

# **ASR-2000 Series**

Compact Programmable AC/DC Power Supply

### **FEATURES**

- Output Rating: AC 0 ~ 350 Vrms, DC 0 ~  $\pm$ 500 V
- Output Frequency up to 999.9 Hz
- DC Output (100% of Rated Power)
- Output Capacity: 500VA/1000VA
- Measurement Items: Vrms, Vavg, Vpeak, Irms, IpkH, Iavg, Ipeak, P, S, Q, PF, CF
- Voltage and Current Harmonic Analysis (THDv, THDi)
- Customized Phase Angle for Output On/Off
- Remote Sensing Capability
- OVP, OCP, OPP, OTP, AC Fail Detection and Fan Fail Alarm
- Interface: USB, LAN (std.); RS-232+GPIB (opt)
- Built-in External Control I/O and External Signal Input
- Built-in Output Relay Control and Memory Function (up to 10 sets)
- Sequence and Simulation Function (up to 10 sets)
- Support Arbitrary Waveform Function and Built-in Web Server



The ASR-2000 series, an AC+DC power source aiming for system integration or desktop applications, provides both rated power output for AC output and rated power output for DC output. Ten ASR-2000 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/DC signal synchronization mode (AC+DC-SYNC Mode), 10) External DC voltage control of AC output mode(AC-VCA).

The ASR-2000 series provides users with waveform output capabilities to meet the test requirements of different electronic component development, automotive electrical devices and home appliance, 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-2000 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 sense function ensures accurate voltage output. The Customized Phase Angle for Output On/Off function can set the starting angle and ending angle of the voltage output according to the test requirements. V-Limit, Ipeak-Limit, F-Limit, OVP, OCP, OPP function settings can protect the DUT during the measurement process. In addition to OTP, OCP, and OPP protection, the ASR-2000 series also incorporates the Fan fail alarm function and AC fail alarm function.

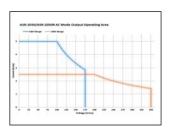
The front panel of the ASR-2050/2100 provides a universal socket or a European socket, which allows users to plug and use so as to save wiring time. The ASR-2050R/2100R is 3U height and 1/2 Rack width design, which is compatible with ATS assembly. The ASR-2000 series supports I/O interface and is equipped with USB, LAN, External I/O and optional RS-232C and GPIB.

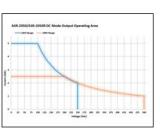
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- 1. Air Inlet
- 2. LCD Screen
- 3. Display Mode Select Key
- 4. Function Keys
- 5. Scroll Wheel
- 6. Output Key
- 7. Hardcopy Key

- 8. Lock/Unlock Button
- 9. USB Interface Connector(A Type)
- **10.** Power Switch Button
- 11. Output Socket
- 12. External I/O Connector
- 13. Exhaust Fan
- 14. Remote Sensing Input Terminal
- 15. Output Terminal
- 16. Line Input
- 17. External Signal Input/External Synchronized Signal Input
- 18. RS-232C & GPIB Connectors
- 19. LAN Connector
- 20. USB Interface Connector(B Type)

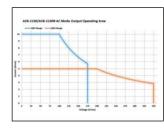


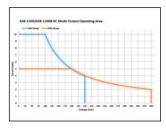




AC Output for ASR-2050/ASR-2050R

DC Output for ASR-2050/ASR-2050R





AC Output for ASR-2100/ASR-2100R

DC Output for ASR-2100/ASR-2100R

Model Name	Power Rating	Max. Output Current	Max. Output Voltage
ASR-2050	500 VA	5 / 2.5 A	350 Vrms / 500 Vdc
ASR-2100	1000 VA	10 / 5 A	350 Vrms / 500 Vdc
ASR-2050R	500 VA	5 / 2.5 A	350 Vrms / 500 Vdc
ASR-2100R	1000 VA	10 / 5 A	350 Vrms / 500 Vdc

### B. MEASUREMENT ITEMS FOR ASR-2000 SERIES

The ASR-2000 series is an AC+DC power source that provides rated power output not only at the AC output, but also at the DC

output. The operation areas are shown in diagrams.



**RMS** Meas Display

ON	ON	ON	ON 94	6 200V SQU		
Harr	Harn	Harn	Harmon	ic Voltage Measure	THDv = 42.2 %	Simple
31th	21th	11th	1st	179.9 Vrm s	90.7 %	[Harm]
32th	22th	12th	2nd	0.0 Vrms	0.0%	
33th	23th	13th	3rd	59.8 Vrm :	30.2%	[THDV]
34th	24th	14th	4th	0.0 Vrms	0.0%	THDI
35th	25th	15th	5th	35.8 Vrm :	18.0 %	
36th	26th	16th	6th	0.0 Vrm :	0.0%	
37th	27th	17th	7th	25.5 Vrms	12.9 %	
38th	28th	18th	8th	0.0 Vrms	0.0%	_
39th	29th	19th	9th	19.8 Vrms	10.0%	Page
40th	30th	20th	10th	0.0 Vrms	0.0%	Down



The ASR-2000 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



AVG Meas Display



Peak Meas Display

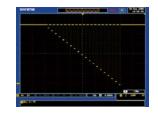
ON	ON	ON	ON 94%	200V SQU		<u> </u>
Harr	Harn	Harn	Harmonic	Current Measure	THDI = 42.2 %	Simple
31th	21th	11th	1st	4.31 Arms	90.7 %	[Harm]
32th	22th	12th	2nd	0.00 Arms	0.0%	
33th	23th	13th	3rd	1.44 Arms	30.2 %	THDV
34th	24th	14th	4th	0.00 Arm:	0.0%	[THDi]
35th	25th	15th	Sth	0.86 Arm:	18.0 %	
36th	26th	16th	6th	0.00 Arms	0.0%	
37th	27th	17th	7th	0.61 Arms	12.8 %	
38th	28th	18th	8th	0.00 Arms	0.0%	
39th	29th	19th	9th	0.47 Arms	9.9%	Page
40th	30th	20th	10th	0.00 Arms	0.0%	Down

### **Current Harmonic**

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.

### SEQUENCE MODE AND APPLICATIONS

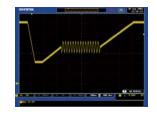




Momentary Drop in Supply Voltage

Reset Behavior at Voltage Drop

There are 10 sets of Sequence mode and each set has 0~999 steps. The time setting range of each step is 0.0001 ~ 999.9999 seconds. Users can combine multiple sets of steps to generate

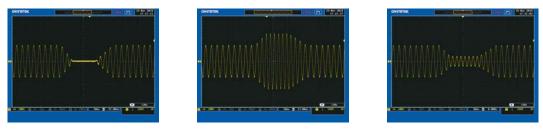


**Starting Profile Waveform** 

Instantaneous Power Failure

the desired waveforms, including waveform fallings, surges, sags, changes and other abnormal power line conditions to meet the needs of the test application.

### 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.,

T, Ipk Hold is used to set the delay time after the output (1ms ~

60,000ms) to capture the Ipeak value and keep the maximum

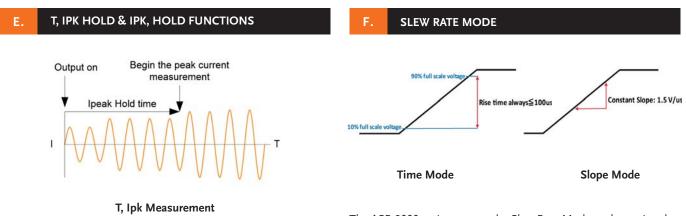
is greater than the original value. The T, Ipk Hold delay time

setting can be used to measure surge current at the power on

Ipk Hold can be used to measure the transient surge current of the DUT at power on without using an oscilloscope and a

value. The update only functions when the measurement value

for engineers to evaluate the impact of transient phenomena on the DUT. Ex: Capacitance durability test.



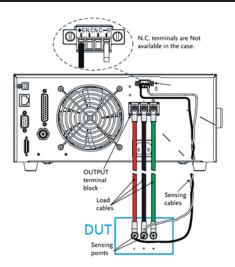
The ASR-2000 series can set the Slew Rate Mode to determine the rise time of the voltage according to the test requirements of the DUT. Slew Rate Mode provides "Time" and "Slope" modes. When setting "Time" mode, ASR-2000 can increase output to 10~90% of the set voltage within 100µs; and when selecting "Slope" mode, ASR-2000 increases output voltage by a fixed rising slope of 1.5V/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-2000 series voltage by editing the Sequence mode.

## . REMOTE SENSE FUNCTION

process of the DUT.

current probe.



For high current output applications, the voltage drop caused by large current passing through the load cables will affect the measurement results. The ASR-2000 series provides the remote sense function that can sense the voltage drop of the DUT to the ASR-2000 series and the DUT will be compensated by the ASR-2000 series. The maximum voltage that the remote sense function can compensate is 5% of the output voltage.

		ASR-2050/ASR-2050R	ASR-2100/ASR-2100R		
INPUT RATING (AC)					
NORMINAL INPUT VOLTAGE		100 Vac to 240 Vac	100 Vac to 240 Vac		
INPUT VOLTAGE RANGE		90 Vac to 264 Vac	90 Vac to 264 Vac		
PHASE		Single phase, Two-wire	Single phase, Two-wire		
NPUT FREQUENCY RANGE		47 Hz to 63 Hz	47 Hz to 63 Hz		
AX. POWER CONSUMPTION DWER FACTOR <sup>*1</sup> 100Vac		800 VA or less	1500 VA or less 0.95 (typ.)		
OWER FACTOR <sup>®1</sup> 100Vac 200Vac		0.95 (typ.) 0.90 (typ.)	0.90 (typ.)		
MAX. INPUT CURRENT	100Vac	8 A	15 A		
200Vac		4 A	7.5 A		
*1. For an output voltage of 100 V/2	200 V (100V/200V range),	maximum current, and a load power factor of 1.			
AC MODE OUTPUT RATINGS	(AC rms)				
VOLTAGE	Setting Range <sup>*1</sup>	0.0 V to 175.0 V / 0.0 V to 350.0 V			
	Setting Resolution	0.1 V			
	Accuracy <sup>*2</sup>	±(0.5 % of set + 0.6 V / 1.2 V)			
OUTPUT PHASE	100.1/	Single phase, Two-wire	10.4		
MAXIMUM CURRENT"	100 V 200 V	5 A 2.5 A	10 A		
MAYIMUM DEAK CURRENT*4	200 V 100 V	2.5 A 20 A	5 A 40 A		
MAXIMUM PEAK CURRENT**	200 V	10 A	20 A		
POWER CAPACITY	200 1	500 VA	1000 VA		
FREQUENCY	Setting Range	AC Mode: 40.00 Hz to 999.9 Hz, AC+DC Mode: 1.00 Hz to	000 0 Hz		
	Setting Resolution	0.01 Hz (1.00 to 99.99 Hz), 0.1 Hz (100.0 to 999.9 Hz)	555.5 112		
	Accuracy	For 45 Hz to 65 Hz: 0.01% of set, For 40 Hz to 999.9 Hz: 0.	.02% of set		
	Stability <sup>*5</sup>	± 0.005%			
OUTPUT ON PHASE		0.0° to 359.9° variable (setting resolution 0.1°)			
DC OFFSET		Within ± 20 mV (TYP)			
*1. 100 V / 200 V range					
		ine wave, an output frequency of 45 Hz to 65 Hz, no load, DC voltage s ed by the power capacity when the output voltage is $100 \text{ V}$ to $175 \text{ V} / 20$			
*4. With respect to the capacitor-in			0 V 10 550 V.		
*5. For 45 Hz to 65 Hz, the rated of	itput voltage, no load and	I the resistance load for the maximum current, and the operating tempe	erature.		
*6. In the case of the AC mode and	output voltage setting to	0 V.			
OUTPUT RATING FOR DC MC	DDE				
VOLTAGE	Setting Range <sup>*1</sup>	-250 V to +250 V / -500 V to +500 V			
	Setting Resolution	0.1 V			
	Accuracy <sup>*2</sup>	±( 0.5 % of set  + 0.6 V / 1.2 V)			
MAXIMUM CURRENT <sup>*3</sup>	100 V	5 A	10 A		
	200 V	2.5 A	5 A		
MAXIMUM CURRENT <sup>*3</sup> MAXIMUM PEAK CURRENT <sup>*4</sup>	200 V 100 V	2.5 A 20 A	5 A 40 A		
	200 V	2.5 A	5 A		
MAXIMUM PEAK CURRENT <sup>*4</sup>	200 V 100 V	2.5 A 20 A 10 A	5 A 40 A 20 A		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f	200 V 100 V 200 V to -25 V, +25 V to +250 V	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V 1 *3. For an output voltage of 1.4 V to	200 V 100 V 200 V to -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, L	2.5 A 20 A 10 A 500 W	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V 1 *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma	200 V 100 V 200 V to -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current.	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V / *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY	200 V 100 V 200 V to -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current.	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE RECULATION <sup>*1</sup>	200 V 100 V 200 V to -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current.	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V.		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of 1.4 V tc *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup>	200 V 100 V 200 V to -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current.	2.5 A 20 A 10 A 500 W / -500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D mited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V.		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V i *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup>	200 V 100 V 200 V	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP)	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V.		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V t *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10	200 V 100 V 200 V to -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current.	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) pad, rated output.	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal)		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V t *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10	200 V 100 V 200 V :o -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current.	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) prode, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal)		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage of 15 V to 1 *3. For 5 Hz to 1 MHz components	200 V 100 V 200 V :0 -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. : : : : : : : : : : : : :	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maximitiput terminal on the rear panel.	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal)		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage of 15 V to 1 *3. For 5 Hz to 1 MHz components	200 V 100 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RAT</b>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) prode, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal)		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM	200 V 100 V 200 V 200 V 200 V 200 V / 200 V / 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the out M DISTORTION RATIO <sup>*1</sup>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) and, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim utput terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b>	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal)		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM	200 V 100 V 200 V 200 V 200 V 200 V / 200 V / 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the out M DISTORTION RATIO <sup>*1</sup>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxin utput terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal)		
MAXIMUM PEAK CURRENT <sup>*4</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>*3</sup>	200 V 100 V 200 V 20	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) power factor of 1, stepwise change from an output current of 0 A to maximize utput terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal)		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V to *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>*3</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 50 V to 1	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <b>TIME</b> <sup>*2</sup> 75 V / 100 V to 350 V, a load 200 V, a load power facto	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ord, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more to ad power factor of 1, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V to *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the main OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONSE EFFICIENCY <sup>**</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 100 V / *3. For AC mode, at an output voltage	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <b>TIME</b> <sup>*2</sup> 75 V / 100 V to 350 V, a load 200 V, a load power facto	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) vad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more vad power factor of 1, and in AC and AC+DC mode.	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V to *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>*3</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 50 V to 1	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <b>TIME</b> <sup>*2</sup> 75 V / 100 V to 350 V, a load 200 V, a load power facto	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ord, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more to ad power factor of 1, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear panel		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V to *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>*3</sup> *1. At an output voltage of 100 V / *3. For AC mode, at an output voltage	200 V 100 V 200 V 200 V to -25 V, +25 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 100 V, 120 V, or 230 V, no lo 75 V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <sup>11</sup> <b>TIME</b> <sup>12</sup> 75 V / 100 V to 350 V, a load 200 V, a load power factor ge of 100 V / 200 V, maxi <b>Resolution</b>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ord, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more to ad power factor of 1, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE RECULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONSE EFFICIENCY <sup>**</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 50 V to 1 *3. For AC mode, at an output voltage MEASURED VALUE DISPLAY VOLTAGE RMS, AVG Value <sup>**</sup>	200 V 100 V 200 V 200 V 200 V 200 V 200 V 200 V 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no Ic 75 V/150V to 350V, a load in DC mode using the ou M DISTORTION RATIO <sup>*1</sup> E TIME <sup>*2</sup> 75 V / 100 V to 350 V, a l 200 V, a load power facto ge of 100 V / 200 V, maxi Resolution Accuracy <sup>*2</sup>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) and, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more fl, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V t *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>*3</sup> *1. At an output voltage of 100 V / *3. For AC mode, at an output voltage	200 V 100 V 200 V 20	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ord, rated output. power factor of 1, stepwise change from an output current of 0 A to maximize the terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>**</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 100 V / *3. For AC mode, at an output voltage MEASURED VALUE DISPLAY VOLTAGE RMS, AVG Value <sup>**</sup>	200 V 100 V 200 V 200 V 200 V 200 V 200 V 200 V 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no Ic 75 V/150V to 350V, a load in DC mode using the ou M DISTORTION RATIO <sup>*1</sup> E TIME <sup>*2</sup> 75 V / 100 V to 350 V, a l 200 V, a load power facto ge of 100 V / 200 V, maxi Resolution Accuracy <sup>*2</sup>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) and, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more fl, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>**</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 100 V / *3. For AC mode, at an output voltage MEASURED VALUE DISPLAY VOLTAGE RMS, AVG Value <sup>**</sup>	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to 200 V, Li 200 V / 2.8 V to 200 V, Li 200 V / 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the ou M DISTORTION RATIO <sup>*1</sup> 26 TIME <sup>*2</sup> 75 V / 100 V to 350 V, a li 200 V, a load power factor ge of 100 V / 200 V, maxi Resolution Accuracy <sup>*2</sup> Resolution Accuracy Resolution	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxin typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more bad power factor of 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(12 % of reading   + 1 V / 2 V) 0.01 A	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane 		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RESPONSE EFFICIENCY <sup>**</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 50 V to 1 *2. For an output voltage of 100 V / *3. For 5 Mz to 1 MHZ components EFFICIENCY <sup>**</sup>	200 V 100 V 200 V 2.8 V to 200 V, Li 2.8 V to 200 V, Li 3.8 V to 200 V, Li 3.	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ord, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim thrut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more ord power factor of 1, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(12 % of reading] + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading] + 0.02 A/0.02 A);	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane with the maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>*3</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 100 V / *3. For AC mode, at an output volta MEASURED VALUE DISPLAY VOLTAGE RMS, AVG Value <sup>*1</sup> PEAK Value	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <sup>*1</sup> <b>E TIME</b> <sup>*2</sup> 75 V / 100 V to 350 V, a load power factor ge of 100 V / 200 V, maxing <b>Resolution</b> Accuracy <sup>*2</sup> <b>Resolution</b> Accuracy <sup>*3</sup>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more bad power factor of 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(12 % of reading] + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.02 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A)	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane num current(or its reverse), using the output terminal on the rear pane v he maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz:±(0.7 % of reading+0.08 A / 0.04 A)		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of 1.4 V to *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RESPONSE EFFICIENCY <sup>**</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 50 V to 1 *2. For an output voltage of 100 V / *3. For 5 Mz to 1 MHZ components EFFICIENCY <sup>**</sup>	200 V 100 V 200 V 200 V 100 V / 200 V 100 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 100 V / 120 V, or 230 V, no lo 75 V / 150 V to 350V, a load in DC mode using the or <b>IDISTORTION RATIO</b> <b>TOSTORTION V to 350 V, a la 200 V, a load power factor ge of 100 V / 200 V, maxi <b>Resolution</b> <b>Accuracy</b> <b>Resolution</b> <b>Accuracy</b> <b>Resolution</b> <b>Accuracy</b> <b>Resolution</b></b>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) rad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more 0ad power factor of 1, and in AC and AC+DC mode. or 0 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(12 % of reading + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.02 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A) 0.01 A	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane when maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.08 A / 0.04 A) 0.01 A		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of -250 V *3. For an output voltage of -250 V *3. For an output voltage of -250 V <b>CUTPUT VOLTAGE STABILITY</b> LINE RECULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM PEAK Value PEAK Value	200 V 100 V 200 V 200 V 100 V / 200 V 100 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 100 V / 120 V, or 230 V, no lo 75 V /150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <b>TOSTORTION V to 350 V, a la 200 V, a load power factor ge of 100 V / 200 V, maxi <b>Resolution</b> <b>Accuracy</b> <b>Resolution</b> <b>Accuracy</b> <b>Resolution</b> <b>Accuracy</b> <b>Resolution</b> <b>Accuracy</b> <b>Resolution</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> <b>Accuracy</b> </b>	<ul> <li>2.5 A</li> <li>20 A</li> <li>10 A</li> <li>500 W</li> <li>/-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V</li> <li>±0.2% or less</li> <li>0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP)</li> <li>ad, rated output.</li> <li>power factor of 1, stepwise change from an output current of 0 A to maximize the reminal on the rear panel.</li> <li><b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b></li> <li>0.5 % or less</li> <li>100 us (TYP)</li> <li>70 % or more</li> <li>coad power factor of 1, and in AC and AC+DC mode.</li> <li>or of 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only.</li> <li>0.1 V</li> <li>For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V</li> <li>For 45 Hz to 65 Hz and DC: ±(12 % of reading  + 1 V / 2 V)</li> <li>0.01 A</li> <li>For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.02 A/0.02 A);</li> <li>For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A)</li> <li>0.01 A</li> <li>For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 A)</li> </ul>	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane where the maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.08 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading+0.2 A/0.1 / For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 /		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>*1</sup> LOAD REGULATION <sup>*2</sup> RIPPLE NOISE <sup>*3</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>*3</sup> *1. At an output voltage of 50 V to 1 *2. For an output voltage of 100 V / *3. For AC mode, at an output volta MEASURED VALUE DISPLAY VOLTAGE RMS, AVG Value <sup>*1</sup> PEAK Value	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to 200 V, Li 200 V / 2.8 V to 200 V, Li 200 V / 120 V, or 230 V, no lo 75V / 150 V to 350V, a load in DC mode using the ou M DISTORTION RATIO <sup>*1</sup> 15 TIME <sup>*2</sup> 75 V / 100 V to 350 V, a li 200 V, a load power fact ge of 100 V / 200 V, maxi Resolution Accuracy <sup>*2</sup> Resolution Accuracy <sup>*3</sup> Resolution Accuracy <sup>*4</sup> Resolution	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxin typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more bad power factor of 1, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(12 % of reading + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading+0.02 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading+0.04 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading+0.2 A/0.1 A) For 45 Hz to 65 Hz and DC:±(12 % of reading+0.2 A/0.1 A) 0.1 / 1 W	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane where maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz:±(0.7 % of reading+0.08 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(0.2 % of reading+0.2 A/0.1 / 0.1 / 1 W		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f *3. For an output voltage of -250 V f *3. For an output voltage of -250 V f *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM PEAK Value PEAK Value POWER Active (W)	200 V 100 V 200 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the ou M DISTORTION RATIO" 201 V, 100 V to 350 V, a lo 200 V, a load power factor ge of 100 V / 200 V, maxi Resolution Accuracy" Resolution Accuracy Resolution Accuracy Resolution Accuracy Resolution Accuracy Resolution Accuracy"	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxin typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more bad power factor of 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.02 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading + 0.2 A/0.1 A) 0.1 / 1 W ±(2 % of reading + 0.5 W)	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane with the maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.08 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 / 0.1 / 1 W ±(2 % of reading + 1 W)		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of -250 V *3. For an output voltage of -250 V *3. For an output voltage of 1.4 V tc *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE VAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM PEAK Value	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the ou M DISTORTION RATIO*1 200 V, a load power factor ge of 100 V / 200 V, maxi Resolution Accuracy*2 Resolution Accuracy*4 Resolution Accuracy*5 Resolution Accuracy*5 Resolution	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxin atput terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more bad power factor of 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.04 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.2 A/0.1 A) 0.1 / 1 W ±(2% of reading + 0.5 W) 0.1 / 1 VA	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane withe maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz: ±(0.7 % of reading+0.04 A/0.02 A For 40 Hz to 55 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 / 0.1 / 1 W ±(2 % of reading + 1 W) 0.1 / 1 VA		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V f *3. For an output voltage of -250 V f *3. For an output voltage of -250 V f *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM PEAK Value PEAK Value POWER Active (W)	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <sup>*1</sup> <b>E TIME</b> <sup>*2</sup> 75 V / 100 V to 350 V, a li 200 V, a load power factor ge of 100 V / 200 V, maxing <b>Resolution</b> Accuracy <sup>*2</sup> <b>Resolution</b> Accuracy <sup>*3</sup> <b>Resolution</b> Accuracy <sup>*4</sup> <b>Resolution</b> Accuracy <sup>*5</sup>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) bad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more bad power factor of 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. <b>0.1</b> V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading] + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading] + 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.2 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A) 0.1 / 1 W ±(2 % of reading + 0.5 W) 0.1 / 1 VA ±(2 % of reading + 0.5 VA)	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane with the maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.08 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 / 0.1 / 1 W ±(2 % of reading + 1 W) 0.1 / 1 VA ±(2 % of reading + 1 VA)		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V t *3. For an output voltage of 1.4 V t *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LINE REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>**</sup> *1. At an output voltage of 100 V / *3. For AC mode, at an output volta MEASURED VALUE DISPLAY VOLTAGE RMS, AVG Value POWER Active (W) Apparent (VA)	200 V 100 V 200 V 200 V 200 V 200 V 200 V 200 V 200 V 2.8 V to +250 V 100 V / 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75 V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <b>TIME</b> <sup>12</sup> 75 V / 100 V to 350 V, a load power factor ge of 100 V / 200 V, maxi <b>Resolution</b> Accuracy <sup>12</sup> <b>Resolution</b> Accuracy <sup>13</sup> <b>Resolution</b> Accuracy <sup>15</sup> <b>Resolution</b> Accuracy <sup>15</sup> <b>Resolution</b> Accuracy <sup>15</sup> <b>Resolution</b> Accuracy <sup>15</sup> <b>Resolution</b> Accuracy <sup>15</sup> <b>Resolution</b> Accuracy <sup>15</sup> <b>Resolution</b> Accuracy <sup>15</sup>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more 50 ad power factor of 1, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.2 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 A) 0.1 / 1 WA ±(2 % of reading + 0.5 W) 0.1 / 1 VA	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane withe maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.08 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 / 0.1 / 1 W ±(2 % of reading + 1 W) 0.1 / 1 VA ±(2 % of reading + 1 VA) 0.1 / 1 VAR		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of -250 V *3. For an output voltage of -250 V *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM AFFICIENCY <sup>**</sup>	200 V 100 V 200 V 200 V 200 V 200 V 200 V 200 V 200 V 2.8 V to +250 V 100 V 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75 V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <b>TOSTORTION RATION</b> <b>TOSTORTION RATION RATION RATION RATION RATION RATION RATION RATION RATION RATI</b>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more 0ad power factor of 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(12 % of reading + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(12 % of reading + 0.2 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 A) 0.1 / 1 W ±(2 % of reading + 0.5 VA) 0.1 / 1 VA ±(2 % of reading + 0.5 VAR)	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane where maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A/0.1 / 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 / 0.1 / 1 W ±(2 % of reading + 1 W) 0.1 / 1 VA ±(2 % of reading + 1 VAR)		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V t *3. For an output voltage of 1.4 V t *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LINE REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RESPONS EFFICIENCY <sup>**</sup> *1. At an output voltage of 100 V / *3. For AC mode, at an output volta MEASURED VALUE DISPLAY VOLTAGE RMS, AVG Value POWER Active (W) Apparent (VA)	200 V 100 V 200 V 200 V 200 V 200 V 200 V / 2.8 V to 200 V, Li 200 V / 2.8 V to 200 V, Li 200 V / 120 V, or 230 V, no lo 75V / 150 V to 350V, a load in DC mode using the ou M DISTORTION RATIO <sup>*1</sup> 12 TIME <sup>*2</sup> 75 V / 100 V to 350 V, a li 200 V, a load power fact ge of 100 V / 200 V, maxi Resolution Accuracy <sup>*2</sup> Resolution Accuracy <sup>*3</sup> Resolution Accuracy <sup>*4</sup> Resolution Accuracy <sup>*56</sup> Resolution Accuracy <sup>*57</sup> Range	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) ad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxim typut terminal on the rear panel. <b>IO, OUTPUT VOLTACE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more 50 ad power factor of 1, and in AC and AC+DC mode. or of 1, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.2 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 A) 0.1 / 1 WA ±(2 % of reading + 0.5 W) 0.1 / 1 VA	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane withe maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.08 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading)+0.2 A/0.1 A For 45 Hz to 65 Hz and DC:±(12 % of reading)+0.2 A/0.1 A 0.1 / 1 W ±(2 % of reading + 1 W) 0.1 / 1 VA ±(2 % of reading + 1 VA) 0.1 / 1 VAR		
MAXIMUM PEAK CURRENT <sup>**</sup> POWER CAPACITY *1. 100 V / 200 V range *2. For an output voltage of -250 V *3. For an output voltage of -250 V *3. For an output voltage of -250 V *4. Within 5 ms, Limited by the ma OUTPUT VOLTAGE STABILITY LINE REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> LOAD REGULATION <sup>**</sup> RIPPLE NOISE <sup>**</sup> *1. Power source input voltage is 10 *2. For an output voltage of 75 V to 1 *3. For 5 Hz to 1 MHz components OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE WAVEFORM OUTPUT VOLTAGE RAVEFORM OUTPUT VOLTAGE RAVEFORM AFFICIENCY <sup>**</sup>	200 V 100 V 200 V 200 V 200 V 200 V 200 V 200 V 200 V 2.8 V to +250 V 100 V 2.8 V to 200 V, Li ximum current. 200 V, 120 V, or 230 V, no lo 75 V/150V to 350V, a load in DC mode using the or <b>M DISTORTION RATIO</b> <b>TOSTORTION RATION</b> <b>TOSTORTION RATION RATION RATION RATION RATION RATION RATION RATION RATION RATI</b>	2.5 A 20 A 10 A 500 W /-500 V to -50 V, +50 V to +500 V, no load, AC volatge setting 0V (AC+D imited by the power capacity when the output voltage is 100 V to 250 V ±0.2% or less 0.15% @45 - 65Hz; 0.5% @DC, all other frequencies (0 to 0.7 Vrms / 1.4 Vrms (TYP) vad, rated output. power factor of 1, stepwise change from an output current of 0 A to maxin typut terminal on the rear panel. <b>IO, OUTPUT VOLTAGE RESPONSE TIME, EFFICIENCY</b> 0.5 % or less 100 us (TYP) 70 % or more vad power factor of 1, and in AC and AC+DC mode. or 01, with respect to stepwise change from an output current of 0 A to mum current, and load power factor of 1 and sine wave only. 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.3 V/0.6 0.1 V For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 1 V / 2 V) 0.01 A For 45 Hz to 65 Hz and DC: ±(0.5 % of reading + 0.2 A/0.02 A); For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.04 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 A) 0.1 / 1 W ±(2 % of reading + 0.5 W) 0.1 / 1 VA ±(2 % of reading + 0.5 VA) 0.1 / 1 VA ±(2 % of reading + 0.5 VA) 0.00 to 1.000	5 A 40 A 20 A 1000 W C mode) and 23°C ± 5°C / 200 V to 500 V. 100%, via output terminal) num current(or its reverse), using the output terminal on the rear pane where the maximum current (or its reverse); 10% ~ 90% of output voltage V) For 40 Hz to 999.9 Hz: ±(0.7 % of reading + 0.9 V/1.8 V) 0.01 A For 45 Hz to 65 Hz and DC:±(0.5 % of reading+0.04 A/0.02 A For 40 Hz to 999.9 Hz:±(0.7 % of reading + 0.08 A / 0.04 A) 0.01 A For 45 Hz to 65 Hz and DC:±(12 % of reading +0.2 A/0.1 A 0.1 / 1 W ±(2 % of reading + 1 W) 0.1 / 1 VA ±(2 % of reading + 1 VA) 0.1 / 1 VA ±(2 % of reading + 1 VA) 0.00 to 1.000		

SPECIFICATION	١S				
			ASR-2050/ASR-2050R	ASR-2100/ASR-2100R	
HARMONIC VOLTAGERangeEFFECTIVE VALUE (RMS)Full ScalePERCENT (%)Resolution(AC-INT and 50/60 Hz only)Accuracy <sup>18</sup>		Scale olution	Up to 100th order of the fundamental wave 175 V / 350 V, 100% 0.1 V, 0.1% Up to 20th ± (0.2 % of reading + 0.5 V / 1 V); 20th to 100th ± (0.3 % of reading + 0.5 V / 1 V)	Up to 100th order of the fundamental wave 175 V / 350 V, 100% 0.1 V, 0.1% 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 CUR EFFECTIVE VALUE PERCENT (%) (AC-INT and 50/60 F	E VALUE (RMS) Full Scale (%) Resolution		Up to 100th order of the fundamental wave 5 A / 2.5 A, 100% 0.01 A, 0.1% Up to 20th ± (1 % of reading + 0.1 A / 0.05 A); 20th to 100th ± (1.5 % of reading + 0.1 A / 0.05 A)	Up to 100th order of the fundamental wave 10 A / 5 A, 100% 0.01 A, 0.1% Up to 20th ± (1 % of reading + 0.2 A / 0.1 A); 20th to 100th ± (1.5 % of reading + 0.2 A / 0.1 A)	
<ul> <li>*2. AC mode: For an</li> <li>*3. An output curren</li> <li>*4. An output curren and 23 °C ± 5 °C.</li> <li>*5. For an output vol</li> <li>*6. The apparent and</li> </ul>	t in the range of 5 % t in the range of 5 % The accuracy of the p tage of 50 V or greate I reactive powers are	5 V to 175 V / 35 V to 100 % of the ma to 100 % of the ma beak value is for a w er, an output curren not displayed in the	to 350 V and 23 °C $\pm$ 5 °C. DC mode: For an output voltage of 25 V to 2 ximum current, and 23 °C $\pm$ 5 °C. ximum peak current in AC mode, an output current in the range of 5 % raveform of DC or sine wave t in the range of 10 % to 100 % of the maximum current, DC or an output to the range of 10 % to 100 % of the maximum current, DC or an output to the range of 10 % to 100 % of the maximum current, DC or an output to the range of 10 % to 100 % of the maximum current.	to 100 % of the maximum instantaneous current in DC mode, out frequency of 45 Hz to 65 Hz, and 23 $^\circ\text{C}$ ± 5 $^\circ\text{C}.$	
OTHERS					
DISPLAY MEMORY FUNCT	IEMORY FUNCTION RBITRARY WAVE Number of Memories Waveform Length		OCP, OTP, OPP, FAN Fail TFT-LCD, 4.3 inch 10 sets for Store and Recall settings 16 (nonvolatile) 4096 words Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB-CDC MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask External Signal Input; External Control I/O SCPI-1993, IEEE 488.2 compliant interface Complies with the EIA-RS-232 specifications		
INSULATION RES Between input and cha		s, input and output	500 Vdc, 30 M $\Omega$ or more		
WITHSTAND VOI Between input and cha EMC		s, input and output	1500 Vac, 1 minute EN 61326-1 (Class A) EN 61326-2-1/-2-2 (Class A) EN 61000-3-2 (Class A, Group 1) EN 61000-3-3 (Class A, Group 1) EN 61000-4-2/-4-3/-4-5/-4-5/-4-6/-4-8/-4-11 (Class A, Group EN 56011 (Class A, Group 1)	ıp 1)	
Safety Environment Operating Environment In Operating Temperature Range 0 <sup>°</sup> Storage Temperature Range -10 Operating Humidity Range 20 Storage Humidity Range 90 Altitude UI DIMENSIONS & WEIGHT AS			EN 55011 (Class A, Group1) EN 61010-1 Indoor use, Overvoltage Category II 0 °C to 40 °C -10 °C to 70 °C 20 %rh to 80 % RH (no condensation) 90 % RH or less (no condensation) Up to 2000 m ASR-2000 : 285 (W)×124 (H)×480 (D) (not including protrus ASR-2000 : 213 (W)×124 (H)×480 (D) (not including protrus		
	WEIGHT		ASR-2000R : 213 (Ŵ)×124(Ĥ)×480(Ď) (not including protru		

### ORDERING INFORMATION

Note : GET-003/GET-004 are not C€ approved.

ASR-2050 500VA Programmable AC/DC Power Source ASR-2100 1000VA Programmable AC/DC Power Source ASR-2050R 500VA Programmable AC/DC Power Source for 3U 1/2 Rack Mount ASR-2100R 1000VA Programmable AC/DC Power Source for 3U 1/2 Rack Mount CD ROM(User Manual, Programming manual), Safety Guide, Power Cord, Mains Terminal Cover Set, Remote Sense Terminal Cover Set, GTL-123 Test Lead, GTL-246 USB Cable

FREE DOWNLOAD USB Driver

ASR-002

GRA-439-J Rack Mount Kit (JIS)

DRIES

RS-232C Cable, approx. 2M

Opt01 : RS-232+GPIB Communication Functions (Factory installed)

GET-003 Extended Universal Power Socket(ASR-2000R only)

GET-004 Extended European Power Socket(ASR-2000R only) GRA-439-E Rack Mount Kit (EIA) ASR-001 Air inlet filter

Opt02 : European Output Outlet only for ASR-2000 (Factory installed)

GPIB Cable, approx. 2M, including 25 pins Micro-D connector

OPTIONAL ACCE

GTL-232

GTL-258

\* Functions of ASR-Series are limited when ASR-Series applied to ASR-002

ASR-001 Air inlet filter ASR-002 External three phase control unit

- 1. No DC Output(100% of Rated Power)

- I. No DLC Output(IOVs of Nated Power)
   Measurement Itemsioni (uzurent(A),power(W) and PF for each phase
   No voltage and current Harmonic Analysis(THDv, THDi)
   A. No Remote Sensing Capability
   No Abitrary Waveform Function
   No Sequence and Simulation Function (up to 10 sets)

7. Interface: only support USB 8. Not supported Built-in External Control I/O 9. No memory Function(up to 10 sets) 10. No LAN port(Built-in Web Server)

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