

ASR-3000 Series



FEATURES

- * Output Rating: AC 0 ~ 400 Vrms, DC 0 ~ ± 570 V
- * Output Frequency up to 999.9 Hz
- * 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: 2kVA/ 3kVA/4kVA
- * 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 ($\leq 100\mu s$). There are three models of the series: ASR-3200(2kVA), ASR-3300(3kVA) and ASR-3400 (4kVA). The series can provide rated power output during AC output and DC output. Nine 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).

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, 40th-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 15A, the rear panel of ASR-3000 Series is designed with a current circuit breaker. When the socket current is greater than 15A, 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.



Front Panel



Rear Panel

APPLICATIONS

- Electronic Products/Electronic Component Development test
- Automotive Electrical Device Simulation Test
- Household Appliance Application Test
- On-board Chargers
- Server Powers, LED Modules, AC Motors, AC Fans, UPS

Model	ASR-3200	ASR-3300	ASR-3400
Output Voltage	0~400Vrms/0~±570Vdc	0~400Vrms/0~±570Vdc	0~400Vrms/0~±570Vdc
Output Current	20/10A	30/15A	40/20A
Power Rating	2000VA	3000VA	4000VA
Output Frequency	1.00Hz ~ 999.9Hz	1.00Hz ~ 999.9Hz	1.00Hz ~ 999.9Hz



ASR-3000 Series

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GW INSTEK

Simply Reliable

SPECIFICATIONS		ASR-3200	ASR-3300	ASR-3400
INPUT RATING (AC)				
NORMINAL INPUT VOLTAGE		200 Vac to 240 Vac	200 Vac to 240 Vac	200 Vac to 240 Vac
INPUT VOLTAGE RANGE		180 Vac to 264 Vac	180 Vac to 264 Vac	180 Vac to 264 Vac
PHASE		Single phase, Two-wire	Single phase, Two-wire	Single phase, Two-wire
NORMINAL INPUT FREQUENCY		50 Hz to 60 Hz	50 Hz to 60 Hz	50 Hz to 60 Hz
INPUT FREQUENCY RANGE		47 Hz to 63 Hz	47 Hz to 63 Hz	47 Hz to 63 Hz
MAX. POWER CONSUMPTION		2500 VA or less	3750 VA or less	5000 VA or less
POWER FACTOR ^{*1}		0.95 (TYP)	0.95 (TYP)	0.95 (TYP)
MAX. INPUT CURRENT		15 A	22.5 A	30 A
*1. For an output voltage of 100 V/200 V (100V/200V 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
200 V		10 A	15 A	20 A
MAXIMUM PEAK CURRENT ^{*4}		100 V 120 A	180 A	240 A
200 V		60 A	90 A	120 A
LOAD POWER FACTOR		0 to 1 (leading phase or lagging phase)		
POWER CAPACITY		2000 VA	3000 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		
Setting Resolution		0.01 Hz (1.00 to 99.99 Hz), 0.1 Hz (100.0 to 999.9 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
200 V		10 A	15 A	20 A
MAXIMUM PEAK CURRENT ^{*4}		100 V 120 A	180 A	240 A
200 V		60 A	90 A	120 A
POWER CAPACITY		2000 W	3000 W	4000 W
*1. 100 V / 200 V range *2. For an output voltage of -285 V to +285 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% @ 50/60Hz, ≤ 0.3% @ <500Hz, ≤ 0.5% @ 500.1Hz~999.9Hz		
OUTPUT VOLTAGE RESPONSE TIME ^{*2}		100 us (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 all other frequencies: ±(0.7 % of reading + 0.2 A/0.1 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)		
POWER Active (W)		Resolution 1 W		
Accuracy ^{*5}		±(2 % of reading + 2 W)		
Apparent (VA)		Resolution 1 VA		
Accuracy ^{*6}		±(2 % of reading + 2 VA)		
Reactive (VAR)		Resolution 1 VAR		
Accuracy ^{*7}		±(2 % of reading + 2 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 40th order of the fundamental wave 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 40th ± (0.3 % of reading + 0.5 V/1 V)		
HARMONIC CURRENT EFFECTIVE VALUE (RMS) PERCENT (%) (AC-INT and 50/60 Hz only)		Range Up to 40th order of the fundamental wave 20 A / 10 A, 100%		
Resolution		0.01 A, 0.1%		
Accuracy ^{*9}		Up to 20th ± (1 % of reading + 0.4 A / 0.2 A); 20th to 40th ± (1.5 % of reading + 0.4 A / 0.2 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 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.				
*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.				
*5. The accuracy of the peak value is for a waveform of DC or sine wave.				
*6. 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.				
*7. The apparent and reactive powers are not displayed in the DC mode. *8. The reactive power is for the load with the power factor 0.5 or lower.				
*9. 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 FUNCTION		Store and recall settings, Basic settings: 10 (0-9 numeric keys)		
ARBITRARY WAVE		Number of Memories 16 (nonvolatile)		
Waveform Length		4096 words		
INTERFACE		Standard USB LAN RS-232C EXT Control GPIO		
Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB-CDC, USB-TMC				
MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask				
Complies with the EIA-RS-232 specifications				
External Signal Input; External Control I/O				
SCPI-1993, IEEE 488.2 compliant interface				
INSULATION RESISTANCE		500 Vdc, 30 MΩ or more		
WITHSTAND VOLTAGE		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 Environment		EN 61010-1		
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 % RH to 80 % RH (no condensation)		
Storage Humidity Range		90 % RH or less (no condensation)		
Altitude		Up to 2000 m		
DIMENSIONS & WEIGHT		430(W)×176(H)×550(D)mm (not including protrusions); Approx. 25 kg		

Specifications subject to change without notice. ASR-3000CD1DH

ORDERING INFORMATION	
ASR-3200	2kVA Programmable AC/DC Power Source
ASR-3300	3kVA Programmable AC/DC Power Source
ASR-3400	4kVA Programmable AC/DC Power Source
ACCESSORIES	
CD (User Manual/Programming Manual), 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, 3m, 105°C, UL/CSA Type
GPW-006	Power Cord, 3m, 105°C, VDE Type
GPW-007	Power Cord, 3m, 105°C, PSE Type
GRA-442-J	Rack Mount Adapter (JIS)
GTL-137	Output Power Wire (Load wire_10AWG; 50A, 600V/ Sense wire_16AWG; 20A, 600V)
GTL-232	RS232C cable, approx. 2m
GTL-248	GPIO Cable, approx. 2m
ASR-002	External Three Phase Control Unit
APS-008	Air inlet filter
* European Output Outlet (factory installed)	

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