REGENERATIVE AC ELECTRONIC LOAD MODEL 63800R SERIES

Chroma 63800R Series offers AC electronic loads with regenerative capability, featuring three models with power ratings of 9kVA, 12kVA, and 15kVA. This series boasts a high-power density design, providing a maximum load capacity of 15kVA within a compact 3U chassis. To accommodate higher power rating test requirements, you can parallel multiple units for increased load capacity while utilizing master-slave control.

The Chroma 63800R Series presents a highly efficient energy-saving solution with its regenerative feature, making it ideal for a broad spectrum of renewable energy applications, including ESS, hybrid PV inverters, AC EVSE, and bidirectional on-board chargers (BOBC) for V2L and V2H applications.

In contrast to traditional AC loads for UPS testing, the 63800R Series eliminates waste heat generation, significantly reducing electricity costs due to its regenerative capability. Furthermore, it meets the requirements of the IEC 62040-3 standard for UPS testing.

The Chroma 63800R Series utilizes advanced all-digital control technology and introduces a Stand-By function to handle rapid fluctuations in the voltage source of the Device Under Test (DUT). This function keeps the load in an active state when the DUT is in standby or off and instantly starts drawing power when the voltage source is activated. This functionality lends itself well to the implementation of fully automated testing in smart factories.

In addition to basic functions such as CC, CP, and CR, the Chroma 63800R Series offers advanced operating modes like Rectified and phase Lead/Lag mode. It can also simulate SCR and TRIAC component characteristics with its unique half-cycle load function.

The 63800R Series features a 5" LCD display with an intuitive user interface for seamless operation. Connectivity options include USB, LAN, and optional GPIB or CAN interfaces for swift remote and digital control via a PC using Chroma's SoftPanel software. Additionally, Chroma provides instrument drivers for LabVIEW-integrated system control.

LAN CAN USB GPIB CE RoHS2 Compliant

MODEL 63800R SERIES

KEY FEATURES

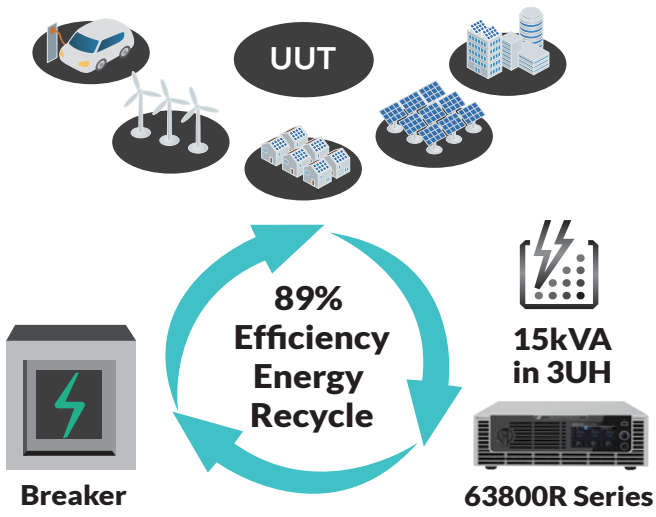
- Rated power: 9kVA, 12kVA, 15kVA
- Rated current: 87Arms, 96Arms, 105Arms
- Voltage range: 30Vrms~350Vrms
- Frequency range: 30Hz~100Hz
- Crest factor range: 1.414~3.000
- Power factor range: 0.100 ~1.000 (lead/lag)
- 3U height with up to 15kVA high power density
- Intuitive Touch Panel Interface
- High precision, equivalent to linear load levels
- Selectable single-phase and three-phase load mode
- Accept reverse rated apparent power with 89% efficiency regenerative conversion to grid
- Rectified load mode
- Leading/lagging current load mode
- Current source mode
- Stand-By fast response functionality
- Inductive/capacitive load simulation function
- Positive/negative half-cycle load function
- Configurable start/end loading current phase angles
- Configurable current load upper limit
- Universal AC Input Range
- Parallelable (by three-phase mode) for higher power output
- Standard remote interfaces: USB, LAN
- Optional remote interfaces: GPIB, CAN
- Suitable for EVSE, Off-Grid PV inverter, and UPS product test applications

Chroma
Advancing Excellence

HIGH-POWER DENSITY REGENERATIVE AC LOAD

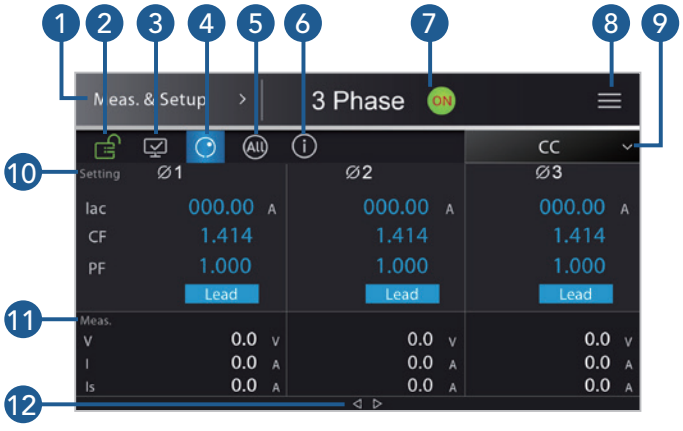
Chroma 63800R Series Electronic Loads are high-precision switching-type AC loads, achieving a maximum load capacity of 15kVA in a 3U chassis through high-power density design. Powered by leading-edge bidirectional power source technology, these regenerative units can feed energy consumed during the test back to the facility's power grid with up to 89% efficiency.

When a 63800R Series Regenerative AC Load is used with a test rack configuration, the 3U chassis height offers great flexibility and saves valuable rack space. The energy recovery feature addresses the wasted heat issues associated with traditional RLC load boxes and saves on cooling costs. Additionally, for testing various different devices, the single/three-phase functionality eliminates the need to use multiple traditional loads.



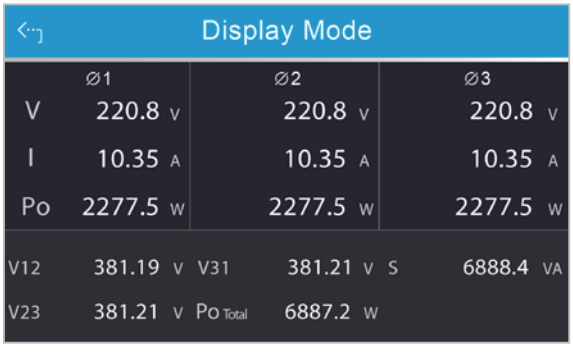
INTUITIVE TOUCHSCREEN UI

The 63800R Series Regenerative AC Load is equipped with a touchscreen interface, providing an easy-to-use UI that allows users to quickly configure and operate various settings. Advanced AC load functions are conveniently located under the "More Settings" option in the upper-right corner. The display mode can expand the measurement value to full screen, making it easy to view.



1. Function Menu
2. Screen Lock
3. Display Mode (Show Only Measurement
4. Rotary Knob Input Mode
5. 3-Phase Unified setting
6. Total Output Power
7. Device Loading in Progress
8. Advanced Setting Options
9. Output Mode Selection
10. Load Parameter Settings
11. Measurement
12. More Measurement (Right/Left Swipe)

More Setting



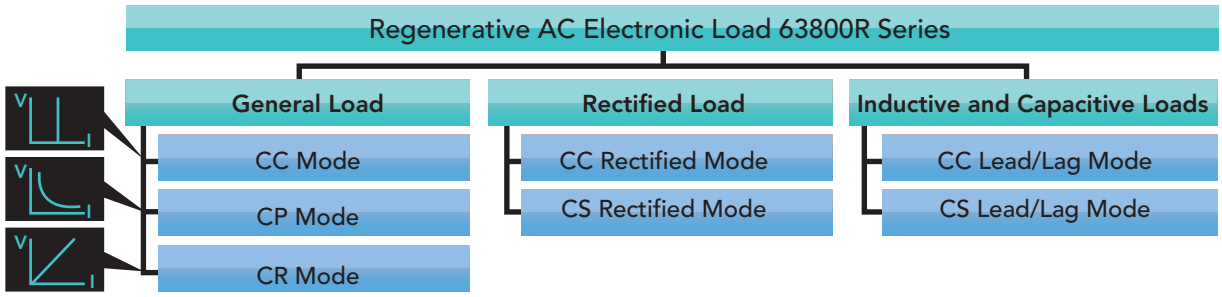
Display Mode

GRID CONNECTION AND ENERGY RECOVERY SAFETY MECHANISM

The regenerative design of the 63800R Series incorporates a comprehensive set of protective measures. When the 63800R Series detects abnormalities in the grid-side AC input, such as overvoltage, undervoltage, frequency anomalies, three-phase imbalance, or excessive current, the device issues an immediate warning and activates trip protection to comply with grid protection mechanisms.

COMPREHENSIVE AC LOAD SIMULATION FUNCTIONALITY

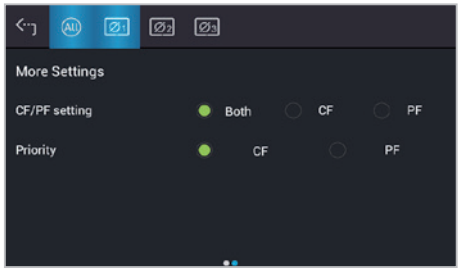
Chroma 63800R Series Regenerative AC Electronic Loads offer a full range of AC load simulation functions. The loads feature different operating modes to cater to a wide range of load simulation requirements, including general load, rectified load, and inductive/capacitive load modes.



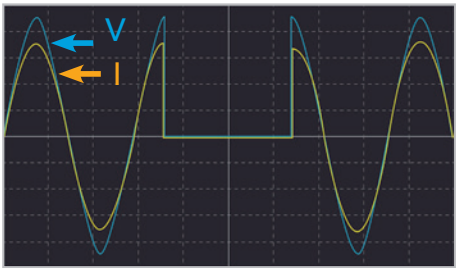
General Load

The 63800R Series offers a complete set of Constant Current (CC), Constant Power (CP), and Constant Resistance (CR) modes, which can be used to simulate a broad array of AC load characteristics. In the CC and CP modes, you can configure the load's Power Factor (PF) or Crest Factor (CF). In the CR mode, the PF value is always 1, allowing you to simulate linear impedance test condition.

CC Mode Main Screen (Three Phase)



CF/PF Parameter Priority Settings

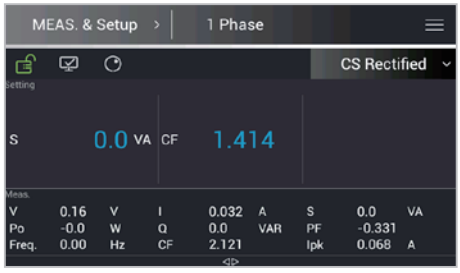


Voltage Interruption Load Testing (CR Mode)

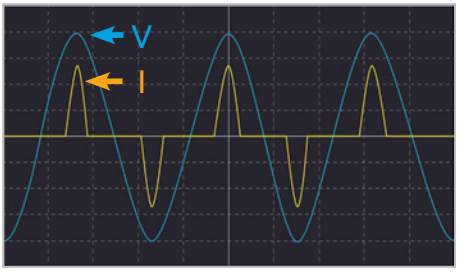
Rectified Load

For rectified or nonlinear loads such as traditional inverters, UPS, switch-mode rectifiers, and electromechanical devices using variable frequencies, Chroma 63800R Series offers dedicated CC Rectified and CS Rectified modes. Depending on whether the test requires constant current or constant apparent power, additional settings for the CF value can be configured to generate peak current for accurate simulation of various types of nonlinear load currents.

CC Rectified Mode (Three Phase)



CS Rectified Mode (Single Phase)

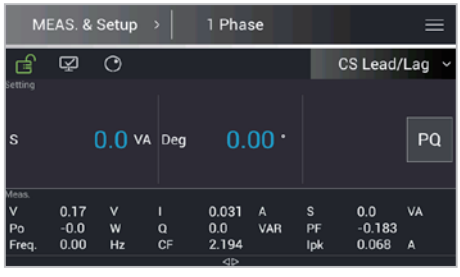


Rectified Mode (CF = 3)

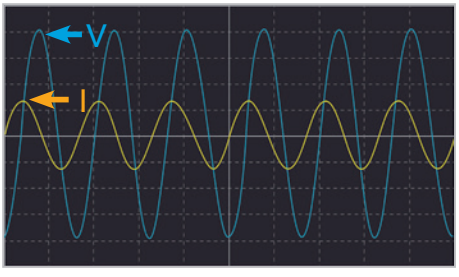
Inductive and Capacitive Loads

Chroma 63800R series can adjust the phase difference (in degrees) between current and voltage by utilizing specific CC Lead/Lag and CS Lead/Lag modes to simulate various inductive or capacitive load characteristics under constant current or constant apparent power test conditions.

CC Lead/Lag Mode (Three-Phase)



CS Lead/Lag Mode (Single Phase)

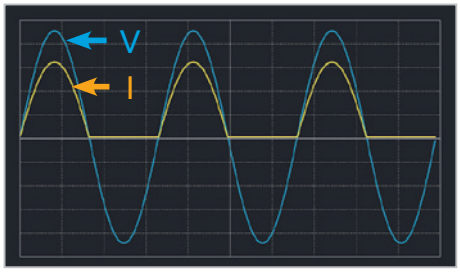


Lead/Lag Mode (Deg=90°)

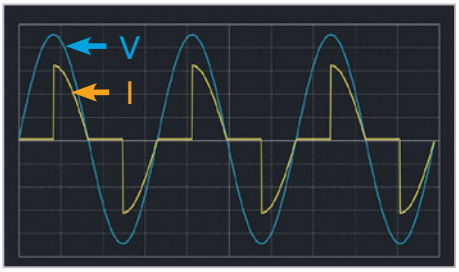
HALF-CYCLE LOAD FUNCTION

Chroma 63800R Series Regenerative AC Loads are equipped with a half-cycle load function in CC Rectified mode. This function is capable of supplying positive half-cycle, negative half-cycle load currents, and even 90-degree Leading Edge and Trailing Edge half-cycle loads, replicating the features of SCR and TRIAC switches. With this function, users can simulate load characteristics for household appliances, protective switches, and other devices employing SCR or TRIAC components.

Half-Cycle Load Function Menu



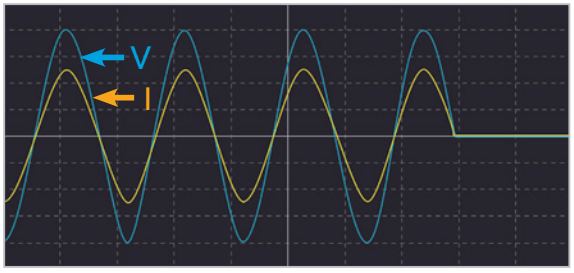
Positive Half-Cycle Load Waveform



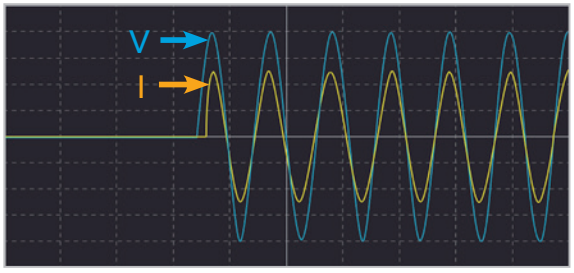
90° Leading Edge Load Waveform

STAND-BY FAST RESPONSE FUNCTIONALITY

The 63800R Series feature a novel Stand-By fast response functionality, made possible by advanced control algorithms and precise, rapid circuit detection. In scenarios where the circuit is suddenly opened or the voltage source is interrupted, the load can quickly switch to a stand-by state by detecting the disappearance of the voltage from the DUT. This feature also allows users to activate the load On with stand-by mode before the voltage source starts. Once the voltage source is activated, the 63800R immediately switches to Load mode, enabling a rapid test startup. As a result, the 63800R Series is especially suitable for AC EVSE testing, including dynamic load testing, OCP/OPP load testing, card-swipe charging tests, as well as load startup and backup power switching tests for inverters and UPS systems.



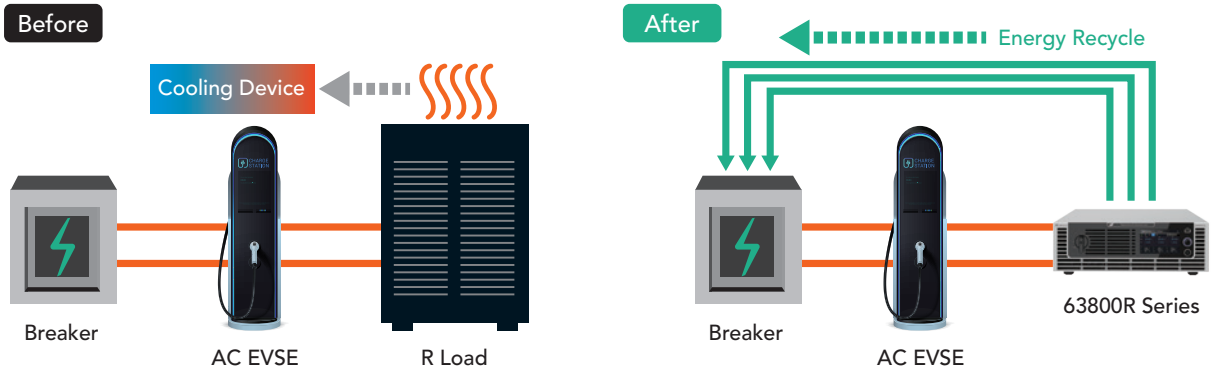
Stand-By Function Used for DUT Interruption Testing



Stand-By Function Used for Rapid Startup Testing

ENERGY-SAVING TEST SOLUTION FOR AC ELECTRIC VEHICLE SUPPLY EQUIPMENT

Chroma 63800R Series Regenerative AC Loads offer a new energy-efficient and carbon-saving solution for AC EVSE testing, thanks to their high power density and efficient energy recovery capability. Traditional load banks not only have a large footprint but also convert consumed power into heat, leading to significant energy consumption and requiring cooling systems to prevent overheating. In contrast, the Chroma 63800R Series achieves energy recovery with an efficiency of up to 89%. For instance, when operating at full load power, a single unit can save 116,946 kWh of electricity per year, which is equivalent to reducing 45,258 kg (99,777 lbs) of carbon emissions*1. The 63800R comes equipped with comprehensive CC, CP, and CR load modes and complies with the standardized CCID/RCD leakage current requirements for AC EVSE testing*2.



Note*1: According to the National Energy Information Administration, 1 kWh of power consumption results in approximately 0.855 pounds (0.387 kilograms) of carbon emissions
Note*2: Additional of Chroma 63800R dedicated Inrush Current Limiter Box is required for AC EVSE and AC EV Charger testing applications.

SPECIFICATIONS

Model	63809R-350-87	63812R-350-96	63815R-350-105
Operating			
Phase	1 or 3 selectable	1 or 3 selectable	1 or 3 selectable
Max. Power	9kVA	12kVA	15kVA*1
Max. Current	87Arms (261Apeak)	96Arms (288Apeak)	105Arms (315Apeak)
Voltage Range	30 ~ 350Vrms	30 ~ 350Vrms	30 ~ 350Vrms
Frequency Range	30 ~ 100Hz	30 ~ 100Hz	30 ~ 100Hz
CC Mode (each phase)			
Current Range	0 ~ 29Arms	0 ~ 32Arms	0 ~ 35Arms
Accuracy (A) *2	0.3%+ 0.5%F.S.	0.3%+ 0.5%F.S.	0.3%+ 0.5%F.S.
Resolution (A)	0.01Arms	0.01Arms	0.01Arms
Crest Factor Range	1.414 ~ 3.000	1.414 ~ 3.000	1.414 ~ 3.000
PF	0.100 ~ 1.000 (Lead or Lag)	0.100 ~ 1.000 (Lead or Lag)	0.100 ~ 1.000 (Lead or Lag)
CP Mode (each phase)			
Power Range	0 ~ 3kW	0 ~ 4kW	0 ~ 5kW*1
Accuracy (W)	0.3% + 0.3%F.S.	0.3% + 0.3%F.S.	0.3% + 0.3%F.S.
Resolution (W)	1W	1W	1W
Crest Factor Range	1.414 ~ 3.000	1.414 ~ 3.000	1.414 ~ 3.000
PF	0.100 ~ 1.000 (Lead or Lag)	0.100 ~ 1.000 (Lead or Lag)	0.100 ~ 1.000 (Lead or Lag)
CR Mode (each phase)			
Resistance Range	1Ω ~ 300Ω	1Ω ~ 300Ω	1Ω ~ 300Ω
Accuracy (Ω)	0.3% + 0.5%F.S.	0.3% + 0.5%F.S.	0.3% + 0.5%F.S.
Resolution (Ω)	0.001Ω	0.001Ω	0.001Ω
CC Rectified Mode (each phase)			
Current Range	0 ~ 29Arms	0 ~ 32Arms	0 ~ 35Arms
Accuracy (A) *2	0.3%+ 0.5%F.S.	0.3%+ 0.5%F.S.	0.3%+ 0.5%F.S.
Resolution (A)	0.01Arms	0.01Arms	0.01Arms
Crest Factor Range	1.414 ~ 3.000	1.414 ~ 3.000	1.414 ~ 3.000
CS Rectified Mode (each phase)			
Power Range	0 ~ 3kVA	0 ~ 4kVA	0 ~ 5kVA*1
Accuracy (VA)	0.3% + 0.3%F.S.	0.3% + 0.3%F.S.	0.3% + 0.3%F.S.
Resolution (VA)	1VA	1VA	1VA
Crest Factor Range	1.414 ~ 3.000	1.414 ~ 3.000	1.414 ~ 3.000
CC Phase Lead/Lag Mode (each phase)			
Current Range	0 ~ 29Arms	0 ~ 32Arms	0 ~ 35Arms
Accuracy (A) *2	0.3%+ 0.5%F.S.	0.3%+ 0.5%F.S.	0.3%+ 0.5%F.S.
Resolution (A)	0.01Arms	0.01Arms	0.01Arms
Phase Degree	-90° ~ +90° (Current Source Mode: +90.01° ~ +180° & -90.01° ~ -180°)		
CS Phase Lead/Lag Mode (each phase)			
Power Range	0 ~ 3kVA	0 ~ 4kVA	0 ~ 5kVA*1
Accuracy (VA)	0.3% + 0.3%F.S.	0.3% + 0.3%F.S.	0.3% + 0.3%F.S.
Resolution (VA)	1VA	1VA	1VA
Phase Degree	-84.26° ~ +84.26°	-84.26° ~ +84.26°	-84.26° ~ +84.26°
PF	0.100 ~ 1.000 (Lead or Lag)	0.100 ~ 1.000 (Lead or Lag)	0.100 ~ 1.000 (Lead or Lag)
Measurement			
Voltage			
Voltage Range	0 ~ 350Vrms	0 ~ 350Vrms	0 ~ 350Vrms
Accuracy (RMS)	0.1% + 0.2%F.S.	0.1% + 0.2%F.S.	0.1% + 0.2%F.S.
Current			
Peak Current Range	0 ~ 261Apeak	0 ~ 288Apeak	0 ~ 315Apeak
Accuracy (RMS)	0.4%+0.3% F.S.	0.4%+0.3% F.S.	0.4%+0.3% F.S.
Accuracy (Peak)	0.4%+0.6% F.S.	0.4%+0.6% F.S.	0.4%+0.6% F.S.
Power			
Accuracy	0.4%+0.8% F.S.	0.4%+0.8% F.S.	0.4%+0.8% F.S.
Input Rating			
Voltage Operating Range	3Φ 200V~220V±10%VLL / 47~63Hz (100% output power) 3Φ 380V~480V±10%VLL / 47~63Hz (100% output power)		3Φ 200V~220V±10%VLL / 47~63Hz (80% output power) 3Φ 380V~480V±10%VLL / 47~63Hz (100% output power)
Current	39A Max./Phase (3Φ 200~240V±10%VLL) 21A Max./Phase (3Φ 380V~480V±10%VLL)	51A Max./Phase (3Φ 200~240V±10%VLL) 27A Max./Phase (3Φ 380V~480V±10%VLL)	51A Max./Phase (3Φ 200~240V±10%VLL) 34A Max./Phase (3Φ 380V~480V±10%VLL)
Power Factor	0.98 (Typical)	0.98 (Typical)	0.98 (Typical)
Others			
Efficiency	89%		
Protection	OVP, OCP, OPP, OTP, FAN		
Safety & EMC	CE (include EMC & LVD)		
Dimension (H x W x D)	132.8 x 428 x 700 mm / 5.23 x 16.85 x 27.55 inch		
Weight	50 kg/110.23 lbs	50 kg/110.23 lbs	50 kg/110.23 lbs

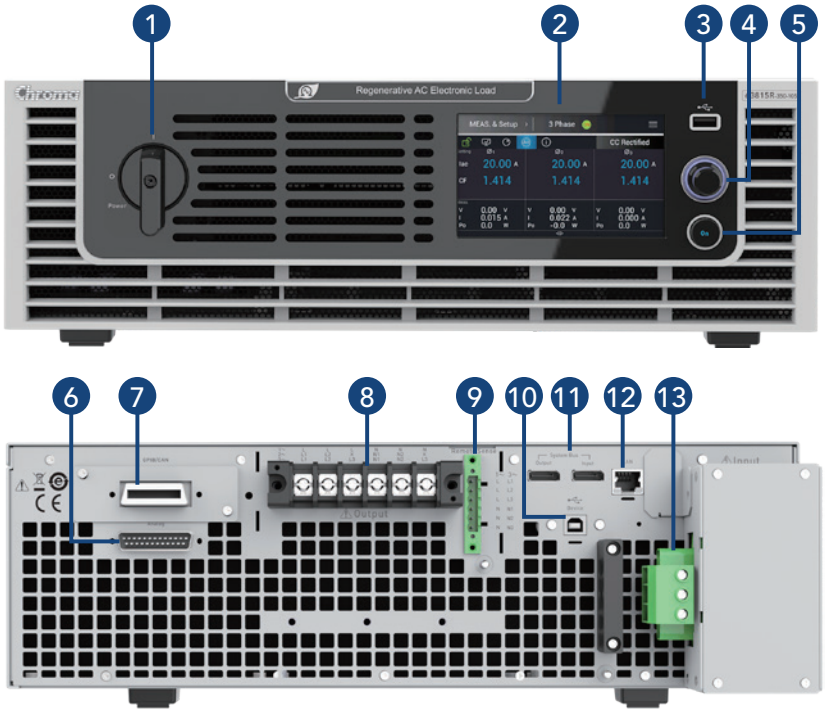
*1: The output power will be derating to 80% when using 3Φ 200Vac-220Vac as input voltage.
*2: Condition to meet specification: Irms≧0.5A and the DUT source is a sinusoidal voltage. (Vthd <0.5% @ 50Hz/60Hz, CF=1.414)
* All specifications are subject to change without notice.

MASTER-SLAVE PARALLEL OPERATION

Chroma 63800R Series Regenerative AC Loads feature Master-Slave parallel capability, allowing a total parallel connection of three units to meet higher load power requirements. By paralleling three 63800R Series units of the same power rating in a structure consisting of one master unit and two slave units, users can achieve a high power density configuration with a total load power of 45kVA within a 9U form factor.

* Chroma 63800R Series products can only support 3-phase mode in parallel connection.

PANEL DESCRIPTION



1. Power ON/OFF Switch
2. 5" LCD Touch Panel
   Displays: measurements, setup, control, and status
3. USB HOST
   Screenshot, save/recall the setting parameters, firmware version updates
4. Selectable Rotary Knob
   Rotate to edit screen and set values; push to change setting digits
5. Output ON/OFF Key
   Press the ON key: light indicates Output ON, dark indicates Output OFF
6. Analog Programming Interface (Ext. V Reference/TTL I/O Port)
   External analog signal for voltage control and signal for system integration
7. GPIB/CAN Interfaces Shared Slot (alternative installation)
8. AC Load Terminal
9. Remote Sense Terminal
10. USB Interface (standard)
11. System Bus
    For master-slave parallel output function
12. LAN Interface (standard)
13. AC Input Terminal

ORDERING INFORMATION

63809R-350-87	Regenerative AC Electronic Load	9kVA
63812R-350-96	Regenerative AC Electronic Load	12kVA
63815R-350-105	Regenerative AC Electronic Load	15kVA
A618005	Single/Three Phase Switching Unit (option)	
A620039	GPIB remote interface (option)	
A620045	CAN remote interface (option)	
* A638003	SoftPanel for 63800R Series	

* Call for availability.

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63800R