

Preliminary



## Programmable Charge/Discharge Tester Model 17200 Series

Chroma 17200 series is a precision charge/discharge test instrument specifically designed for Lithium-ion secondary battery. High accuracy output and measurement channels ensure long term repetitive test results. It is capable of supporting various charge/discharge test modes such as CV (Constant Voltage), CC (Constant Current) and CP (Constant Power). These optimized features are typically required to perform cell reliability verification (such as battery cycle life test), the study of material properties, product research and development, production incoming / outgoing inspection or balancing, quality control, and safety evaluation.

The modularized multi-channels architecture offers both flexibility and expandability, catering to cycle test requirements. The Chroma 17200 series is composed of a mainframe with 5 two-channel plug-in modules that may operate independently or paralleled offering the most flexibility between high current and high channel count testing making it a versatile solution for laboratory testing. This modularity yields several advantages including a small footprint, improved and incremental power densities, and ease of hardware maintenance or expansion.

Each module has an embedded CPU that allows isolated instruction execution per channel. Once a test profile is created and transferred from the programming console, each channel can discretely operate and back up the test results locally or uploaded via Ethernet to an external computer. Therefore, an overloaded network or a power outage will not compromise data transfer.

When used with the Chroma BatteryPro software, flexible functions and programming allows the rapid creation of test recipes for individual or a group of channels and as a single independent channel or as a high current paralleled channel set. The application field covers varied Lithium-ion battery or battery module characteristic tests which were formulated to meet the versatile test requirements for laboratory and manufacturing environments.

For safety, several protection features such as, cell polarity check, over voltage, over current, over capacity and loop (contacts and current path) resistance monitoring are provided to safeguard each cell and its surroundings.

To ensure the continuity of extended duration analysis such as life cycle testing, the 17200 can be paired with redundant DC Power Supplies -Chroma 62000B-. This innovative design assures the stability and continuity of each test. The 62000B was crafted for work stations that are sensitive to power failures, such as system servers, burn-in, life-test or longevity testing that cannot be interrupted. In the unlikely event of a power supply failure, the parallel N+1 redundancy architecture assures continuous operation. A power module is easily hot-swappable eliminating down time.

## Programmable Charge/ Discharge Tester

### MODEL 17200

#### Feature:

- High-accuracy current output & measurement up to 0.02%
- Linear circuit design, low ripple current
- Long term stability suitable for life cycle testing
- Independent channels
- Parallel channels for higher current applications
- CC/CV/CP charge, discharge models
- High sampling rate
  - Battery mode - 100ms
  - EDLC mode - 10ms
- Discharge down to 0V
- Real time data acquisition and log (Q, Vt, It, time) and steptermination status (Q, V\_end, I\_end, time)
- Real-time outer loop resistance monitoring
- Compatible with reliable, redundant, hot swappable DC Source assuring continuous operation during life cycle tests.
- Modular design for easy installation and maintenance

#### Function:

- Battery cell capacity test
- DC internal resistance (DCIR) test

#### Application:

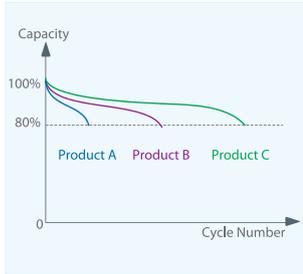
- Charge / Discharge life cycle test
- IQC (Incoming Quality Control)
- OQC (Outgoing Quality Control)
- Battery characteristic analysis
- Material performance evaluation
- Production test
- Battery cell voltage level processing



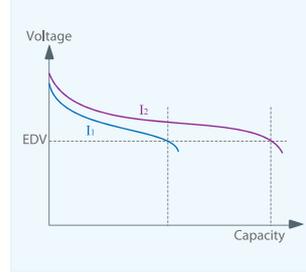
# Chroma

## BATTERY RELIABILITY TEST APPLICATIONS

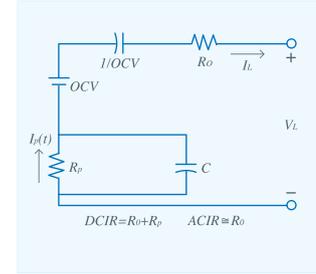
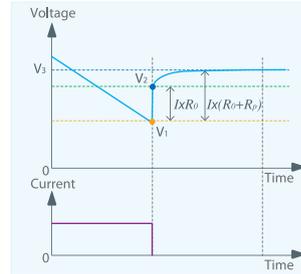
### Cycle Life Testing



### Capacity Measurement



### IR (Internal Resistance) Measurement Lumped Parameter Model Circuit Diagram



## CHARGE/DISCHARGE MODULE SPECIFICATIONS

Item	Specifications	
Frame	17200-5-10	
Module	17202-5-20	
Maximum Voltage / Current	5V/20A	
Maximum Channel	2 ch / module, 10 ch / frame	
Control Method	CC/CV/CP charge, discharge models	
<b>Voltage</b>		
Setting Range	0 mV ~ 5000 mV, resolution 1 mV	
Reading Range	0.0 mV ~ +5199.9 mV, resolution 0.1 mV	
Accuracy	± (0.02% of reading + 0.02% of F.S.)	
<b>Current</b>		
Setting Range	3A	1 mA ~ 3A, resolution 1 mA
	20A	3.01A ~ 20A, resolution 0.01A
Reading Range	3A	0.0 mA ~ 3150.0 mA, resolution 0.1 mA
	20A	0.000A ~ 21.000 A, resolution 1 mA
Accuracy	3A	± (0.02% of reading + 0.02% of F.S.)
	20A	± (0.03% of reading + 0.03% of F.S.)
<b>Power</b>		
Setting Range	10 mW ~ 100 W, resolution 1 mW	
Reading Range	0.1 mW ~ 104 W, resolution 0.1 mW	
Accuracy	± (0.05% of reading + 0.05% of F.S.)	
<b>General Specifications</b>		
Recipe Edit Capability	Max. step number in one recipe : 500 steps Max. cycle number : 9999 steps	
Data Storage	100ms~60min	
Dynamic Data Acquisition	Time, Voltage, Current	
Power Requirement	DC 23.8 ~ 24.5V, 2KW (Chroma 62000B)	
Frame Dimension ( H x W x D)	222 mm x 428 mm x 643 mm	
Weight (Full module)	Approx. 63 Kg	



17011 Battery Charge & Discharge Test System



62000B Modular DC Power Supply \*optional

## ORDERING INFORMATION

**Model 17200-5-10** : 17200 Mainframe for 5 Modules

**Model 17202-5-20** : Programmable Charge/Discharge Tester Module 5V/20A 2 channels

**DC Power Supply** : Refer to Model 62015B-24-62, 24V/62.5A/1500W \*optional

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