ASR-3000 Series

Programmable AC/DC Power Source

FEATURES

- Output Rating: AC 0 Vrms to 400 Vrms, DC 0 V to ± 570 V
- Output Frequency up to 999.9 Hz (5 kHz for ASR-3400HF only)
- DC Output (100 % of Rated Power)
- Measurement Items: Vrms, Vavg, Vpeak, Irms, IpkH, Iavg, Ipeak, P, S, Q, PF, CF
- Voltage and Current Harmonic Analysis(THDv, THDi)
- Remote Sensing Capability
- OCP, OPP, OTP, AC Fail Detection and Fan Fail Alarm
- Support Arbitrary Waveform Function
- Output Capacity: 2 kVA/3 kVA/4 kVA/5 kVA
- Customized Phase Angle for Output On/Off
- Sequence and Simulation Function(up to 10 sets)
- Interface(std): USB, LAN, RS-232, GPIB
- Built-in External Control I/O and External Signal Input
- Built-in Output Relay Control
- Memory Function (up to 10 sets)
- Built-in Web Server

The ASR-3000 Series is an AC+DC power source, featuring high-speed DC voltage rising and falling time (≦100 μs). five models of the series : ASR-3200(2 kVA), ASR-3300(3 kVA), ASR-3400/3400HF(4 kVA) and ASR-3500(5 kVA). The series can provide rated power output during AC output and DC output. Ten ASR-3000 Series output modes are available, including 1) AC power output mode (AC-INT Mode), 2) DC power output mode (DC-INT Mode), 3) AC/DC power output mode (AC+DC-INT Mode), 4) External AC signal source mode (AC-EXT Mode), 5) External AC/DC signal source mode (AC+DC-EXT Mode), 6) External AC signal superimposition mode (AC-ADD Mode), 7) External AC/DC signal superimposition mode (AC+DC-ADD Mode), 8) External AC signal synchronization mode (AC-SYNC Mode), 9) External AC/DC signal synchronization mode (AC+DC-SYNC Mode)10) External DC voltage control of AC output mode(AC-VCA).

ASR-3000 Series is ideal for the development of On-board Chargers, Server Powers, LED modules, AC Motors, AC Fans, UPS and various electronic components, as well as for testing applications of automotive electrical equipment and home appliances.

The ASR-3000 Series provides users with waveform output capabilities including 1) Sequence mode generates waveform fallings, surges, sags, changes and other abnormal power line conditions; 2) Arbitrary waveform function allows users to store/upload user-defined waveforms; and 3) Simulate mode simulates power outage, voltage rise, voltage fall, and frequency variations. When the ASR-3000 Series power source outputs, it can also measure Vrms, Vavg, Vpeak, Irms, Iavg, Ipeak, IpkH, P, S, Q, PF, CF, 100th-order Voltage Harmonic and Current Harmonic. In addition, the remote sensing function ensures accurate voltage output, and the Customized Phase Angle for Output On/Off function can set the start and end angles of the voltage output according to the test requirements. The protection limits of V-Limit, Ipeak-Limit and F-Limit can be set according to user requirements. Over voltage limit, OCP, OPP will protect the DUT during the output process. The Fan Fail Alarm function and the AC fail alarm function are also designed in the ASR-3000 Series.

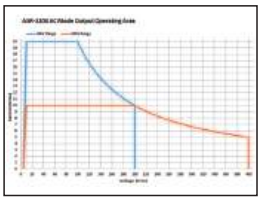
The front panel of the ASR-3000 Series provides a universal socket or a European socket, which allows users to plug and use so as to save wiring time. Since the power socket specification has a maximum current of 15 A, the rear panel of ASR-3000 Series is designed with a current circuit breaker. When the socket current is greater than 15 A, it will automatically open the circuit to protect users. The ASR-3000 Series supports I/O interface and is standardly equipped with USB, LAN, External I/O, RS-232C and GPIB.

PANEL INTRODUCTION

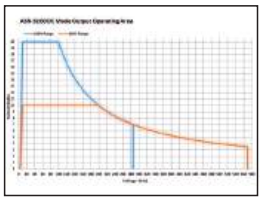
CE | RS-232 | USB | LAN | Ext I/O | GPIB

1. Air Inlet
2. LCD Screen
3. Display Mode Select key
4. Function Keys
5. Scroll Wheel
6. Output Key
7. Hardcopy Key
8. Lock/Unlock Button
9. USB Interface Connector(A Type)
10. Power Switch Button
11. Output Socket
12. External I/O Connector
13. GPIB Connector
14. Remote Sensing Input Terminal
15. Output Terminal
16. Line Input
17. External Signal Input/External Synchronized Signal Input
18. RS-232C Connector
19. LAN Connector
20. USB Interface Connector(B Type)
21. Circuit Breaker

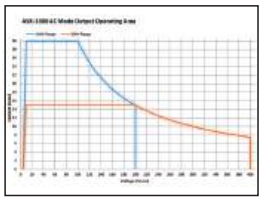
A. OPERATING AREA FOR ASR-3000 SERIES



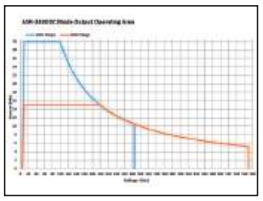
AC Output for ASR-3200



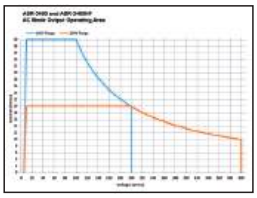
DC Output for ASR-3200



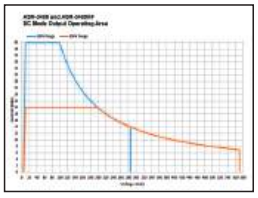
AC Output for ASR-3300



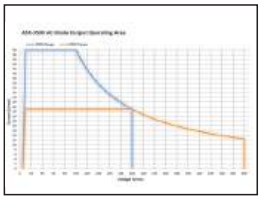
DC Output for ASR-3300



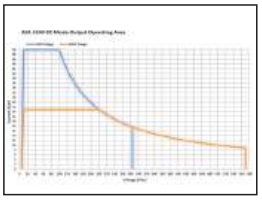
AC Output for ASR-3400/3400HF



DC Output for ASR-3400/3400HF



AC Output for ASR-3500



DC Output for ASR-3500

Model Name	Power Rating	Max. Output Current	Max. Output Voltage
ASR-3200	2 kVA	20 / 10 A	400 Vrms / ±570 Vdc
ASR-3300	3 kVA	30 / 15 A	400 Vrms / ±570 Vdc
ASR-3400	4 kVA	40 / 20 A	400 Vrms / ±570 Vdc
ASR-3400HF	4 kVA	40 / 20 A	400 Vrms / ±570 Vdc
ASR-3500	5 kVA	50 / 25 A	400 Vrms / ±570 Vdc

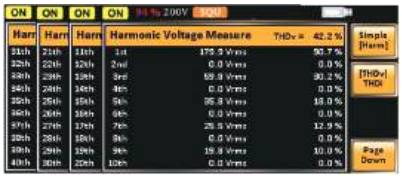
The ASR-3000 series is an AC + DC power source that provides not only rated power output for AC output, but also rated power output for DC output.

B. MEASUREMENT ITEMS FOR ASR-3000 SERIES

RMS Meas Display

AVG Meas Display

Peak Meas Display

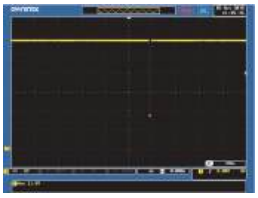


Voltage Harmonic

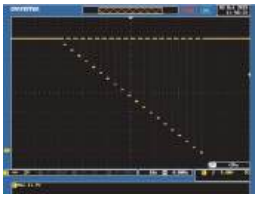
Current Harmonic

The ASR-3000 Series provides users with measurement capabilities including Vrms, Vavg, Vpeak, Irms, Iavg, Ipeak, IpkH, P, S, Q, PF, CF, 100th-order Voltage Harmonic and Current Harmonic. During the power output, the measurement parameters including Vrms/Irms, Vavg/Iavg and Vmax/Vmin/Imax/Imin can be switched by users at any time to display the instantaneous calculation reading.

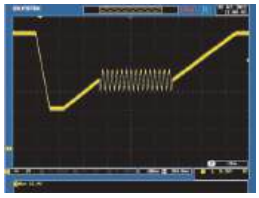
C. SEQUENCE MODE AND BUILT-IN ISO-16750-2 WAVEFORMS



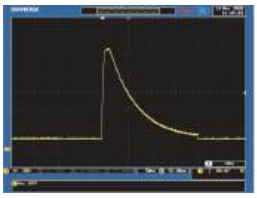
SEQ6: Momentary Drop in Supply Voltage



SEQ7: Reset Behavior at Voltage Drop with 12 V System



SEQ8: Starting Profile Waveform

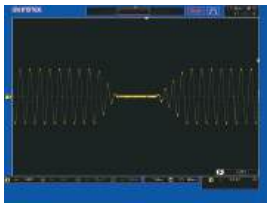


SEQ9: Load Dump with Tr_10 ms, Td_40 ms

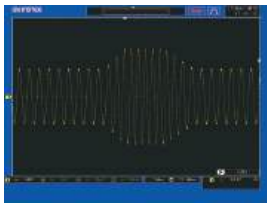
The sequence mode provides editable 10 sets of SEQ0~SEQ9, each set has 0 to 999 steps, each step time setting range is 0.0001 to 999.9999 seconds. Users can combine multiple sets of steps to generate the required waveforms, including waveform falling, surges, sags and other abnormal power line conditions to meet the needs of the test applications.

In addition, ASR-3000 Series also built in common ISO-16750-2 test waveforms in the Sequence Mode preset waveforms, including Momentary Drop in Supply Voltage built in at SEQ6, Reset Behavior at Voltage Drop with 12 V system built in at SEQ7, Starting Profile Waveform built in at SEQ8 and Load Dump with Tr_10 ms, and Td_40 ms built in at SEQ9.

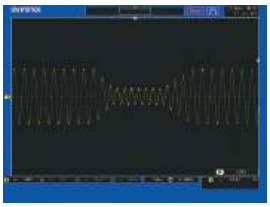
D. SIMULATE MODE



Power Outage



Voltage Rise



Voltage Fall

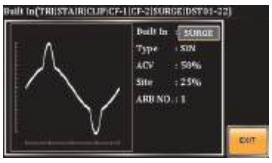
Simulate Mode can quickly simulate different transient waveforms, such as power outage, voltage rise, voltage fall, etc., for engineers to evaluate the impact of transient phenomena on the DUT. Ex: Capacitance durability test.

E. FUNCTION WAVEFORM (ARBITRARY EDIT) MODE

TRI Waveform

STAIR Waveform

CLIP Waveform



SURGE Waveform

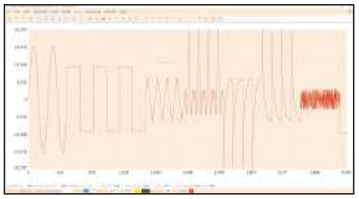
Fourier Series Synthesized Waveform

ASR-3000 Series provides more than 20,000 waveform combinations in seven categories, allowing users to quickly simulate different AC voltage waveforms. Adjust the desired waveform type directly through the panel (displayed synchronously on the screen), then the waveform is loaded into the ARB 1 to 16 waveform register through the access procedures, and return to the main menu output mode to perform ARB Waveform output.

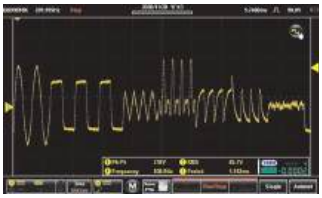
F. PC SOFTWARE

Basic Controller

Sequence Mode



ARB Waveform Edit

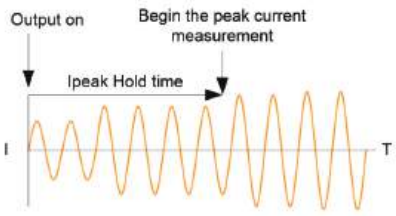


The Waveform is Observed with DSO

The ASR-3000 Series software includes basic settings, the Simulate Mode, the Sequence Mode, Data Log and the arbitrary waveform editing function. Users can directly set output voltage, frequency, start/stop phase on ASR-3000 Series through the software.
The Simulate Mode can quickly simulate different transient waveforms such as power outage, voltage rise, voltage fall... etc.

The Sequence Mode can edit the editing parameters read back from ASR-3000 Series, or directly edit the parameters and control ASR-3000 Series to output waveforms according to the set sequence. The arbitrary waveform editing function not only combines various waveforms, including sine waves, square waves, triangle waves, and noise waveforms, but also allows uses to draw arbitrary waveforms and output them.

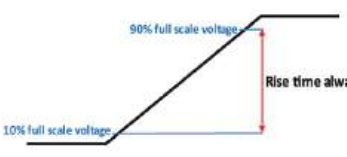
G. T, IPK HOLD & IPK, HOLD FUNCTIONS



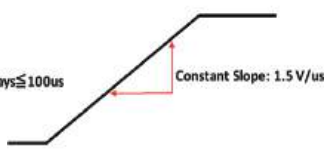
T, Ipk Measurement

T, Ipk Hold is used to set the delay time after the output (1 ms to 60,000 ms) to capture the Ipeak value and keep the maximum value. The update only functions when the measurement value is greater than the original value. The T, Ipk Hold delay time setting can be used to measure surge current at the power on process of the DUT.
Ipk Hold can be used to measure the transient surge current of the DUT at power on without using an oscilloscope and a current probe.

H. SLEW RATE MODE



Time Mode



Slope Mode

The ASR-3000 Series can set the Slew Rate Mode to determine the rise time of the voltage according to the test requirements of the DUT. Slew Rate Mode provides "Time" and "Slope" modes. When setting "Time" mode, ASR-3000 Series can increase output to 10 to 90 % of the set voltage within 100 µs; and when selecting "Slope" mode, ASR-3000 Series increases output voltage by a fixed rising slope of 1.5 V/µs until reaching the set voltage value.
In addition, if users decide to self-define the rise time of the output voltage, users can flexibly set the rise time of the ASR-3000 Series voltage by editing the Sequence mode.

SPECIFICATIONS

		ASR-3200	ASR-3300	ASR-3400	ASR-3500	ASR-3400HF
INPUT RATING (AC rms)						
NOMINAL INPUT VOLTAGE		200 Vac to 240 Vac				
INPUT VOLTAGE RANGE		180 Vac to 264 Vac				
PHASE		Single phase, Two-wire				
NOMINAL INPUT FREQUENCY		50 Hz to 60 Hz				
INPUT FREQUENCY RANGE		47 Hz to 63 Hz				
MAX. POWER CONSUMPTION		2500 VA or less	3750 VA or less	5000 VA or less	6000 VA or less	5000 VA or less
POWER FACTOR*1	200 Vac	0.95 (TYP)				
*1. For an output voltage of 100 V / 200 V (100 V / 200 V range), maximum current, and a load power factor of 1.						
AC MODE OUTPUT RATINGS (AC rms)						
VOLTAGE	Setting Range*1	0.0 V to 200.0 V / 0.0 V to 400.0 V				
	Setting Resolution	0.1 V				
	Accuracy*2	±(1 % of set + 1 V / 2 V)				
OUTPUT PHASE		Single phase, Two-wire				
MAXIMUM CURRENT*3	100 V	20 A	30 A	40 A	50 A	40 A
	200 V	10 A	15 A	20 A	25 A	20 A
MAXIMUM PEAK CURRENT*4	100 V	120 A	180 A	240 A	300 A	160 A
	200 V	60 A	90 A	120 A	150 A	80 A
LOAD POWER FACTOR		0 to 1 (leading phase or lagging phase)				
POWER CAPACITY		2000 VA	3000 VA	4000 VA	5000 VA	4000 VA
FREQUENCY	Setting Range	AC Mode: 40.00 Hz to 999.9 Hz, AC+DC Mode: 1.00 Hz to 999.9 Hz				AC Mode: 40.0 Hz to 5000 Hz, AC+DC Mode: 1 Hz to 5000 Hz
	Setting Resolution	0.01 Hz (1.00 Hz to 99.99 Hz), 0.1 Hz (100.0 Hz to 999.9 Hz)				0.01 Hz (1.00 Hz to 99.99 Hz), 0.1 Hz (100.0 Hz to 999.9 Hz), 1 Hz (1000 Hz to 5000 Hz)
	Accuracy	0.02 % of set (23 °C ± 5 °C)				
	Stability*5	± 0.005 %				
OUTPUT ON PHASE		0° to 359° variable (setting resolution 1°)				
DC OFFSET*6		Within ± 20 mV (TYP)				

*1. 100 V / 200 V range
*2. For an output voltage of 20 V to 200 V / 40 V to 400 V, an output frequency of 45 Hz to 65 Hz, no load, and 23 °C ± 5 °C.
*3. For an output voltage of 1 V to 100 V / 2 V to 200 V. Limited by the power capacity when the output voltage is 100 V to 200 V / 200 V to 400 V.
If there is the DC superimposition, the current of AC+DC mode satisfies the maximum current. In the case of lower than 40 Hz, and the power rating temperature, the maximum current will be decrease.
*4. With respect to the capacitor-input rectifying load. Limited by the maximum current.
*5. For 45 Hz to 65 Hz, the rated output voltage, no load and the resistance load for the maximum current, and the operating temperature.
*6. In the case of the AC mode and 23 °C ± 5 °C.

OUTPUT RATING FOR DC MODE						
VOLTAGE	Setting Range*1	-285 V to +285 V / -570 V to +570 V				
	Setting Resolution	0.1 V				
	Accuracy*2	±(1 % of set + 1 V / 2 V)				
MAXIMUM CURRENT*3	100 V	20 A	30 A	40 A	50 A	40 A
	200 V	10 A	15 A	20 A	25 A	20 A
MAXIMUM PEAK CURRENT*4	100 V	120 A	180 A	240 A	300 A	160 A
	200 V	60 A	90 A	120 A	150 A	80 A
POWER CAPACITY		2000 W	3000 W	4000 W	5000 W	4000 W

*1. 100 V / 200 V range
*2. For an output voltage of -285 V to -28.5 V, +28.5 V to +285 V / -570 V to -57 V, +57 V to +570 V, no load, and 23 °C ± 5 °C
*3. For an output voltage of 1.4 V to 100 V / 2.8 V to 200 V. Limited by the power capacity when the output voltage is 100 V to 250 V / 200 V to 500 V.
*4. Limited by the maximum current.

OUTPUT VOLTAGE STABILITY					
LINE REGULATION*1	0.2 % or less				
LOAD REGULATION*2	0.5 % or less (0 % to 100 %, via output terminal)				
RIPPLE NOISE*3	1 Vrms / 2 Vrms (TYP)				

*1. Power source input voltage is 200 V, 220 V, or 240 V, no load, rated output.
*2. For an output voltage of 100 V to 200 V / 200 V to 400 V, a load power factor of 1, stepwise change from an output current of 0 A to maximum current (or its reverse), using the output terminal on the rear panel.
*3. For 5 Hz to 1 MHz components in DC mode using the output terminal on the rear panel.

OUTPUT VOLTAGE WAVEFORM DISTORTION RATIO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY					
TOTAL HARMONIC DISTORTION(THD)*1	< 0.2 % @50/60 Hz			< 0.2 % @50/60 Hz	<0.2 % @50/60 Hz
	< 0.3 % @<500 Hz			< 0.6 % @<500 Hz	<0.5 % @<500 Hz
	< 0.5 % @500.1 Hz to 999.9 Hz			< 0.8 % @500.1 Hz to 999.9	<1 % @500.1 Hz to 2000 Hz
					< 2 % @2001 Hz to 5000 Hz
OUTPUT VOLTAGE RESPONSE TIME*2	100 µs (TYP)				
EFFICIENCY*3	80 % or more				

*1. At an output voltage of 50 V to 200 V / 100 V to 400 V, a load power factor of 1, and in AC mode.
*2. For an output voltage of 100 V / 200 V, a load power factor of 1, with respect to stepwise change from an output current of 0 A to the maximum current (or its reverse).
*3. For AC mode, at an output voltage of 100 V / 200 V, maximum current, and load power factor of 1.

MEASURED VALUE DISPLAY						
VOLTAGE	RMS, AVG Value*1	Resolution	0.1 V			
		Accuracy*2	For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.5 V / 1 V) For all other frequencies: ±(0.7 % of reading + 1 V / 2 V)			
	PEAK Value	Resolution	0.1 V			
		Accuracy	For 45 Hz to 65 Hz and DC: ±(|2 % of reading| + 1 V / 2 V)			
CURRENT	RMS, AVG Value	Resolution	0.01 A			
		Accuracy*3	For 45 Hz to 65 Hz and DC: ±(0.5 % of reading+ 0.1 A/0.05 A)	For 45 Hz to 65 Hz and DC: ±(0.5 % of reading+ 0.15 A/0.08 A)	For 45 Hz to 65 Hz and DC: ±(0.5 % of reading+ 0.2 A/0.1 A)	For 45 Hz to 65 Hz and DC: ±(0.5 % of reading+ 0.25 A/0.13 A)	For 45 Hz to 65 Hz and DC: ±(0.5 % of reading+ 0.2 A/0.1 A)
			For all other frequencies: ±(0.7 % of reading+ 0.2 A/0.1 A)	For all other frequencies: ±(0.7 % of reading+ 0.3 A/0.15 A)	For all other frequencies: ±(0.7 % of reading+ 0.4 A/0.2 A)	For all other frequencies: ±(0.7 % of reading+ 0.5 A/0.25 A)	For all other frequencies: ±(0.7 % of reading+ 0.4 A/0.2 A)
	PEAK Value	Resolution	0.1 A				
		Accuracy*4	For 45 Hz to 65 Hz and DC: ±(|2 % of reading| + 0.5 A/0.25 A)	For 45 Hz to 65 Hz and DC: ±(|2 % of reading| + 0.8 A/0.4 A)	For 45 Hz to 65 Hz and DC: ±(|2 % of reading| + 1 A/0.5 A)	For 45 Hz to 65 Hz and DC: ±(|2 % of reading| + 1.3 A/0.65 A)	For 45 Hz to 65 Hz and DC: ±(|2 % of reading| + 1 A/0.5 A)

SPECIFICATIONS

			ASR-3200	ASR-3300	ASR-3400	ASR-3500	ASR-3400HF
POWER	Active (W)	Resolution	1 W				
		Accuracy*5	±(2 % of reading +2 W)	±(2 % of reading +3 W)	±(2 % of reading +4 W)	±(2 % of reading +5 W)	±(2 % of reading +4 W)
	Apparent (VA)	Resolution	1 VA				
		Accuracy*5*6	±(2 % of reading +2 VA)	±(2 % of reading +3 VA)	±(2 % of reading +4 VA)	±(2 % of reading +5 VA)	±(2 % of reading +4 VA)
	Reactive (VAR)	Resolution	1 VAR				
		Accuracy*5*7	±(2 % of reading +2 VAR)	±(2 % of reading +3 VAR)	±(2 % of reading +4 VAR)	±(2 % of reading +5 VAR)	±(2 % of reading +4 VAR)
LOAD POWER FACTOR		Range	0.000 to 1.000				
		Resolution	0.001				
LOAD CREST FACTOR		Range	0.00 to 50.00				
		Resolution	0.01				
HARMONIC VOLTAGE EFFECTIVE VALUE (RMS) PERCENT (%) (AC-INT and 50/60 Hz only)		Range	Up to 100th order of the fundamental wave				
		Full Scale	200 V / 400 V, 100%				
		Resolution	0.1 V, 0.1%				
		Accuracy*8	Up to 20th : ±(0.2 % of reading + 0.5 V / 1 V) ; 20th to 100th : ±(0.3 % of reading + 0.5 V / 1 V)				
HARMONIC CURRENT EFFECTIVE VALUE (RMS) PERCENT (%)		Range	Up to 100th order of the fundamental wave				
		Full Scale	20 A / 10 A, 100 %	30 A / 15 A, 100 %	40 A / 20 A, 100 %	50 A / 25 A, 100 %	40 A / 20 A, 100 %
		Resolution	0.01 A/0.1 A, 0.1%				
		Accuracy*3	Up to 20th ±(1 % of reading+0.4 A/0.2 A)	Up to 20th ±(1 % of reading+0.6 A/0.3 A)	Up to 20th ±(1 % of reading+0.8 A/0.4 A)	Up to 20th ±(1 % of reading+1 A/0.5 A)	Up to 20th ±(1 % of reading+0.8 A/0.4 A)
			20th to 100th ±(1.5 % of reading+ 0.4 A/0.2 A)	20th to 100th ±(1.5 % of reading+ 0.6 A/0.3 A)	20th to 100th ±(1.5 % of reading+ 0.8 A/0.4 A)	20th to 100th ±(1.5 % of reading+ 1 A/0.5 A)	20th to 100th ±(1.5 % of reading+ 0.8 A/0.4 A)

*1. The voltage display is set to RMS in AC/AC+DC mode and AVG in DC mode.
*2. AC mode: For an output voltage of 20 V to 200 V / 40 V to 400 V and 23 °C ± 5 °C. DC mode: For an output voltage of 28.5 V to 285 V / 57 V to 570 V and 23 °C ± 5 °C.
*3. An output current in the range of 5 % to 100 % of the maximum current, and 23 °C ± 5 °C.
*4. An output current in the range of 5 % to 100 % of the maximum peak current in AC mode, an output current in the range of 5 % to 100 % of the maximum instantaneous current in DC mode, and 23 °C ± 5 °C. The accuracy of the peak value is for a waveform of DC or sine wave.
*5. For an output voltage of 50 V or greater, an output current in the range of 10 % to 100 % of the maximum current, DC or an output frequency of 45 Hz to 65 Hz, and 23 °C ± 5 °C.
*6. The apparent and reactive powers are not displayed in the DC mode.
*7. The reactive power is for the load with the power factor 0.5 or lower.
*8. An output voltage in the range of 20 V to 200 V / 40 V to 400 V and 23 °C ± 5 °C.

OTHERS			
PROTECTIONS			UVP, OCP, OTP, OPP, Fan Fail
DISPLAY			TFT-LCD, 4.3 inch
MEMORY FUNCTIC			Store and recall settings, Basic settings: 10 (0 to 9 numeric keys)
ARBITRARY WAVE	Number of Memories		253 (nonvolatile)
	Waveform Length		4096 words
INTERFACE	Standard	USB	Type A: Host, Type B: Slave, Speed: 2.0, USB-CDC
		LAN	MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask
		RS-232C	Complies with the EIA-RS-232 specifications
		EXT Control	External Signal Input; External Control I/O
		GPIB	SCPI-1993, IEEE 488.2 compliant interface
INSULATION RESISTANCE Between input and chassis, output and chassis, input and output			1000 Vdc, 30 MΩ or more
WITHSTAND VOLTAGE Between input and chassis, output and chassis, input and output			1500 Vac, 1 minute
EMC			EN 61326-1, EN 61326-2-1, EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, EN 61000-3-12
			EN 61000-4-2/-4-3/-4-4/-4-5/-4-6/-4-8/-4-11/-4-34, EN 55011 (Class A), EN 55032
SAFETY			EN 61010-1
ENVIRONMENT	Operating Environment		Indoor use, Overvoltage Category II
	Operating Temperature Range		0 °C to 40 °C
	Storage Temperature Range		-10 °C to 70 °C
	Operating Humidity Range		20 % to 80 % RH (no condensation)
	Storage Humidity Range		90 % RH or less (no condensation)
	Altitude		Up to 2000 m
TRANSPORTATION INTEGRITY			ISTA 2A Test Procedure
DIMENSIONS & WEIGHT			430 mm(W) × 176 mm(H) × 530 mm(D) (not including protrusions); Approx. 25 kg

* Note: A value with the accuracy is the guaranteed value of the specification. However, an accuracy noted as reference value shows the supplemental data for reference when the product is used, and is not under the guarantee. A value without the accuracy is the nominal value or representative value (shown as typ.).

Specifications subject to change without notice.

ASR-3000CD3BH

ORDERING INFORMATION

ASR-3200	**2 kVA Programmable AC/DC Power Source**
ASR-3300	**3 kVA Programmable AC/DC Power Source**
ASR-3400	**4 kVA Programmable AC/DC Power Source**
ASR-3400HF	**4 kVA Programmable AC/DC Power Source**
ASR-3500	**5 kVA Programmable AC/DC Power Source**

ACCESSORIES

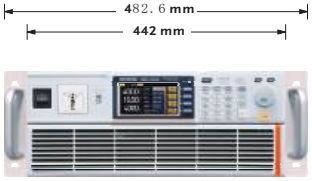
Safety guide, Input terminal cover, Output terminal cover Include remote sensing, GRA-442-E Rack mount adapter(EIA), GTL-246 USB Cable

OPTIONAL ACCESSORIES

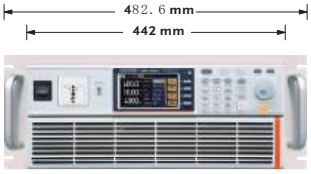
GPW-005	Power cord, 3 m, 105 °C, UL/CSA Type
GPW-006	Power cord, H05VV-F 1.5 mm^2/3 C, 3 m, 105 °C, VDE Type (ASR-3200, ASR-3300 Ues Only)
GPW-007	Power cord, 3 m, 105 °C, PSE Type
GPW-017	Power cord H05VV-F 4.0 mm^2/3 C 3 m, 105 °C, VDE Type
GRA-442-J	Rack mount adapter(JIS)
GTL-137	Output power wire (Load wire_10AWG: 50 A, 600 V/Sense wire_16 AWG: 20 A, 600 V)
ASR-C003	Modbus TCP feature
GTL-232	RS232C Cable, approx. 2 m
GTL-248	GPIB Cable, approx. 2 m
ASR-002	External three phase control unit for IP2W, IP3W, 3P4W output
APS-008	Air inlet filter
GET-006	Universal extension

* European output outlet (factory installed)

GRA-442-E
Rack Mount Adapter(EIA)



GRA-442-J
Rack Mount Adapter(JIS)



ASR-002
External three phase control unit

* Basis Requirement of ASR-002 to ASR-Series
1. Must be the three same models of ASR-Series

* Functions of ASR-Series are limited when conducts to ASR-002
1. No DC Output
2. Measurement Items: only current(A), power(W)and PF for each phase
3. No Voltage and Current Harmonic Analysis
4. No Remote Sensing Capability
5. No Arbitrary Waveform Function
6. No Sequence and Simulation Function
7. Not supported External Control I/O
8. No memory Function
9. Only support USB, no LAN port for communication