



# Test & Measurement Instruments and Systems

Power Electronics | Battery | Passive Component | Electrical Safety

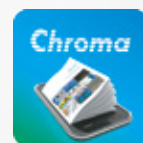
## Product Quick Guide



Get more information in the APP



iOS

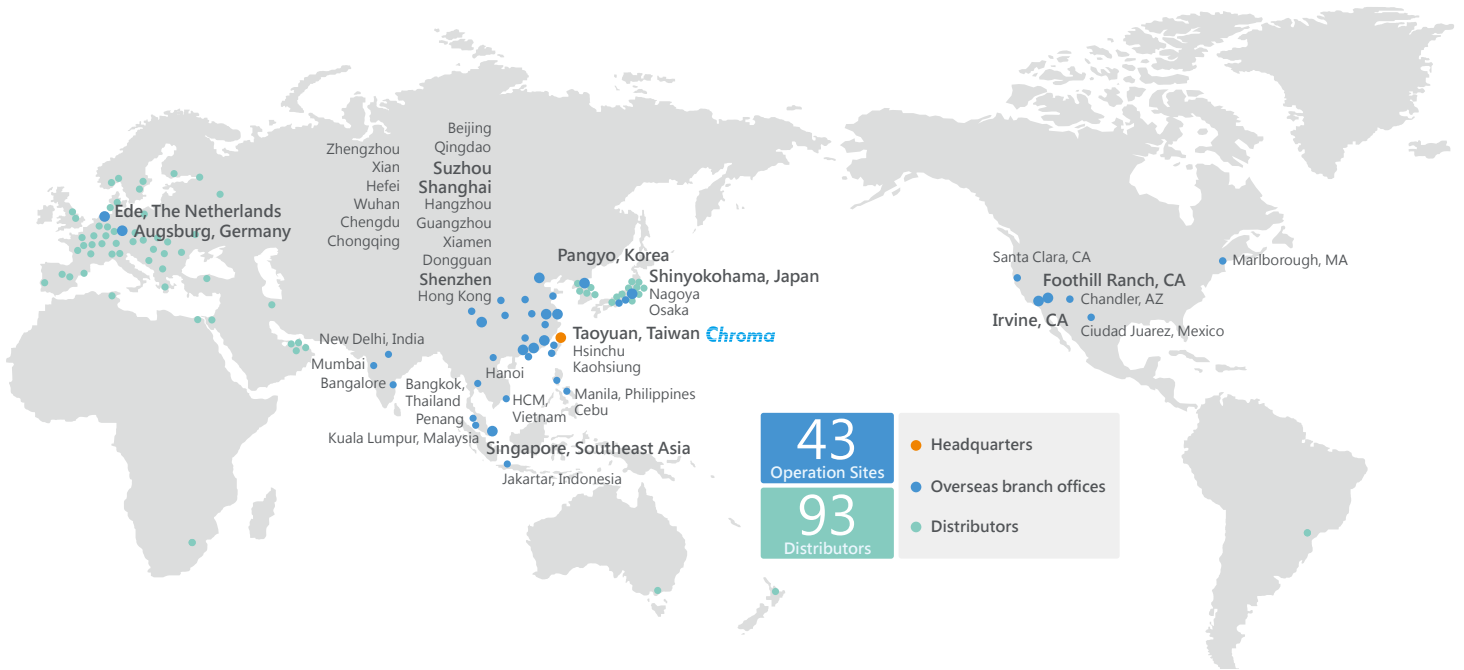


Android

Chroma Power Electronics Test Solutions not only apply in the industries of Information Technology, Communication, Aerospace and National Defense, but also in energy efficient products such as Hybrid Automobiles, LED luminance devices, solar and fuel cells that are developed aggressively under the pressure of natural resource constraints.

Chroma has a wide variety of instrumentation including AC Power Sources, DC Power Supplies, DC Electronic Loads, AC Electronic Loads, Digital Power Meters, and Automatic Test Systems that are ideal for power input/output terminal tests and dynamic simulation.

The systems can be used to test PC/Servo/Telecom power supplies, adapters, chargers, backlight inverters, LED power drivers, UPS's, PV Inverters, EV chargers, and battery packs. With technical support groups available worldwide, Chroma can provide automated test systems and the fabrication of test fixtures simultaneously at multiple locations across the globe.



CHROMA GROUP			
CHROMA ATE INC.			
Newworld/Hong Kong	Chroma Investment	MAS Automation/Taiwan	Innovative Nanotech
Chroma/Beijing	Chroma/USA	MAS Automation/Nanjing	Touch Cloud
Chroma/Shanghai	Chroma/Netherlands	MAS Automation/Xiamen	ADIVIC Technology
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Chroma/Xiamen	Chroma/Korea		Chroma New Material
Chroma/Shenzhen	Quantel/Southeast Asia		DynaScan Technology
Chroma/Dongguan			ADLINK Technology

## AC & DC Electronic Loads

- Constant & Rectified Load Modes for AC loading
- Parallel / 3-phase functions (AC mode only)
- Timing measurement for battery, UPS, fuse and breaker tests
- Analog voltage & current monitor

Model	63802	63803	63804
Power	1800W	3600W	4500W
Current	0 ~ 18Arms (54 Apeak, continue)	0 ~ 36Arms (108 Apeak, continue)	0 ~ 45Arms (135 Apeak, continue)
Voltage	50 ~ 350Vrms (500 Vpeak)		
Frequency	45 ~ 440Hz, DC		
Dimension	4U(H)	7U(H)	



63802



63803 / 63804

## Programmable DC Electronic Loads 100W~240kW

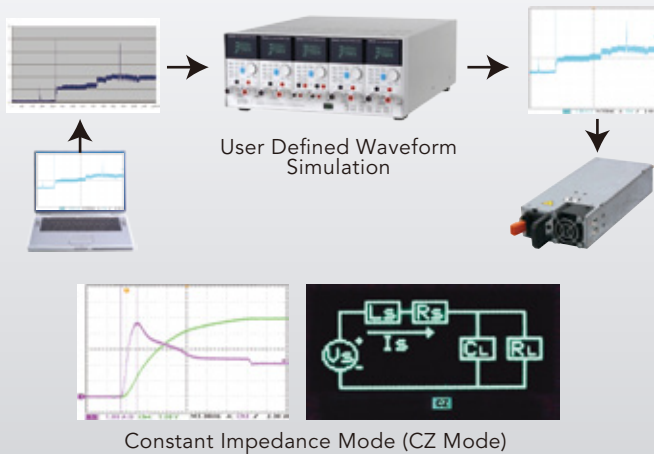
- Bench top load (63000 Series)
- Cost effective modular load (6310A Series)
- Unique LED mode for LED power driver tests (6310A Series)
- High performance modular load (63600 Series)
- User defined waveform (63600 Series)
- Multi channel synchronous control (63600 Series)
- Auto frequency sweep up to 50kHz (63600 Series)
- High power standalone load (63200A Series)
- Current range up to 2,000A (63200A Series)
- Master/Slave paralleling control up to 240kW (63200A Series)

Programmable DC Electronic Load  
63000 Series



OCP Testing

High Performance Load  
63600 Series



Model	Specification	Rise & fall time
63003-150-40	150V / 40A / 250W ; ½ 19"(W) x 2U(H)	20µs
63004-150-60	150V / 60A / 350W ; ½ 19"(W) x 2U(H)	20µs

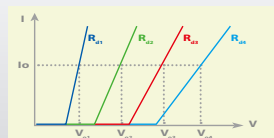
Model	Specification	Rise & fall time
63610-80-20	80V / 20A / 100W x 2CH	10µs
63630-80-60	80V / 60A / 300W	10µs
63640-80-80	80V / 80A / 400W	10µs
63640-150-60	150V / 60A / 400W	10µs
63630-600-15	600V / 15A / 300W	10µs
63600-1	1 slot mainframe / 19"(W) x 4U(H)	
63600-2	2 slots mainframe / ½19"(W) x 4U(H)	
63600-5 (10ch)	5 slots mainframe / 19"(W) x 4U(H)	
63601-5 (6ch)	5 slots mainframe / 19"(W) x 4U(H)	

Cost Effective Modular Load  
6310A Series



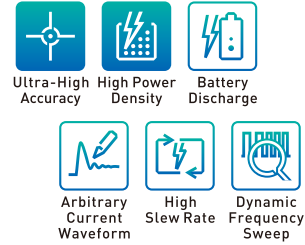
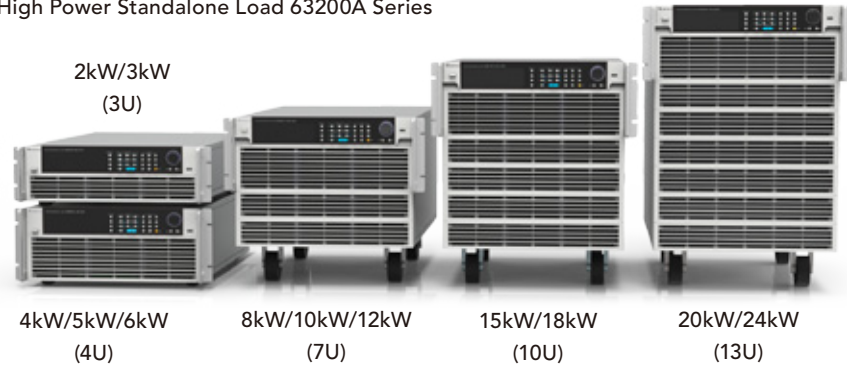
Model	Specification	Rise & fall time
63101A	80V / 40A / 200W	10µs
63102A	80V / 20A / 100W x 2CH	10µs
63103A	80V / 60A / 300W	10µs
63105A	500V / 10A / 300W	24µs
63107A	80V / 5A & 40A / 30W & 250W	10µs
63123A	120V / 70A / 350W	25µs
63106A	80V / 120A / 600W	10µs
63108A	500V / 20A / 600W	24µs
63112A	80V / 240A / 1200W	10µs
63110A	500V / 2A / 100W x 2CH	-
63113A	300V / 20A / 300W	25µs
63115A	600V / 20A / 300W	25µs
6312A	2 slots mainframe / ½19"(W) / 4U(H)	
6314A	4 slots mainframe / 19"(W) x 4U(H)	

LED Load Simulator  
63110A/63113A/63115A



Simulate different numbers of LEDs

### High Power Standalone Load 63200A Series



### High Power Standalone Load 63200E Series



Function Comparison		63200A Series	63200E Series
Basic Functions	CC	v	v
	CR	v	v
	CP	v	v
	CV	v	v
	CCD	v	v
	CRD	v	-
Advance Functions	Short	v	v
	Battery Discharge	v	v
	Auto Sequences	v	v
	Sine Wave Dynamic	v	-
	OCP / OPP Test	v	-
	CC Sweep	v	-
	CZ	v	v
	CV+CC	v	-
	CR+CC	v	-
	CV+CR	v	-
	Auto Mode	v	-
	User Defined Waveform	v	-
	MPPT	v	-
	External Waveform	v	-

#### 63200A Series High Power DC Electronic Load

Model	Voltage	Current	Power	Dimension (WxH)	Rise & fall Time
63202A-150-200	150V	200A	2kW	19"x3U	10μs
63203A-150-300		300A	3kW		
63204A-150-400		400A	4kW		
63205A-150-500		500A	5kW	19"x4U	10μs
63206A-150-600		600A	6kW		
63208A-150-800		800A	8kW		
63210A-150-1000		1000A	10kW	19"x7U	10μs
63212A-150-1200		1200A	12kW		
63215A-150-1500		1500A	15kW		
63218A-150-1800		1800A	18kW	19"x10U	10μs
63220A-150-2000		2000A	20kW		
63224A-150-2000		2000A	24kW		
63202A-600-140	600V	140A	2kW	19"x3U	20μs
63203A-600-280		210A	3kW		
63204A-600-280		280A	4kW		
63205A-600-350		350A	5kW	19"x4U	20μs
63206A-600-420		420A	6kW		
63208A-600-560		560A	8kW		
63210A-600-700		700A	10kW	19"x7U	20μs
63212A-600-840		840A	12kW		
63215A-600-1050		1050A	15kW		
63218A-600-1260		1260A	18kW	19"x10U	20μs
63220A-600-1400		1400A	20kW		
63224A-600-1680		1680A	24kW		
63202A-1200-80	1200V	80A	2kW	19"x3U	20μs
63203A-1200-120		120A	3kW		
63204A-1200-160		160A	4kW		
63205A-1200-200		200A	5kW	19"x4U	20μs
63206A-1200-240		240A	6kW		
63208A-1200-320		320A	8kW		
63210A-1200-400		400A	10kW	19"x7U	20μs
63212A-1200-480		480A	12kW		
63215A-1200-600		600A	15kW		
63218A-1200-720		720A	18kW	19"x10U	20μs
63220A-1200-800		800A	20kW		
63224A-1200-960		960A	24kW		

#### 63200E Series High Power DC Electronic Load

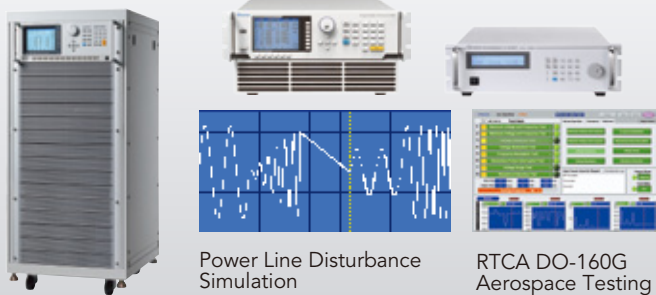
Model	Voltage	Current	Power	Dimension (WxH)	Rise & fall Time
63202E-150-200	150V	200A	2kW	19"x3U	100μs
63203E-150-300		300A	3kW		
63204E-150-400		400A	4kW		
63205E-150-500		500A	5kW	19"x4U	100μs
63206E-150-600		600A	6kW		
63208E-150-800		800A	8kW		
63210E-150-1000		1000A	10kW	19"x7U	100μs
63212E-150-1200		1200A	12kW		
63215E-150-1500		1500A	15kW		
63218E-150-1800		1800A	18kW	19"x10U	100μs
63220E-150-2000		2000A	20kW		
63224E-150-2000		2000A	24kW		
63202E-600-140	600V	140A	2kW	19"x3U	100μs
63203E-600-280		210A	3kW		
63204E-600-280		280A	4kW		
63205E-600-350		350A	5kW	19"x4U	100μs
63206E-600-420		420A	6kW		
63208E-600-560		560A	8kW		
63210E-600-700		700A	10kW	19"x7U	100μs
63212E-600-840		840A	12kW		
63215E-600-1050		1050A	15kW		
63218E-600-1260		1260A	18kW	19"x10U	100μs
63220E-600-1400		1400A	20kW		
63224E-600-1680		1680A	24kW		
63202E-1200-80	1200V	80A	2kW	19"x3U	100μs
63203E-1200-120		120A	3kW		
63204E-1200-160		160A	4kW		
63205E-1200-200		200A	5kW	19"x4U	100μs
63206E-1200-240		240A	6kW		
63208E-1200-320		320A	8kW		
63210E-1200-400		400A	10kW	19"x7U	100μs
63212E-1200-480		480A	12kW		
63215E-1200-600		600A	15kW		
63218E-1200-720		720A	18kW	19"x10U	100μs
63220E-1200-800		800A	20kW		
63224E-1200-960		960A	24kW		

## Programmable AC Sources 500VA~300kVA

- 500VA~60kVA/0~350Vac/single or three phase settings
- Low distortion output voltage waveform
- Power line disturbance simulation capability
- Harmonics and inter-harmonics synthesis functions
- High output current crest factor, ideal for inrush current testing
- Supports parallel functions to meet higher output power requirements up to 300kVA
- IEC 61000-4-11, IEC 61000-4-14, IEC 61000-4-28 voltage dips and frequency variation simulations

- Harmonics, interharmonics waveform synthesizer for IEC 61000-4-13 testing
- Regenerative AC Load (option) (61800 Series)
- Interface: GPIB/RS-232/USB/Ethernet

High Performance AC power source  
61500 Series



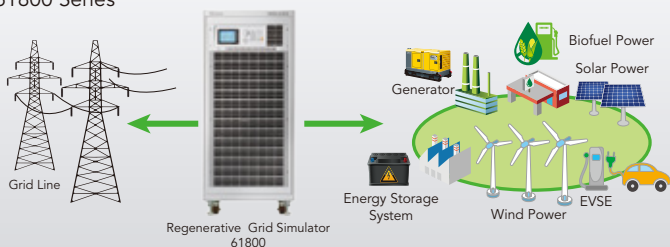
Basic and Cost Effective AC power source  
61600 Series



Advanced AC power source  
61700 Series



Regenerative Grid Simulator  
61800 Series



Fully regenerative and applicable for 4 quadrants with voltage and current

Model	Specifications	Dimension (H)
61501	500VA / 300V / DC, 15~1kHz / 1Ø	3U
61502	1000VA / 300V / DC, 15~1kHz / 1Ø	3U
61503	1500VA / 300V / DC, 15~1kHz / 1Ø	3U
61504	2000VA / 300V / DC, 15~1kHz / 1Ø	3U
61505	4000VA / 300V / DC, 15~1kHz / 1Ø	6U
61507	3000VA / 350V / DC, 15~2kHz / 1Ø&3Ø	5U
61508	4500VA / 350V / DC, 15~2kHz / 1Ø&3Ø	5U
61509	6000VA / 350V / DC, 15~2kHz / 1Ø&3Ø	5U
61511	12kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26U
61512	18kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26U
61511+ A615103	30kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26U x2
61512 +A615103	36kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26U x2

\* 61512 can be connected in parallel operation up to 90kVA

Model	Specifications	Dimension (H)
61601	500VA / 300V / DC, 15~1kHz / 1Ø	3U
61602	1000VA / 300V / DC, 15~1kHz / 1Ø	3U
61603	1500VA / 300V / DC, 15~1kHz / 1Ø	3U
61604	2000VA / 300V / DC, 15~1kHz / 1Ø	3U
61605	4000VA / 300V / DC, 15~1kHz / 1Ø	6U
61607	3000VA / 350V / DC, 15~2kHz / 1Ø&3Ø	5U
61608	4500VA / 350V / DC, 15~2kHz / 1Ø&3Ø	5U
61609	6000VA / 350V / DC, 15~2kHz / 1Ø&3Ø	5U
61611	12kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26U
61612	18kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26U
61611 +A615103	30kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26Ux2
61612 +A615103	36kVA/300V/DC, 15~1.5kHz/1Ø&3Ø	Cabinet/26Ux2

\* 61612 can be connected in parallel operation up to 90kVA

Model	Specifications	Dimension (H)
61701	1500VA / 300V / DC, 15~1.2kHz / 3Ø	Cabinet/9U
61702	3000VA / 300V / DC, 15~1.2kHz / 3Ø	Cabinet/9U
61703	4500VA / 300V / DC, 15~1.2kHz / 3Ø	Cabinet/9U
61704	6000VA / 300V / DC, 15~1.2kHz / 3Ø	Cabinet/9U
61705	12000VA / 300V / DC, 15~1.2kHz / 3Ø	Cabinet/20U

Model	Specifications	Dimension (H)
61830	30kVA / 300V / DC, 30~100Hz / 1Ø & 3Ø	Cabinet/39U
61845	45kVA / 300V / DC, 30~100Hz / 1Ø & 3Ø	Cabinet/39U
61860	60kVA / 300V / DC, 30~100Hz / 1Ø & 3Ø	Cabinet/39U

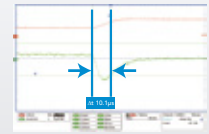
\* 61860 can be connected in parallel operation up to 300kVA

## Programmable DC Power Supplies 100W ~ 1.5MW

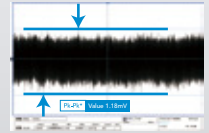
- Voltage range : 0 ~ 1800V / 2000V (series)
- Current range : 0 ~ 3750A (system)
- Solar Array Simulation
- Static & dynamic MPPT efficiency test
- Shadowed I-V curve output simulation
- Power factor correction (0.95)
- LabView and labwindows
- Standard interface : USB/RS232/RS485/APG
- Optional interface : GPIB/ Ethernet
- Auto Sequencing Programming

Model	Specifications	Dimension (WxH)
62010L-36-7	36V / 7A / 108W	½19"x2U
62015L-60-6	60V / 6A / 150W	

### Programmable DC Power Supply 62000L Series



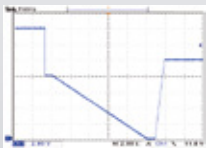
High Transient Response



Low Output Noise



### High Power Density 15kW in 3U 62000H Series



High Slew Rate  
Control 40V/ms



Master/Slave Parallel Operation

Model	Specifications	Dimension (WxH)
62075H-30	30V / 250A / 7500W	19" x3U
62050H-40	40V / 125A / 5000W	
62050H-450	450V / 11.5A / 5000W	
62050H-600	600V / 8.5A / 5000W	
62100H-30	30V / 375A / 11250W	
62100H-40	40V / 250A / 10000W	
62100H-100P	100V / 250A / 10000W	
62100H-450	450V / 23A / 10000W	
62100H-600	600V / 17A / 10000W	
62100H-1000	1000V / 10A / 10000W	
62150H-40	40V / 375A / 15000W	
62150H-100P	100V / 375A / 15000W	
62150H-450	450V / 34A / 15000W	
62150H-600	600V / 25A / 15000W	
62150H-1000	1000V / 15A / 15000W	
62180H-1800P *	1800V / 30A / 18000W	

\* The 62000H can be connected in parallel or serial operation up to 10 units.

\* Call for availability.

Model	Specifications	Dimension (WxH)
62020H-150S	150V / 40A / 2000W	19" x2U
62050H-600S	600V / 8.5A / 5000W	19" x3U
62100H-600S	600V / 17A / 10000W	
62150H-600S	600V / 25A / 15000W	
62150H-1000S	1000V / 15A / 15000W	
62180H-1800S *	1800V / 30A / 18000W	
A620027	600V / 25A / 15000W (Parallelable Power Stage)	19" x3U
A620028	1000V / 15A / 15000W (Parallelable Power Stage)	

\* The 62000H-S can be connected in parallel operation up to 1.5MW.

\* Call for availability.

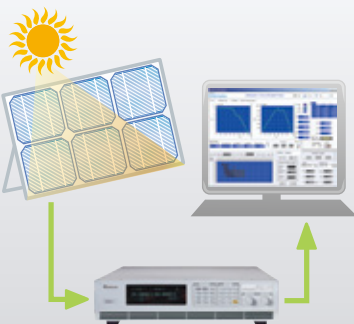
Model	Specifications
62015B-15-90	15V / 90A / 1350W
62015B-30-50	30V / 50A / 1500W
62015B-60-25	60V / 25A / 1500W
62015B-80-18	80V / 18A / 1440W
62015B-150-10	150V / 10A / 1500W
62000B-6-1(Mainframe)	6 slots / 19" (W) x 4U(H)
62000B-3-1(Mainframe)	3 slots / ½19" (W) x 4U(H)

\* The mainframe can be connected in parallel operation up to 8 units.

### Solar Array Simulator 62000H-S Series



EN50530 & Sandia &  
CGC/GF004 Standard



Solar Array Simulation Function

### Modular DC Power Supply 62000B Series



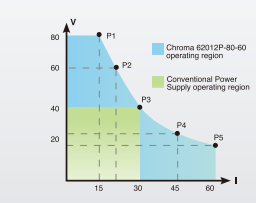
Hot-swappable &  
N+1 Redundancy



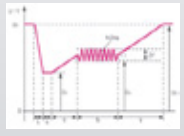
Graphic user interface



Auto Range DC Power Supply  
62000P Series



Constant Power Wide Range



ISO 16750-2 Electrical loads and corresponding tests

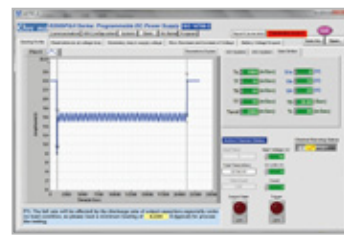
Model	Specifications	Dimension (WxH)
62006P-30-80	30V / 80A / 600W	19" x2U
62006P-100-25	100V / 25A / 600W	
62006P-300-8	300V / 8A / 600W	
62012P-40-120	40V / 120A / 1200W	
62012P-80-60	80V / 60A / 1200W	
62012P-100-50	100V / 50A / 1200W	
62012P-600-8	600V / 8A / 1200W	
62024P-40-120	40V / 120A / 2400W	
62024P-80-60	80V / 60A / 2400W	
62024P-100-50	100V / 50A / 2400W	
62024P-600-8	600V / 8A / 2400W	19" x4U
62050P-100-100	100V / 100A / 5000W	

\* The 62000P can be connected in parallel or serial operation up to 5 units.

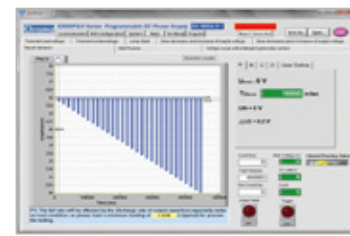
Software for Automotive Test Standards



LV123 Standard for Voltage Transient Test



ISO 16750-2 Standard for Voltage Transient Test



GS 95024-2-1 Standard for Voltage Transient Test



VW 80000 Standard for Voltage Transient Test

Digital Power Meters 1~4 Channels

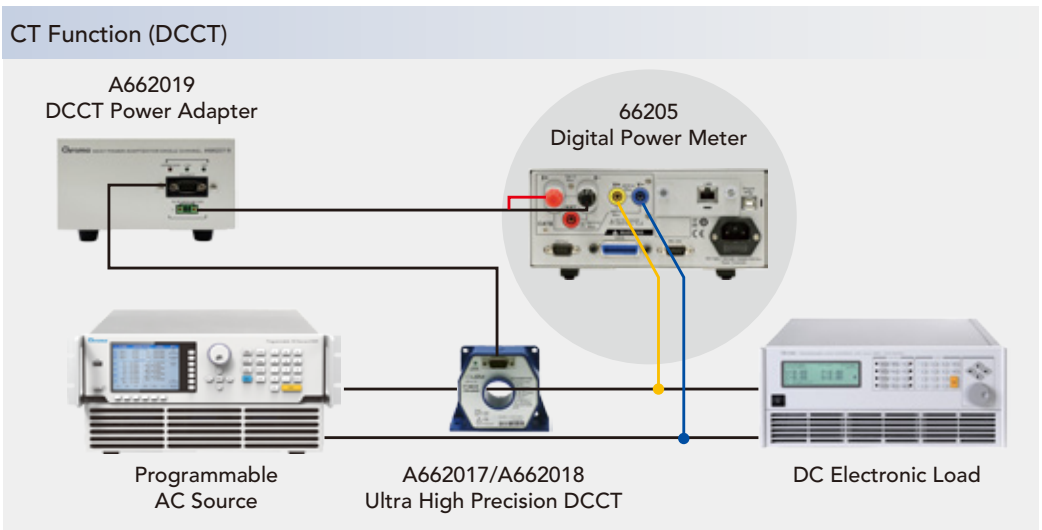
- Meets ENERGY STAR / IEC 62301 / ErP ecodesign / SPEC POWER measurement requirements
- Supports several different wiring configuration power measurement (1P2W/1P3W/3P3W/3P4W/3V3A) (66203/66204)
- Smart Range function provides seamless power measurement with power integration under auto range mode (66205)



66205



66203/66204

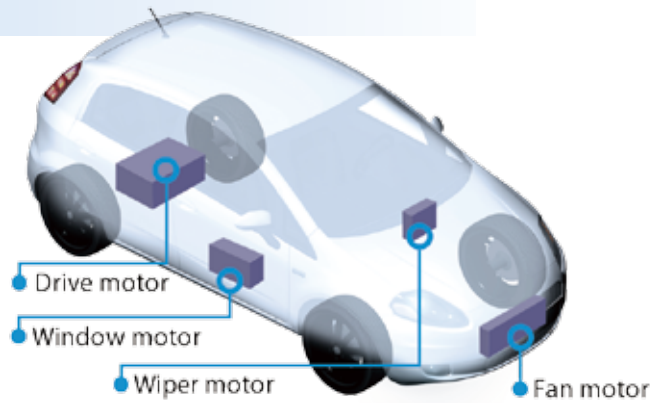


Model	66203	66204	66205
Channel	3	4	1
Max. Voltage range	600/1200Vrms (option)		600Vrms/1200Vrms (option)
Max. Current range	20Arms		30Arms
Frequency	10~10kHz		
AC/DC Measurement Mode	DC, AC+DC		
Harmonics Measurement (Up to 100 orders)	Yes		
Dimension (WxH)	½ 19"x3U		½ 19"x2U

## EV Motor Test Solutions



Corona discharge in motor



### Corona Hi-Pot Tester 19055-C

- Hi-Pot
  - AC 5kV/100mA (4kV/120mA)
  - DC 6kV/25mA
- Insulation : 5kVmax ; 1M $\Omega$  ~ 50G $\Omega$
- 500VA output rating
- Floating output complies with EN50191
- Corona Discharge Detection (CDD)



### Wound Component EST Analyzer 19036

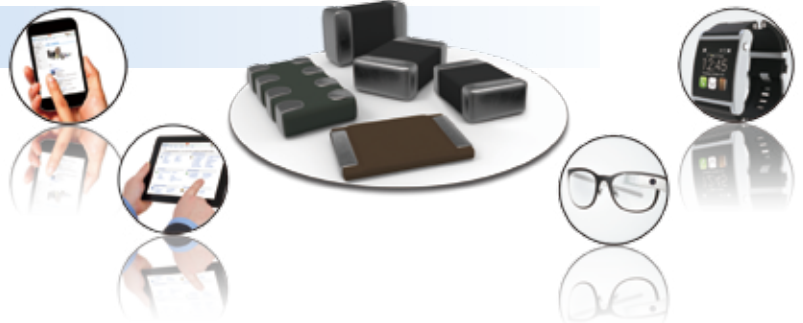
- 5 in 1 composite analyzer scanner (ACW / DCW / IR / IWT / DCR)
- 5kV AC/6kV DC Hipot test
- 5kV Insulation Resistance test
- Impulse Winding Tester (IWT)
- 10 channels 4-wire DCR test
- L/Q test With 3252 (option)

## Chip Inductor Test Solutions



### HF LCR Meter 11050 Series

- Test frequency :
  - 75kHz ~ 30MHz (11050-30M)
  - 1kHz ~ 10MHz (11050)
  - 60Hz ~ 5MHz (11050-5M)
- Test level: 10mV ~ 5V
- Basic accuracy: 0.1%
- Dual frequency mode



### Impulse Winding Tester 19301A

- 10V~1000V impulse voltage test
- 0.25V test resolution
- High impulse test sampling rate (200MHz), 10bits
- 20mS high speed test (P1.0)
- Inductance contact check function
- Inductance differential voltage compensation function



### Milliohm Meter 16502

- Basic accuracy: 0.05%
- Wide measurement range: 0.001m $\Omega$  ~ 1.9999M $\Omega$
- Pulsed test mode (thermal EMF reduction)



### Inductor Test & Packing Machine

#### ◀ 1870D

- Polarity automatic rotation
- High speed sorting/packing (1800ppm max.)
- For SMT type application
- Test control and data collecting

### Inductor Layer Short Automatic Test Machine

#### ▶ 1871

- Special probe design for layer short test
- High speed sorting (1200 ppm max.)
- for SMT type application
- Test control and data collecting





## Electrical Safety Analyzers



Multi-Channel Hipot Tester  
19020 Series



Electrical Safety Analyzer  
19032-P



Wound Component EST Scanner  
19035



Wound Component EST Scanner  
19036



Battery Cell Surge Tester  
19311/19311-10



Partial Discharge Tester  
19501-K



Hipot Analyzer  
19055/19055-C



Hipot Analyzer  
19056/19057 Series

### Electrical Safety Tester Selection Guide

Model	AC/DC HIPOT			Insulation Resistance		Ground Bond		Leakage Current Test *1	Impulse Winding Test/ Surge Test	Others
	AC/DC Output	Cutoff Current	Flashover Detection	DC output	Range	Current	Range	Power Capacity		
19020	5kVac 6kVdc	AC:10mA DC:5mA	AC:20mA DC:10mA	1kV	50GΩ	-	-	-	-	10/4 channels
19032	5kVac 6kVdc	AC:40mA DC:12mA	AC:20mA DC:10mA	1kV	50GΩ	30A 60A*2	510mΩ*3	300V/ 20A max.*2	-	-
19032-P	5kVac 6kVdc	AC:100mA DC:25mA	AC:20mA DC:10mA	1kV	50GΩ	40A	510mΩ*3	300V/ 20A max.*2	-	500VA Floating Output
19035	5kVac 6kVdc	AC:30mA DC:10mA	AC:15mA DC:10mA	5kV	50GΩ	-	-	-	-	DCR 8 ports scanner
19036	5kVac 6kVdc	AC:100mA DC:25mA	AC:20mA DC:10mA	5kV	50GΩ	-	-	-	6kV	10 ports scanner
19052	5kVac 6kVdc	AC:30mA DC:10mA	AC:15mA DC:10mA	1kV	50GΩ	-	-	-	-	-
19053	5kVac 6kVdc	AC:30mA DC:10mA	AC:15mA DC:10mA	1kV	10GΩ	-	-	-	-	8 ports scanner
19054	5kVac 6kVdc	AC:30mA DC:10mA	AC:15mA DC:10mA	1kV	10GΩ	-	-	-	-	4 ports scanner
19055	5kVac 6kVdc	AC:100mA DC:25mA	AC:20mA DC:10mA	5kV	50GΩ	-	-	-	-	500VA Floating Output, corona detection
19056	10kVac	AC:20mA	20mA	-	-	-	-	-	-	-
19057	12kVdc	DC:10mA	10mA	5kV	50GΩ	-	-	-	-	-
19057-20	20kVdc	DC:5mA	10mA	5kV	50GΩ	-	-	-	-	-
19071	5kVac	AC:20mA	AC:15mA	-	-	-	-	-	-	AC only
19073	5kVac 6kVdc	AC:20mA DC:5mA	AC:15mA DC:5mA	1kV	50GΩ	-	-	-	-	-
19301A	-	-	-	-	-	-	-	-	1kV	0.1μH min.
19311	-	-	-	-	-	-	-	-	6kV	1 port scanner
19311-10	-	-	-	-	-	-	-	-	6kV	10 ports scanner
19305	-	-	-	-	-	-	-	-	6kV	10μH min.
19305-10	-	-	-	-	-	-	-	-	6kV	10 ports scanner
19501-K	10kVac	AC:300μA	-	-	-	-	-	-	-	1pc~2000pc
19572	-	-	-	-	-	45A	510mΩ*3	-	-	-

Note \*1 : Leakage Current Test is required by standards of Electrical Appliances, Medical Equipment, IT Products and Video/Audio Appliances etc. (IEC 60065, 60335, 60601, 60950 etc.)

Note \*2 : Options

Note \*3 : Depends on current output

## Insulation Testers



Battery Insulation Tester  
11210

Capacitor Leakage Current/IR Tester  
11200

### Insulation Tester Selection Guide

Model	Primary Function	Test Signal
11200	LC, IR	1.0~650V/800V, CC 0.5~500mA
11210	LC, IR, Partial Discharge (option) Flashover Detection (option)	1.0~1000V, CC 0.5~50mA

## LCR Meters



LCR Meter  
11021/11021-L

LCR Meter  
11025



HF LCR Meter  
11050 Series

### LCR Meter Selection Guide

Model	Frequency Range	Impedance Range
11020	100Hz, 120Hz, 1kHz	0.1pF ~ 4.00 F
11021	100Hz, 120Hz, 1kHz, 10kHz	0.1mΩ ~ 100MΩ
11021-L	1kHz, 10kHz, 40kHz, 50kHz	0.1mΩ ~ 100MΩ
11022	50/60/100/120/1k/10k/ 20k/40k/50k/100k Hz	0.01mΩ ~ 100MΩ
11025	50/60/100/120/1k/10k/ 20k/40k/50k/100k Hz/DC	0.01mΩ ~ 100MΩ
11050-30M	75kHz~30MHz/DC	0.1mΩ ~ 100MΩ
11050	1kHz~10MHz/DC	0.1mΩ ~ 100MΩ
11050-5M	60Hz ~ 5MHz/DC	0.1mΩ ~ 100MΩ
3252	20Hz~200kHz/DC	0.1mΩ ~ 100MΩ
3302	20Hz~1MHz/DC	0.1mΩ ~ 100MΩ

## Automatic Transformer Testers



13350

### Auto Transformer Test System Selection Guide

Model	Frequency Range	Impedance Range
13350 +A133502	20Hz ~ 200kHz	0.1mΩ ~ 100MΩ
13350-1M+A133502	20Hz ~ 1MHz	0.1mΩ ~ 100MΩ
3250 + A132501	20Hz ~ 200kHz	0.1mΩ ~ 100MΩ
3302 + A132501	20Hz ~ 1MHz	0.1mΩ ~ 100MΩ

## Electrolytic Capacitor Testers



11800

### Electrolytic Capacitor Tester Selection Guide

Model	Primary Function	Test Signal
11800	Ripple current tester	100Hz/120Hz/400Hz/1kHz, 0~30A DC Bias 0.5V~500V
11801	Ripple current tester	20k~100kHz, 0~10A, DC Bias 0.5~500V
11810	Ripple current tester	20k~1000kHz, 0~10A, DC Bias 0.5~500V
13100	Electrolytic capacitor analyzer	AC 100Hz/120Hz/1kHz/10kHz/ 20kHz/50kHz/100kHz, 1V/0.25V

### Programmable HF AC Tester Selection Guide

Model	Frequency Range	Max. Output Power
11802	20kHz~200kHz, step 1kHz	500VA
11805	10kHz~200kHz, step 1kHz	1kVA
11803	20kHz~1MHz, step 1kHz	750VA
11890	20kHz~200kHz, step 1kHz	500VA
11891	20kHz~200kHz, step 1kHz	500VA

# Battery Cell & Battery Pack Test Solutions



### Regenerative Battery Cell Test Systems

Charge/Discharge Test System, Barcode Binding Equipment, Formation System, OCV & ACR Test Equipment

### Regenerative Battery Module/Pack Test Systems

BMS PCBA ATS, Functional ATS, Battery Module/Pack Test Systems, Battery Pack ATS, Maintenance ATS

**Battery Cell**

RT Aging, Formation, HT Aging

Barcode Binding, OCV & ACR Test, Grouping Equipment

**Battery Module**

**Battery Pack**

### Battery Cell/Module/Pack Test Instruments

Battery Cell Insulation Tester, Hipot Analyzer, 16 CH Battery Simulator, Multi-Channel Hipot Tester, DC Power Supplies, DC Electronics Loads, Thermal Data Logger

# Battery Cell Charge & Discharge Test System

Regenerative Charge & Discharge Test System 17011				
Module	Max.V/I	Parallelable Current	Energy Recycling	Total channels in system
17212R-5-60	5V/60A	6A~720A	V	12ch./set (fixed)
17212R-5-100	5V/100A	100A~1200A	V	12ch./set (fixed)
17212M-6-100	6V/100A	100A~1200A	V	12ch./set (fixed)
17216M-10-6	10V/6A	6A~96A	--	16ch./set (fixed)
17208M-6-30	6V/30A	30A~240A	--	8ch./set (fixed)



Charge & Discharge Tester 17216M-10-6



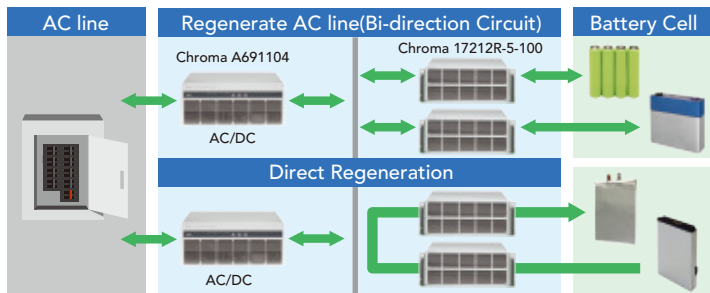
Charge & Discharge Tester 17208M-6-30



25U System

30A / 36U System

100A / 41U System



Chassis Size	6A	30A	Dimensions (DxWxH)mm
25U	32 CH *	16 CH *	1100 x 600 x 1340
36U	64 CH *	32 CH *	1100 x 600 x 1830
41U	--	40 CH *	1100 x 600 x 2060







Chassis Size	60A	100A	Dimensions (DxWxH)mm
25U	12 CH *	12 CH *	1100 x 600 x 1340
36U	48 CH	36 CH	1100 x 600 x 1830
41U	48 CH *	36 CH *	1100 x 600 x 2060

\* Available for data logger

### Chroma 17011 System

Type	Power	8 CH	12 CH	16 CH	24 CH	32 CH	36 CH	40 CH	48 CH	64 CH
6A	1 Φ 220V/3 Φ 380V	--	--	3 kVA	--	5 kVA	--	--	8 kVA	10 kVA
30A	1 Φ 220V/3 Φ 380V	4.5 kVA	--	9 kVA	13 kVA	17 kVA	--	22 kVA	--	--
60A	3 Φ 220V/3 Φ 380V	--	9 kVA	--	18 kVA	--	26 kVA	--	35 kVA	--
100A	3 Φ 220V/3 Φ 380V	--	15 kVA	--	29 kVA	--	43 kVA	--	--	--

# Regenerative Battery Pack Test Systems

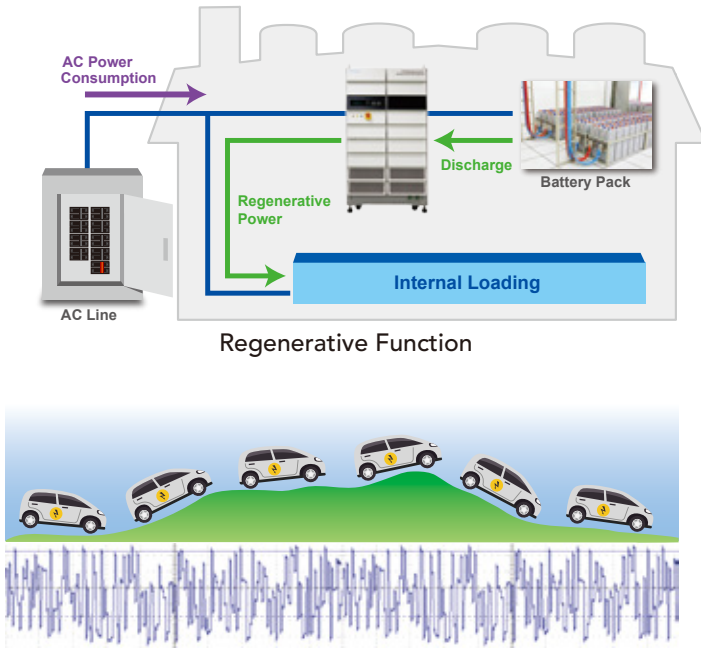
-   
Energy  
Regeneration
-   
Channel  
Expandable
-   
Parallelable
-   
High  
Power
-   
0.1%  
High  
Accuracy
-   
Driving Cycle  
Simulation



17020 System

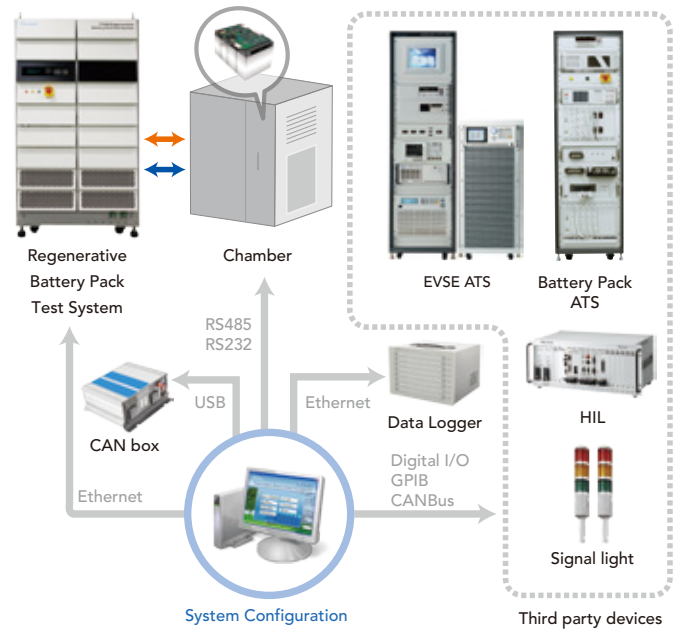
17020E System

17040 System



Regenerative Function

Driving Profile Simulation



Hardware/Software integration and Customization

Regenerative Battery Pack Test System Model 17020				
Total Power	Max. Power per channel	Max. Voltage	Max. Current per channel	Total Channels per Unit (Parallelable)
600W	600 W	60V	13A	8~56
1.25kW	1.25 kW	20V / 60V	65A/62.5A	4~40
2.5kW	2.5 kW	20V / 60V / 100V / 200V / 500V *	130A/125A/62.5A/50A/30A/13A	4~20
5kW	2.5 kW	20V / 60V / 100V / 200V / 500V *	260A/250A/125A/100A/60A/26A	2~10
10kW	2.5 kW	20V / 60V / 100V / 200V / 500V *	520A/500A/250A/200A/120A/52A	1~5
20kW	2.5 kW	20V / 60V / 100V / 200V / 500V *	1040A/1000A/500A/400A/240A/104A	1~3
50kW	2.5 kW	20V / 60V / 100V / 200V / 500V *	2600A/2500A/1250A/1000A/600A/260A	1
60kW	2.5 kW	60V / 100V / 200V / 500V	1500A/1200A/720A/312A	1

\* More power or channel combinations are available.

Regenerative Battery Pack Test System 17020E				
Total Power	Max. Power per channel	Max. Voltage	Max. Current per channel	Total Channels per Unit (Parallelable)
20kW	10kW	100V *	100A	2
40kW	10kW	100V *	100A	4
20kW	10kW	60V *	180A	2
40kW	10kW	60V *	180A	4
40kW	20kW	60V *	360A	2

\* More power or channel combinations are available.

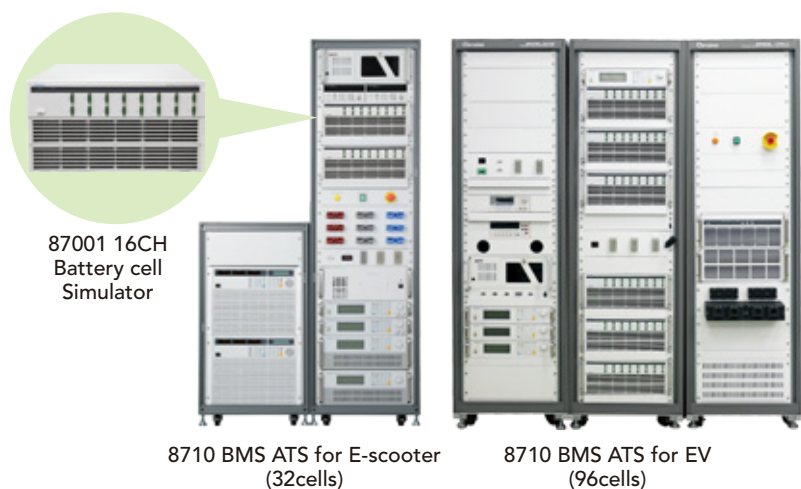
Regenerative Battery Pack Test System 17040				
Total Power	Max. Power per channel	Max. Voltage	Max. Current per channel	Total Channels per Unit (Parallelable)
60kW	60kW	1000V	150A	1
120kW	60kW	1000V	150A	2
120kW	120kW	1000V	300A	1
250kW	125kW	1000V	300A	2
180kW	180kW	1000V	450A	1
250kW	250kW	1000V	600A	1
300kW	300kW	1000V	750A	1

## Battery Pack Simulator 17020/17040



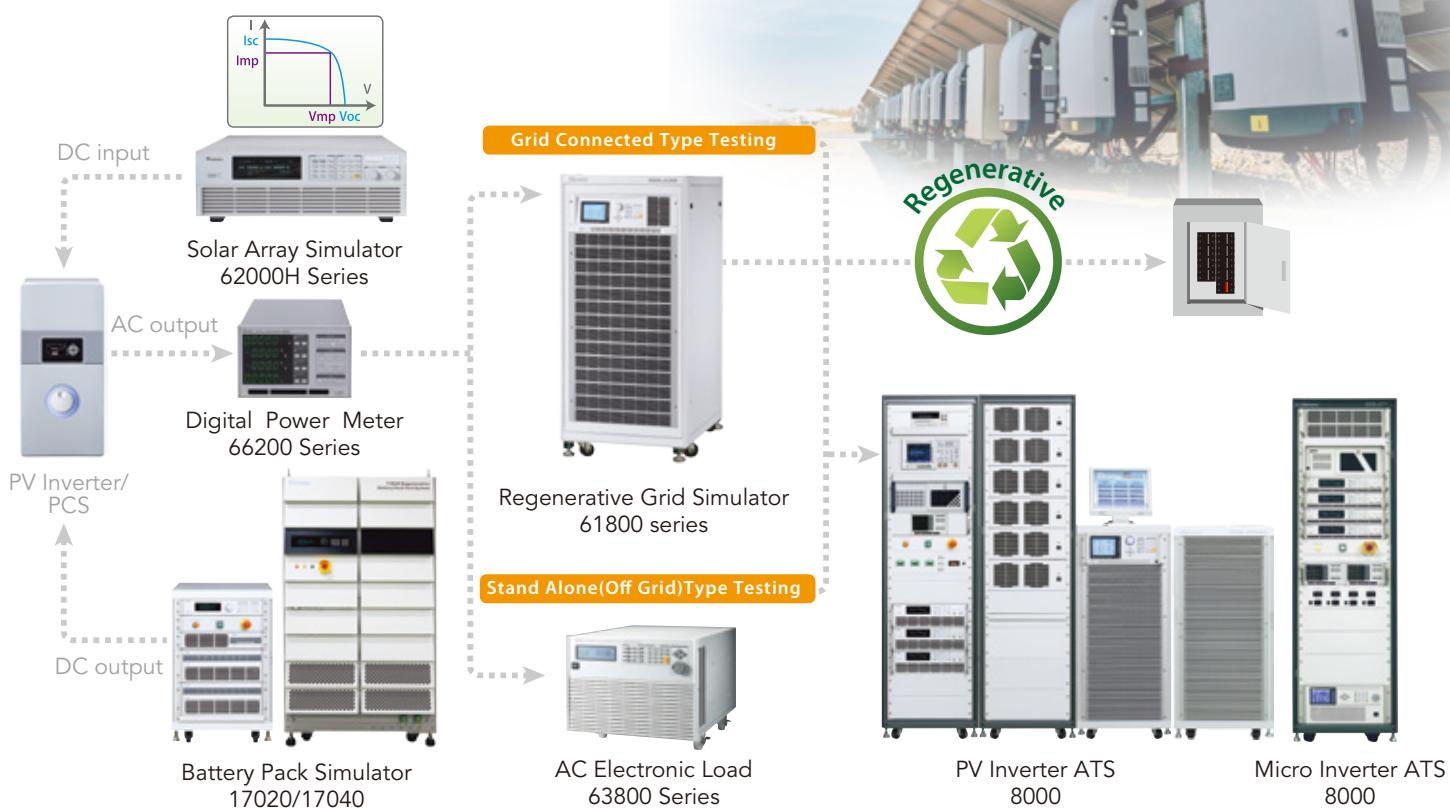
Battery Pack Simulator			
Applications	17020	17040	Battery Pack Simulator Soft Panel
1.4kW OBC	V	--	V
3.3~6.6kW OBC	V	--	V
1.6~2.5kW D/D Converter	V	--	V
50kW DC Charging station	--	V	V

## BMS Test System 8710 & Battery Cell Simulator 87001

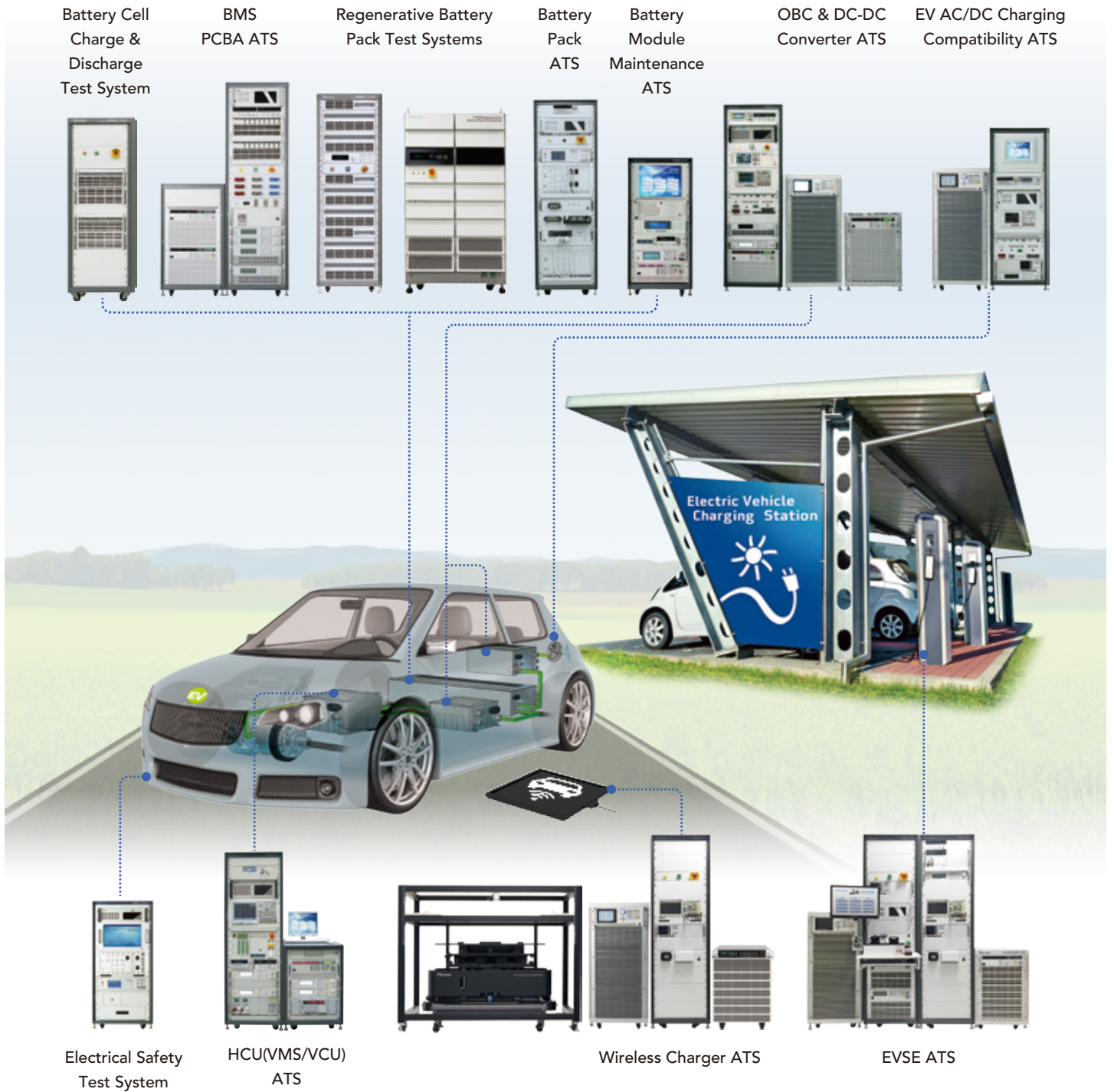


BMS Test System 8710 & Battery Cell Simulator 87001		
BMS Functions	87001	8710
Cell Voltage Monitor and Balance Circuit	V	V
High Voltage Measurement	--	V
Current Measurement	--	V
Temperature Measurement	--	V
Insulation Resistor Detion	--	V
CANbus Communication (UDS)	--	V
AC/DC Charger Signal	--	V
Starter Battery	--	V
HSD/ LSD Circuit	--	V

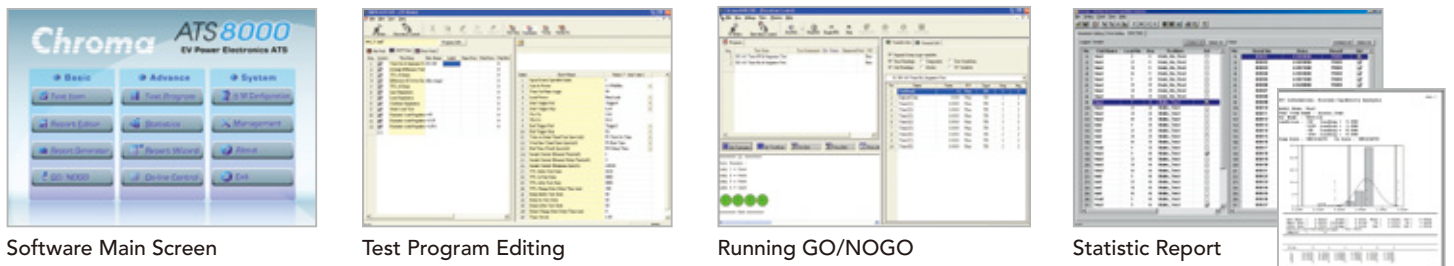
## PV Inverter/PCS Test Solutions



# Electric Vehicle Test Solutions



# Software Platform - PowerPro III



Software Main Screen

Test Program Editing

Running GO/NOGO

Statistic Report





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