material Testing*
*Sensor/Bioelectrochemistry*
*Battery/Fuel Cell*
*Supercapacitor/Solar Cell*

WonATech

## Multichannel Potentiostat/Galvanostat

- Corrosion test
- Sensor application
- Electro-analytical application
- Battery/Fuel cell test
- Electroplating, Electro-synthesis
- 5 current ranges(WMPG1000L/S/M/D/H8) , 4 current ranges(WMPG1000H12) & 3 or 1 range (WMPG1000HP)

The system hardware was designed for stable and accurate instrument for easy expansion and maintenance. To serve this purpose, the WMPG series choose plug-in type module with independent power suppliers per 8ch substation(standard type). Each substation can be used as an independent system with optional "StartUp Kit" or can be integrated into a system by adding substations. Consequently it gives flexibility to user's experiments.

### For Stable and Accurate Target

- 4 Kelvin probe type true Potentiostat/Galvanostat circuit
- High resolution 16 bit ADC/DAC: WMPG provides 0.0015% f.s resolution in both control and acquisition.
- Multiple current ranges(auto/manual selection)
  - for high resolution and accuracy in both current control and measurement(auto/manual selection).
  - designed for long term test
- Shield cell cable to prevent EMI noise
- Stable TCP/IP communication
- Automatic firmware upgrade

### For Safety & Maintenance

- Unique "Fail check" function
  : To protect the system and cell itself, the experiment will stop automatically when the measured value is different from control value due to battery failure value due to battery failure or wrong cell connection, etc.
  e.g. Control value: 1A, Measured value: 500mA
  Then the channel will stop automatically.
- System safety parameter
  : If the measured value is over system specification or user defined safety limit condition, the experiment stops automatically.
  : User defined safety condition setting
  User can input safety level depending on chemical properties of reactants in test cell.
- Automatic cell connection check
  : Before experiment, if the cell voltage value is over the range of setting value, program gives the warning message for the operator to check the cell connection.
- If operator presses the stop button by mistake, a confirmation message box will appear.
- If main program is down by unstable operating system, the independent server program keeps the experiment (control & data acquisition) without dead time.
- Easy calibration with verification function

### For Easy Expansion/Maintenance Target

- Channel plug-in module
  : Plug-in module is easily upgradeable or modifies voltage/current range. Also, if one channel is out of order, replacing the problematic channels is the easiest way to clean the problem. Optional modules are plug-in type too. It means the system can be upgraded very easily. On the other hand, if a 8 channel system consists of only one board, user cannot use all 8 channels when one of channels is out of order.
- Substation add-on type
  : The channel of WMPG series can be expanded up to 64 channels per system. Users can simply add substations when they want to expand channels. One of modular system's advantages is maintenance.
  In case one substation is out of order in power supply unit, the other substations still work without dead time.

### Options

- Auxiliary Voltage & Temperature Measurement
  - User can assign any temperature input or auxiliary voltage input to single or multiple channel(s) data set by his/her demand.
  - Customized auxiliary voltage range and temperature range is available upon request.

- Cell Kit

Corrosion Cell Kit

Flat Cell Kit

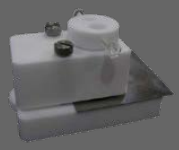


Plate Test Cell

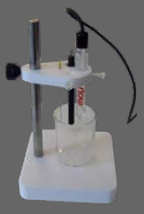
Plate Test Cell

H-Type Cell

- Flag Type Pt Counter Electrode
  - active area(Pt plate) : 5, 9, 16, 25cm²

- Faraday Cage

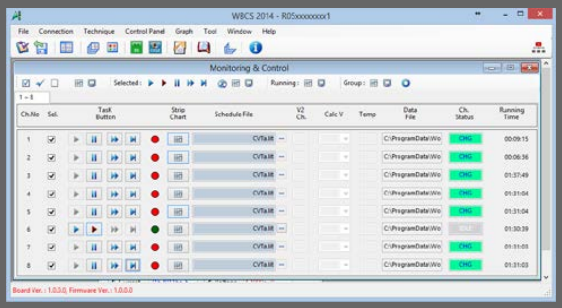
- Universal Electrode Holder
  - electrode and glass vial are not included.



- Battery Jigs
  - Universal jig
  - Coin cell jig
  - Lithium polymer battery jig

## Software (Smart Interface)

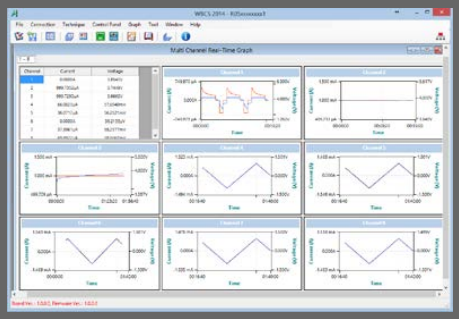
- 32bit/64bit OS environment
- TCP/IP communication
- Max. 200 steps
- Max. 10 cutoff(vertex) condition
- Max. 300,000 data point memory on control board
- Single/Multichannel control panel
- Various real time plots & universal axis graphs
- Data backup function
- WYSIWYG graphics
- User friendly software



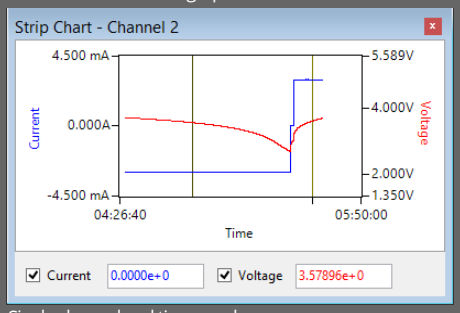
Multichannel control panel

### *Virtual Control Panel*

- BCO (Button click operation) : User can do any task just by clicking the button: NO MENU SELECTION
- Easy assignment of cycle test condition file to channel with combo box selection at anytime.
- Synchronized changes of cycle test condition for selected multiple channels.
- Real time dual channel (V & I) strip chart displays for selected channel or for all running channels with time scrolling mode or whole window mode.

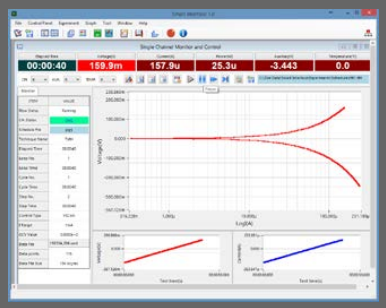


Multichannel real time graph



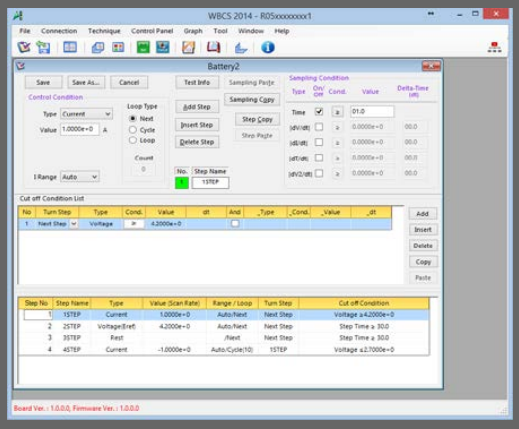

Single channel real time graph

- Status bar displays channel status.
- Various task functions: run, stop, suspend, moving step, etc.
- Spying the contents of test program which assigned to channel
- Assign temperature, AuxV and CalcV channel on virtual control panel
- Single channel & multichannel control/monitor panel

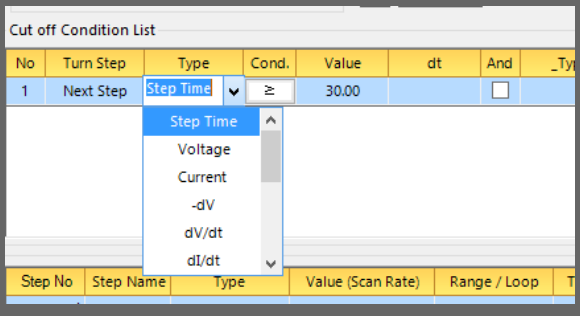


Single channel control/monitor panel

### *Schedule Editor*

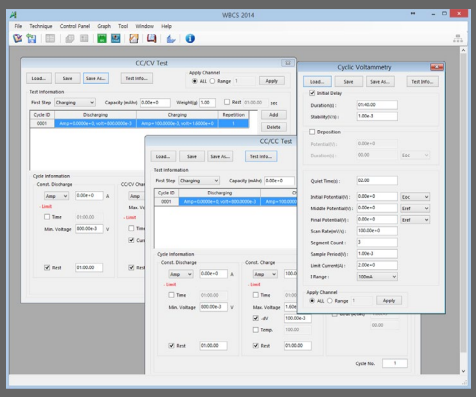


- One stop test condition creation/modification
- Parameter mixed input system
- Max 200 test steps
- Control parameters are
  - Constant voltage
  - Constant current
  - Constant power
  - Constant load
  - C-rate
  - Voltage scanning
  - Conditioning potential
  - Conditioning current
  - Rest
  - LastVscan
  - CstepV (Staircase Voltage Sweep)
  - CstepI (Staircase Current Sweep)
  - CC/CV, CL/CV, CP/CV, C-rate/CV
  - Id, Is control
- Step flow are defined by next step, loop and cycle
- Cut-off conditions can be set by;
  step time, voltage, current, dV/dt, dI/dt, cycle time, loop time, capacity, -dV, Whr, temperature, Aux voltage, dT/dt




- Data sampling condition by each step: time, dV/dt, dI/dt, dT/dt, dV2/dt
- And/Or logic for cut-off condition setting

## *Menu Selection (Pre-defined techniques)*



### Electroanalytical Techniques

- Cyclic voltammetry
- Linear sweep voltammetry
- Chrono-amperometry
- Chrono-coulometry
- Chrono-potentiometry

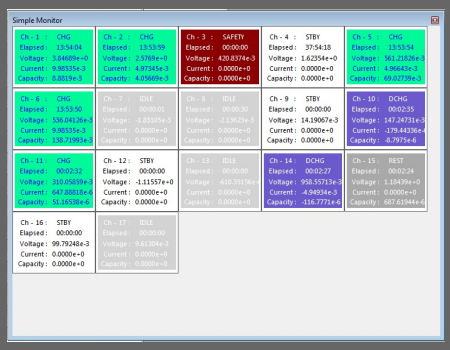
### Corrosion Measurement

- Tafel plot
- Potentiodynamic
- Potentiostatic
- Galvanostatic
- Cyclic polarization
- Ecorr vs. time
- Linear polarization resistance

### Energy Test

- CC/CV (Lithium battery) test menu
- CC/CC (NiCd(NiMH) battery) test menu
- Steady state CV
- Pstat IV curve
- Gstat IV curve
- EVS (Electrochemical voltage spectroscopy) test
- GITT (Galvanostatic intermittent titration technique) test
- PITT (Potentiostatic intermittent titration technique) test

## *Simple Monitor*

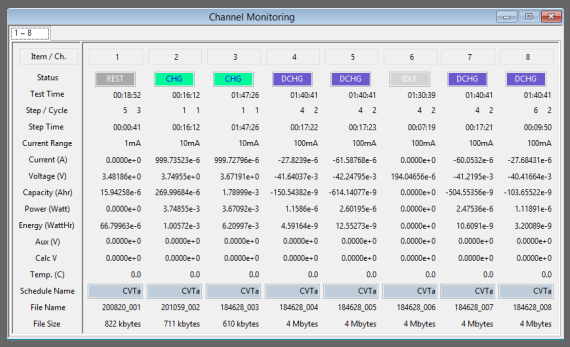


- Real time display: time, voltage, current, channel status
- Channel status color display: charging, discharging, standby, idle, calibration

## *Grouping*

- Classification/Grouping channels by user's purpose
- Labeling each group by operator name, chemistries etc.
- Group monitor is available by this setting
- Group control

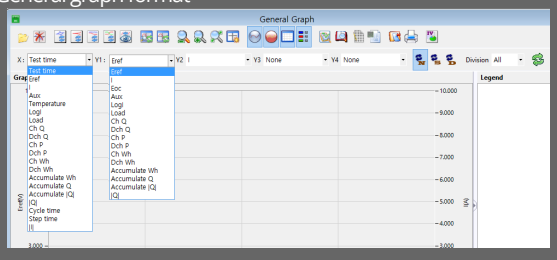

## *Detailed Monitor*



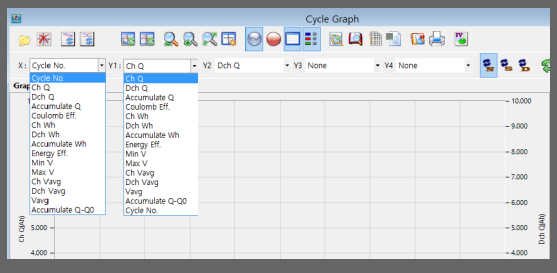

- Displayed test data: status, running time, step number, cycle number, step time, current range, current, voltage, capacity, power, energy, Aux V, Calc V, temp, cycle file name, data file name, and file size.
- Detailed monitor type selection: All channels, running channels only, and grouped channels.
- Activated character only for running channels.

## *Detailed Monitor*

- Multiple plot format
  - General graph
  - Cycle graph
- General graph format

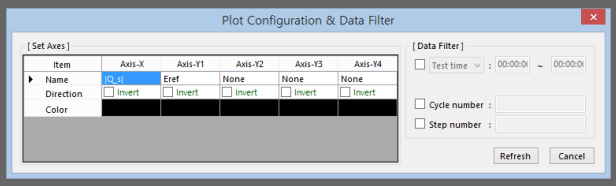



- Cycle graph format

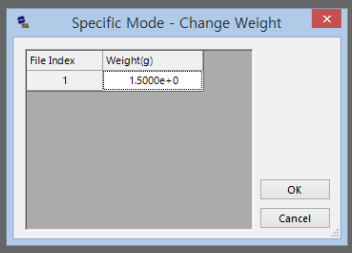


## General Function of Graph

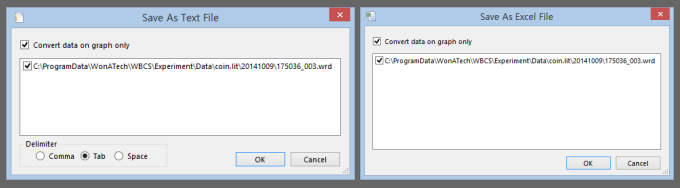
- Multi-parameters
- Plot overlay: max. 20 plots
- Universal graphics: any combination of X,Y1,Y2,Y3,Y4 axis parameters
- Automatic updating plot with reloading button for running channel data
- Automatic/Manual scale and polarity selection for each axis



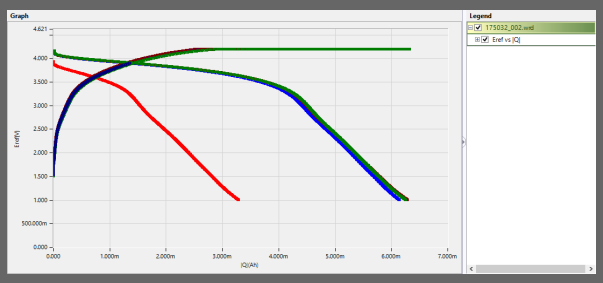

- Cross-hair pointer by mouse click/arrow key displays coordinate values on graph
- Mouse zooming
- Density, specific value display




- Copy to clipboard function to use in other application software
- Grid on/off and dot/line selection
- ASCII file conversion or Excel file conversion of graph data only



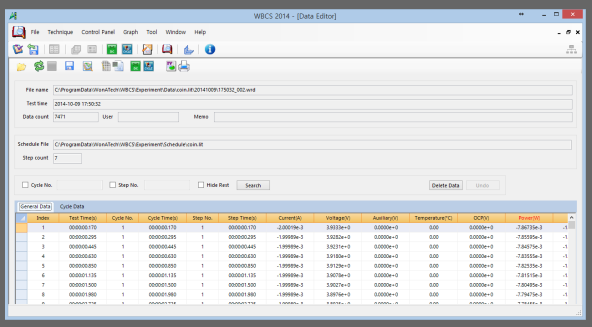

- Parameter change without reloading the data file
- Data set On/Off: Data can be visible or invisible by selecting/deselecting the data set.
- Rest step data hidden function
- Advanced graph setting




Voltage vs. |charging-discharging capacity| graph

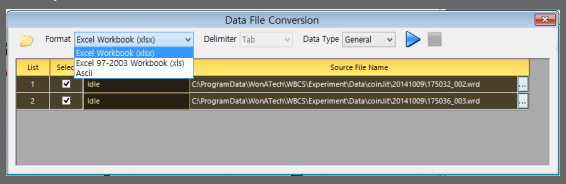
## Tools

- Data Editor
  - General data report
  - Cycle data report

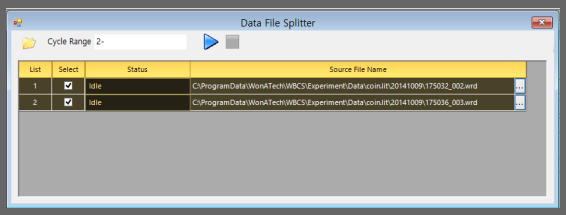


* Data editing
* Data filtering

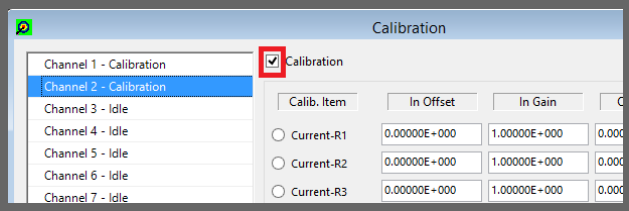
- Data Conversion
  - Multiple data conversion(ASCII, Excel)



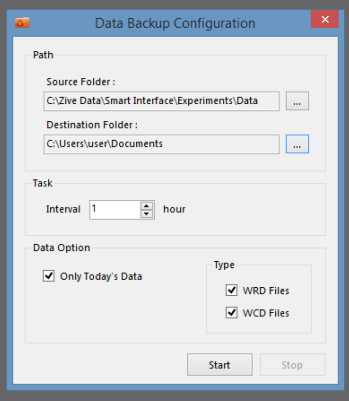

- Data file splitter by cycle number




- Calibration
  - User can calibrate channel(s) while other channels are running.




- Data backup




- Split data file

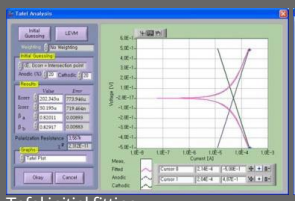
# Independent Data Analysis Software

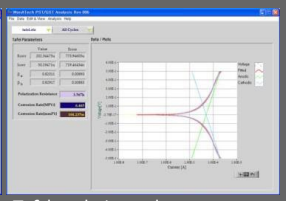
The WMPG data format can be used for independent data analysis software IVMAN™ at free of charge.
IVMAN™ software package consists of

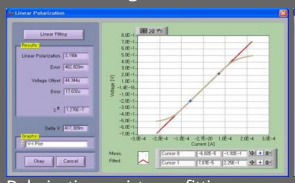
- IVMAN software
- IVMAN differential analysis software
- IVMAN photo voltaic cell analysis.
- IVMAN Tafel analysis
- IVMAN extractor
- IVMAN peak find module

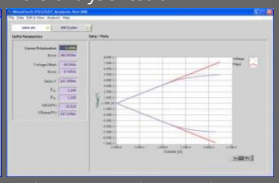
## *IVMAN™ Main Software*

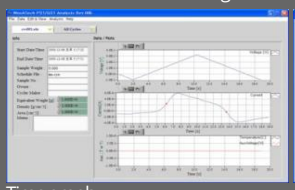
- Electrochemical analysis software
- Ideal for DC corrosion data analysis and electro-analytical data analysis
- Initial guessing function on Tafel analysis
- Automatic Tafel fitting
- Polarization resistance fitting
- 3D graph
- Find peak function
- Interpolation, differentiation, integration, etc.
- Reporting function

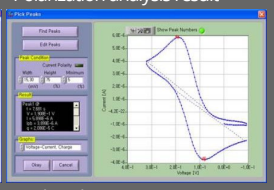

Tafel initial fitting

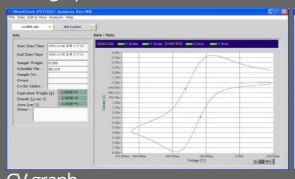

Tafel analysis result

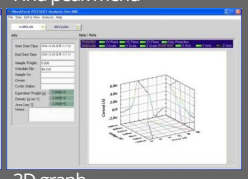

Polarization resistance fitting


Polarization analysis result


Time graph

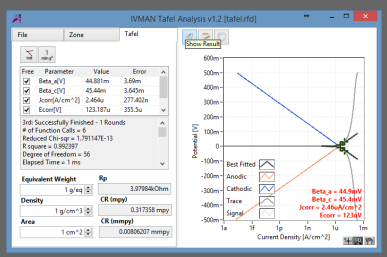

Find peak menu


CV graph


3D graph

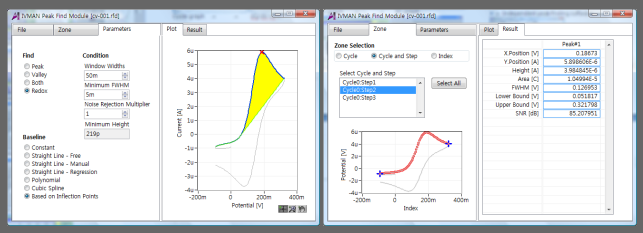
## *IVMAN™ Tafel Analysis*

- Simple Tafel calculation



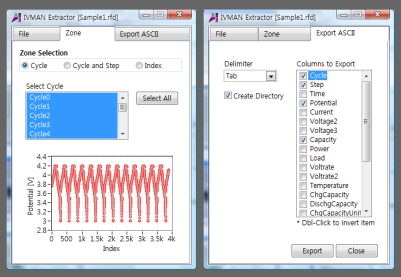
## *Peak Find Module*

- Independent peak finding software



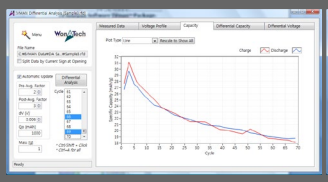
## *Extractor*

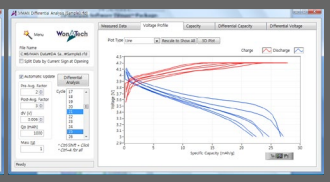
- Extracting data by cycle number or step
- Exporting ASCII file



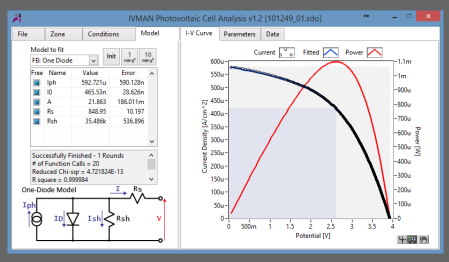
## *IVMAN DA™ Battery Test Data Analysis Software*

- Battery test data analysis
- Electrochemical voltage spectroscopy (dQ/dV vs. V)
- Voltage vs. Capacity analysis (V vs. Q)
- Cycle graph (Q vs. cycle)
- Differential voltage graph(dV/dQ vs. Q)


Cycle graph


V vs. Q

## *IVMAN™ Photovoltaic Cell Analysis*



- Automatic analysis of parameters
  : open circuit voltage, open circuit current, max. power, efficiency
  photo induced current, diode quality factor, series resistance, etc.

## WMPG1000L Low Current Type

### Application

- *Low current application*
- *Sensor application*
- *Electroanalytical application*
- *Micro battery application*

The WMPG1000L series are designed for low current applications and can be a best choice for sensor/micro battery studies. The potential control range is specified depending on customer's specification. The maximum power of each channel is 500mWatt and the system can be configured with custom specification not exceeding 500mWatt in power range. The WMPG1000L series have 5 current ranges with compact size. It use a local area network(LAN) for communication with a computer. Up to 8 independent channels can be installed per substation. Additional channels can be added up to a maximum of 64 channels.

### Specifications

| | |
|---|---|
| Control voltage range | ±10V(standard)*1 |
| Control current range | 5 ranges |
| LED | Run: 1ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max. channel no. | 64 |
| Voltage accuracy | ±0.02% f.s. |
| Current accuracy | ±0.02% f.s. |
| Voltage Control/Measurement | |
| Full scale ranges | ±10V(standard)*1 |
| Resolution (16 Bits) | 0.3mV(standard)*1 |
| Current Control/Measurement | |
| Full scale ranges | Depending on system specification<br>Max. 10mA@10V(WMPG1000Ls)<br>Max. 100mA@10V(WMPG1000Le) |
| Resolution | 16 bit(0.0015% f.s) |
| Communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option<br>(Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input)<br>(Max 32 channels): 10msec |
| Size | W350.2xD328.1xH83.6mm |

* 1: User can specify the voltage range within ±40V.
All specifications are subject to change without notice.

## WMPG1000S Standard Type

### Application

- *Corrosion test*
- *Sensor application*
- *General electrochemistry*
- *Battery/Super capacitor/Fuel cell test*
- *Material test*

The WMPG1000S is a research grade multichannel potentiostat system in a 8-channel substation and each channel can be used independently or simultaneously. Maximum power of each channel is 50Watt and the system can be configured with custom specification not exceeding 50Watt in power range. The WMPG1000S has 5 current ranges, which is suitable for various electrochemical applications. The WMPG1000S is designed with a local area network(LAN) for communication with a computer.

### Option

- Temperature monitoring
- Auxiliary voltage monitoring
- Coin cell holder
- Battery jigs

### Specifications

| | |
|---|---|
| Control voltage range | ±10V(standard) *1 |
| Control current range | 5 ranges |
| LED | Run: 1ea, Mode: 2ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max. channel no. | 64 |
| Voltage accuracy | ±0.02% f.s. |
| Current accuracy | ±0.02% f.s. |
| Voltage Control/Measurement | |
| Full scale ranges | ±10V(standard) *1 |
| Resolution (16 Bits) | 0.3mV(standard) *1 |
| Current Control/Measurement | |
| Full scale ranges | Depending on system specification<br>Max. 5A |
| Resolution | 16 bit(0.0015% f.s) |
| Communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option<br>(Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input)<br>(Max 32 channels): 10msec |
| Size | W446.7xD454.4xH196.3mm |

* 1: User can specify the voltage range within ±40V.
All specifications are subject to change without notice.

## WMPG1000M1 Mid Power Type

### Application

- Power device application
- Electrosynthesis/Electrolysis
- Battery/Super capacitor test
- Solar cell test, Fuel cell test
- For multichannel application

The WMPG1000M1 system is designed for energy device application such as battery pack, solar module, and fuel cell stack, etc. The WMPG1000M1 is derived from the standard WMPG series potentiostat/galvanostat for higher power application with 3 current ranges. The maximum power of each channel is 100Watt and the system can be configured with custom specification not exceeding 100Watt in power range. Customized specification is available. Up to 8 independent channels can be installed per substation. Additional channels can be added up to a maximum of 64 channels.

### Options

- Temperature monitoring
- Auxiliary voltage monitoring
- Battery jigs

### Specifications

| | |
|---|---|
| Control voltage range | ±10V(standard) *1 |
| Control current range | 5 range |
| LED | Run: 1ea, Mode: 2ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max channel no. | 64 |
| Voltage accuracy | ±0.02% f.s. |
| Current accuracy | ±0.05% f.s. |
| Voltage Control/Measurement | |
| Full scale ranges | ±10V(standard)*1 |
| Resolution (16 bits) | 0.3mV(standard)*1 |
| Current Control/Measurement | |
| Full scale ranges | Depending on system specification<br>Max. 5A |
| Resolution | 16 bit(0.0015% f.s) |
| Communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option<br>(Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input)<br>(Max 32 channels): 10msec |
| Size | W446.7xD498.7xH285.9mm |

* 1: User can specify the voltage range within ±40V.
All specifications are subject to change without notice.

## WMPG1000M2 Mid Power Type

### Application

- Power device application
- Electrosynthesis/Electrolysis
- Battery/Super capacitor test
- Solar cell test, Fuel cell test
- For multichannel application

The WMPG1000M2 system is designed for energy device application such as battery pack, solar module, and fuel cell stack, etc. The WMPG1000M2 is derived from the standard WMPG series potentiostat/galvanostat for higher power application with 3 current ranges. The maximum power of each channel is 200Watt and the system can be configured with custom specification not exceeding 200Watt in power range. Customized specification is available. Up to 8 independent channels can be installed per substation. Additional channels can be added up to a maximum of 64 channels.

### Options

- Temperature monitoring
- Auxiliary voltage monitoring
- Battery jigs

### Specifications

| | |
|---|---|
| Control voltage range | ±10V(standard) *1 |
| Control current range | 5 range |
| LED | Run: 1ea, Mode: 2ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max channel no. | 64 |
| Voltage accuracy | ±0.02% f.s. |
| Current accuracy | ±0.05% f.s. |
| Voltage Control/Measurement | |
| Full scale ranges | ±10V(standard)*1 |
| Resolution (16 bits) | 0.3mV(standard)*1 |
| Current Control/Measurement | |
| Full scale ranges | Depending on system specification<br>Max. 10A |
| Resolution | 16 bit(0.0015% f.s) |
| Communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option<br>(Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input)<br>(Max 32 channels): 10msec |
| Size | W446.7xD625.4xH374.5mm |

* 1: User can specify the voltage range within ±40V.
All specifications are subject to change without notice.

## WMPG100HPC 8channel controller


### General

WMPG1000HPC is 8 channel controller for high power channel such as WMPG1000D,H8,H12. This can be used for independent channel without controller.
If the system has optional input (temperature input and/or Auxiliary voltage input), These option is located at this controller.
WMPG1000HPC has power supplies for the parts in channel hardware.

Hardware specification is same in WMPG1000 series to control 8channel . This can be extended upto 64 channels.
Channel connection between controller and channels is via dsub connector at rear side of the controller.

### Optios

- Temperature monitoring
- Auxiliary voltage monitoring


## WMPG1000D Dual Channel Type

### Application

- Power device application
- Electrosynthesis/Electrolysis
- Battery/Super capacitor test
- Solar cell test, Fuel cell test
- For multichannel application

The WMPG1000D channel is designed for Mid power application (max 400Watt/ch) such as electroplaing, battery pack, electrosynthesis, electrolysis, solar module, fuel cell stack, etc. The WMPG1000D has dual channel in one housing.
Each dual channel housing has its own power supply.
Customized specification is available. Up to 8 independent channels can be connected to one 8 channel controller. Additional channels can be added up to a maximum of 64 channels.

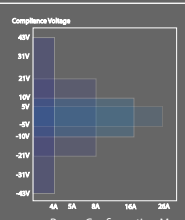
*Typical models for WMPG1000D are*
- *±10V @ 16Amp WMPG1000D_1016BC10*
- *±20V @ 8Amp WMPG1000D_208BC21*

### Options

- Temperature monitoring
- Auxiliary voltage monitoring

### Specifications

| | |
|---|---|
| Control current range | 5 ranges |
| LED | Run: 1ea, Mode: 2ea, Irange: 5ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max channel no. | 64 |
| Voltage accuracy | ±0.05% f.s. (<10V) |
| Current accuracy | ±0.05% f.s. |
| Current / Voltage Control/Measurement | |
| Resolution (16 bits) | 0.0015% f.s |



Power Configuration Map

voltage range
1) Max 26A @ ± 5V(C5V*)
2) Max 16A @ ±10V(C10V*)
3) Max 8A @ ± 20V(C21V*)
4) Max 4A @ ± 40V (C43V*)
* Compliance voltage

| | |
|---|---|
| Resolution | 16 bit(0.0015% f.s) |
| Communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option (Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input) (Max 32 channels): 10msec |
| Size | W447.1xD505.2xH241mm (excluding controller) |

All specifications are subject to change without notice.

## WMPG1000H8 800Watt Power channel Type

### *Application*

- Power device application
- Electrosynthesis/Electrolysis
- Battery/Super capacitor test
- Solar cell test, Fuel cell test
- For multichannel application

The WMPG1000H8 power channel is designed for Mid power application(Max 800Watt) such as electroplaing, battery pack, electrosynthesis, electrolysis, solar module, fuel cell stack, etc. The WMPG1000H8 is derived from the standard WMPG series potentiostat/galvanostat for higher power application with 5 current ranges. Customized specification is available. Up to 8 independent channels can be connected to one 8 channel controller. Additional channels can be added up to a maximum of 64 channels.

*Typical models for WMPG1000H8 are*

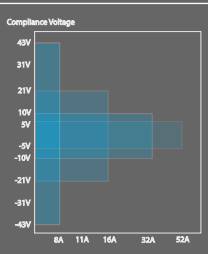
- *± 10V @ 32Amp WMPG1000H8_1032BC10*
- *± 20V @ 16Amp WMPG1000H8_2016BC21*
- *± 40V @ 8Amp WMPG1000H8_408BC43*

### *Options*

- Temperature monitoring
- Auxiliary voltage monitoring

### *Specifications*

| | |
|---|---|
| Control current range | 5 ranges |
| LED | Run: 1ea, Mode: 2ea, Irange: 5ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max channel no. | 64 |
| Voltage accuracy | ±0.05% f.s. ( <10V) |
| Current accuracy | ±0.1% f.s. |
| Current / Voltage Control/Measurement | |
| Resolution (16 bits) | 0.0015% f.s |



Power Configuration Map

Maximum current depending on voltage range
1) Max 52A @ ± 5V(C5V*)
2) Max 32A @ ± 10V(C10V*)
3) Max 16A @ ± 20V(C21V*)
4) Max 8A @ ± 40V(C43V*)
* Compliance Voltage

| | |
|---|---|
| Communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option (Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input) (Max 32 channels): 10msec |
| Size | W447.1xD505.2xH241mm |

All specifications are subject to change without notice.

## WMPG1000H12 1200Watt Power Channel Type

### *Application*

- Power device application
- Electrosynthesis/Electrolysis
- Battery/Super capacitor test
- Solar cell test, Fuel cell test
- For multichannel application

The WMPG1000H12 power channel is designed for Mid power application(Max 1200Watt) such as electroplaing, battery pack, electrosynthesis, electrolysis, solar module, fuel cell stack, etc. The WMPG1000H12 is derived from the standard WMPG series potentiostat/galvanostat for higher power application with 4 current ranges. Up to 8 independent channels can be connected to one 8 channel controller. Additional channels can be added up to a maximum of 64 channels.

*Typical models for WMPG1000H12 are*

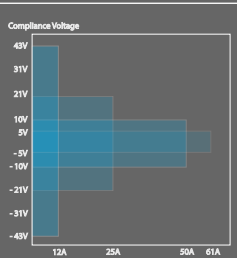
- *± 10V @ 50Amp WMPG1000H12_1050BC10*
- *± 20V @ 25Amp WMPG1000H12_2025BC21*
- *± 40V @ 12Amp WMPG1000H12_4012BC43*

### *Options*

- Temperature monitoring
- Auxiliary voltage monitoring

### *Specifications*

| | |
|---|---|
| Control current range | 4 ranges |
| LED | Run: 1ea, Mode: 2ea, Irange: 4ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max channel no. | 64 |
| Voltage accuracy | ±0.05% f.s. (<10V) |
| Current accuracy | ±0.1% f.s. |
| Current / Voltage Control/Measurement | |
| Resolution (16 bits) | 0.0015% f.s |



Power Configuration Map

Maximum current depending on voltage range
1) Max 61A @ ± 5V (C5V*)
2) Max 50A @ ± 10V (C10V*)
3) Max 25A @ ± 20V (C21V*)
4) Max 12A @ ± 40V (C43V*)
* Compliance voltage

| | |
|---|---|
| Communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option (Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input) (Max 32 channels): 10msec |
| Size | W446.1xD626xH285.5mm |

All specifications are subject to change without notice.

## WMPG1000HP High Power Type

### Application

- Power device application
- Electrosynthesis/Electrolysis
- Battery/Super capacitor test
- Solar cell test, Fuel cell test
- For multichannel application

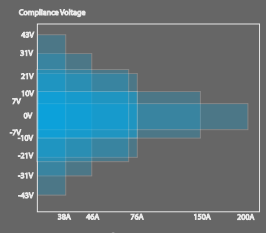
The WMPG1000HP system is designed for high power application such as battery pack, solar module, fuel cell stack, electroplating, etc. The WMPG1000HP is derived from the standard WMPG series potentiostat/galvanostat for higher power application with 3 or 1 current ranges. The maximum power of each channel is 4kWatt and the system can be configured with custom specification not exceeding 4kWatt in power range. Customized specification is available. Up to 8 independent channels can be connected to one 8 channel controller. Additional channels can be added up to a maximum of 64 channels.

### Options

- Temperature monitoring
- Auxiliary voltage monitoring

### Specifications

| | |
|---|---|
| Control current range | 3 ranges or 1 range depending on power |
| LED | Run: 1ea, Mode: 2ea |
| Input impedance | $10^{12}$ Ohm |
| Cell connection | 4 probe type, alligator clip cables |
| Max channel no. | 64 |
| Voltage accuracy | ±0.1% f.s. |
| Current accuracy | ±0.1% f.s. |
| Current / Voltage Control/Measurement | |
| Resolution (16 bits) | 0.0015% f.s |



Power Configuration Map

Maximum current depending on voltage range
1) Max 200A @ ± 5V (C7V*)
2) Max150A @ ± 10V (C10V*)
3) Max 76A @ ± 10V (C10V*)
4) Max 76A @ ± 20V (C21V*)
5) Max 72A @ ± 24V (C24V*)
6) Max 46A @ ± 30V (C31V*)
7) Max 38A @ ± 40V (C43V*)
* Compliance voltage

| | |
|---|---|
| communication | TCP/IP |
| Sampling time 16channels/SIF | - Without option (Max 64 channels) : 10msec<br>- With option (AuxV and/or Temperature input) (Max 32 channels): 10msec |

All specifications are subject to change without notice.

## System Configuration Examples

### Mid power Type & Low power Type – Mixture System

- 8 channel system
  : 10V, 1A(5ch) + 10V, 1mA(3ch)
- WMPG1000S substation + channel 5set + Modified channel 3set

### Mid power Type & High Power Type - Mixture System

- 8 channel system
  : 10V, 1A(4ch) + 10V, 5A(2ch) + 20V, 10A(2ch)
- WMPG1000S substation + channel 4set + extension card 4ea + WMPG1000D 2set


Extension Card for WMPG1000S

### High Power Type & Mid Power Type - Mixture System

- 8 channel system
  : 20V, 10A(4ch) + 10V, 20A(2ch) + 10V, 10A(2ch)
- 8ch controller + WMPG1000D 4set

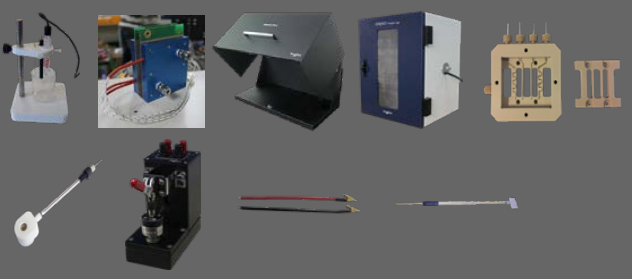
## Accessoreis

### Cell kits

### Battery Jig & Coin Cell Holder

### Photo Echem Cell Kit

### ETC



WonATech Co., Ltd.
7, Neunganmal 1-gil, Seocho-gu,
Seoul, 06801, Korea
Phone: +82-2-578-6516
Fax: +82-576-2635
e-mail: sales@wonatech.com
website: www.wonatech.com

Local Distributor

ISO 9000 & ISO 14000 Qualified