

GW INSTEK
Simply Reliable

ASR-3000 Series Programmable AC/DC Power Source



Model	ASR-3200	ASR-3300	ASR-3400	ASR-3400HF
Output Voltage	0~400Vrms/ 0~±570Vdc	0~400Vrms/ 0~±570Vdc	0~400Vrms/ 0~±570Vdc	0~400Vrms/ 0~±570Vdc
Output Current	20/10A	30/15A	40/20A	40/20A
Power Rating	2000VA	3000VA	4000VA	4000VA
Output Frequency	1.00Hz~999.9Hz	1.00Hz~999.9Hz	1.00Hz~999.9Hz	1.00Hz~5000Hz

FEATURES

- * Output Rating: AC 0 ~ 400 Vrms, DC 0 ~ ± 570 V
- * Output Frequency up to 999.9Hz (5kHz 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: 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

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

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 four models of the series: ASR-3200(2kVA), ASR-3300(3kVA) and ASR-3400/3400HF (4kVA). 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 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.



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SPECIFICATIONS		ASR-3200		ASR-3300		ASR-3400		ASR-3400HF	
INPUT RATING (AC)									
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		5000 VA or less	
POWER FACTOR ^{*1}		200Vac 0.95 (TYP)							
MAX. INPUT CURRENT		200Vac 15 A		22.5 A		30 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} Setting Resolution Accuracy ^{*2}		0.0 V to 200.0 V / 0.0 V to 400.0 V 0.1 V ±(1 % of set + 1 V / 2 V)					
OUTPUT PHASE		Single phase, Two-wire							
MAXIMUM CURRENT ^{*3}		100 V 200 V		20 A 10 A		30 A 15 A		40 A 20 A	
MAXIMUM PEAK CURRENT ^{*4}		100 V 200 V		120 A 60 A		180 A 90 A		240 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 Setting Resolution Accuracy Stability ^{*5}		AC Mode: 40.0 Hz to 999.9 Hz, AC+DC Mode: 1 Hz to 999.9 Hz 0.01 Hz (1.00 to 99.99 Hz), 0.1 Hz (100.0 to 999.9 Hz) 0.02% of set (23 °C ± 5 °C) ± 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} Setting Resolution Accuracy ^{*2}		-285 V to +285 V / -570 V to +570 V 0.1 V ±(1 % of set + 1 V / 2 V)					
MAXIMUM CURRENT ^{*3}		100 V 200 V		20 A 10 A		30 A 15 A		40 A 20 A	
MAXIMUM PEAK CURRENT ^{*4}		100 V 200 V		120 A 60 A		180 A 90 A		240 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, +285 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 V to 100 V / 2 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						< 0.2% @50/60Hz < 0.5% @<500Hz < 1.0% @500.1Hz~2000Hz < 2.0% @2100Hz~5000Hz	
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 Accuracy ^{*2}		0.1 V 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 Accuracy		0.1 V For 45 Hz to 65 Hz and DC: ±(2 % of reading) + 1 V / 2 V					
CURRENT		RMS, AVG Value Resolution 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)		For 45 Hz to 65 Hz and DC: ±(0.5 % of reading+0.15 A/0.08 A) For all other frequencies: ±(0.7 % of reading+0.3 A/0.15 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+0.4 A/0.2 A)	
		PEAK Value Resolution Accuracy ^{*4}		0.1 A For 45 Hz to 65 Hz and DC: ±(2 % of reading) + 0.5 A/0.25 A		0.1 A For 45 Hz to 65 Hz and DC: ±(2 % of reading) + 0.8 A/0.4 A		0.1 A For 45 Hz to 65 Hz and DC: ±(2 % of reading) + 1 A/0.5 A	
POWER		Active (W) Resolution Accuracy ^{*5}		1 W ±(2 % of reading +2 W)		1 W ±(2 % of reading +3 W)		1 W ±(2 % of reading +4 W)	
		Apparent (VA) Resolution Accuracy ^{*6}		1 VA ±(2 % of reading +2 VA)		1 VA ±(2 % of reading +3 VA)		1 VA ±(2 % of reading +4 VA)	
		Reactive (VAR) Resolution Accuracy ^{*7}		1 VAR ±(2 % of reading +2 VAR)		1 VAR ±(2 % of reading +3 VAR)		1 VAR ±(2 % of reading +4 VAR)	
LOAD POWER FACTOR		Range Resolution		0.000 to 1.000 0.001					
LOAD CREST FACTOR		Range Resolution		0.00 to 50.00 0.01					
HARMONIC VOLTAGE		Range		Up to 100th order of the fundamental wave					
EFFECTIVE VALUE (RMS)		Full Scale		200 V / 400 V, 100%					
PERCENT (%)		Resolution		0.1 V, 0.1%					
(AC-INT and 50/60 Hz only)		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		Range		Up to 100th order of the fundamental wave					
EFFECTIVE VALUE (RMS)		Full Scale		20 A / 10 A, 100%		30 A / 15 A, 100%		40 A / 20 A, 100%	
PERCENT (%)		Resolution		0.01 A, 0.1%					
(AC-INT and 50/60 Hz only)		Accuracy ^{*9}		Up to 20th ±(1 % of reading+0.4 A/0.2 A) 20th to 100th ±(1.5 % of reading+0.4 A/0.2 A)		Up to 20th ±(1 % of reading+0.6 A/0.3 A) 20th to 100th ±(1.5 % of reading+0.6 A/0.3 A)		Up to 20th ±(1 % of reading+0.8 A/0.4 A) 20th to 100th ±(1.5 % of reading+0.8 A/0.4 A)	

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SPECIFICATIONS			ASR-3200	ASR-3300	ASR-3400	ASR-3400HF
*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 30 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 FUNCTION			Store and recall settings, Basic settings: 10 (0-9 numeric keys)			
ARBITRARY WAVE			16 (nonvolatile)			
			Waveform Length			
			4096 words			
INTERFACE			Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB-CDC, USB-TMC			
			Standard			
			USB			
			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			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			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			
DIMENSIONS & WEIGHT			430(W)×176(H)×530(D) mm (not including protrusions); Approx. 25kg			

Specifications subject to change without notice. ASR-3000CD2DH

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
ASR-3400HF	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	GTL-232	RS232C Cable, approx. 2m
GPW-006	Power Cord, 3m, 105°C, VDE Type (ASR-3200, ASR-3300 Uses Only)	GTL-248	GPIB Cable, approx. 2m
GPW-007	Power Cord, 3m, 105°C, PSE Type	ASR-002	External three phase control unit for 1P2W, 1P3W, 3P4W output
GRA-442-J	Rack mount adapter(JIS)	APS-008	Air inlet filter
GTL-137	Output power wire (Load wire_10AWG:50A, 600V/Sense wire_16AWG:20A, 600V)	GET-006	Universal Extension

* European Output Outlet(factory installed)

APS-008



GPW-005



GRA-442-J



GTL-137



GET-006 Universal extension
(AC signal phase 250V/13Amps)



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

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