BLITZPower

Perfect Grid Simulator

ACM series

0V to 900V, 90kVA to 4MVA

Programmable AC Source & Load

blitz-power.com

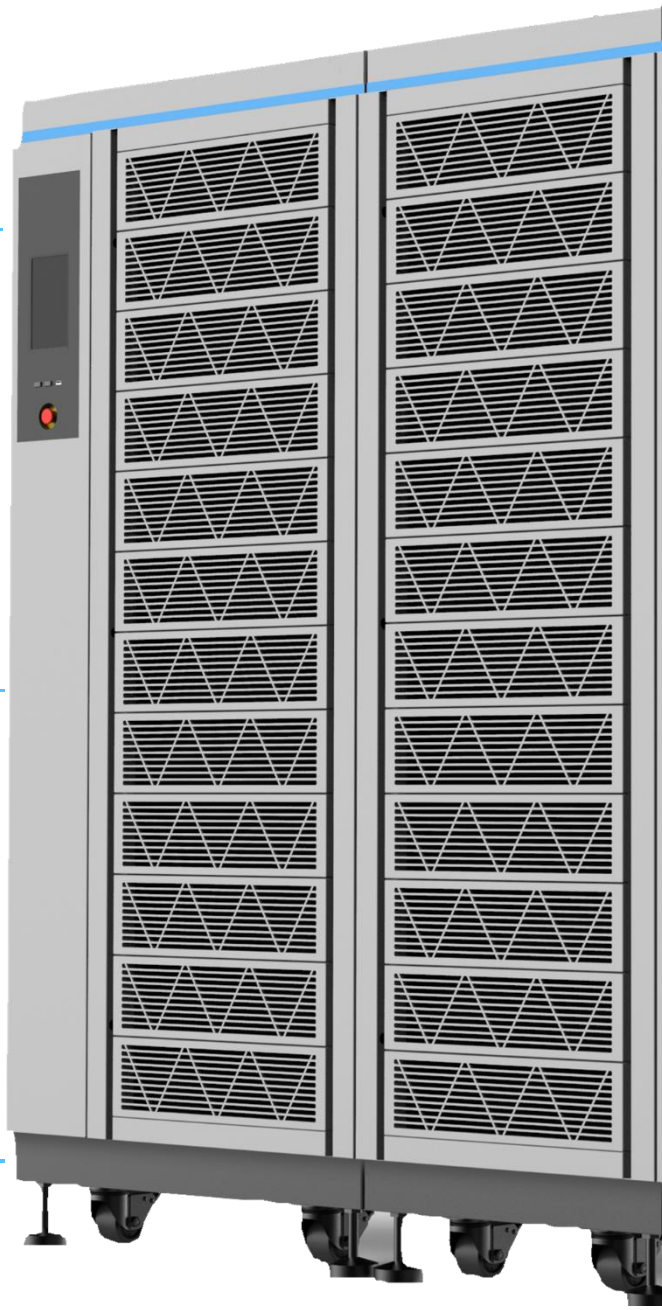
HIGH POWER CAPACITY
WITH PARALLEL OPERATION

With 90kVA - 675kVA of unit capacity, the total capacity can be expanded up to 4MVA by parallel connections.

900V
MAXIMUM AC OUTPUT VOLTAGE

4MVA
MAXIMUM AC OUTPUT POWER

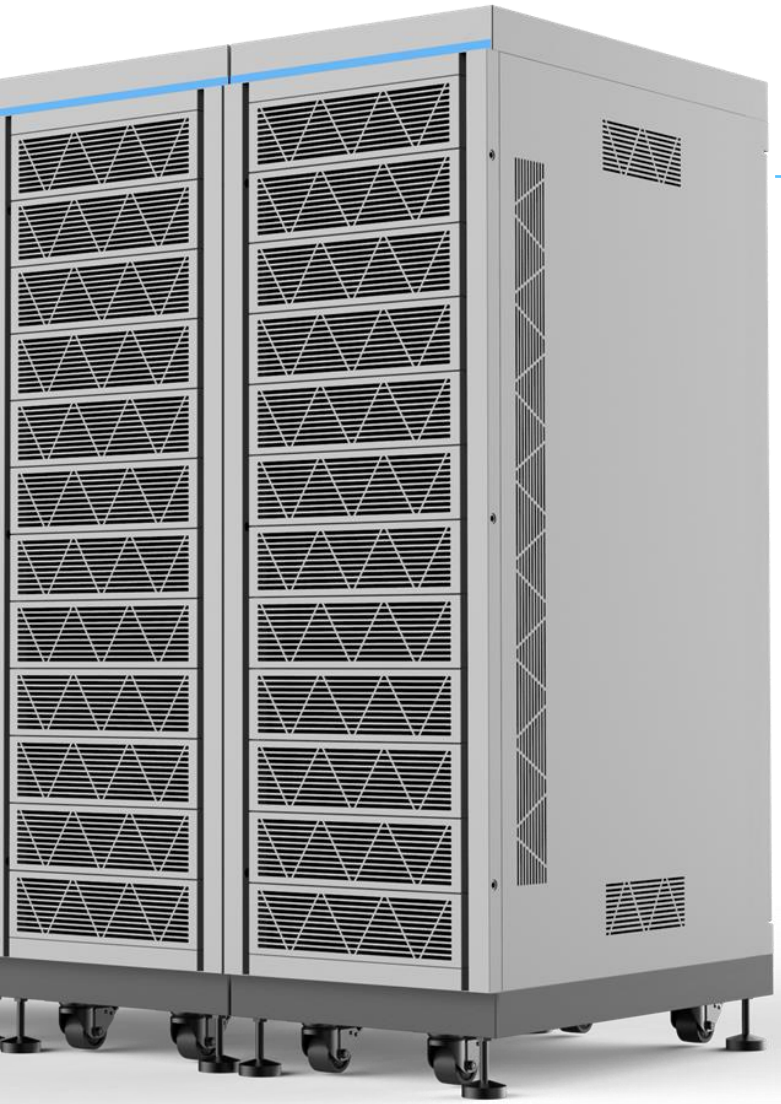
1000V/ms
SLEW RATE



Multiple AC power supply cabinets can individually operate in single mode to configure multi-channel output, or in Master/Slave mode to configure single-channel output with combined capacity.

FULLY TEST AC POWER
WITH 4-QUADRANT

Full four-quadrant control enables reliable and efficient conversion of desired voltage and current, and AC load function with power regenerated to the grid.



RLC
REGENERATIVE AC LOAD

0.1°
PHASE ANGLE RESOLUTION

359.9°
PHASE ANGLE CONTROL

COMPREHENSIVE
PHASE CONTROL

Simultaneous control of three phases up to 359.9° by unit angle of 0.1°, and phase angle of each of R, S, and T can be changed with the accuracy of 0.1%.

Ratings, types and voltages

ACM AC Source & Load

Model	Power [kVA]	Output Voltage [V]	Frequency [Hz]	Output Current [A]	DC Output Voltage [V_DC]	DC Output Current [A_DC]	Size (WDH) [mm]	Weight [kg]
ACM045100D	45	470	DC,0.001-200.0	100	±650	±300	800x1000x1950	500
ACM090200D	90	470	DC,0.001-200.0	200	±650	±600	800x1000x1950	600
ACM180400D	180	470	DC,0.001-200.0	400	±650	±1200	800x1000x1950	800
ACM225500D	225	470	DC,0.001-200.0	500	±650	±1500	800x1000x1950	900
ACM270600D	270	470	DC,0.001-200.0	600	±650	±1800	1400x1000x1950	1,310
ACM360800D	360	470	DC,0.001-200.0	800	±650	±2400	1400x1000x1950	1,510
ACM4501K0D	450	470	DC,0.001-200.0	1000	±650	±3000	1400x1000x1950	1,710
ACM5401K2D	540	470	DC,0.001-200.0	1200	±650	±3600	2000x1000x1950	2,220
ACM6301K4D	630	470	DC,0.001-200.0	1400	±650	±4200	2000x1000x1950	2,420
ACM6751K5D	675	470	DC,0.001-200.0	1500	±650	±4500	2000x1000x1950	2,520
ACM090100E	90	900	DC,0.001-200.0	100	±1250	±300	800x1000x1950	600
ACM180200E	180	900	DC,0.001-200.0	200	±1250	±600	800x1000x1950	800
ACM270300E	270	900	DC,0.001-200.0	300	±1250	±900	1400x1000x1950	1,310
ACM360400E	360	900	DC,0.001-200.0	400	±1250	±1200	1400x1000x1950	1,510
ACM450500E	450	900	DC,0.001-200.0	500	±1250	±1500	1400x1000x1950	1,710
ACM540600E	540	900	DC,0.001-200.0	600	±1250	±1800	2000x1000x1950	2,220
ACM630700E	630	900	DC,0.001-200.0	700	±1250	±2100	2000x1000x1950	2,420

Technical data

ACM series	Specification
AC Input	
Voltage, Phases	380V±15%, 3ph+PE
Frequency	47Hz to 63Hz
Harmonic current	<3%
Power factor	≥0.96
AC Output voltage	
Setting resolution	0.01V
Accuracy	±0.1% F.S.
DC Component	<50mV
Load regulation	±0.05% F.S.
Line regulation	±0.05% F.S.@10%variable
Voltage slew rate	AC>1.0V/us
3ph unbalance	Does not exceed half of the requirements of GB/T 15543-2008 (negative sequence voltage does not exceed 1%, short-term does not exceed 2%)
AC Output Current	
Accuracy	±0.1%+0.1% F.S. @15-200Hz
Output Frequency	
Range	DC, 0.001Hz-200.0Hz
Setting resolution	0.001Hz
Accuracy	±0.01%
Phase Angle Control	
Phase control	A=0°, B=240°, C=120°(Default)
Phase angle range	Programmable range 0 - 359.9° individual adjustable
Accuracy	±0.1°@15-70Hz, ±0.5°@70-200Hz,
Setting resolution	±0.1°
Internal Resistor	
R range	0-10Ω(Impedance at steady-state output)
L range	0-2mH
Setting resolution	0.001
Accuracy	0.1%+0.2% F.S.

Technical data

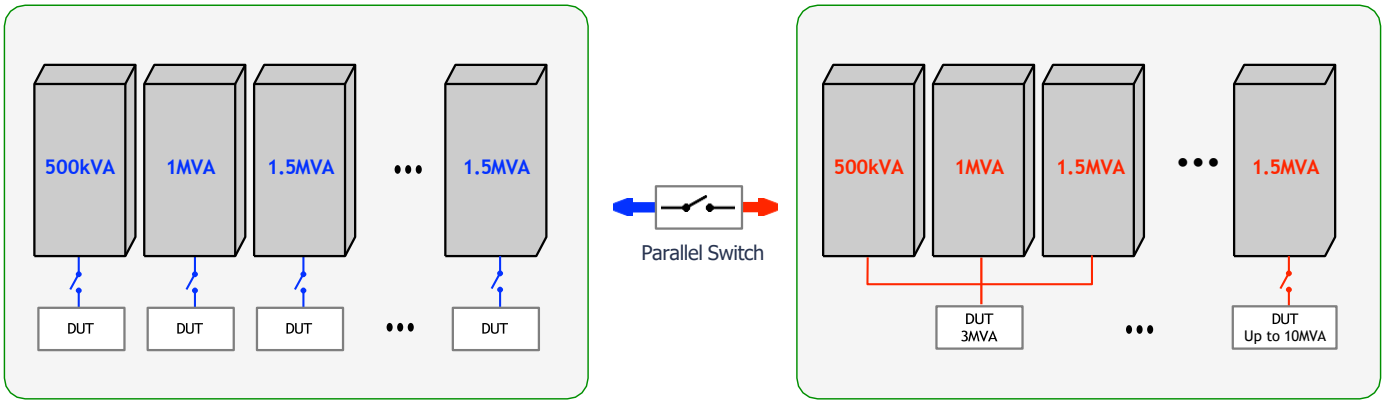
ACM series	Specification
Harmonic Injection	
Order	100th@40Hz-70Hz, 25th@70Hz-200Hz
Content	40% for individual, total content max.40%
Phase angle range	0 - 359.9°
Amplitude error	±5% @0.1% of the set value or fundamental value
Preview function	The superimposed waveform of harmonics can be previewed
Editing mode	import, export, read, store
Programmable	
Mode	List, Wave, Step, Pulse, Advanced, Harmonic, Inter-harmonic
Step	100 steps
Cycle	0 ~ 9,999,999
Parameter	V oltage, Frequency, Phase, Variable period, Hold period, Phase angle, Phase pulse
Uptime range	100μs - 999s
Flat top range	100μs - 999s
Minimum Programming step	100μs
Trigger output and enable	Output a low-voltage trigger signal isolated electrically from other parts within the device, synchronized with the changes in power supply output parameters; single-step, single-cycle, single-shot triggering; (pulse).
Edition	Import; Export; Read; Store
Operation mode	Run, stop, major cycle (9999999) + minor cycle nested programming (9999999)
Trigger source	Local software, external hardware
Trigger mode	Automatic, manual, external
DC Output Voltage	
Setting resolution	0.01V
Accuracy	±0.1% F.S.
Ripple	<1.5Vrms@(DC-60kHz)
Load regulation	±0.05% F.S.
Line regulation	±0.01% F.S.@10%variable
Slew rate	DC>1.0V/μs

Technical data

ACM series	Specification	
DC Output Current		
Setting resolution	0.01A	
Accuracy	±(0.1%+0.1% F.S.)	
RLC Load		
Resistance range (Ω) : 0.001 to 1000	Resistance resolution (Ω)) : 0.001	Resistance accuracy : ±0.1% F.S.
Inductors range (mH) : 0.1 to 5000	Inductors resolution (mH) :0.001	Inductors accuracy : ±0.1% F.S.
Capacitance range (mF) : 1 to 5000	Capacitance resolution (mF) : 0.1	Capacitance accuracy : ±0.1% F.S.
Crest factor range : 1.000 to 5.000	Crest resolution : 0.001	
Power factor range : -1.000 to 1.000	Power resolution : 0.001	
Measurment		
Voltage accuracy	±0.1% F.S.	
Frequency accuracy	±0.01%	
Current accuracy	±(0.1%+0.2% F.S.)	
Active power accuracy	±0.5% F.S.	
Apparent power accuracy	±0.5% F.S.	
Others		
Protection	Input under-voltage/over-voltage/over-frequency/phase loss protection Output over-voltage/over-current/over-power/over-temperature protection	
Communication interface	USB, LAN, RS485, CAN	
Multi-function interface	"Anyport" see the user manual for more details	
Operation	Local touchscreen control, remote host control; display voltage, current, frequency, power.	
Cooling mode	Air Cooling	
Noise	≤70dB	
Operation temperature	-10℃~50℃	
Humidity	10% ~ 90% RAH	
Altitude	≤2000m	

High Power Scalable Design

The ACM series supports large-scale parallel expansion and stable power supply, which enables capacity expansion up to 4MVA by connecting in parallel with unit capacity of 90kVA-675kVA through a high-speed optical fiber communication method. In particular, the parallel-connected panels can be used in multi-output mode by separating the outputs according to the user's needs, allowing multiple test equipment to be tested at the same time, maximizing user convenience and saving a lot of costs.



Multi-Output Mode

Parallel Mode

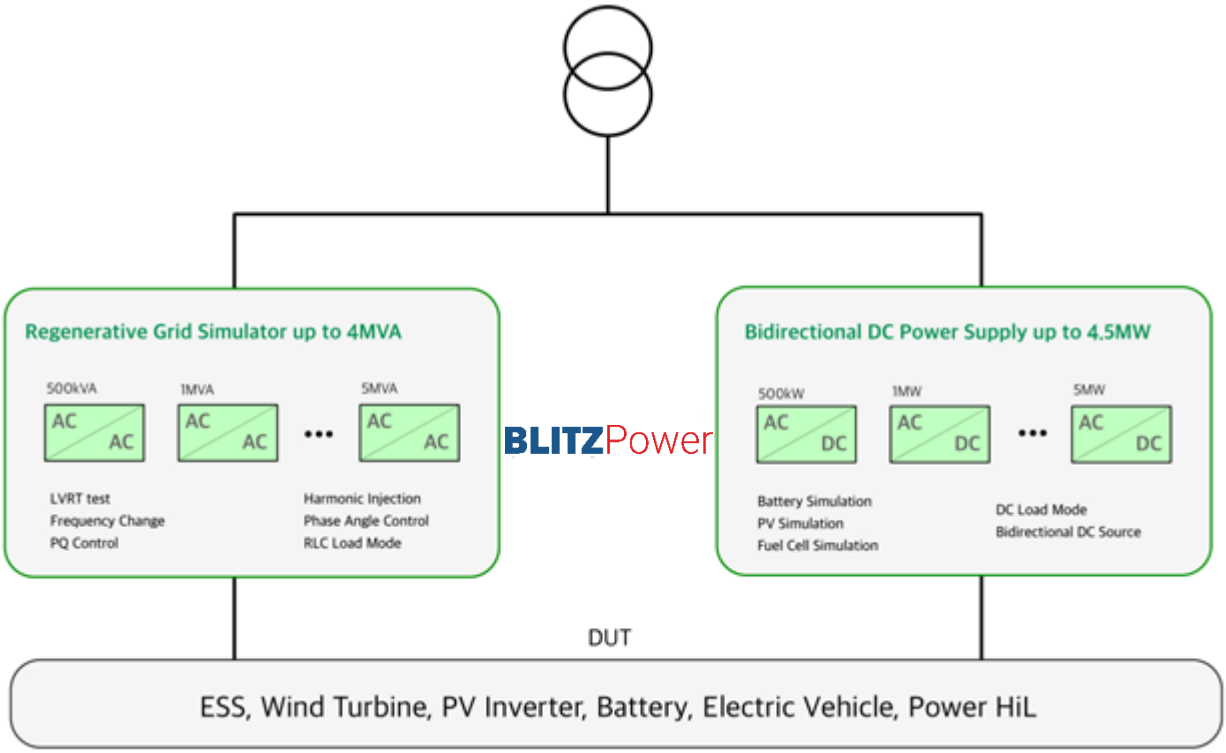
900V	470V
90kVA-180kVA	45kVA-225kVA
100A-200A	100A-500A

270kVA-450kVA	270kVA-450kVA
300A-500A	600A-1000A

540kVA-630kVA	540kVA-675kVA
600A-700A	1200A-1500A

Application

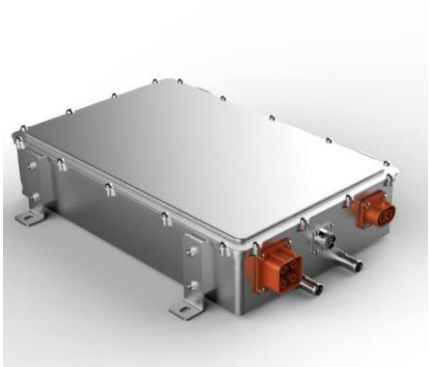
The ACM series are innovative products used in a variety of applications due to its unique technology and optimal performance. It can perform bidirectional AC power supply and act as regenerative AC loads, which can be utilized for long-term reliability testing applications including tests for ESS, PV inverter, wind turbine, electric vehicle DC charging stations, and a variety of grid-connected systems. They are particularly well suited for applications that require accurate and extremely fast response times when simul



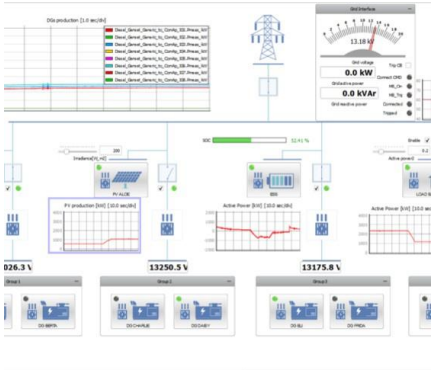
ESS Testing

PV Inverter Testing

Wind Turbine Testing



AC/DC Power Supply Testing

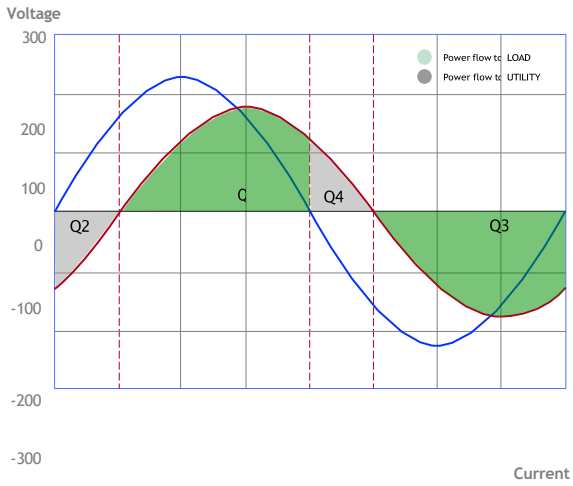


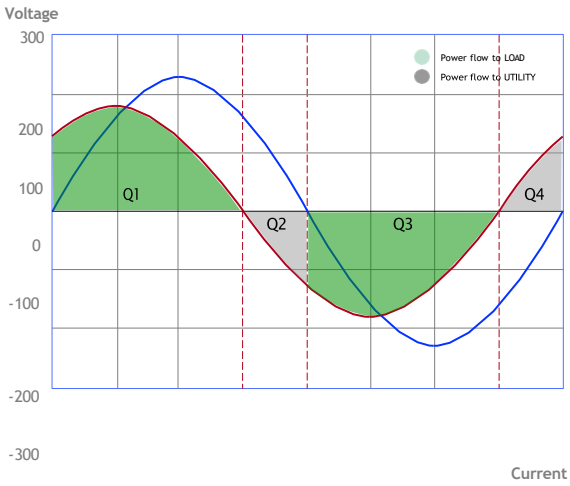
Power HiL

EV Charger & EVSE Testing

4-Quadrant control

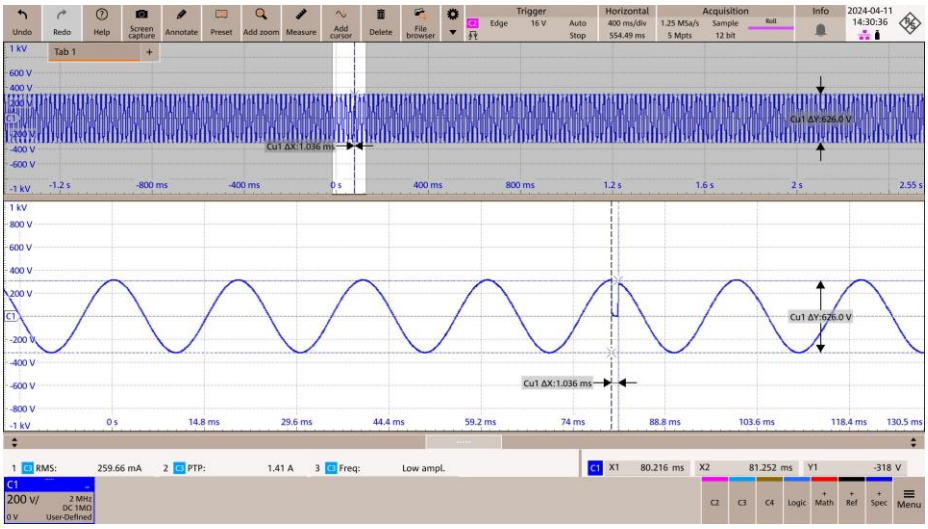
With four-quadrant control, ACM series can test PV inverters, V2G, EV chargers, EVSE, batteries, UPS, and AC/DC power supplies. It has a built-in load option as standard and can operate in any four- quadrant with programmable phase control. It can simulate inductive and capacitive loads, allowing you to test a full range of AC power loads.





High Dynamics

The output voltage slew rate of power supply is up to 1000V/ms, which can simulate the 1ms continuous interruption of the grid.

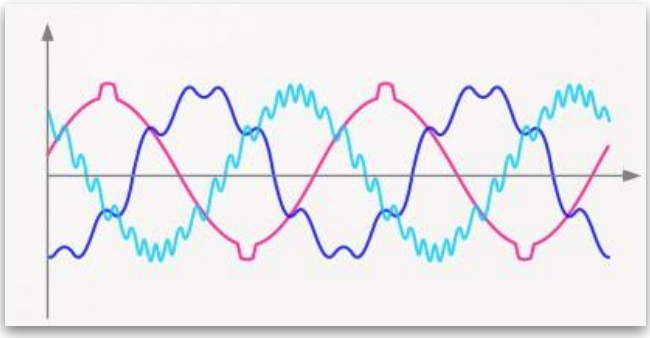


1ms Interruption

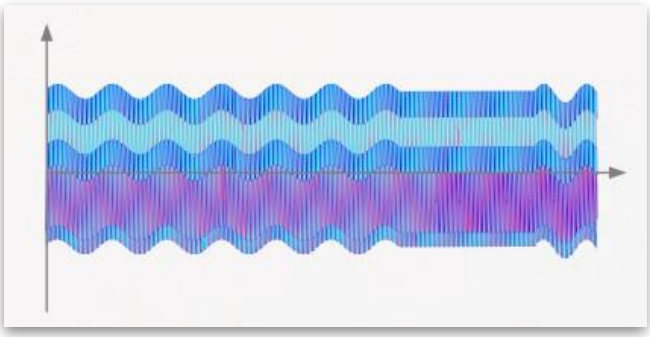
Harmonics / Inter-harmonics

The 49 harmonics can be superimposed simultaneously, and the total harmonic content can be set up to 40%

The power supply has two harmonic injection modes, the three-phase independent injection and the three-phase linkage injection, allowing the superimposition of 2-50th of harmonics with 50Hz or 60Hz basic frequency, or allowing the superimposition of 1Hz-3000Hz inter-harmonics to form the distorted waveform of output voltage. It can be used for the tests under GB/T 14549-1993, and GB/T 24337-2009. The power supply has 27 built-in DST waveforms and 100 customized waveforms that can be called by one click.

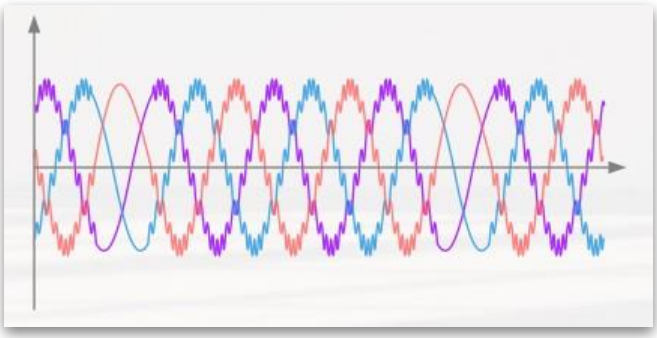


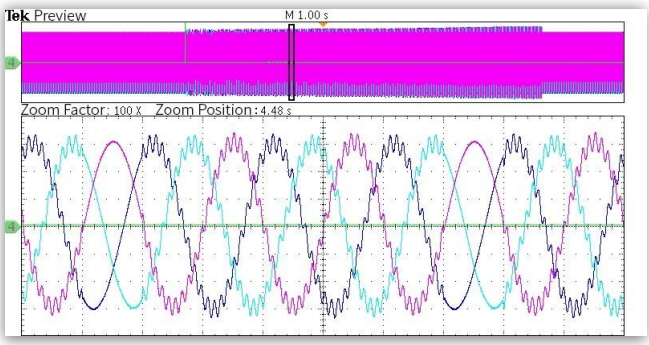
Harmonic Superposition Waveform



Inter-harmonic Superposition Waveform

Starting frequency, ending frequency, interval and the like can be set for inter-harmonics to test the inter-harmonic sweep frequency, so as to meet the tests of IEC61000-4-13 standard.



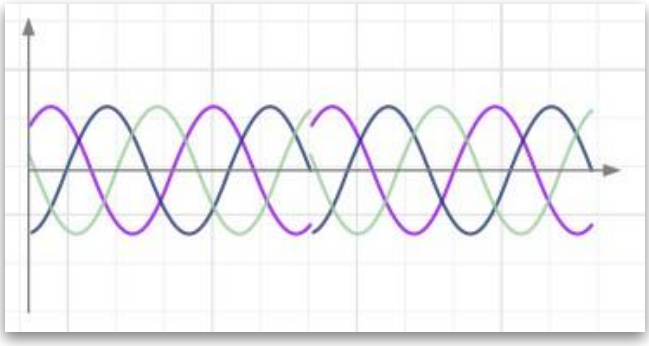


Inter-harmonic Sweep

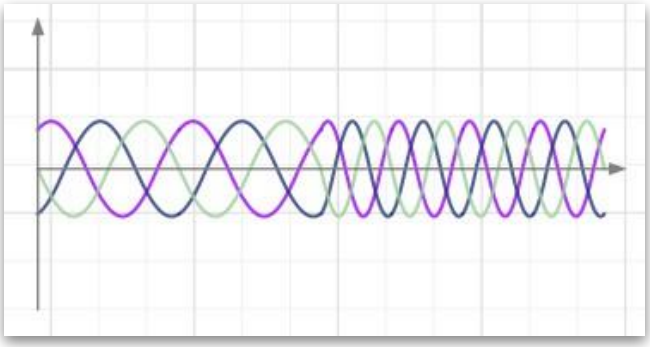
Independent setting of three phases

Simulate normal and abnormal characteristics of various power grids

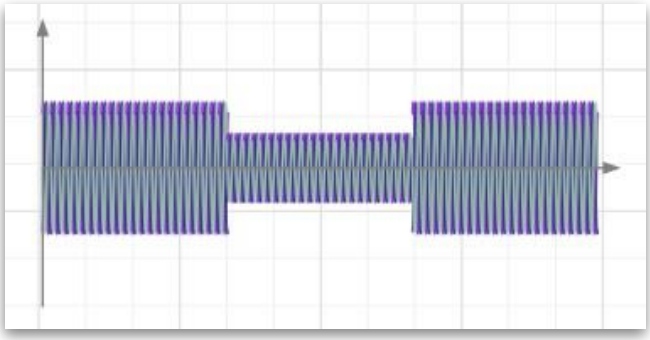
The three-phase output of the power supply can be set independently, which can simulate the normal and abnormal characteristics of three-phase balance or unbalance of various power grids. It can be set by individual or multiple programmable output on voltage, phase etc. of both single-phase and multi-phase.



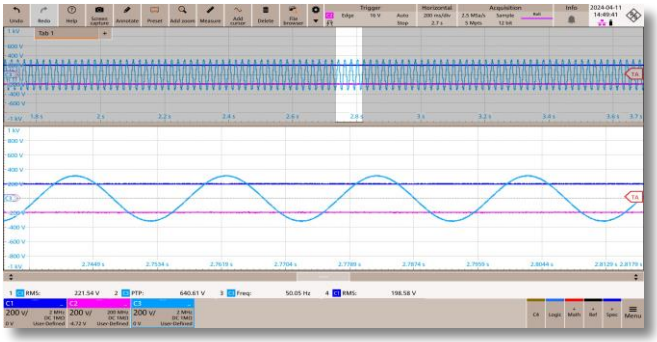
Phase Change



Frequency Change



Voltage Change

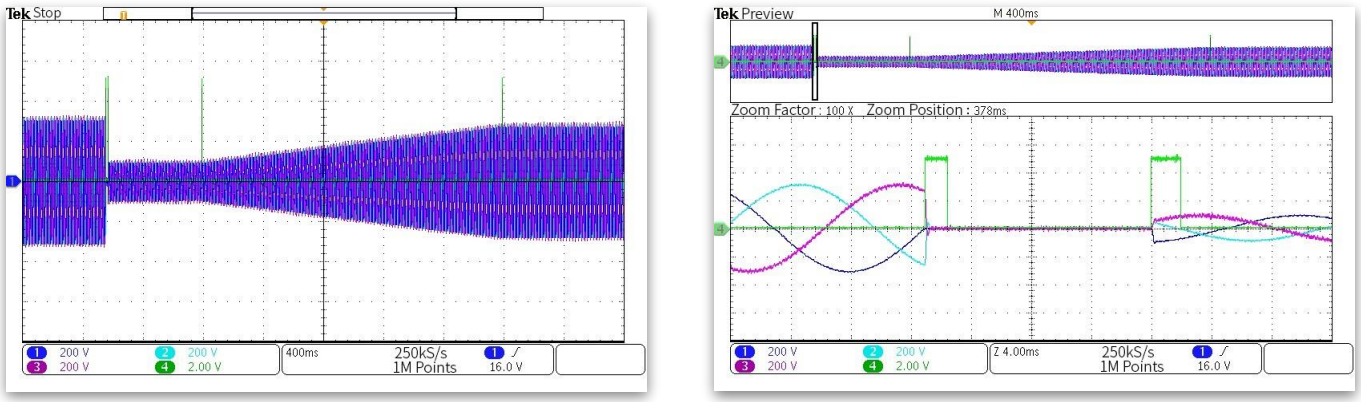


Phase Split

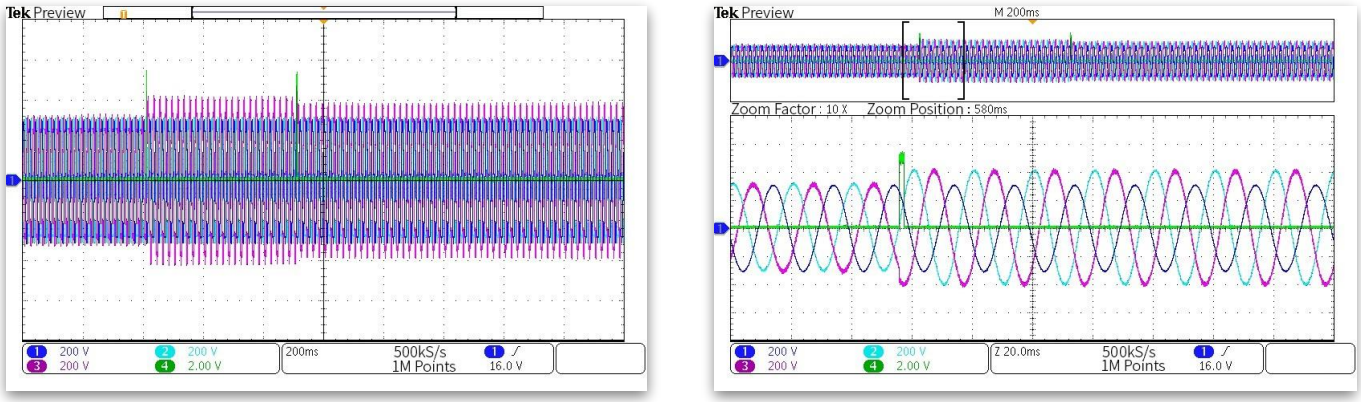
Voltage Ride Through

Typical rise / fall time within 1ms

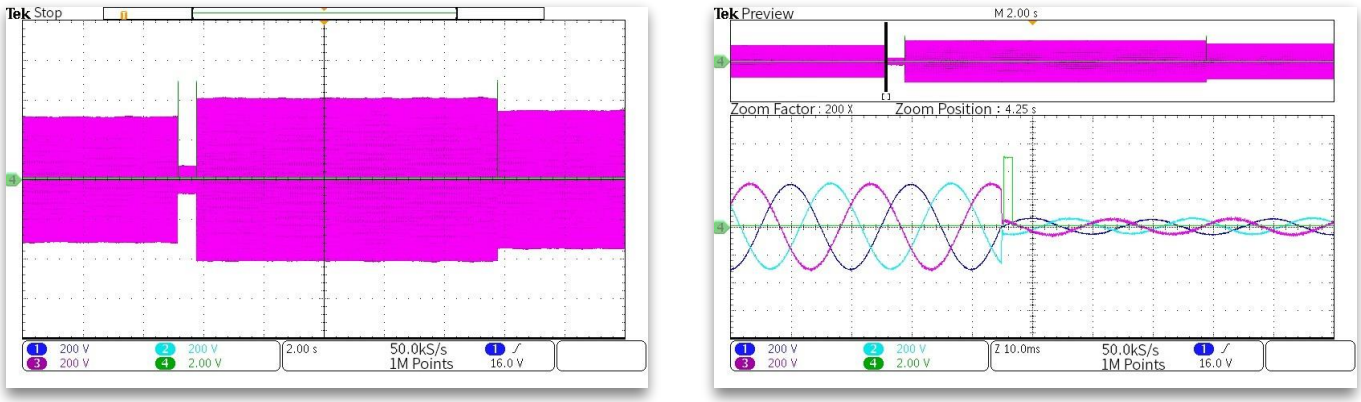
The single-phase, two-phase, and three-phase H/LVRT tests can be performed for the power supply. The trigger phase angles of the ride through points can be set for the power supply to meet the requirements of tests under various standards. The minimum setting voltage of power supply is less than 5V, and the rise/ fall time is 1ms.



Three-Phase Lowe Voltage Ride Through



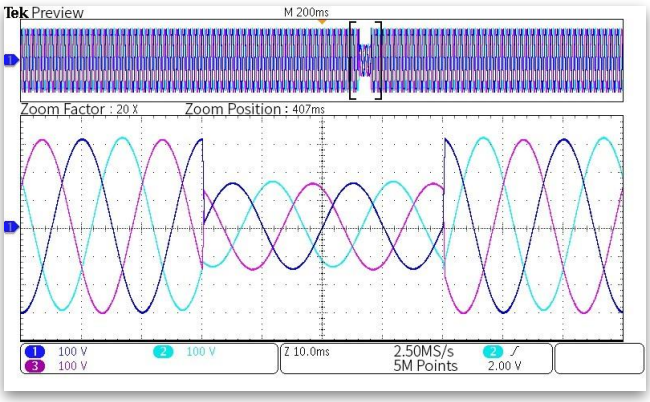
Single-Phase High Voltage Ride Through



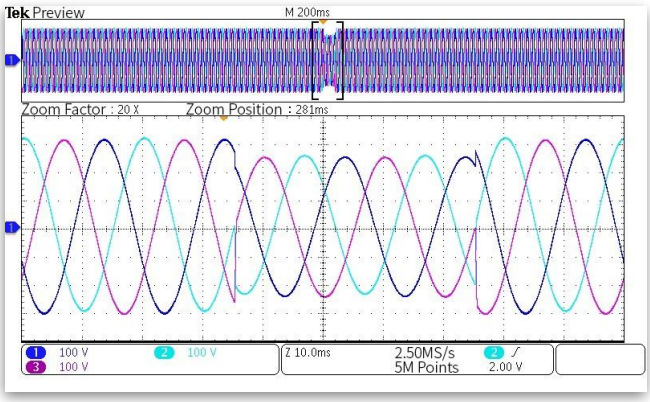
Three-Phase High Voltage Ride Through

Voltage Ride Through

Phase A, B and C can be changed at the same time for low voltage ride through, phase B and C can be switched for low voltage ride through, so as to meet the tests of VDE-AR-N 4105 regulations.



Three-Phase Change LVRT

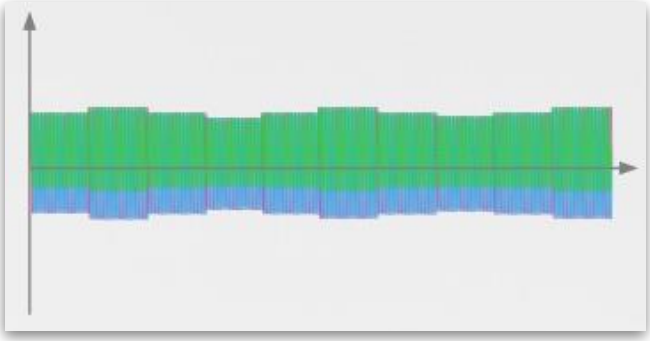


B-C Phase Shift LVRT

Flicker Simulation

Levels 1~10 can be called directly

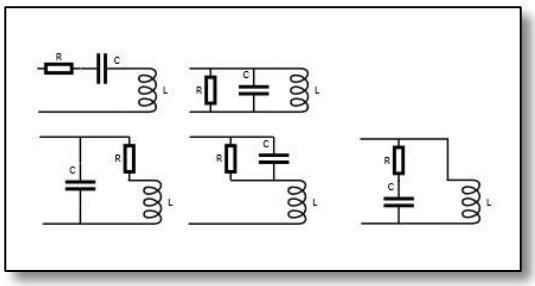
The power supply supports the setting of flicker levels: the flicker trend chart can be previewed, and the pst can be visualized. The flicker characteristics of the power grid can be easily simulated to test flicker adaptability of the test object.



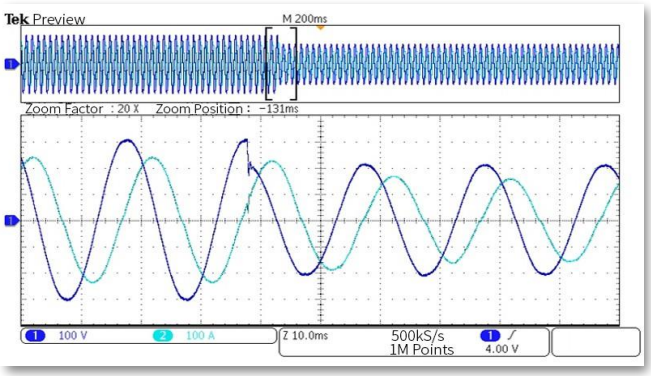
Flicker simulation waveform

Linear load characteristic simulation

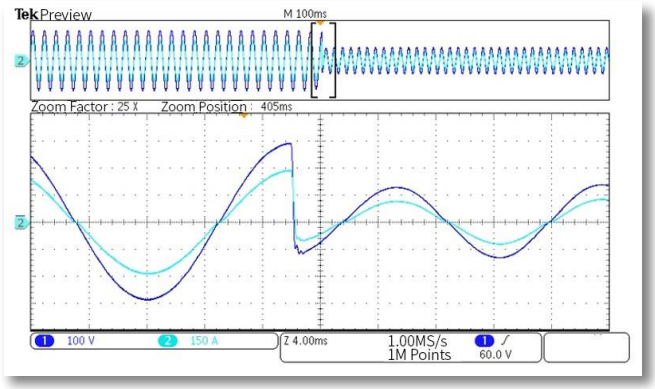
The ACM series feedback AC source & load integrated machine has 5 built-in RLC network models, which can flexibly adjust the parameters to simulate the linear load characteristics, in order to fully validate the product performance in different impedance modes.



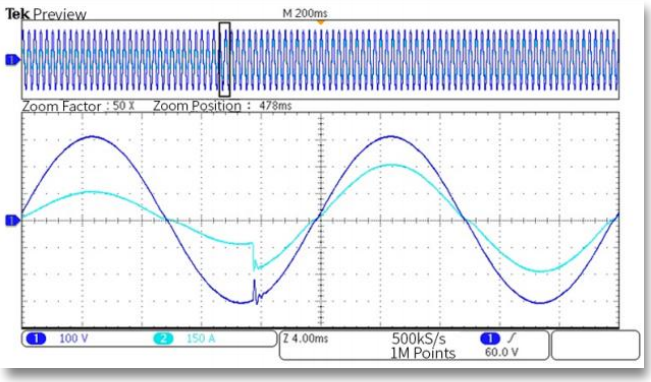
RLC Load Network Topology



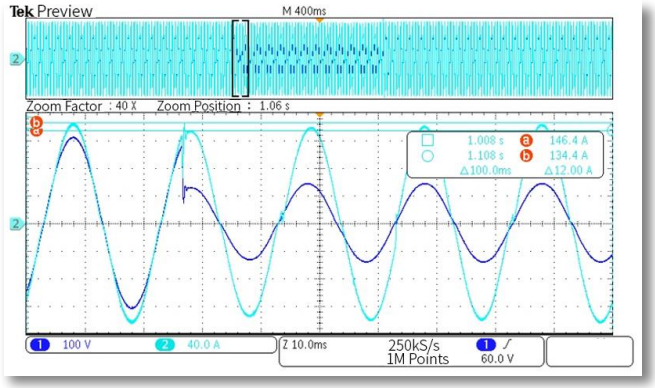
RLC mode : voltage amplitude transient change and power factor adjustment



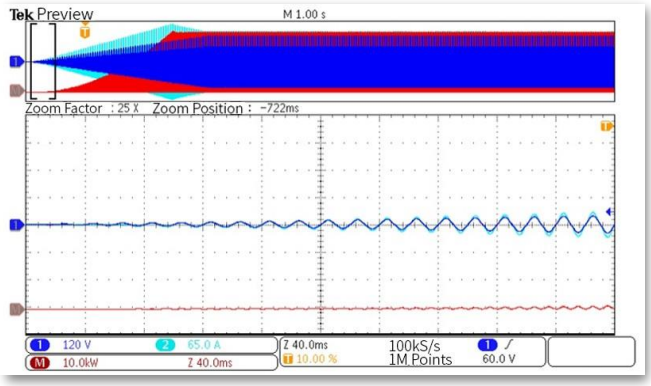
CR mode : voltage amplitude, phase, frequency Transient change



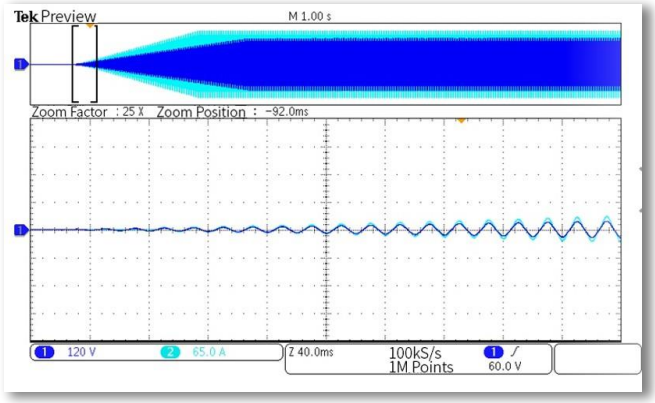
CR mode : resistance transient change



Voltage amplitude change in CC mode

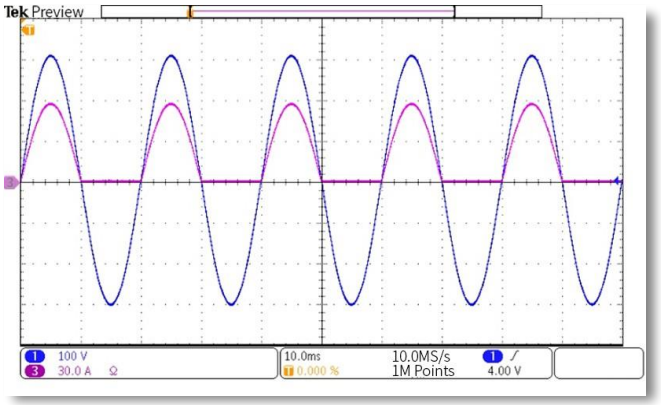


Zero-voltage startup to CP

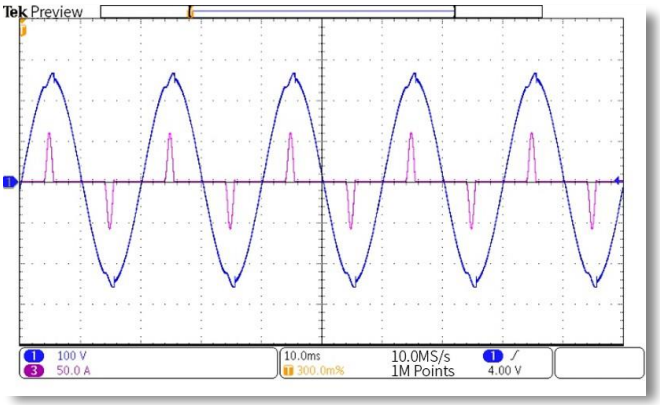


Zero-voltage startup to CC

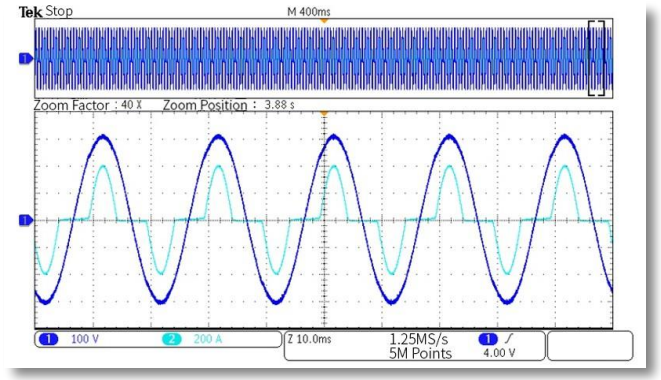
Nonlinear load characteristic simulation



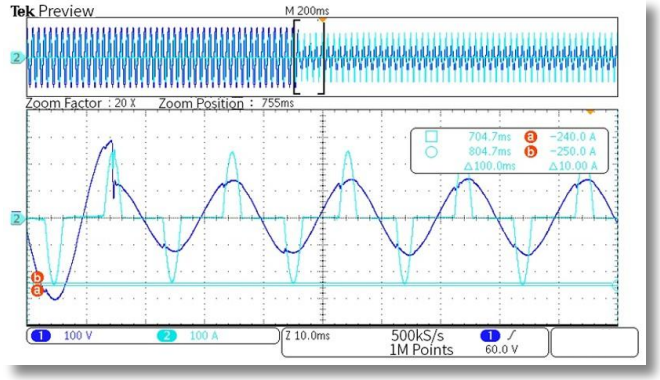
Rectified load: half-wave rectification waveform



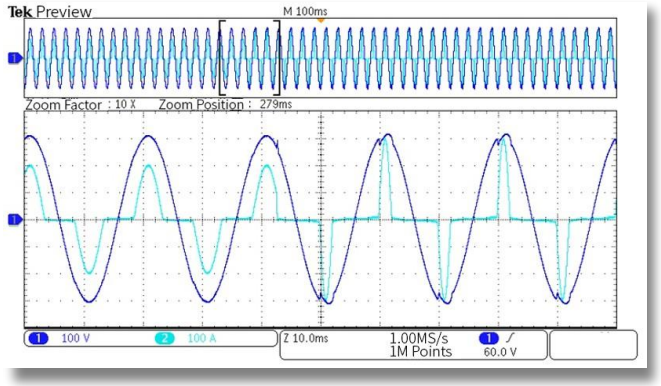
Rectified load: CF=4 waveform



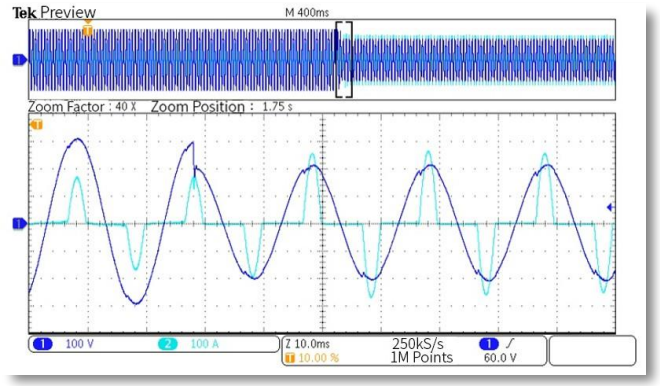
CF=2 single-phase current in CC mode



Rectified load in CC mode CF=2
Voltage amplitude transiently changes by 120V at 90° position



CF sudden change in CC mode :
CF changed from 2 to 3



CP mode : voltage amplitude transient change CF=2.5

Powerful Software

Provides Diverse Simulation Modes

Low Voltage Ride-Through (LVRT) and Area Electrical Power System (EPS) Disturbance Simulation

ACM series can easily simulate tests such as LVRT test patterns with provided software, accurately control user-defined waveforms, and add features depending on the test environments.